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Rediscovering local roots and interactions in management

Conference Proceedings

Short papers

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Rediscovering local roots and interactions in management

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Short Papers

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To the reader,

this volume contains the short papers of the Sinergie-SIMA 2023 Management Conference, hosted by the LUM University and University of Bari at Mercure Villa Romanazzi Carducci (Bari) on June 29th and 30th 2023.

Theory and practice in the field of management have been challenged by the emergence of deep transitions such as those driven by globalization, the rise of social and environmental issues, and the diffusion of digital technologies. Events such as the ensuing geopolitical crises and the pandemic further contribute to spur management scholars to feel the call to produce impactful research with theoretical and managerial implications on the relationship between location and strategy (Bathelt and Li, 2022).

As a consequence, scholars and practitioners have been asked to design new business models and rethink value chains in a twofold direction (Mazutis et al., 2021). First, the relevance of local roots sheds light on the way people create and shape places, as much as places shape people and their organizations, suggesting a need to rethink how all lives ‘take place’ in places, as well as how all business happens in places (Sternad et al., 2017). Second, a need for new interactions emerges, suggesting that businesses are deeply connected to their roots, that are their homes, from which they draw inspiration, identity, and sources of competitive advantage (Soderstrom and Weber, 2020).

Rediscovering local roots and specific assets, as well as developing new ways of interaction among the economic actors and their stakeholders, can help firms to design effective and innovative strategies to create and share values (Mair et al., 2016), with positive economic, social, and environmental impacts (Attig and Brockman, 2017).

Several research questions stimulate an interdisciplinary debate in the field of management. These questions relate to the ability of firms and managers to move, among the others, between global and local relations, near/physical and far/digital interactions, reshoring and offshoring activities, omnichannel competition and retail interactions, market transactions and system operating structures, traditional and innovative approaches, social/local benefits and financial/global performances, business ethics and ethics in business.

In the same way, different theories, methodological approaches, and units of analysis are required to generate scientific research that has an impact not only in terms of theoretical contribution but also on the real business world.

The Sinergie-SIMA 2023 Management Conference was a great occasion to discuss about the research efforts of our research community on thematic tracks related to the Conference theme (the function of territorial or cultural roots and of operational interactions in management) and the SIMA thematic groups (Entrepreneurship, Innovation & technology management, International business, Marketing, Retailing & Service management, Small & family business, Strategic communication, Strategy & Governance, Supply chain management, logistics & operations, Sustainability, and Tourism and culture management).

The Conference call for papers gave the opportunity to submit either short or long papers. Overall, the editorial staff received 215 short papers and 63 long papers.

For the *short and long papers*, the evaluation followed the peer review process, with a double-blind review performed by two referees - university lecturers, expert about the topic - selected among SIMA and the community of Sinergie members.

In detail, the referees applied the following criteria to evaluate the submissions:

- clarity of the research aims,
- accuracy of the methodological approach,
- contribution in terms of originality/innovativeness,

- theoretical and practical contribution,
- clarity of communication,
- significance of the bibliographical basis.

The *peer review* process resulted in full acceptance or rejection of the submissions. In the case of disagreement among reviewers' evaluations, the decision was taken by the Chairs of the SIMA thematic groups or conference track. Each work was then sent back to the Authors together with the referees' reports. The suggestions received by the referees were used by the Authors during the presentation of their research works at the Conference.

The evaluation process ended with the acceptance of 215 short papers and 62 long papers, which were published in two distinct volumes.

All the short papers published in this volume were presented and discussed during the Conference and published online on the web portal of Sinergie-SIMA Management Conference (<https://www.sijmsima.it/>).

While thanking all the Authors, Chairs and participants, we hope that this volume will contribute to advance knowledge about the rediscovering local roots and interactions in management.

The Conference Chairs

Angelantonio Russo, Savino Santovito, Arabella Mocciaro Li Destri and Marta Ugolini

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The impact of corporate governance on corporate social responsibility in family firms: what effects?

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Framing of the research. *The last financial crises coupled with the environmental concerns for climate changes, have renewed the academics and practitioners' interest in corporate social responsibility (CSR) (Carroll, 2016; Lins et al., 2017). On this trend, the search for drivers and impacts of socially responsible behaviours remains a long-lasting debated topic that needs to be further investigated (Agudo-Valiente et al., 2017), especially with reference to specific organizational settings as family businesses (Faller and zu Knyphausen-Aufseß, 2018). In this regard, family firms (FFs) are the object of the current study, since they play a prominent role in promoting the growth of the global economy. Deloitte (2022) estimates that FFs encompass the 70-90 % of annual global GDP and represent two thirds of all businesses. On the same line, Chen et al. (2014) argue that FFs are the engine of global economy. Moreover, in response to the COVID-19 pandemic, FFs have demonstrated greater resilience by strengthening their CSR compliance and stakeholder orientation (KPMG, 2021).*

Consistent with previous studies (Patuelli et al., 2022; Van Gils et al., 2014), FFs' propensity to CSR differs from that of non-FFs due to their motivation to pursue non-economic goals, mainly linked to the preservation of socioemotional wealth (SEW), which defines the "family's stock of social, emotional, and affective endowments vested in the firm, such as the opportunity to pass the business on to future family generations, reputational advantages from being associated with the firm, and the preservation of benevolent ties among family members and with other stakeholders" (Gómez-Mejía et al., 2018, p. 1370). In this regard, FFs' management and governance systems are likely to provide the presence of family members that can influence the decision-making process to prioritize SEW goals (Broccardo et al., 2018). This is the case of preserving collective social capital, affective endowments, trust relationships with stakeholders and family reputation. In parallel the potential trade-off between financial and non-financial goals in FFs is a relevant topic (Lam and Lee, 2012; Gomez-Mejia et al., 2018).

Drawing on prior literature (Jain and Jamali, 2016; Naciti, 2019), corporate governance (CG) has been identified as a pillar of CSR engagement (Gangi et al., 2020), even in the context of FFs (Mariani et al., 2021; Campopiano et al., 2019). Specifically, among CG mechanisms, board of directors plays a relevant role in engaging in CSR initiatives (Cuadrado-Ballesteros et al., 2015), as it represents the place where corporate sustainability practices are defined and promoted (Naciti, 2019). From this perspective, at the firm level, board structural characteristics may affect the board's propensity to engage in CSR activities (Jain and Jamali, 2016).

Regarding the FFs, academic research has shown a growing interest in the impact of CSR on firms' performance (Singal, 2014; Tenuta and Cambrea, 2022), with results not always converging. Moreover, consistent with the need of further investigations (Kong et al., 2020), the link between CSR and corporate financial performance (CFP) remains still an open debate in the context of family business. In particular, family businesses are involved in jointly preserving the financial and SEW goals in the long-run (Van Gils et al., 2014; Le Breton-Miller and Miller, 2016). From this perspective, CSR represents a strategic tool that may allow FFs to achieve better CFP, without neglecting socio-emotional goals (Gómez-Mejía et al., 2018; Berrone et al., 2012). This is consistent with the strategic conceptualization of CSR as co-specialized asset that increases the value of other assets, including socioemotional utilities as family legitimacy and the accruing of stakeholder influence capacity (Barnett and Salomon, 2012), which, in turn, may support better CFP (McWilliams and Siegel, 2011; Melo and Garrido-Morgado, 2012)

Consistent with our research framework, we apply the Heckman two-stage model to a worldwide sample of 179 FFs (2002-2020). Therefore, in the first stage, we perform a probit regression to investigate the relationship between effective CG mechanisms and CSR, and, in the second stage, we run an OLS regression to verify if a higher CSR

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engagement by FFs can drive better CFP. Accordingly, the current study contributes to complement the debate on the drivers and outcomes of CSR by demonstrating that CSR is a “missing link” between CG and CFP in FFs.

Purpose of the paper. Due to the global urgency to achieve the SDGs by 2030, the focus on firms’ CSR efforts has been reinforced. Indeed, CSR has emerged as strategic vision that needs to be integrated into firms’ business logic to support the sustainable development (Perrini, et al., 2018). In accordance with World Commission on Environment and Development (1987), the CSR concept is consistent with of the goal of sustainable development, as CSR addresses the present needs of social actors, without misleading future generations’ own needs. However, CSR as a strategic asset is not a monolithic concept; rather, it needs to be defined under specific organizational settings (Faller and zu Knyphausen-Aufseß, 2018). Specifically, CSR, its drivers and impacts, may vary according to specific characteristics of certain business, as in the case of FFs (Mariani et al., 2021). In this sense, several research gaps emerge. Indeed, even if there is growing interest in CSR engagement of FFs, the identification of CSR drivers and outcomes remains a topic which needs further investigations (Mariani et al., 2021).

The current study aims to fill the aforementioned gap through an in-depth analysis of two main relationships. First, drawing on SEW construct (Gómez-Mejía et al., 2018) and conflict resolution hypothesis (Jo and Harjoto, 2012), we theoretically refer to the impact of CG mechanisms on the CSR engagement of FFs. Second, based on the stakeholder theory (Freeman, 1984) and RBV (Barney, 1991), we consider the effects of CSR on CFP.

About drivers of CSR, the effective functioning of boards of directors may support the promotion of CSR values that pertains to the CG planning activity. Indeed, in light of the overinvestment hypothesis (Barnea and Rubin, 2010), CSR is conceived as an agency problem (Jensen and Meckling, 1976) since managers may invest in CSR issues for their own interest at detriment of shareholders’ interest. Conversely, following the theoretical foundations of stakeholder theory (Freeman, 1984), the conflict resolution hypothesis (Jo and Harjoto, 2012) assumes that CG, as pillar of CSR (Jain and Jamali, 2016), may be positively related to CSR engagement to the extent that CSR engagement will mitigate conflicts of interest between managers, shareholders and other stakeholders. Thus, this perspective extends the directors’ fiduciary duty to CSR issues (Sandberg, 2013). In this regard, the functioning and the characteristics of board of directors may play a relevant role for CSR compliance by promoting corporate policies aligned with stakeholders’ objectives (Jain and Jamali, 2016). From this perspective, the effectiveness of board characteristics may represent an internal CG driver of compliance with community needs through CSR engagement (Naciti, 2019; Gangi et al., 2020).

Relying on FFs, due to the high relevance of SEW goals, family owners may be inclined to adopt CSR strategies to avoid as the perception of irresponsible citizens for society (Berrone et al., 2012). In this sense, the inclusion of family members within CG bodies (e.g., board of directors) can be useful to prioritise CSR initiatives in support to SEW preservation (López-González et al., 2018), an essence of being a family company (Gómez-Mejía et al., 2018). Furthermore, CSR concept is strictly related to SEW logic due to the common long-term orientation toward non-financial goals (Patuelli et al., 2022). In particular, FFs tend to nurture the set of socioemotional values - i.e. family identity, social ties, affective endowments - through the achievement of long-term and intangible goals. On the same line, CSR investments reward companies in the long-run, while pursuing strategic and intangible benefits such as corporate social legitimacy and the accruing of reliable ties (Gangi et al., 2020). Thus, the grounds of SEW concept provides a useful interpretation for the CSR orientation of board directors into this specific type of firm (Van Gils et al. 2014). Consistent with a humanistic governance paradigm (Turnbull, 2017), CG is a tool for encouraging to increasingly address socially responsible issues (Jain and Jamali, 2016). Hence, effective CG mechanisms may favour the engagement in CSR actions, while fueling the alignment with the SEW construct.

Hence, we posit the following research question:

RQ1: Do effective CG mechanisms predict higher family firms’ CSR engagement?

Passing to the CSR outcomes, based on the stakeholder view, the CSR compliance may present an opportunity for family business to foster socioemotional luggage through the reinforcement of social and trusting bonds with stakeholders (Gomez-Mejia et al., 2018). Moreover, the achievement of stable and durable relationships allows the involvement of stakeholders in CSR practices. This approach leads FFs to gain corporate social legitimacy and the accruing of trust and reliability among stakeholders (e.g., family members, employees, local communities), which, in turn, may help to mitigate the exposure to risk of failure (Gangi et al., 2020), to improve operating performance (Melo and Garrigo-Morgado, 2012) and to increase firm value (Jo and Harjoto, 2012). Hence, the adoption of CSR practices may predict better future CFP and consequent favourable conditions for FFs’ longevity (Gangi et al., 2022).

Drawing on the RBV, CSR can be conceived as a process of accumulating knowledge and experience (Tang et al., 2012), which fuels innovation capacity (Martinez-Conesa et al., 2017) and, consequently, improve FFs’ performance (Gangi et al., 2022). Specifically, from a knowledge management view, the process of “absorptive capacity” (Cohen and Levinthal, 1990) may rely on the internalization of knowledge resources related to CSR activities towards external and internal stakeholders. Thus, the conversion of CSR knowledge into organizational capital supports firms to respond to the requirements of stakeholder groups in the long term (Tang et al., 2012) and fosters innovation capability of firm (Surroca et al., 2010). Following prior studies (Lorenzo et al. 2022), the CSR strategy can overcome the limits to business innovation in FFs, hence CSR engagement can be beneficial in terms of openness to stakeholders’ insights and knowledge, which may have potential benefits to firm competitiveness and financial performance.

Hence, we posit the following research question:

RQ2: Does CSR engagement predict better family firms' CFP?

Methodology. The study relies on data from several sources. Specifically, we refer to Refinitiv for data on FFs' CG characteristics and ESG information, Worldscope database for financial data, World Bank database for GDP per capita data.

Regarding the sample selection procedure, we refer to the FFs included in the World's Top 750 Family Businesses. This list reports the worldwide top FFs ranked by Family Capital, supported by PwC. Similar to Cambrea et al. (2022), which relies on the cut-off of 25% or more of the voting shares to identify family businesses, Family Capital defines "family business" those companies in which the family or group of families held at least the 30% of the voting rights. Thus, to build our sample, we match Family Capital's initial list with Refinitiv and Worldscope databases. Accordingly, we exclude the 521 FFs for which Refinitiv or Worldscope do not disclose any data over the time horizon of the study (2002-2020). This procedure leads to a panel of 179 FFs.

As main variables of the study, we consider a) the board and CEO characteristics as proxy of CG mechanisms; b) the measure of CSR engagement; c) the CFP measurement. First, starting from CG mechanisms, consistent with prior studies (Jamali et al., 2008), we rely on several board and CEO characteristics. First, we refer to the number of board directors (Board size); the female percentage on the board (Board GD); the percentage of independent board directors; a dummy variable equal to 1 if the CEO simultaneously chairs the board, 0 otherwise (CEO separation). Second, as prior studies (Gangi et al., 2022), we measure CSR engagement through the ESG scores provided by Refinitiv. Third, as CFP proxy, we refer to the Z-score (Altman et al., 1995) and ROA to measure the risk of financial distress and profitability, respectively.

To avoid model misspecification, we rely on a set of control variables. Specifically, we adopt the FFs size through the natural logarithm of the total assets (Size); the ratio between total debt and total equity (Leverage); the percentage of total shares in the issue available to ordinary investors (Free float); a dummy variable equals to 1 if the board's members compensation is linked to sustainability objectives, 0 otherwise (Sust. Compensation); and the GDP per capita (GDP per). Regarding the empirical approach, to control for nonrandom sample selection biases, we adopt the two-step Heckman model to answer our RQs. The Heckman procedure includes two steps. With the first step, we estimate the influence of CG mechanisms on CSR engagement (RQ1) through a lagged probit model.

The regression equation is formalized as follows:

$$PR(D_CSR_{i,t-1}) = \phi(\beta_0 + \beta_{i,t-2} X_{i,t-2} + \varepsilon_i) \quad (1)$$

where $D_CSR_{i,t-1}$ is a dummy variable equal to 1 if FFs exhibit a level of CSR (at time $t-1$) above the median of the sample in year $t-1$, 0 otherwise. $\beta_{i,t-2}$ represents the coefficients of the predictors ($X_{i,t-2}$), including the CG mechanisms (i.e. board and CEO characteristics) and control variables lagged by 2 years, and ε_i is the random error term.

In the second stage, we use the second step of the Heckman procedure to estimate the influence of CSR engagement on CFP (RQ2).

The regression equation is formalized as follows:

$$CFP_{i,t} = \alpha + \beta CSR_{i,t-1} + \psi X_{i,t-1} + \varepsilon_i \quad (2)$$

where $CFP_{i,t}$ represents the measures of CFP (Z_score; ROA) of FF i at time t ; CSR is the score of FF i at time $t-1$; X is a vector of control variables; ε is the random error term. As above, all independent and control variables are 1 year lagged to address reverse causality issues.

Results. Table 1 provides the descriptive statistics. The correlation analysis (Table 2) shows that all variables' correlation coefficients are below the conventional level of 0.70 (Ratner, 2009), thus there are not multicollinearity biases. Table 3 (models 1-2) shows the estimates of the first step of Heckman procedure, regarding the impact of CG on CSR, while Table 4 (models 1-4) reports the estimates regards the impact of CSR engagement on CFP. The first step (Table 3) shows that the board characteristics (Board Size; Board GD; CEO separation) have a positive and statistically significant influence on the FFs' CSR engagement, thus we positively answer RQ1. Regarding the second step, Table 4 reports positive and statistically significant coefficients on CSR engagement, confirming that FFs more engaged in CSR tend to be less exposed to the risk of financial distress and to be more profitable in terms of ROA. Hence, we positively answer RQ2.

Regarding control variables, we find that more indebted and larger FFs tend to be more engaged in CSR (Table 3). Moreover, we find that the presence of board members' compensation linked to sustainability objectives also favors a higher engagement of FFs in CSR initiatives (Table 3).

Research limitations. Notwithstanding the valuable insights, the study suffers certain limitations. First, relative to RQ1, we consider only the overall CSR performance of FFs, thus additional studies can disaggregate the CSR performance in its sub-dimensions. Second, to proxy CFP, we look at profitability (ROA) and to financial risks (Z_score). Then, further studies might consider the effect of CSR engagement on FFs market-based measures. Finally, our empirical analysis is based on data retrieved from Refinitiv, which is a widely used source among academics and practitioners (Habermann and Fisher, 2023; Reber et al., 2022). Then, future research could employ additional measures of CSR performance.

Managerial implications. *The present study contributes to the current knowledge relative to the drivers and effects of CSR engagement in FFs. From the perspective of CSR drivers, the investigation reveals that several FFs' board features can enhance CSR engagement. Specifically, the results encourage FFs to adopt larger boards to diversify perspectives and knowledge resources. This is also confirmed in terms of gender balance, as having more females on board can enable FFs to delve more deeply into social and environmental issues, thereby better equipping them to navigate such challenges. Finally, in terms of executive compensations, the study encourages FFs to employ mechanisms that can motivate the board of directors to strategically align the SEW preservation goal with strategic sustainable engagement. Indeed, relative to the effects of corporate sustainability on FFs' financial performance, the current study encourages managers to adopt CSR as a critical tool to balance and relax the attributions between financial and non-financial goals that may characterize the specific organizational settings of FFs. Finally, by implementing socially responsible practices, FFs might simultaneously preserve SEW creation and strengthen CFP, while reducing firm risk.*

Originality of the paper. *The current study is original from different points of view. First, we expand the open debate on the link between CSR and CFP under the specific context of FFs. From this perspective, findings reveal that effective CG mechanisms are useful to support SEW creation through the positive impact on CSR and responsive capability to stakeholder concerns. In particular, the unicity of this study is the exploration of board characteristics that can facilitate the attainment of sustainable development goals through effective CG practices. A relevant topic due to the higher involvement of family members within the governance of family businesses.*

Secondly, given that FFs are the primary drivers of global wealth creation, the study addresses a crucial issue for long-standing firms, in the current turbulent socio-economic environment. In particular, the study presents an original perspective on the impact of CSR on FFs' firm risk, an area that has received relatively little attention in the literature.

Third, the empirical analysis focuses a worldwide sample of FFs, then offering greater generalizability of results, and then, covering limitations of prior studies (Choi et al., 2019; Singal, 2014). Finally, an additional contribution of the study is the dual approach which examine both drivers and effects of CSR in FFs. Our choice strengthens the view of a strong connection between the SEW and CSR, which can help FFs to embrace CSR practices that align stakeholders' expectations while maintaining long-term competitiveness and lower firm risk. The latter is even more relevant in more turbulent scenarios that require higher resilience of businesses.

Keywords: *Family Firms, Corporate Governance, Corporate Social Performance, Corporate Financial Performance, SEW.*

Tab. 1: Summary statistics

Variables	Obs	Mean	Median	SD
Z_score	1454	1.17	1.84	1.76
ROA	1605	6.52	5.35	6.01
CSR	1611	47.06	47.06	20.94
Board Size	1611	11.38	11	4.04
Board Independence	1590	47.47	50.00	22.66
Board GD	1608	15.57	13.33	13.64
CEO separation	1611	0.44	0	0.50
Sust. Compensation	1611	0.15	0	0.36
Leverage	1611	40.86	40.15	23.41
Free Float	1608	56.75	52.50	23.88
Sales (ln)	1611	17.26	16.69	2.21
GDP per capita	1604	33,800.45	38,927.21	22,856.3

Tab. 2: Pairwise correlation analysis

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Z_score	1.00											
2. ROA	0.65***	1.00										
3. CSR	-0.11***	-0.10**	1.00									
4. Board Size	-0.21***	-0.09**	0.33***	1.00								
5. Board Independence	0.08**	0.16**	0.09**	-0.10**	1.00							
6. Board GD	0.01	-0.04	0.31***	0.07**	0.12***	1.00						
7. CEO separation	0.02	0.04	0.09**	-0.04	0.04	-0.01	1.00					
8. Sust. Compensation	-0.08**	-0.09**	0.31***	0.16***	0.06**	0.18***	0.01	1.00				
9. Leverage	-0.65**	-0.44***	0.16***	0.16***	-0.12***	0.05**	0.03	0.10***	1.00			
10. Free Float	0.11***	0.07*	0.04*	0.20***	0.24***	0.08**	0.07**	0.07**	-0.06**	1.00		
11. Sales (ln)	0.03	0.01	0.05**	-0.03	-0.17***	0.20***	0.07**	-0.11***	0.01	-0.11***	1.00	
12. GDP per capita	0.02	0.10***	0.10***	0.01	0.10***	0.24***	0.09**	0.19***	-0.09**	0.29***	-0.42***	1.00

Tab. 3: Probit regression analysis. *, ** and *** indicate statistical significance at the 10%, 5 and 1% levels, respectively.

Variables	(1)	(2)
	D_CSR (t-1)	D_CSR (t-1)
Board Size (t-2)	0.10*** (10.93)	0.12*** (11.82)
Board Independence (t-2)	0.00 (1.44)	0.00 (1.26)
Board GD (t-2)	0.02*** (8.54)	0.02*** (5.05)
CEO separation (t-2)	0.32*** (4.70)	0.36*** (5.18)
Sust. Compensation (t-2)	0.65*** (5.60)	0.69*** (5.71)
Leverage (t-2)	0.00** (2.82)	0.00** (2.02)
Sales (ln) (t-2)	0.10*** (6.11)	0.08*** (4.51)
Free Float (t-2)	-0.00** (-3.03)	-0.00** (-2.97)
GDP per capita (t-2)	5.45** (6.11)	6.22** (3.39)
Year	No	Yes
_cons	-3.53*** (-9.40)	-2.52*** (-6.20)
Obs.	1615	1611
Pseudo R ²	0.16	0.19

Tab. 4: Heckman two-step model. The inverse Mills ratio (IMR) estimated from the first step of the regression is used in the second stage with the CSR indicator and control variables. *, ** and *** denote coefficient estimates that are significantly different from 0 at the 10, 5 and 1% levels, respectively

Variables	(1)	(2)	(3)	(4)
	ROA (t)	ROA (t)	Z_score (t)	Z_score (t)
CSR (t-1)	0.03* (1.65)	0.03** (1.99)	0.01** (2.68)	0.01** (2.60)
Board Size (t-1)	-0.05 (-0.67)	-0.18** (-2.49)	-0.01 (-0.72)	-0.02 (-0.84)
Board Independence (t-1)	0.02** (2.58)	0.02** (2.33)	0.00* (1.77)	0.00* (1.77)
Board GD (t-1)	0.02 (0.91)	0.04** (2.55)	0.01 (1.36)	0.00 (0.85)
CEO separation (t-1)	0.63 (1.61)	0.19 (0.48)	0.23** (2.23)	0.22** (2.07)
Sust. Compensation (t-1)	-0.25 (-0.51)	-0.54 (-1.07)	0.04 (0.29)	0.03 (0.26)
Leverage (t-1)	-0.10** (-12.90)	-0.10*** (-12.63)	-0.03*** (-18.51)	-0.04*** (-18.84)
Free Float (t-1)	0.03** (3.11)	0.03*** (3.67)	0.01*** (3.85)	0.01*** (3.89)
GDP per capita (t-1)	-0.00** (-2.66)	-0.00*** (-3.70)	-4.19* (-1.87)	-4.04* (-1.73)
_cons	7.05** (3.47)	6.58** (3.42)	2.06*** (3.70)	2.35*** (11.86)
Year	No	Yes	No	Yes
IMR	-0.49 (-0.51)	-1.76* (-1.79)	0.56** (2.15)	0.48* (1.82)
Obs.	1428	1428	1393	1393
Wald χ^2	230.37***	290.44***	439.98***	466.72***

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Consortia's performance in public procurement contracts: Preliminary evidence from road works

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Framing of the research. Governments procure goods, services, and works from private firms for their daily operations. In OECD countries, public procurement accounts for a relevant share of GDP, about 13% on average (OECD, 2021), and it is pivotal in implementing public expenditure in key economic sectors (e.g., infrastructures, health, and education). To balance an efficient and effective use of public resources with transparent and fair procedures, governments have long-established regulations concerning any aspect of the procurement process - from the publication of the call for tender to the bidding stage, the awarding, execution, and delivery phases.

To reduce - or possibly eliminate - adverse selection of private suppliers entering the bidding stage, public procurement procedures usually adopt a qualification stage to attract sound firms and increase the probability of establishing smooth public-private interactions. Only qualified firms can enter tenders in the Italian procurement of public works for roads and constructions. In particular, the public buyer must state in the call for tender all the tasks involved in the project. These tasks are classified according to categories and economic value. One task is indicated as the main category, and all the others, if any, as secondary categories. To enter the tender, a bidder must have the qualification for the main category, while qualifications for secondary tasks can be outsourced to other firms. Acquiring a qualification is costly, and it lasts three to five years and is awarded by private companies that serve as certification offices, called the "Società Organismo di Attestazione" (SOA).

As a result of this system, when suppliers are not qualified, they cannot participate in auctions unless they are organized in partnerships. These partnerships enable firms to pool their expertise and resources for meeting qualification requirements which, in turn, vary depending on contract conditions. We can distinguish between short-term and long-term partnerships. We define short-term partnerships as those interactions between firms that require coordination for a specific activity - i.e., a single public contract - and later dissolve. Long-term partnerships rely on established interactions between firms for different activities arising over time.

The first form of short-term partnership is subcontracting. In fact, without the required qualifications to perform the secondary tasks of the tendered public contract, a firm can participate conditionally on subcontracting these tasks to suitable qualified firms. Moretti and Valbonesi (2015), on a database on procurement for public works in Valle D'Aosta, found that fully qualified firms (which have the option to subcontract or not) offer a lower price than partially qualified firms (which are required to subcontract). This evidence suggests that when firms are forced by the regulation to deal with subcontractors, they face a higher risk of being held up by such partners, and they consider this risk on their bids (see, among others, Lafontaine and Slade 2007 for a discussion of voluntary versus imposed arrangements and firms' boundaries).

Another form of short-term partnership in Italian public procurement is the so-called "Associazione temporanea d'impresa" (ATI). In this case, firms coordinate to participate as joint bidders to a single tendered contract and jointly execute the public contract. On the same dataset investigated by Moretti and Valbonesi (2015), Camboni et al. (2021) found that ATIs are associated with more competitive bidding prices than firms required to outsource the task they are not qualified for. For ATIs, as for subcontracting, the collaboration is dissolved at the end of contract execution.

In this paper, we do not consider these short-term partnerships (i.e., subcontracting and ATIs), but we focus on a long-term partnership a group of companies can take - i.e., the consortium - and other independent firms. Consortia differ from other companies as they are legally established partnerships between two or more firms to participate in common activities - i.e., multiple public procurement contracts - over a period of at least some years. The other companies¹ can instead be classified into two groups, according to their legal and organizational form: limited liabilities and mutual companies, respectively. SRL (Società a responsabilità limitata) and SPA (Società per azioni) are

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¹ Note that firms holding all the required qualifications do not need to enter partnerships to bid for public contracts.

part of the first group, and these are characterized by issuing either quotes (SRL) or shares (SPA) and by a generally limited responsibility over companies' liabilities. Also, these legal forms are supposed to generate dividends for their quotes and shareholders. Società cooperative instead belongs to the second group, and they are supposed to provide convenient goods and services for their members.

Purpose of the paper. This paper complements previous literature on how companies' legal forms and partnerships can drive public procurement performance. Specifically, we exploit a sizeable Italian dataset on public procurement of works to study differences in performance between consortia, on the one hand, and other independent companies (i.e., without long-term established partnerships), on the other hand. Our analysis adds to the role of coordination costs that companies might face when participating with and without structured, long-term partnerships in the public procurement process.

Regarding the performance in the execution of public contracts, we consider an *ex-post* measure (i.e., measured at the end of the execution of the contract, as opposed to an *ex-ante* measure at the bidding stage): delivery delays, defined as the difference, in days, between the actual end date of the awarded work and the contractual one. This is a typical measure previously employed in the public procurement literature (see, among others, Lewis and Bajari, 2011; Buccioli et al., 2013; Coviello et al., 2018a; Coviello et al., 2018b; Decarolis and Palumbo, 2015; Coviello and Mariniello, 2014; Decarolis, 2014; D'Alpaos et al., 2013). Excessive delays are even regulated with penalties in the Italian procurement context as these can lead to social and political costs for the public buyers and reflect coordination problems or, in any case, the need for flexibility of private suppliers.

Methodology. We aim to test whether there is an association between different types of companies and the *ex-post* performance of public procurement contracts. We do so by running a series of preliminary regression analyses. The dependent variable is the delay in the execution of public procurement contracts, and the key independent variables are dummy variables representing the legal nature of contract-awarded companies. To this end, we collect information from Italian National Anti-Corruption Authority (ANAC) about public procurement contracts awarded during the period 2012-2021. This data source allows us to have a large set of harmonized information at the contract level (e.g., auction procedures, contract characteristics, public buyer type, winning firms' identities, and the timing of contract execution). We focus on a sample of contracts awarded by one type of public buyers (i.e., the municipal governments) and with a common main task (i.e., road works). These choices are inspired by considerations that emerged from previous literature (see, among others, Coviello et al., 2018a).

The public buyer plays a crucial role in the procurement process as its design, financial and overall managerial capacities can severely affect the efficiency of the overall procurement process (see, among others, Chiappinelli, 2020; Buccioli et al., 2020). Public buyer's (in-)efficiency can directly reflect on our outcome variable (contract's delivery delay). Also, firms observe public buyers' characteristics and (in-)efficiency; accordingly, they can decide whether to participate in the auctions. This poses a potential problem of firms' selection in the analyzed sample. Therefore, we believe that focusing on contracts awarded by a single type of public buyer (municipal governments) can reduce heterogeneity in terms of procurement skills. Parallely, this identification strategy allows us to maintain a large sample size and extended geographical coverage, strengthening our results' potential external validity. However, municipal governments are also heterogeneous among themselves in terms of efficiency. Small municipal governments may not have a level of know-how comparable to larger municipalities or have very different workloads. Moreover, there may be geographical differences in public officials' skills and local politicians' governing capacity. Thus, to further account for the heterogeneity among municipal administrations in any model specification, we control for population size and province-fixed or municipality-fixed effects.

We consider just road works to reduce unobserved heterogeneity in contract characteristics. Indeed, among the many different types of public works, road works are those that somehow have a more standard technology and unit costs (consider, for instance, how buildings can be much more heterogenous than road works; for papers focusing on procured road works, see, among others, Bajari et al., 2014; Lewis and Bajari, 2014; Buccioli et al., 2013; Marion, 2007). To control for the remaining heterogeneity in road works, besides the use of municipality-fixed effects (which can also take into account the accessibility and roughness of the local area), we include the size of the works, proxied by both the value of the contract (reserve price) and the expected duration of the works, as well as dummy variables for the specific sub-sector of the road works (for discussion on the reserve price, see, among others, Decarolis, 2014; Coviello and Mariniello, 2014).

To capture both seasonal effects and time-varying macroeconomic changes, which can affect both the private construction industry (where some of the winning firms in our sample can also operate) and the budget constraints of municipal governments, we include quarter-year-fixed effects. This set of fixed effects allows us to focus on the within-quarter-year variability and limit the role of common, time-varying confounding factors.²

Lastly, as a robustness check, we also re-estimate all our model specifications using a sample restricted to municipalities in which a public contract was awarded to at least a consortium for road works during our period of analysis. Using this subsample allows us to further control for omitted variables and potential selection problems affecting consortia and other firms in the sample in a heterogeneous way.

² For what concerns inference, we consider possible heteroskedasticity by estimating robust standard errors, also clustered at the municipality level in some specifications as to account for error correlations within groups.

Tab. 1: Descriptive statistics

	Full sample	Sample restricted to municipal governments that awarded at least one contract to a consortium
Delay D (dummy)	0.589 (0.492)	0.523 (0.500)
Ln Delay	2.578 (2.325)	2.290 (2.352)
Consortium	0.009 (0.092)	0.050 (0.218)
General partnership	0.127 (0.333)	0.100 (0.300)
Mutual company	0.025 (0.156)	0.030 (0.171)
Limited liability	0.840 (0.367)	0.820 (0.384)
Ln Reserve Price	11.92 (0.778)	12.23 (0.869)
Ln Contract duration	5.325 (0.704)	5.611 (0.755)
Open Procedure	0.150 (0.357)	0.296 (0.457)
Ln Population	9.780 (1.900)	12.26 (1.653)
Observations	13,885	2,367

Sample means and, between brackets, standard deviations.

Results. It is worth first describing the characteristics of the sample of contracts we analyze (see also Table 1). The estimated sample has 13,885 contracts for road works awarded by 3,392 Italian municipal governments (located in 107 different provinces) between 2012 and 2021. In this sample, about 59% of the works are delivered with some delay concerning the contractual deadline (median non-negative delays are 23 days). About 1% of the contracts were awarded to consortia, 2.5% to mutual companies, about 13% to general partnerships, and the remaining 84% to limited liability companies. About 15% of these contracts were awarded with open procedures, while the rest were negotiations (in the former, all firms can participate in the tender while, in the latter, the public buyer can set limitations on firms' entry). The road works in our sample have a median value (before auction rebates) of about 132,000 euros and a median expected duration of 213 days. Nevertheless, these statistics do not dramatically differ once we restrict the sample to contracts awarded by municipal governments which have interacted at least once with consortia to realize road works (tough, as expected, in this subsample, the share of contracts awarded to consortia increase to 5%).

The preliminary estimation results are reported in Table 2. In Columns 1 to 4, the dependent variable is a dummy equal to 1 if road works were executed with a delay with respect to the expected deadline. An OLS estimation of a regression model with a dummy as a dependent variable implies the reliance on a linear probability model. In Column 1, we control for province-fixed effects. The estimated coefficients associated with the dummy variables representing the different legal forms of the contract-winning companies are not statically significant but for the consortia. Therefore, general partnerships and mutual companies do not have a significant different probability of incurring execution delays with respect to the excluded category of firms (i.e., limited liability firms). Instead, consortia have a positive and statistically significant coefficient of about 0.09. This implies that a consortium has an estimated probability of 9 percentage points higher than limited liability companies executing road works with some delays. The value is economically meaningful, representing 15 percent of the average probability of delays observed in the sample. The signs, statistical significance, and magnitude of these coefficients are very stable when we restrict the sample to those municipalities which have awarded a consortium at least once (column 2) and when we replace province-fixed effects with municipality-fixed effects (Columns 3 and 4).

In Columns 5 to 8, we present the intensive margins and use as a dependent variable the size of the delays in works execution. This variable is equal to 0 if works were executed on time, and a positive value corresponds to the difference, in days, between the actual delivery and the contractual deadline date. We rely on the log transformation of (1+ days of delay), so to interpret the estimated effects as semi-elasticities. Similar to the previous results, estimated coefficients for general partnerships and mutual companies are not statistically significant, but the coefficient for consortia is positive and statistically significant. This result suggests how consortia executed works with more days of delay than limited liability companies. Specifically, on average, consortia make about 50% days of delays more than limited liability companies. Also, estimates for these intensive margins are robust to the restriction of the sample to municipalities with some experience working with consortia (Column 6), and to the inclusion of the larger set of municipality-fixed effects (Columns 7 and 8).

In general, these results suggest that, in the execution of road works, consortia have significantly higher probability of incurring delays and display even longer delays than other forms of companies. A possible interpretation of these results has to do with the fact that consortia, by their nature, deal with long-term established partners (i.e., other firms which are members of the consortium), while the other considered companies as well as our baseline companies (limited liability firms) operate individually. This difference in the organizational structure could potentially produce two opposing effects. On the one hand, consortia might have some advantages as firms in this partnership have experienced previous interactions and are linked to future common interests (which can improve cooperative attitudes). On the other hand, the long-term and somehow fixed nature of the partnerships within a consortium might not be flexible enough as opposed to the operational organization of other firm's types that do not operate in partnerships. This latter mechanism seems to prevail in our data, as consortia need more time in works executions.

Among the other control variables, the estimated coefficients of the reserve price and the dummy variable for open procedures are statistically significant and stable across specifications and outcome variables. It is somehow reassuring that both of them show the expected positive signs: larger auction reserve prices are associated with larger projects, which can indeed be characterized by more unexpected events and display larger delivery delays; open procedures have a higher degree of competition among bidders, and winning firms might then recover some of the benefits through additional time in the execution of the works.

Tab. 2: Multivariate regression analyses

Variables	(1) Delay D	(2) Delay D	(3) Delay D	(4) Delay D	(5) Ln Delay	(6) Ln Delay	(7) Ln Delay	(8) Ln Delay
Consortium	0.091** (0.039)	0.084* (0.045)	0.090** (0.043)	0.082* (0.045)	0.421** (0.197)	0.409** (0.203)	0.408* (0.214)	0.378* (0.204)
General partnership	0.019 (0.014)	-0.006 (0.033)	0.013 (0.016)	-0.009 (0.033)	0.112* (0.064)	-0.015 (0.150)	0.074 (0.073)	-0.021 (0.149)
Mutual company	0.022 (0.028)	0.047 (0.055)	0.038 (0.030)	0.044 (0.055)	0.150 (0.133)	0.149 (0.234)	0.155 (0.142)	0.126 (0.234)
Ln Reserve Price	0.159*** (0.009)	0.146*** (0.012)	0.161*** (0.010)	0.144*** (0.013)	0.881*** (0.044)	0.769*** (0.059)	0.885*** (0.046)	0.759*** (0.060)
Ln Population	-0.040*** (0.004)	-0.055*** (0.014)	0.146 (0.144)	0.111 (0.403)	-0.214*** (0.022)	-0.267*** (0.067)	0.870 (0.692)	-0.560 (1.938)
Ln Contract duration	-0.033*** (0.010)	-0.025 (0.015)	-0.031*** (0.011)	-0.019 (0.016)	-0.076* (0.043)	-0.055 (0.068)	-0.084* (0.047)	-0.039 (0.069)
Open Procedure	0.084*** (0.017)	0.109*** (0.027)	0.080*** (0.018)	0.112*** (0.027)	0.422*** (0.088)	0.580*** (0.124)	0.398*** (0.093)	0.607*** (0.125)
Constant	-0.755*** (0.102)	-0.479** (0.217)	-2.645* (1.447)	-2.528 (4.950)	-5.508*** (0.520)	-3.719*** (1.059)	-16.299** (6.951)	-0.105 (23.782)
Observations	13,885	2,364	12,556	2,361	13,885	2,364	12,556	2,361
R-squared	0.113	0.230	0.310	0.243	0.148	0.265	0.348	0.283
Road subsector FE	YES	YES	YES	YES	YES	YES	YES	YES
Quarter Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipality FE	NO	NO	YES	YES	NO	NO	YES	YES
Province FE	YES	YES	NO	NO	YES	YES	NO	NO

Standard errors (clustered at the municipal level in columns 1,2,5,6 and robust in columns 3,4,7,8) are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The dependent variable in columns 1 to 4, "Delay D", is a dummy variable equal to 1 in case, for each contract, the actual end date exceeds the contractual end date. The dependent variable in columns 5 to 8, "Ln Delay" is log (1 + "days of delay"), where "days of delay" is the difference, in days, between the actual and the contractual end date, in case this difference is positive, and zero otherwise. The sample in columns 2, 4, 6, and 8 is restricted to those contracts managed by municipal governments that have awarded at least one contract (in our dataset) to a consortium.

Research limitations. *We believe this preliminary and "work in progress" research has at least two main limitations. First, although we condition the relationship between firms' legal forms and delays to a series of control variables and fixed effects, the estimates cannot be interpreted as a causal effect of consortia on delays. Omitted variables and selection mechanisms may still be at work and bias the estimated coefficients. Second, we interpret the larger delays displayed by consortia as arising from the coordination costs of the firms operating within them. However, we do not have micro-level data to directly test whether the channel linking consortia to delays is based on coordination costs. These limitations, together with other refinements concerning the execution of the empirical analyses as well as the framing and interpretation of the results, are expected to be addressed in future and revised versions of this study.*

Managerial implications. *From a managerial perspective, there are implications for different issues. First, it would be important to understand whether the probability of incurring delays depends either on the quality of the corporate governance of consortia or on the types of procurements works. Second, the delays seem to be associated with the types of organizational structure between consortia and other legal forms. Here the crucial question is*

understanding how the coordination mechanisms within consortia can operate differently compared with other legal forms. Lastly, assessing whether delays in the procurement of works depending on the remuneration systems among the different levels in consortia remains an open question.

Originality of the paper. *The paper presents a preliminary empirical test to understand whether a conditional correlation occurs between winning firms organized in the form of long-term, established partnerships among firms (i.e., the consortia) and delays in the execution of public works. This test contributes to the discussion about the effects of firms' interactions in the public procurement market by looking at long-term partnerships (as opposed to temporary partnerships based on a single contract) as well as by looking at ex-post performance in the form of time delays in the delivery of the works (as opposed to bidding prices).*

Keywords: *consortia; partnerships; public contracts; interactions and coordination*

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The mitigating effect of electronic commerce adoption on the negative relationship between public tendering and export: evidence from Italian food & beverage SMEs

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Framing of the research. *The European economic growth and development depend on small and medium-sized enterprises (SMEs). SMEs make up 99% of European (EU) firms (European Commission, 2020). The EU's largest manufacturing sector by value and employment is the food and beverage (F&B) industry (European Commission, 2022), making it crucial to the region's development. Due to market instability and heightened hazards, recent times have been challenging to all organisations (Hadjielias et al., 2022; Hamid et al., 2022). Thus, F&B SMEs must diversify their portfolio and seek dependable revenue streams to survive. Internationalization and stable funding sources from public procurement and grants are needed to strengthen their survivability (Bertello et al., 2021; Loader and Norton, 2015). However, small businesses struggle to engage in public procurement due to their size and resources constraints (Loader, 2011).*

According to the literature, enterprises often lack the necessary knowledge and resources to explore and understand public procurement regulations and contract requirements (Karjalainen and Kemppainen, 2008; Saastamoinen et al., 2017). Furthermore, smaller SMEs may also struggle to enter new markets due to their resource constraints (Dethine et al., 2020; Paul et al., 2017). Therefore, the previously published empirical data raise the issue of whether enterprises constrained by their size and capabilities may pursue both pathways when they typically fail to pursue and attain one of the foregoing revenue streams. Capabilities and performance have been studied in most export performance research (Falahat et al., 2020). Despite their importance, electronic commerce, public procurement, and exports in F&B Businesses are seldom studied. Hence, further empirical studies are needed to better comprehend their kinship. Due to F&B SMEs' crucial role in the EU economy, this kind of investigation is of great theoretical and managerial relevance. (European Commission, 2022). SMEs' health and growth are crucial to national progress (Ensari and Karabay, 2014; Etuk et al., 2014). Consequently, it is vital to reveal how such governmental tenders might affect businesses' capacity to develop beyond their domestic market, which is crucial to their competitive advantage (Kalinic and Brouthers, 2022). In addition, the literature suggests that more research is needed to understand how electronic commerce affects exports (Ballerini et al., 2021; Dethine et al., 2020; Jia et al., 2022), how public procurement affects exports (Flynn and Davis, 2015; Loader, 2015; Loader and Norton, 2015; McKeivitt and Davis, 2015; Saastamoinen et al., 2017), and whether companies' resilience matters in the investigated sector (Hadjielias et al., 2022; Iborra et al., 2020; Khurana et al., 2022).

Purpose of the paper. *In light of the aforementioned literature and the underlined research gap, the current study aims to provide empirical evidence to answer the following questions: Does participation in public procurement have a detrimental impact on a company's attempts to export? Are F&B SMEs that support public procurement able to reduce the possible detrimental impacts of this on exports by utilizing electronic commerce platforms? Thereafter, the authors formulate the following hypotheses to be empirically tested:*

(H1) In the context of SMEs working in the F&B sector, the electronic commerce adoption contributes favourably to internationalisation.

(H2) There is a negative influence on the internationalisation of F&B SMEs engendered by governmental tenders' application.

(H3) In the context of SMEs working in the F&B sector, the electronic commerce adoption favourably adjusts the negative relationship between governmental tenders' application and internationalization performances.

Methodology. *The generated hypothesis will be put to the test in this research by means of an empirical inquiry that will be accomplished via the development of a structured equation model. The following criteria were used to sample firms. First, the companies should have their location in Italy. Second, only enterprises in the European Community statistical categorization of economic activities (NACE) C.10 group - "manufacturing of food products" - were included. Finally, the research comprises only enterprises who reveal their latest turnover, with a limit of 50 million*

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Euros and a range of workers between 1 and 250, following the 2020 European Commission definition of SMEs. On 30 September 2022, 2186 firms met the requirements.

Prior research has shown that the solution is workable despite data observations being secondary (Caputo et al., 2022). Electronic commerce platforms, governmental procurement, and export performance are the factors. Digital selling platform deployment covers not only electronic commerce websites but also social media sites that allow social commerce (Cassetta et al., 2020). A web scraping algorithm in Margò database can detect whether a company has an official social media presence on Facebook, LinkedIn, Instagram, Vimeo, Pinterest, Youtube, Twitter, and e-commerce solutions. Government procurement dependence is measured by corporations' 2020-2022 open tender wins (pandemic and post-pandemic period). Third, internationalization performance involves determining whether SMEs can sell overseas (Kapri, 2019) and what proportion of revenue exports comprise (Eramudugoda and Ramos, 2022). Company owners disclose exports and intensity in Margò database. An exploratory factor analysis is needed initially since there are no measuring scales for these constructs based on these items (EFA).

To prevent heterogeneity, the research will add manifest control factors to the model along with the three factors to verify. First, intellectual resource is thought to affect enterprises' export performance (Azar and Ciabuschi, 2017), hence the analysis includes the number of workers and their hiring pattern from the previous year as control variables. Given that company size affects export success (Faria et al., 2020), the research incorporates the number of controlled branch locations and income assessed using its natural logarithmic format to reduce confidence interval (Nirino et al., 2020). Scholars also believe innovation level might impact foreign trade (Azar and Ciabuschi, 2017). Thus, this analysis relies on Crif's 1-5 innovation score for organisations in the dataset, evaluating multiple indicators. Lastly, recognising that authorized standards of quality licenses are further determinants boosting businesses' exportation (Moya et al., 2019), the analysis controlled for firms' Accredia licences using a 1-0 dummy variable.

EFA verifies the framework's latent constructs. Sample size and item correlation are the first steps in assessing data for EFA. KMO yielded $> 0,6$ and Bartlett's test yielded $p < 0,05$, making both tests positive. After 13 to 8 item exclusions, the authors found a solid factors loading setup. Only Facebook and Instagram have enough PCA extraction commonality. All retained commonalities exceed 0.55, indicating excellent correlation. Promax rotation shows all components loading their factor with a coefficient above 0.600 and Std. Cronbach Alfa coefficients exceed 0,700. Three components with eigenvalues > 1 explain 70,25% of the cumulative variance. Given that the panel dataset was partially based on survey information, the authors use Harman's single factor test with a robust result of or squared variance of 30,35%, much below the 50% threshold, to discover common method variance and probable biases.

The study used Confirmatory Factor Analysis to verify the constructions' suitability for CB-SEM models (CFA). The CFA methodology initially checks the goodness of fit indices of the three correlated latent components. Table III shows that all absolute and incremental fit indices exceed the thresholds: GFI $> 0,95$, AGFI $> 0,90$, $X^2/df < 5$, RMSEA $< 0,07$, PCLOSE $> 0,05$, NFI and CFI $> 0,95$, PNFI and PCFI $> 0,5$

Second, the EFA-retained items' factor loadings are examined. As these latent construct components are new, the result is sufficient. Every item loads the latent variables at least the minimal 0,50 level necessary in this sort of research, although the construct reliability (CR) of each component still showed solid overall loadings over the 0,7 barrier. The study then calculates the AVE value for each concept, which was above the 0.5 criterion for convergent validity. The study conducted the discriminant validity test by comparing the AVE square root of each component to their correlation coefficient. All were higher than the correlation coefficient, proving the components' discriminant validity.

Results. The Structural Equation Model was used to evaluate hypotheses after EFA and CFA processes. Tests support all hypotheses. Electronic selling platforms increase business exports, assisting hypothesis one ($\beta = 0,230$; p -value $< 0,01$). Nevertheless, earning public tenders, hurts company international competitiveness assisting hypothesis two ($\beta = -0,061$; p -value $< 0,01$). Notwithstanding, the interplay involving relying on public procurement and adopting electronic commerce tools has a significantly favourable effect on the internationalization success of the enterprises corroborating hypothesis three ($\beta = 0.034$; p -value < 0.05). Earnings, staff hiring trend, and Accredia certification had a statistically meaningful beneficial influence on internationalization. Yet, the amount of regional branches, workers, and innovation score significantly hurt internationalization success. The model has a strong R-square of 0.624, much over the minimal value of 0.250 used in business and marketing research (Sarstedt and Mooi, 2014). The model predicts to capture 62,4% of the export performance variation across Italian F&B Firms.

Research limitations. There are various limitations connected to our research that might be overcome by further investigation into strategic flexibility, procurement practices, and company websites. First, the most significant constraint is the sample that was used, which was made up of Italian SMEs who operate within the F&B production business. More empirical data on the issue under investigation may be gleaned through research conducted with a more representative sample size. Second, our investigation highlights some of the drawbacks of using a structural equation model. Despite the fact that SEM has been used well in a number of different studies in the past, it does have a number of inherent flaws, particularly when it comes to the assessment and depiction of the salient components that have been found. In addition, the employment of different qualitative research methods may prove to be beneficial in the process of offering a more in-depth analysis of the findings that were obtained via quantitative research in this study.

In conclusion, further investigation might test our theory in a variety of settings and investigate the possibility of differences being seen across nations and industries. In addition, further research might include a variety of factors to evaluate the dexterity of businesses and validate our empirical results in connection with hypothesis number three (Andrade et al., 2022).

Managerial implications. *Our research has numerous important pragmatic ramifications for business leaders in the F&B sector. Before anything else, our research bolsters the fact that digital online channels are helpful to manufacturers internationalisation (Dethine et al., 2020; Jia et al., 2022). Second, despite previous literature supporting the hypothesis that awarded grants increases companies' research and development and ESG scores (Forliano et al., 2022), this study's findings support that F&B SMEs with a strong focus on public procurement tend to have worse export success. SMEs' management must carefully weigh the strategic goals of their organisations before committing to the lengthy process of submitting bids for public procurement contracts. Also, businesses who seek to engage in public procurement as one of their core business focus are urged to consider the implementation of one or more electronic commerce. By adopting them, SMEs may increase their bidirectional flexibility and attain international results which are on a par with those of enterprises that do not pursue procurement contracts (Saastamoinen et al., 2018).*

In conclusion, this research proves particularly useful to legislators. It is because of SMEs with scarce funds that apply for tendering process to obtain procurement partnering with government entities suffer a drop in internationalisation success, lawmakers must consider methods to make it easier and abbreviate the time span for these competitive tendering (Flynn, 2018; Reis and Cabral, 2015), such as increasing adaptability and speed, reducing the over procedural prerequisites, shortening agreements, and consolidating web page availability into one central location (Loader, 2015). Government agencies might also do their part to make things easier for vendors and grantees by streamlining their ordering procedures and billing bureaucracies, which would help speed up both choosing and collaboration phases of any agreements (Flynn, 2018; Loader, 2015). Yet, laws that encourage the use of electronic commerce platforms by SMEs, particularly those operating in the F&B beverage sector, would surely improve the international prospects of these businesses.

Originality of the paper. *By investigating the connections among internet and electronic commerce, procurement practices, and exporting, this investigation adds to the existing body of research on SMEs working within F&B industry. The overarching implication of this study is to emphasise evidence based proof indicating that public procurement management and reliance has a detrimental impact on companies' internationalisation. Additionally, the study provided empirical data suggesting that electronic commerce platforms adoption have a beneficial influence on firms' internationalisation. As a result, we are responding to the need for investigation about such issues (Dethine et al., 2020; Jia et al., 2022; Loader and Norton, 2015; Loader, 2015; Flynn and Davis, 2015; McKeivitt and Davis, 2015; Saastamoinen et al., 2017).*

A second innovative and original input to the theorists is to offer evidence based proof that suggests that the mixture of dependence on procurement contracts and embracing electronic commerce significantly mitigates the adverse impacts that public procurement has on the internationalization of F&B SMEs. According to current research, firms can enhance their agility with a correct adoption of digital technologies (Ciampi et al., 2022) and may overcome constraints to win public tenders without affecting their international success. These publications also emphasise how these businesses can pursue various business goals at the same time (Hadjielias et al., 2022; Iborra et al., 2020; Khurana et al., 2022). In addition, the advent of electronic commerce helps increase the strategic flexibility of SMEs since it requires less assets from enterprises in order to internationalise; as a result, these companies are better able to devote their efforts upwards to the quest for government tenders (Iborra et al., 2020). In addition to this, public procurement may be seen as a reliable source of income and service for businesses to depend on. As a result, it makes it possible for them to explore other kinds of ventures that have fairly predictable customers' behaviours (Saastamoinen et al., 2018). Accordingly, the study results shed light on the significance of utilising online technologies within F&B SMEs in order to expand in foreign markets and enhance the firm's strategic flexibility, thereby mitigating the adverse effects that public procurement contracts have on internationalisation.

Keywords: *Agility; F&B; Electronic commerce; Public procurement; Internationalisation; Export*

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Critical thinking in business - comparative analysis of online job postings in Italy and Poland

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Abstract

This research provides new insight into the companies' approach to the critical thinking skill as a required competence in online recruitments in Poland and Italy. The study provides four-folded contribution based on the empirical analysis of job postings at the two leading recruitment portals in Italy and Poland. First, the study shows that critical thinking skill is seldom considered as prerequisite for the job applications in business. Second, the study provides initial indication that the frequency of critical thinking skill occurrences included in the job postings may increase with the seniority and complexity of job openings. Third, critical thinking skill is often considered by business as a part of complex competence bundle which tend to include also: analytical skills, problem solving skills, decision making skills, creativity, attention to details. Fourth, the study demonstrates that the business approach to the critical thinking skill as a recruitment requirements is largely consistent in Italian and Polish contexts.

Keywords: *critical thinking, labour market, recruitment, job posting, Poland, Italy*

Introduction. *The last decade is characterized by an increased uncertainty and permanent volatility on labour markets. Under such conditions, an education that prepares a person for a single life-long profession no longer has been considered an realistic option. Therefore, an increasingly crucial factor influencing employability is a set of adaptable skills that supports individuals in pursuing jobs in an environment of rapidly changing requirements and ultimately could even be used to perform future jobs that currently do not exist (Rios et al. 2020). Thus, there is a large body of research developed with the aim to investigate and operationalize the competences that could prove useful in continuously uncertain labour market in the future (Di Gregorio et al., 2019).*

Moreover, in the last five years, the issue of future skills has been addressed in a number of research publications by the most prominent international institutions and their affiliates monitoring the labour market, such as : OECD, the EU, ILO, WEF. Furthermore, a substantial number of analyses of this issue have been recently undertaken by large consulting companies (e.g. KPMG, EY, Deloitte) as well as hundreds of researchers and academics (e.g. Fajaryati, Akhyar 2020, Curtin 2004, Bakhshi et al. 2017, Brewer, Comyn 2015, Gunawardena, Wilson 2021, UKCES 2014)

The research results in the domain of future skills indicate that critical thinking appears to be prominent example of a skill that could considerable increase employability on the future markets. For example, the OECD recommendations for Poland (OECD 2019b) that "Digital skills and other types of skills - including critical thinking, communication skills, adaptability and accountability - will become essential for adults to succeed in both work and life". Furthermore, critical thinking as a core future skill was highlighted by a number of international organizations (OECD 2018, Schleicher 2018, OECD 2019 WEF 2016, Aring - ILO 2015).

The critical thinking skill is consistently viewed as essential in a business practice and evidence has been identified that critical thinking is considered in hiring process. For instance, Deloitte, a consultancy, has developed the Deloitte Critical Thinking Test, known also as the Watson Glaser Thinking Test. According to the authors, the test can prove the candidate's abilities in judgment, analysis, and decision-making and its structure consists of five key components: (1) Inference assessment (2) Recognising assumptions (3) Deduction (4) Interpretation (5) Evaluation of arguments.

However, the extent, to which the examples of critical thinking skill applications in recruitment process constitute a common business practice, is yet to be investigated. Moreover, the implementation of the critical thinking skills in business requires further scientific scrutiny to explore, inter alia, how valuable this skill is for entrepreneurs and in which business areas its implementation could be particularly beneficial (Skrzek-Lubasińska, Malik 2023). This research addresses these research gaps by providing new insight on how critical thinking skill is used as a requirement in the hiring process. In particular, our study addresses the following research questions:

1. How frequently is critical thinking skill used as a requirement in hiring process?

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2. *What are other skills that critical thinking frequently co-occur in job postings?*
3. *What are the differences in the use of critical thinking skill as recruitment requirement between Polish and Italian companies?*

The rest of the text is structured as followed. The Method applied in the research is discussed in the section 2. The results of the job advertisements analysis in Poland and Italy are presented in the section 3. Results. In the discussion the results of comparative analysis of both markets are elaborated on. The conclusions follow.

Method. A content analysis of job advertisements has been selected as an adequate research method for the purpose of this study. In order to enhance the quality of the research results and advance its business applicability the research performs a comparative analysis of two labour markets, Polish and Italian. By empirically analysing requirements in job postings on both markets we were able to examine the research questions with a greater perspective and with more research acumen. The similar research approach for qualitative analysis of requirements in job advertisements has been used previously to examine among others: marketing skills in intentional context (Di Gregorio et al., 2019), competences in artificial intelligence and machine learning in the USA labour market (Verma et al., 2021) and leadership competences for digital transformation projects (Gilli et al., 2022).

The analysis performed in this study is divided into three steps: (i) selection of adequate recruitment portals, (ii) data scope and query design, (iii) data collection and content analysis. In the first step, a selection of recruitment portals has been carried out in Italy and Poland in line with the following criteria:

- *Popularity, to select one of the leading recruitments portals on each market*
- *Specialization, to ensure adequate quality of data for the purpose of this research, only general recruitments portals have been considered, thus portals specializing in one type of work (e.g. only white-collar jobs or only blue-collar jobs) were excluded.*

Based on the above criteria <https://www.pracuj.pl/> recruitment portal was selected as an adequate for analysis carried out for the Polish labour market and <https://it.indeed.com/> was chosen for the Italian market.

In the second step of the analysis, data scope and query design, the phrase “critical thinking” in national language (Polish and Italian respectively) and in English was considered as adequate for data search. To provide suitable range of data analysis the searched phrase (critical thinking) was used in all the fields of job postings. To sufficiently address the research questions the collected data included: number of job postings with the critical thinking phrase; percentage of job posting with critical thinking phrase to all advertisements available on the day of the search; position level (junior, specialist, management position); the competence-bundles to which the competence “critical thinking” is related.

The third step of the analysis, data collection and content analysis, was performed in January 2023. First, from the recruitment portals the data was extracted, which included: number of positions available, frequency of critical thinking related postings and data about job type and seniority. Second, all job postings meeting the criteria were downloaded with the set of data covering: position name and competence bundle where critical thinking was posted. The information from the searched ads was entered into spreadsheet and coded (Harper 2012) and the coding included co-occurring competence bundles.

The research method applied in this study is recognized as adequate in the qualitative studies regarding required competences on the labour market. However, the method is not deprived of some limitations. The limitation of the method applied in the study is that job postings do not always fully reflect the actual demand of companies for the specific competences described in the advertisements. Job posting can serve a variety of purposes, not just strictly recruitment purposes (Rafaeli, Oliver, 1998). Advertisements usually present the competences that are most important from the point of view of recruitment and may not fully represent actual competence needs of the company. Thus, this may lead to the outcome that only narrow, job-specific, specialized competences are presented in the job posting. On the other hand, broad competences such as critical thinking are omitted there, even though they may be considered just as important as specialized competences.

Findings. This section presents the results of the research that was carried out in January 2023 in line with the method discussed above for two recruitment portals in Poland and Italy with the aim to assess the importance of critical thinking skill as a recruitment requirement. The findings provide insight into perception of critical thinking by employers on labour markets in both countries. In particular, the findings provide observations related to three dimensions: the frequency occurrence of critical thinking in job postings, seniority and type of jobs that required critical thinking skill and other competences perceived as directly related to critical thinking skill.

The results show that the phrase “critical thinking” appears only occasionally in the pool of job postings as demonstrated in Table 1 which summarises the occurrence of the phrase “critical thinking” in job postings in the leading recruitment portals in Poland and Italy.

Tab. 1: The number of job postings with “critical thinking” reference, two leading recruitment portals in Poland and Italy

	Poland	Italy
Total number of job postings	95231	215297
Number of job postings with a reference to critical thinking	275	239
% of job posting relating to critical thinking	0,29%	0,11%

Source: own research

The results of the search provided 275 job postings with reference to critical thinking in Poland and 239 job offers in Italy. However, the pool of available jobs were significantly greater at the Italian portal than at the Polish one, over 210k and over 95k respectively. Thus, a percentage of job postings with a reference to critical thinking was 0,29% for Polish recruitment webpage and 0,11% for the Italian one. Although, there are some differences between the frequency of the occurrence for both markets, the results overall tend to indicate that the critical thinking skill was a competence very seldom sought by the companies in their recruitment undertakings in both market.

The results of the research provide insight into the seniority and type of jobs in which the critical thinking skill was deemed sufficiently important to be single out in the job advertisement, as shown in the Table 2, below.

Tab. 2: Number of job postings requiring critical thinking skills by the seniority of position recruited

	Poland		Italy	
	No. of postings	in %	No. of postings	in %
Total	275	100%	239	100%
Junior positions	25	9%	67	28%
Specialist positions	209	76%	126	53%
Management positions	41	15%	46	19%

Source: own research

At the Polish recruitment portal subjected to the research, out of 275 positions, 25 could be considered junior level, 209 applied to specialist positions and 41 to management posts. This represents 9%, 76% and 15% of respective position type out of all job postings with reference to critical thinking in the analysed dataset. At the Italian recruitment portal, 67 position could be attributed to the junior level, 126 referred to specialists and 46 to management positions, that translates to 28%, 53% and 19% job types respectively out of all positions that required critical thinking skills. Thus, the results show that for both markets majority of posts that required critical thinking skill belong to specialist positions. The key difference between markets in this respect is relatively high number of junior level positions that specify the critical thinking skill among required skill in Italy compared to Poland. However, the results do not provide the total number of job postings per position type. Therefore, the results do not permit a cross-country comparison between the percentage of positions with critical thinking skill requirement per job type. Such results could provide further valuable insight into the relative importance of critical thinking skill in business recruitment requirements.

The research results provide new information about the bundles of competences which were linked to the critical thinking in the job postings. This part of the study was strictly qualitative. From the job postings, one bullet was extracted from the 'Our requirements' section, in which the search phrase occurred. All other competences that co-occurred with critical thinking skill in that string of competences were identified. Competences that co-occurred more than once with critical thinking skills were captured and clustered in line with their primary scope. Moreover, in order to provide more coherent overview of the key skills that create a common bundle with the critical thinking skill, the various job postings from one employer such as duplications of geographical areas were treated as one item. The list of competences that co-occurred in bundles with critical thinking skills for both recruitment portals have been combined and are presented below.

The results from the leading recruitment portal in Poland indicate that employs searched for critical thinking skills in connection with the following other competences:

1. Analytical skills
2. Problem-solving, solution-oriented approach
3. Independence, independent thinking
4. Creativity, creative thinking
5. Decision-making (appropriate, accurate, quick, under time pressure)
6. Drawing appropriate conclusions (autonomy in conclusions)
7. Planning and management of priorities, ability to prioritise tasks
8. Anticipation of consequences of actions
9. Goal orientation
10. Attention to detail
11. Lifelong learning, work-base learning

The results from the recruitment portal on Italian market showed that companies tend to search for the following competences in direct relation to critical thinking skill:

1. Problem solving skills
2. Analytical skills
3. Result-oriented thinking
4. Decision making skills
5. Creativity and curiosity
6. Adaptability
7. Lateral thinking
8. Teamwork

9. Attention to details

While results provided for both market differ slightly in the set of competences which occurred bundled with critical thinking skills by the posting companies, it can be observed that five competences appeared to be shared for both markets, and these are: problem solving skills, analytical skills, decision making skills, creativity, attention to details.

In the job postings, both Polish and Italian, there were various phrases used indicating that employers understand the term “critical thinking” very broadly. There were terms for skills that were only loosely related to critical thinking, such as pro-activity, the “can do” approach, entrepreneurship, self-organisation, managerial competence, simplification, punctuality, communication skills. Thus, it seems that some employers treat critical thinking not only as a cognitive skill, but also as an individual character trait (pro-activity, punctuality), and as other soft skills (communication, work-based learning), and as technical skills (analytical skills). Therefore, it can be speculated that for employers, critical thinking has become a key word defining the ability to cope with any situation, including changing one’s own way of thinking and behaviour - so that it becomes consistent with the employer’s requirements.

Discussion. In this section the results of the research are elaborated on to provide answers to the three research questions developed in the Introduction with the aim to explore new insight into the application of critical thinking skill in job requirements in Poland and Italy.

Our study of job postings has shown that critical thinking is valued by employers much less than experts predicted (Schleicher 2018, OECD 2019 WEF 2016, Aring - ILO 2015). The review of the job postings at the leading recruitment portals in Italy and Poland provided strong evidence that the critical thinking skill is seldom considered a popular competence expected by the companies seeking new hires. The critical thinking skill was specified in only 0,29% job postings in Polish recruitment portal and in 0,11% job offers posted at the researched Italian recruitment portal which provides scant support for the importance of this skill for employers.

Among the job postings which required a critical thinking skill majority could be attributed to the specialist type of jobs and far lower number for junior positions which indicates that the demand for critical thinking skills could increase with the scope of responsibilities, level of technical competences and experience. In terms of the number of managerial job postings with the reference to critical thinking skill the number is smaller than for specialist job offers. It is, however, reasonable to expect that the number of job postings decreases with the level of seniority and the overall structure of recruitment offers is pyramid-shaped, with limited number of posts for managers, moderate for specialists and by far greater for junior positions. Thus, under such assumption, the results could provide indication, alas weak one, for the growing demand for critical thinking skills that increases with the level of seniority of searched job candidates which could be shown by probably higher relative frequency of critical thinking skills referencing in specialist and managerial job openings.

The second research question in the chapter called for the analysis of competence bundles in which the critical thinking skill usually occur. The results showed that there are several skills that tend to be directly linked to critical thinking in the job postings with the notable examples of: problem solving skills, analytical skills, decision making skills, creativity, attention to details. The analysis of the typical critical thinking skill related competence bundles indicate that the critical thinking is primarily viewed as leverage of adequate way of addressing business related issues with the sequence of: analysing, reasoning and decision making. Moreover, it has been indicated by the results that in order for this process to be performed in an appropriate way, elements of creativity and fine-grained scrutiny are viewed as relevant and are entangled with critical thinking skills. By indicating skills related to critical thinking, the results of this research may contribute to better understanding of companies’ competence requirement.

Our research confirmed the findings of other researchers (Penkauskienė et. al. 2019) that for employers the concept of “critical thinking” is very broad. It is not only a cognitive skill (acquisition, verification and analysis of information, the ability to draw conclusions), but also a skill important in almost every aspect of professional life. Critical thinking also applies to the ability to implement conclusions, communicate the results and successfully manage business.

For some employers critical thinking skill seems to be an universal skill that will improve the effectiveness of professional activities, but also contribute to self-development and improvement of personal character traits. The results of our research are consistent with the results of Indrašienė et al. 2021, where the employers’ conception of CT has been revealed as an abilities and a person’s qualities grouped in 5 categories: analysis; evaluation; argumentation; independence and self-confidence.

With the reference to the third research question, about the differences between approaches to critical thinking skill in Polish and Italian recruitment environment, it could be stated that the results provide moderately coherent picture of business attitude to this skill. Although, there have been some limited differences in critical thinking skill occurrence frequency and number of job types where critical thinking skill was regarded as expected by employers, the scale of the diversions confirm the relatively consistence approach to critical thinking skill in the recruitment processes in Italy and Poland. The consistency of the results has been strengthened further by the similarities in the composition of competence bundles related to critical thinking skill.

Conclusions. This research provides contribution to the understanding of the use of critical thinking skill in labour markets by producing new insight into the companies approach to the critical thinking skill as a required competence in recruitments in Poland and Italy. The study analyses job postings at the two leading recruitment portals in Poland and Italy to provide answers to three research questions. In particular, the contribution of this research is four-fold. First, we have shown that the critical thinking skill is seldom considered as prerequisite for the job applications regardless of analysed market. This result sheds new light on the importance of critical thinking skill and is in contrast to some previous research which tend to indicate that critical thinking is highly valued by employers. Second, our study

provides initial indication that the frequency of critical thinking skill job posting occurrence may increase with the seniority and complexity of job openings. Third, the study highlights that critical thinking skill is often considered by employers as a part of complex competence bundle which tend to include also: analytical skills, problem solving skills, decision making skills, creativity, attention to details. Thus, the indicated competence bundle enables to facilitate the integrated approach to addressing business issues and it covers: analysing, reasoning and decision making. Fourth, our study demonstrates that the companies approach to the critical thinking skill as a recruitment requirements is largely consistent in Italian and Polish contexts.

The study is not deprived of some limitations which include among others the fact that the research methodology (job ads research) does not fully show cause and effect relationships. The fact that employers do not mention certain skills in the advertisement does not necessarily mean that they are not important and considered on the course of recruitment process. Moreover, such skills may not be specific to the job or may be taken for granted. Therefore, it would not be justified to draw too far reaching conclusions, especially since the scope of the study was limited to two recruitment portals in just two markets.

Several new research directions could be indicated as the outcome of our analysis. It seems that studies based on job posting analysis in the context of the importance of critical thinking skill in the labour market should be treated as pilot studies. As critical thinking research is proliferated in research field of education, more advanced research (both quantitative and qualitative) for the labour market should be developed. This area in our opinion represents a considerable research gap that should be addressed in the future studies. The analysis of the previous research and our results show that more research is also advisable that will contribute to the conceptualization and operationalization of critical thinking levels applied to the labour market, so that employers and employees are equipped with appropriate tools to evaluate individual development in critical thinking skill. We also hypothesize (to be tested in future research) that there is a positive correlation between the company's effectiveness and the level of critical thinking skills of its employees and top management in particular.

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Radical innovation project and equity crowdfunding: the role of prior financing and of Teamwork creativity

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Abstract

The equity crowdfunding phenomenon has become increasingly important in the last decade in the innovative project financing landscape. The aim of the study article is to analyze in depth the success of radical project financing and the related variables that influence it. The research paradigm included external funding obtained prior to the launch of the equity crowdfunding campaign and the degree of creativity of the team that developed the project. The results show a relationship between radicality and campaign success, allowing us to show that a high degree of radicality of the project positively influences the probability of campaign success. A high degree of creativity on the part of the team also influences the likelihood of campaign success, and the presence of previous funding has a significant influence by acting as a solid and credible quality signal.

Framing of the research. *Equity crowdfunding (ECF) has grown rapidly since it was first regulated in 2012 in the USA by the Jobs Act. Equity crowdfunding has become an increasingly popular way for startups, SMEs, and innovative projects to raise capital, and online equity crowdfunding platforms play a crucial role in facilitating these transactions (Vulkan et al., 2016), although some national regulations have imposed a limit on who can participate in equity crowdfunding and how much can be invested (Cumming and Johan, 2013; Hornuf and Schwienbacher, 2017). This alternative financing system has been studied for its role in closing the financing gap for small firms, especially those with a high growth potential (Valenza et al., 2021; Elridge et al., 2021).*

Schwienbacher (2019) defines equity crowdfunding platforms as “two-sided markets” as one of the primary roles is to provide a marketplace for businesses and investors to connect, a sort of point of convergence between entrepreneurs seeking capital for their projects and online investors.

In consideration of this, it is possible to state that ECF platforms play a central role in the entrepreneurial financing landscape. Among the different operational aspects that characterized ECF platforms, the total capital raised and the number of investors are visible to all users and may represent a strong signal for future investors (Vismara and Rossi, 2018), meaning that others have already looked at the project, like it, and have confidence in the promoters' ability to complete it (Colombo et al., 2015).

Crowd investors can purchase shares directly from a start-up or indirectly by investing in a financial vehicle that collects all their contributions. The latter is often called pooled investment, and the trustee manages the collected money on their behalf. Any dividends paid to the crowd shareholders are distributed net of management fees (Hornuf and Schwienbacher, 2016).

Investor behavior is strongly influenced by updates and comments posted about the project, especially when previous supporters show confidence in the specific product or investment area (Hornuf and Schwienbacher, 2018). Vismara (2018) pointed out the importance of initial investors in equity crowdfunding campaigns by providing information about their commitment to a project and their ability to contribute funds. In addition, investors with a public profile increase the attractiveness of a project and influence future crowd investors who may also participate in the project.

Existing literature on equity crowdfunding has examined several topics, including how platforms work (Hornuf and Schwienbacher 2018; Vismara and Rossi, 2018; Lukkarinen et al. 2016; Vanacker et al. 2019), success factors of equity crowdfunding campaigns (Vismara 2016; Lukkarinen et al. 2016), and outcomes following equity crowdfunding campaigns (Signori and Vismara, 2018; Vanacker et al. 2019).

Several authors have focused their studies on ECF-related signaling theory and identified factors that influence project funding and success. Ahlers et al. (2015) found that accurate information about both the risk of the project and the involvement of the founding team members increased the chances of success of an ECF campaign. Li et al. (2016),

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taking a sample of 49 projects published on the Chinese platform Dajiatou, examined the role of information disclosure, such as team size and experience, ongoing updates on the project, etc., and primary investors as quality signals for funding success. Kleinert et al. (2020), through their analysis based on the screening of 221 business plans and project descriptions on Crowdcube, showed that the presence of external funding prior to the launch of the equity crowdfunding campaign is a sign of quality and is more relevant for start-ups.

Barbi and Mattioli (2019) focused on the role of human capital as a quality signal, which is mainly determined by 'education, prior business/financial/economic work experience, and the gender of the team. Their study shows that human capital proves to be a reliable quality signal for the firm when it comes to increasing the capital collected during the ECF campaign.

Other studies have examined the role of innovation as a quality signal in raising capital through equity crowdfunding platforms. Pendeven and Schwienbacher (2021) used a sample of 179 campaigns from different platforms operating in France. Taking the investors' point of view into account, the results show that highly innovative projects attract more attention and thus raise more capital than less innovative projects.

More interestingly, further studies have examined in depth the role of radical or incremental innovation in equity crowdfunding financing. Radical innovations represent something new that did not previously exist in the marketplace, and their introduction can represent a break with the past by overturning industry conventions and changing customer expectations (O'Connor, 1998), and creating demand for products or services that were not previously known in the marketplace, thereby creating new markets and industries (Garcia and Calantone, 2002). Given their many characteristics and drawbacks, radical innovations are also defined as particularly uncertain and risky in terms of their outcome and return on investment (Keizer and Halman, 2007).

According to Gatignon and Xuereb (1997), there is a positive relationship between innovation success and radical innovation. The more different an organization's innovations are from existing products and services, the greater the advantage they will have. Therefore, the greater radicalness of innovation is, the better its results will be.

Hervé and Schwienbacher (2018) argue that equity crowdfunding is an effective way to raise funds for radical innovation because it provides a way to invest in a long-term project with an expected return in the future. Le Pendeven (2016) studied the relationship between the degree of innovation and overall funding success in three dimensions (market, technology, and business model) for 39 French firms founded on the Anaxogo platform. The results suggest that more innovative firms (technology and firms with patents) raise higher amounts of capital and have a higher number of investors than less innovative firms. In addition, Stanko and Henard (2017) found that in equity crowdfunding campaigns, the degree of innovation developed correlates positively with the degree of investor participation in the process. This indicates that investors in the early stages of innovation development prefer to support firms that have already demonstrated a certain level of success, focus on radical innovation, and exploit the full potential of their firm (Stanko et al., 2016). In contrast, Liu and Su's (2018) study found that radical innovation projects do not achieve the same results through equity crowdfunding campaigns as incremental innovation projects.

There is a broad consensus in the literature on the financing of radical innovations regarding their lack of funding (Keupp and Gassmann, 2013; Woschke et al., 2017). Caggese (2019) explains that a lack of funding for radical innovations can act as a barrier to entry and severely limit competition in the market. This reduces radical innovation because firms cannot afford to adopt it, which affects productivity growth at the firm level.

The existence of a funding gap for radical innovation is prompting researchers to explore alternative forms of investment opportunities. Although the literature on equity crowdfunding is extensive there has not been enough investigation regarding the funding of radical projects and, more specifically, what factors may influence the funding and success of these projects.

Purpose of the paper. The purpose of this study is to investigate the success of funding radical innovation through equity crowdfunding. Since radical innovation projects are high-risk investments, they may not meet the expectations of traditional investors, leading entrepreneurs to consider alternative forms of investment.

We hypothesize that the sources of prior financing and teamwork creativity can influence the relationship between radicality, and campaign success. Previous studies have already analyzed the role of prior financing in influencing the success of an equity crowdfunding campaign (e.g., Kleinert et al., 2020) and there is a broad consensus that they represent a credible quality signal for online investors on ECF platforms. Starting from this, it's necessary further investigate if prior financing still represents a credible quality signal for a radical innovation project, commonly more difficult to fund. The goal is to consider external funding received by the firm before the launch of the equity crowdfunding campaign. The main external funding sources considered for this analysis are business angels, venture capitalists, grants, and other forms of crowdfunding such as reward-based and lending-based.

Previous research has extensively analyzed the role of teamwork creativity for organizations. Amabile (1988) defined creativity as the generation or production of ideas, and it is usually considered the first stage of the innovation process. Next, innovation is considered as the implementation of the idea, attributed to a team or a person who developed it from its initial state (Amabile et al., 1996). Some authors such as Rego et al. (2007) argue that creative teams in organizations are valued for their ability to come up with new ideas and solutions that help the firm stay ahead of its competitors. However, the fact that a team's idea is new or innovative does not mean that it is automatically considered creative; to be considered valid, the idea must have potential use for the firm. Applying the team creativity conceptualization discussion to the equity crowdfunding context, it can be hypothesized that a high level of team creativity positively influences project quality. Indeed, presumably, more creative teams will be able to conceive and develop more creative projects, which will capture the attention of investors more at the time of the campaign launch.

Methodology. The methodology chosen for this study uses primary data and involves the administration of an email questionnaire to firms that have launched an equity crowdfunding campaign on a well-known Italian platform. The initial target population consists of a sample of initiated campaigns. As described by Vismara and Rossi (2018), Italy was the first nation in Europe to introduce specific regulations for equity crowdfunding in December 2012, namely Decreto Legge n. 179/2012 or Decreto Crescita Bis. Online platforms wishing to operate in the crowdfunding equity market must be authorized by the authority responsible for regulating financial markets in Italy (CONSOB). Since 2012, more than 1100 campaigns have been published on the Italian ECF platforms, raising capital of more than 500 million euros. Of the published campaigns, more than 800 have been successfully completed. Considering this, the success rate of ECF campaigns has also progressively increased, from 50% in 2017 (Politecnico di Milano, 2017) to around 90% in 2022 (Politecnico di Milano, 2022).

The questionnaire is divided into different sections that can be used to measure each variable. Each of the scales used in the questionnaire has been previously validated in other studies. The degree of the project's radicalness in launching an equity crowdfunding campaign is measured by the scale used by Dominguez-Escrign et al. (2019); Cronbach's α for this construct is 0.93. Team creativity is measured using the scale previously validated by Rego et al. (2007), which has also been used by later studies such as Barczak et al. (2010); Cronbach's α for this construct is 0.85.

In addition, concerning previous external financing, respondents are asked to indicate which of the explicit financing they have received or whether they have received any at all. The campaign success is measured by the secondary data available on the platform if at least the campaign goal is met, if not exceeded. Finally, several common control variables in equity crowdfunding studies were identified and used (Kleinert, 2020; Barbi and Mattioli, 2019; Vismara 2018).

Results. The results show a relationship between radicalness and campaign success, making it possible to highlight that a high degree of radicalness in the project positively influences the likelihood of campaign success. This result is in line with previous results obtained by several authors (Le Pendeven, 2016; Le Pendeven and Schwienbacher, 2021). Moreover, the presence of prior financing also significantly influences acting as a solid and credible quality signal. The presence of prior financing act as an accelerator for the success of the equity crowdfunding campaign, meaning that previous investors have already believed in the project's potential, and previous funding of the project is a sign of credibility (Kleinert et al., 2020). Finally, a high degree of creativity on the part of the team also influences the likelihood of a successful campaign. This is because the team's creativity enables the development of highly innovative ideas, which, transformed into projects for the launch of the equity crowdfunding campaign, are particularly attractive to online investors.

Research limitations. The study's two major limitations are that it focuses exclusively on equity crowdfunding platforms for financing radical innovation, excluding other forms of crowdfunding such as loan-based and reward-based. A more in-depth study including these additional forms of crowdfunding could lead to different results. Next, the second limitation is the focus on a single ECF platform operating only in Italy, thus excluding additional possible platforms operating in Europe or outside Europe. Broadening the study to platforms operating in different states could lead to further results considering two main aspects: (1) the specific operation of each platform (which is subject to national legislation); and (2) macroeconomic conditions like investment opportunities.

Managerial implications. This study offers numerous implications for entrepreneurs. First, it contributes to the literature on crowdfunding and innovation by providing new insights and findings. The study focuses on successful campaigns launched in the Italian context, the first nation in Europe to introduce and legislate a framework for equity crowdfunding. Italian equity crowdfunding context is becoming more and more interesting, with an ECF success rate that is settling around 80% (Politecnico di Milano, 2022). For entrepreneurs seeking to fund radical projects, equity crowdfunding emerges as an alternative form of external financing to traditional forms of financing and may be valuable for radical innovation (Hervé and Schwienbacher, 2018), although further investigation is needed. Understanding how equity crowdfunding platforms work, the dynamics of project funding, and the specific factors that influence the allocation of external capital by retail and professional investors is critical for entrepreneurs and firms. One of the key factors that help in determining project success is the creativity of the team behind it, and this can be seen as a quality signal to investors. Previous funding can also help get projects up and running quickly and without getting bogged down. The analysis conducted on the creativity of the teamwork and the role played by previous external funding are elements that enable the entrepreneur or firm to understand how to pitch the project on the platform and which elements are most relevant to investors.

Originality of the paper. The originality of the paper lies in the analysis addressed and the data used. First, despite the presence of previous studies that have extensively considered the role of innovation in equity crowdfunding campaigns, few studies have specifically analyzed the funding of radical projects, focusing more on innovativeness as a perceived success factor from an investor perspective. Second, this study represents one of the few studies that brings together numerous elements from different works of literature, such as the creativity of the team and previous funding, into the perspective of equity crowdfunding.

Third, this represents one of the few studies conducted on ECF campaigns financed through an Italian platform. Previously, only a limited number of studies have focused the analysis on purely Italian data (Troise et al., 2020; Battaglia et al., 2022; Valenza et al., 2021).

Keywords: equity crowdfunding; radical innovation; team creativity; prior financing; crowdfunding; innovation

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Human Psychology and Investment Decisions of Cryptocurrencies Investors

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Framing of the research. *The changing financial landscape has digitalized the financial world with innovations. In the ongoing century with the new generation and its requirements, financial innovations have revolutionized financial products and their knowledge (Petry, 2021). Investment choices with financial technologies like blockchain and innovation have taken the form of cryptocurrencies. People who were investing in bonds and stocks are not the only investors in cryptocurrencies but also many other people who were not investors conventionally have opted for this investment choice (Ahmed et al., 2021). Likewise, the impact of behavioral anomalies in traditional markets, there seems an expected impact of behavioral factors on investment decisions in cryptocurrencies markets as well (Nofsinger, Patterson, and Shank, 2018). Despite, the developments in generations and increasing financial innovations, human psychology seems to influence the financial decisions of investors in cryptocurrencies markets (Fonseca, Pacheco and Lobão, 2019).*

The stock market investors decisions are biased to a certain extent as evident from the established literature. Behavioral biases seem to have an influential role in investment decision-making. Strömbäck et al. (2017) estimated the impact of self-control, optimism, and deliberative thinking on investment decisions. They found a significant impact of these human biases on investment decisions. This study used three biases a human can have at the time of investment decision-making with the controlled impact of financial literacy. The study of Kubilay and Bayrakdaroglu (2016) establishes that there is a significant association between the personality traits of investors and financial risk tolerance. Additionally, the study also concluded a significant relationship between the personality traits of investors and psychological biases. Another study focused on the impact of loss aversion on the risk-taking behavior of investors. The study concluded that investors with a loss-aversion approach have a low inclination towards risk-taking. It establishes a significant relationship between the variables of interest (Yuniningsih, Widodo, and Wajdi, 2017). Along with these biases, the literature shows a moderating impact of financial literacy, and investors decisions are affected in the presence of financial literacy as moderator (Ahmad et al., 2019).

The evidence from the background on the research states that cryptocurrencies are the newest and growing form of investment and the application of behavioral finance to the context of cryptocurrencies is the missing link in the literature. The empirical analysis of studies carried out in developed, developing and emerging economies reveal developing countries must initiate studies to establish the literature of behavior finance and cryptocurrencies. Also, the financial literacy role in stabilizing investment choices must be tested.

The empirical analysis of the literature suggests that human psychology leads to irrationality in the market. The market decisions of investors despite the availability of information and technical support are biased to a certain extent (Grežo, 2020). This behavior of the investors leads to anomalies in the market and unpredictable behavior. Therefore, the irrationality of investors in the form of behavioral biases has strong implications for investment decision-making. The same impact of human psychology is pertinent to developing countries like Pakistan (Asad, Khan, and Faiz 2018), therefore this study examines the problem that human psychology has its impact on the investment decision making in the cryptocurrencies market. As human biases have a considerable link with investment decision making thus leading to irrationality, therefore, this study focuses on a few of the human psychological aspects causing irrationality while making investment decisions. The impact of three biases is considered as research questions because anchoring, optimism and overconfidence biases have been found influencing and very much related to financial markets in developing countries as compared to other psychological biases (Asad, Khan and Faiz 2018). So, the same factors of behavior finance may be linked to the cryptocurrencies market as well.

In line with seminal objectives this study examines the impact of human psychological factors on cryptocurrencies investment decisions through the underlying moderating role of financial literacy. The methodical aspect is based on primary data using questionnaires to retrieve information from investors actively participating in cryptocurrency's investment.

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Purpose of the paper. The core purpose of this paper is bridging between the aspects of behavioral finance and cryptocurrencies investments. The psychological biases impact on investors decisions dealing in cryptocurrencies is empirically analyzed in this paper. Additionally, the role of financial literacy in moderating investment choices is also analyzed. The existing literature in developing countries is insufficient to claim the true nature of the relationship between human psychology and cryptocurrencies investment decisions. This study enhances the understanding of the investor's psychological behavior. The impact of optimism, anchoring, and overconfidence becomes apparent and the level to which these three biases assume the impact is also identified. The researchers can use the results of this study in future studies for more reliable testing of the hypothesis. Researchers can incorporate some other variables to examine the impact of psychological biases on investment decisions. A biased investor can wrongly take a short or long position in the market and can influence the price without knowing the actual market position. So, behavioral biases lead to unrealistic market positions of the firm as well. This study is helpful for firms to spread awareness regarding the possible role of studied biases at the time of investment decision making.

Therefore, the key purpose of this study is the analysis of the impact that human psychological factors like anchoring, overconfidence and optimism have on cryptocurrencies investment decisions made by investors in Pakistan. Also, the moderating role of financial literacy in between human psychology and investment decisions is examined in this study.

Theoretical perspective; In contradiction to the stance of behavioral finance in terms of human psychology, the domain of standard finance establishes itself on the rationality of the investors in the financial markets including cryptocurrencies segment, it means that investors will consider the theories and models of standard finance at the time of decision making for investment (Mittal, 2019). The basic assumption of standard finance pleads that investors will make rational decisions thus leading to equilibrium in the market. The market equilibrium then states that the financial instruments in the market are priced based on standard finance assumptions, primarily recognized as an efficient market hypothesis (Rossi and Gunardi, 2018).

The theories of standard finance especially the efficient market hypothesis are challenged by the unpredictable behavior of the participants. In contradiction to the standard perspective, behavior finance emerged as a replacement for traditional finance. The start of behavior finance finds its roots in the work of Kahnemann and Tversky during the 1970s. These two psychologists suggested the prospect theory for the explanation of participant behavior in the decision-making process.

According to Kahnemann and Tversky (1974), the prospect theory describes an investor's choices based on certain losses and gains rather than putting reliance on outcomes. This area of study developed over the period with the identification of several biases, problems of self-control and cognitive errors in the decision-making process. The standard finance is replaced with behavior finance in recent literature (Brüggen et al., 2017). The role of behavioral finance in the decision-making process of investors is studied frequently in research studies. The studies about varying dimensions of behavior finance are rooted across different economies of the world.

Anchoring and Investment Decisions; The empirical evidence is gathered for behavior biases to examine their relationship with investment decision making. Specifically, anchoring, overconfidence, and optimism are empirically evaluated for the purpose of the current study. The study related to behavior biases undertaken in Malaysia investigated the impact of behavioral biases like overconfidence, herding behavior, conservatism, and availability on the decision making of the investors (Bakar and Yi, 2016). In this study, the behavioral biases are taken as independent variables whereas investment decision making is adopted as a dependent variable in this study. Bakar and Yi (2016) also included a different sample from various geographical regions for the determination of a possible relationship between the behavioral biases and financial decisions of investors.

In the same manner, another study by Pochea, Filip and Pece (2017) included different market conditions to investigate the impact of behavioral biases at the time of decision-making decision making. This study found that behavioral biases and market conditions are significantly related to each other. This study used secondary data from the markets for analysis of the relationship between the variables of interest. Furthermore, regression analysis for gathered secondary data from the stock exchanges related to market condition and herding behavior was performed in the study of Pochea, Filip & Pece (2017) for the examination of a possible relationship. The researchers came with the results that there is a complete presence of herding behavior under different market conditions.

Anchoring being one of the investor biases represents the strong influence of one value on the investment decision of an investor (Blumenthal-Barby, 2016). It means that an investor will make a decision that is dependent on single or standalone value. This value anchors the decision of an investor around the same value. Investor final decision will surround the initial value that he has in his mind. This gives rise to anchoring bias at the time of investment decision making.

According to the study of Jetter and Walker (2017), anchoring has a significant impact on financial decisions. This study examined the financial decision of 6,060 contestants in the United States for wagering decision. The financial decision of individuals was close to the initial value of the dollar provided to them as a clue. The anchoring phenomenon in this study was consistent among the participants and it stood statistically significant. This study also presented the fact that the contestant to make financial decisions from various demographics is all suspects of anchoring bias. It means that the selected sample in the study of Jetter and Walker (2017) belong to different age groups and the results demonstrate that anchoring bias persists at the time of decision making for all participants.

Overconfidence and Investment Decisions; The other bias related to this research work is overconfidence, overconfidence bias is the reliance of investors on their abilities and intuitions for decision making (Baker, Filbeck, and

Ricciardi, 2017). It means that an investor is placing more reliance on its internal strengths at the time of investment decision making. If an investor has a strong record of investment decisions, it is more likely that he will get an impact of overconfidence at the time of investment decision making. Investors with overconfidence try to make decisions on basis of their intuitions. An overconfident investor is dependent on its abilities to make decisions, such investors place little value on information for decision making.

In another study by Zain ul Abdin et al. (2017), the anchoring and overconfidence biases have a positive and significant impact on anomalies in the stock market as a result of investment decisions. These two biases have a positive impact on the trading volume in terms of fundamental anomalies that is variation in trading volume from the normal. A sample of around 324 investors was used in the stated study. The questionnaire was adapted for data collection through surveys. This study was aimed to examine the fundamental and technical stock market anomalies. It is observed in this study that the behavioral biases like availability, anchoring, and overconfidence have a strong link with the investment performance with the presence of fundamental anomalies.

The study of Alquraan, Alqisie, and Shorafa (2016) also come up with a significant relationship between investor decision-making and behavior biases. This study analyzed the role of behavioral biases in the Saudi Stock Market. The Saudi market is an emerging market in the Middle East. The investment decisions of investors in the Saudi stock market are influenced by psychological factors like overconfidence. On the other hand, herding behavior has an insignificant relationship with investment decision-making in the Saudi stock market (Alquraan, Alqisie, and Shorafa, 2016). Similarly, another study by Tauni et al. (2018) studied the impact of financial advice on investment decision-making. The moderating role of personality traits is also examined in this study. The study revealed that financial advice has a significant relationship with the personality traits of investors. According to the study of Alquraan, Alqisie and Shorafa (2016) overconfidence, conservatism, and availability bias have a significant impact on investment decision making.

Optimism and Investment Decisions; Optimism relates to the investor's positive attitude towards the situation of certainty and uncertainty regardless of changing situations (Baker, Filbeck and Ricciardi, 2017). This bias prevents investors from making wise decisions in the varying situations in the investment markets. The optimism of investors makes them ignore the negative sides of the situation. An optimistic investor is always expecting favorable and attractive outcomes from the possible investment. This bias hinders the process of rational decision making which includes the analysis of all possible scenarios resulting from the investment decision (Baker, Filbeck and Ricciardi, 2017). Therefore, optimism is also prevalent at the time of decision making as part of investor's cognitive decision making.

A study related to investors in Pakistan and Malaysia establishes significant relationship between behavior biases and investment decision making. This study examined the impact of anchoring, optimism, overconfidence, representativeness, herding and mental accounting bias on the investment decision making and found significant relationship between the variables of interest (Khan et al., 2017). The study used primary data collection methodology for quantitative data analysis. A structured questionnaire was used to gather data from different respondents of two different countries. The study of Khan et al. (2017) revealed that the selected heuristics have significant relationship with stock buying decisions. The same results were obtained for samples from both countries. This study also inferred that the demographic factors have an influence over the relationship between heuristics and investment decisions. Education and experience of investors can enable them to make informed decisions. These demographic variables can resist the impact heuristics on decision making.

There is another study pertaining to examination of impact behavior biases have on investment decision making. Strömbäck et al. (2017) in their study developed an understanding of rational behind the investment decisions of investors. The researchers in this study examined the impact of psychological characteristics on the financial wellbeing and financial decision making of investors. The study included self-control, deliberative thinking and optimism as independent variables. Whereas the financial behavior was selected as dependent variable for analysis. The research approach of this study was based on quantitative data technique as the study used structured questionnaire for data collection through primary approach. The OLS regression was then used to analyze the gathered data for potential relationship between the investor's characteristics and financial decisions. From the analysis, it was revealed that the behavior biases have positive and significant impact on investment choices of investors in the stock market.

Hypotheses development from empirical review

Anchoring, overconfidence and optimism are considered for possible relationship with investment decisions in this study. The specific literature pertaining to these behavioral biases comes from the studies of (Blumenthal-Barby, 2016; Baker, Filbeck and Ricciardi 2017; Jetter and Walker 2017; Zain ul Abdin et al., (2017); Khan et al., 2017; Strömbäck et al., 2017). Financial literacy also seems to have a moderating role in investment decisions. The reviewed literature from the mentioned studies reveals that anchoring, overconfidence and optimism and other emotional and cognitive biases have significant impact on the investment decision making. Therefore, the following testable statements are proposed from the literature review. There seems no attempt in recent literature to analyze the investment decisions of cryptocurrencies investors in response to human psychology. So, the hypotheses for this research work are:

H₁: There is a significant impact of anchoring, overconfidence and optimism biases on cryptocurrencies investors investment decisions.

H₂: Financial literacy significantly moderates the impact of anchoring, overconfidence and optimism biases on cryptocurrencies investors investment decisions.

Methodology. The underlying research study collects quantitative data for further statistical analysis to meet the set purpose. Primary data collected through questionnaires is statistically analyzed for determination of impact that

behavioral biases have on investment decisions. The research approach identified and selected in this study is consistent with the studies of other authors in the recent past who have examined the same nature of models with statistical analysis. Kubilay and Bayraktaroglu (2016) in their study related to behavior biases and investment decision making adapted questionnaire for data collection under quantitative approach. They used primary research for data collection and further analysis.

The research area relates to the examination of investors who are actively participating in the cryptocurrency's investment. The research scope delimits the sample selection to the population of cryptocurrencies investors in Pakistan. Convenience sampling is opted to select final sample for the study. Convenience sampling aims to select accessible subjects from the identified population as sample of interest to the study (Fowler, 2013). The questionnaire is sent to almost 1,000 investors electronically. Out of these final response to 803 investors is analyzed in the progression of this study. The questionnaire related to behavior biases and investment decision making is based on five-point Likert scale. The questionnaire related to Behavior Biases is adopted from multiple sources. The questionnaire for anchoring bias is taken from scholarly work of Kapteyn, Smith, Van Soest and Vonkova (2011). Similarly, the questionnaire for optimism bias is taken from Harris, Griffin and Murray (2008). Additionally, the questionnaire for overconfidence bias is taken from Seppälä (2009). The questionnaire for investment decision making is taken from Hira and Loibl (2005). Lastly, the scale of financial literacy is obtained from Lusardi & Mitchell (2014) with seven items in the construct of financial literacy.

Consistent with structure of data, OLS regression model is being performed supported with empirical evidence for this study (Khan et al., 2017; Kubilay and Bayraktaroglu 2016; Strömbäck et al. 2017; Oprean 2014)

$$ID = \alpha + \beta(Anch) + \beta(OC) + \beta(OP) + \epsilon$$

Where:

ID = Investment Decision Making

Anch = Anchoring

OC = Overconfidence

OP = Optimism

Results. Consistent with Table 1, factor analysis performed for validation process which has shown the factor loadings for all items in the constructs are greater than the acceptable range (Yurdugül ,2008). Subsequently, the reliability measure is performed for analysis of entire construct including all items cleared from Principal Component Analysis such that having factor loading of greater than four (> 0.4). According to Kline (2013), the acceptable range for reliability of constructs is set at 0.7. Table 2 demonstrates the value of Cronbach's alpha for each construct in the model along with the number of items included for reliability analysis after principal component analysis. The above stated values for Cronbach's alpha for each construct included in the model are greater than the acceptable range of 0.7 as indicated by the researcher Kline (2013). It is inferred that the research instrument leads to reliable responses for measurement of statistical model developed to address research problem. After reliability analysis the descriptive analysis is performed, and data is statistically analyzed. Table 3 shows descriptive analysis. The impact of independent variables (anchoring, optimism and overconfidence) on dependent variable (investment decision making) is analyzed through regression analysis.

Table 4 shows the outcomes of the regression analysis for all variables under consideration of this study. R square represents 68% variation in dependent variable is explained by independent variables in the developed model. The f-statistics for this study is 116.47, which is greater than acceptable value, it means the model to fit to explain the association between variables in the study. Firstly, the coefficient for anchoring bias obtained from regression analysis is 0.114. It means that there is positive impact of anchoring bias on the investment decisions of investors in the cryptocurrencies market. The p value is 0.012, it is significant because it is less than maximum acceptable percentage of 5 % confidence interval. The study of Kansal and Sing (2015) also has consistent results as obtained in the regression analysis of current study, it shows that anchoring bias has positive and significant impact on the investment decision making.

Secondly, the coefficient of overconfidence bias is positive and is equivalent to 0.207, it resembles positive impact of overconfidence bias on the investment decisions of investors in the cryptocurrencies market. The overconfidence of investor that they can make good decisions and get favorable outcomes in all situation lead to intense investment decision making. The impact is significant at 1 % confidence interval as the p value is .000 for overconfidence bias. The results of the study in relation to the impact of overconfidence bias on the investment decision making are consistent with the studies of (Blumenthal-Barby, 2016; Baker, Filbeck and Ricciardi 2017; Jetter and Walker 2017; Zain ul Abdin et al., (2017); Khan et al., 2017; Strömbäck et al., 2017). Lastly, the coefficient of optimism bias is positive and is equivalent to 0.307, it resembles positive impact of optimism bias on the investment decisions of investors in the cryptocurrencies market. The optimistic investors tend to invest more due to their favorable expectations from the investment choice. The positive impact of optimism bias on investment decision making of investor's is significant as well. It is significant relationship because the p value is .000 and it is significant at 1 % confidence interval. The positive and significant impact of optimism bias on investment decision making is consistent with the empirical studies of (Blumenthal-Barby, 2016; Zain ul Abdin et al., 2017; Khan et al., 2017; Strömbäck et al., 2017).

The financial literacy moderation in the model is examined using the Process Hayes technique, the outcomes of the analysis show a significant moderating impact of financial literacy. The significance of moderation is at different level of strength, the different levels of moderation are explained by Table -5.

It shows that the moderation of financial literacy is significant while analyzing the impact of anchoring bias, overconfidence bias and optimism bias on investment decisions at different levels. The moderation of financial literacy is significant ($p < 0.05$) at a higher level in case of analysis of the impact that overconfidence bias has on investment decisions. Similarly, the moderation of financial literacy is significant ($p < 0.05$) at a lower level in the case of analysis of the impact that optimism bias has on investment decisions. Additionally, the moderation of financial literacy is significant ($p < 0.05$) at a lower level in case of analysis of the impact that anchoring has on investment decisions. The same sort of explanation in terms of financial literacy moderating role in the effect between psychological biases and investment decisions is endorsed by Ahmad et al. (2019).

Research limitations. Scope of study is just limited to developing country (Pakistan) which could be enhanced through future research by focusing on comparative analysis of developed, emerging, developing and frontier economies based on customized analysis of sector specific investments.

Managerial implications. Study provides important insights to financial users and policymakers to closely observe the consequences of behavioral biases on cryptocurrencies investors investment decisions. Financial literacy can help in overcoming the negatives of psychological factors so investors can gain financial knowledge.

Originality of the paper. The application of behavioral biases in the context of the cryptocurrencies market by choosing a well-defined sample of cryptocurrencies investors adds value to the work. Traditionally, the stock market investors were the focus of researchers. Moreover, the role of financial literacy in shaping cryptocurrencies investors behavior is another valuable addition.

Keywords: Human Psychology, Cryptocurrencies, Investment Decision, Financial Literacy

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The effect of dynamic capabilities on A.I. adoption and management in the Wine Ecosystem[♦]

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Abstract

Over the last decades, grape farming and wine production have been influenced by technological advances, especially in A.I. (Artificial Intelligence), IoT (Internet of Things), M2M (Machine to Machine) infrastructures, Robotics, and Cobotics (collaborative robots.) For wine business companies, gaining and sustaining a competitive advantage through those technologies is becoming crucial for creating vast opportunities for stakeholders in the wine ecosystem. What drives managers' willingness to adopt those technological infrastructures in the wine industry is an underexplored territory, which we aim to investigate. This research aims to explore the role of dynamic capabilities on companies' intention to adopt AI-based technologies in the wine sector. To do that, we plan on conducting field observations, focus groups and interviews among US-based wine companies, which succeeded so far in implementing A.I. technologies and can function as best practices for Europe-based producers. The preliminary results of non-intrusive observations of U.S. wine companies that have adopted new technologies indicate that staying competitive is no longer a matter of whether to adopt new technologies but rather the level of technological adaptation intensity. That is why our study intends to determine the moderating or mediating role of the influential factors in the decision-making process on adopting A.I.

Framing of the research. In the era of the Fourth Industrial Revolution (4IR), advances in artificial intelligence (A.I.), including the Internet of Things (IoT), sensor and robotic technology, remote-sensing, Machine to Machine Communication (M2M), machine learning, smart algorithms that learn from patterns such as keyboard strokes, in complex data or big data - are rapidly transforming the world of viticulture and its management within the global wine ecosystem (Winkler et al., 2017).

These developments and the adoption of technological infrastructures present vast opportunities and challenges for stakeholders in the global wine ecosystem. Specifically, an A.I. structure is an intelligent machine-based system capable of influencing the ecosystem by collection, analysis, and synthesis of data to generate useful recommendations and make predictions or provide other results for a determined set of purposes. It uses data collected by intelligent machines or human-based inputs/data to make assumptions and generate simulation models to formulate various options with perceived outcomes (Portinale et al., 2017).

Future business existence and longevity will depend on the adoption intensity of new technologies; thus, A.I. can be adopted at any stage of the supply chain and value chain. In the U.S., wine is produced or imported and then distributed through the "Three Tier Distribution System". Consequently, A.I. systems can be designed and applied to operate autonomously or be fully integrated, from sourcing grapes for wine production or importing the finished product to distribution to retailers and consumers. However, based on the country's laws, A.I. can improve the competitive position of an enterprise through cost minimization and pricing optimization, therefore making wine more competitive to benefit the consumer as in the case of the U.S. Three Tier Distribution System (Wine Folley, 2023)

According to Tardaguila, et al. (2021), A.I. applications in grape farming use various technologies and tools, including remote and proximal sensing technologies, Global Positioning System (GPS), Geographic Information System (GIS) to collect Geo-Spatial Data (GSD), and Decision Support Systems (DSS). According to the National Institute of Food Agriculture (NIFA), "Collecting data from one sensor, or many sensors, is only the first step in the overall decision-making process, which might be inspection, monitoring, tracking, etc.;" (NIFA, 2023).

[♦] This extended abstract is a work in progress. The study will continue with the following post-conference activities: focus group interview and data collection; questionnaire development and survey; data collection from self – administered online questionnaire.

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An example of a successful A.I. adoption and integration coined as “Intuitive Farming” is that of Las Palmaz Winery Management in Napa, California, which uses advanced Geographic Informational Systems (GIS) to provide the winemaking team with information about vines’ nutritional requirements based on the conditions above- and below the ground. Using a GIS-generated digital map of vineyards and blocks Las Palmaz Vineyards Management can assess and provide multiple data of the grapes grown at differing microclimates, geographically located between 300 feet and 1,400 feet elevation, about ± 91 . m. and 426. m. above sea level. Hence, remote sensing using A.I. applications provides grape producers with essential data to monitor grape nutrition and growth and to provide derived predictive data to viticulturists regarding the vineyard’s health, water level and usage, and potential production yield, and act upon anything requiring attention to mitigate the effect of quality and quantity of the end product (Romero et al. 2018).

As new A.I. technologies evolve, so do the applications that winery management can adopt. An example of advanced A.I. applications is premium grape sorting before being processed into must at a modern winery fully integrated with A.I., from grape production to packaging and distribution (Palmaz Vineyard, 2022). It uses an optical berries’ sorting table using color density recognition with M2M technologies. For the process, grapes arrive at the winery from the vineyard; grape clusters are placed in a destemming machine. Grape berries are separated and sorted out through an optical lens screening and sorting process that separates ripe berries from others, according to the color density programmed into the A.I. procedure, based on a pre-established outcome to create an end product that the consumer demands (Palmaz Vineyard, 2022).

Additional A.I. applications exist across the wine production and distribution systems. For example, using a drone, the viticulturist can treat a single vine affected by diseases from the office without spraying the entire vineyard with a crop duster. Fast forwarding, the end consumer uses smartphone apps to shop for wine and place an order. Consequently, the global wine ecosystem players might be compelled to deal with the constant evolutionary technological changes in the wine business. Looking ahead, it is inevitable that the ecosystem has reached the point of no return and is moving forward to challenge each player with the following considerations: “it is not a matter anymore whether to adopt evolving technologies; it is more a question of the intensity of technology adoption by the stakeholders striving to produce the most competitive product”. Evidence is shown in the legislation changes in many wine-producing countries in the free market economy. Across the global wine markets, there is a thrust to implement a system of wine traceability using A.I. applications (Agnusdei et al., 2022; Beck, 2022; GSI, 2023). In the U.S., for example, alcoholic products are strictly regulated, and labeling is the first approval that must be obtained from the Alcohol and Tobacco Tax and Trade Bureau (TTB) before producing commercial wines. Among several other agencies like the United States Department of Agriculture (USDA, 2023) and the Food and Drug Administration (FDA, 2023), the TTB is a Federal Government Agency that regulates the alcohol industry (TTB, 2023). As new developments are introduced and adopted, so does the alcohol law. The global industry competes mainly on the following wine products: Organic, Biodynamic, Natural, Sustainable, Vegan, Fairtrade, and No Sulfites Added.

A.I. applications in the wine supply and value chains are here to stay and are evolving like every other technological advance across industries. The Government’s regulatory agencies are concerned about truth in advertising through product labeling; therefore, producers must be regulated. Hence, the label is the first step in obtaining the approval to produce and sell wine with a specific designation. Nevertheless, despite being one of the most overly regulated industries, counterfeiting remains a problem for high-profile wineries. In 2018, the U.K. lost £218 million in economic activities from counterfeit wine and spirits. In the U.S., in response to counterfeit import activities, Avery Dennison And Everledger launched the Authenticated Provenance Tracking System using Blockchain technology (Avery Dennison, 2019).

The applications and implications of A.I adoption in the wine industry are multiple. Practitioners and researchers concur that A.I. within the wine business ecosystem will determine how the wine companies will operate and how the application and adoption of artificial intelligence will influence consumer shopping behavior. Through adopting A.I., wine producers competing in the global hypercompetitive market are exploring alternative strategies to predict what consumers will demand to create better products and increase profits (OPENGOV, 2021). The International Organization of Vine and Wine (OIV) has introduced a new center to monitor and identify main developments in digitalization and technologies and the adoption in the viticulture and enology sectors (OIV, 2021). According to The Indian Express (2017), “over the next few decades, the wine ecosystem would undergo a sea change, from how consumers buy wine to the involvement of machines in the production”. Literature shows that A.I. adoption is happening across the wine supply chain and value chain, particularly in viticulture.

However, no comprehensive research has been undertaken to study the dynamic capabilities across the wine supply chain - within the wine business ecosystem, as a fertile ground to explore companies’ willingness to adopt A.I technologies. Over the past decade, A.I. accessibility and adoption have advanced the scientific understanding of viticultural and winemaking processes. The unpredictable climatic variability in most wine regions globally is a critical issue that led some grape scientists to study and adopt A.I. in viticulture. They determined that due to these uncertain events’ complications and the effects on grape growing and winemaking, a wiser methodology is necessary to gather related information and analysis to improve efficiency in the decision-making process (Prabha, 2021; Fluentes et al. 2021).

This research is based on the theory of dynamic capabilities to create a competitive advantage in a complex ecosystem. According to Teece et al. (1997), a dynamic capability is “the firm’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments” (Teece et al., 1997; Teece,

2014.) For this study, we adopt Teece's (2007) model, which distinguishes three macro-categories of dynamic capabilities within an ecosystem.

Since the early development stage of this conceptual work, various authors have engaged in further developments and possible application of the framework (Teece et al., 1997; Helfat et al., 2007; Teece, 2007; Teece, 2010; Teece, 2014; Kevill et al., 2017; Teece, 2018). Di Stefano et al. (2010) deconstructed the conceptual framework literature by examining the research domain's origins, development, and future directions. The deconstruction showed that the conceptual framework, first published within the management domain, had sparked the interest of other scholars. Subsequent research was conducted in various disciplines, such as information systems, marketing, and operations. However, most publications remained in management journals: *Strategic Management Journal*, *Journal of Management Studies*, *Academy of Management Review*, *Industrial and Corporate Change*, and *Organization Science* (Di Stefano et al. 2010).

Dynamic capabilities are not internal and external operation capabilities; they are operations that deal with the firm's current "going concern". In comparison, dynamic capabilities are about the capacity to create, extend, or modify how best to exploit the firm's resources and capabilities, hence its core competencies, in a decisive and well-planned manner.

Within this conceptual framework, a firm uses a well-planned strategy to make tactical changes to its competitive status quo and uses those changes as the basis to gain and sustain long-term competitive advantage (Barreto, 2010; Di Stefano et al., 2010). These capabilities have been widely investigated and applied in many research studies to determine their effect on global performance (Jantunen et al., 2005; Evers, 2011; Prange & Verdier, 2011). Based on the literature, this research examines the presence and the use of dynamic capabilities to foster the adoption and application of Artificial Intelligence technologies in a "volatile, uncertain, complex, and ambiguous (VUCA)" environment of the global wine ecosystem (Schoemaker et al., 2018; Hercheui & Ranjith 2020), to assess the current performance and the potential future creation of competitive advantage of wine businesses. Within the context of striving to achieve a competitive advantage by adopting evolving technologies within the domain of Artificial intelligence, the dynamic capabilities framework consists of the following three pillars: sensing, seizing and transforming (Schoemaker et al., 2018), which are explained below.

A. Sensing

The capability to assess the changes in the local and global wine business landscape by analyzing the opportunities and threats that may present themselves then and possibly in the near future. This first pillar is supported by exploring what advantages A.I. technologies might offer to managers.

B. Seizing

The analysis of the external environment is crucial but not sufficient for the management to seize the opportunities by adopting adequate technologies within the framework of Artificial Intelligence. The management must also seize the opportunity promptly and attempt to determine the unexpected changes needed to innovate and implement new systems. Consequently, this represents the second pillar when current business models are improved or new ones are developed and implemented.

C. Transforming

According to the dynamic capabilities framework, exploiting the capabilities in an uncertain environment is often insufficient for the management to adapt to changes gradually. Management may need to stay vigilant and wait for the changes to reshape themselves and possibly their ecosystems to gain full advantage of new business models. Continuous structural renewal represents the third pillar of dynamic capabilities. However, management must be conscious that a major investment has been made, and if the transformation in this third pillar is not successful, the status quo is at the point of no return, and the strategy will have failed. Thus, investing in an A.I. infrastructure is expensive, and if achieving a competitive advantage is not feasible, the return on investment cannot be exploited.

Application of dynamic capabilities

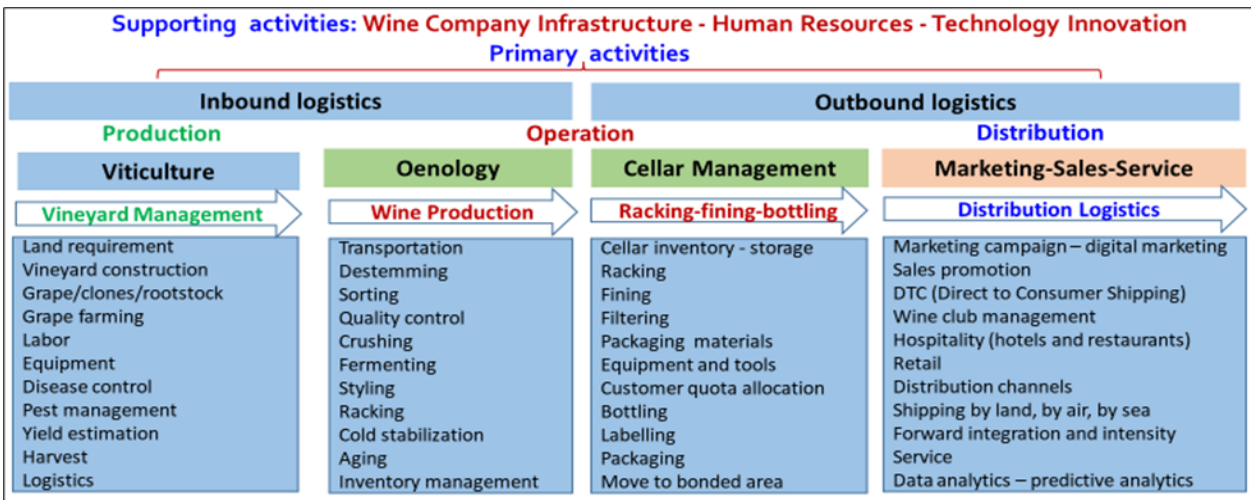
Artificial Intelligence (A.I.) is known to influence any ecosystem globally. A.I. plays an essential role in the wine business, from planting a vineyard to how wine is made and aged to how consumers select and buy wine, whether for personal consumption or investment. In the wine industry, A.I. applications are used along the supply chain, from resource acquisition to production, operation, packaging, marketing, distribution, and post-sales activities with the end consumer. Figures 1. and 2. Depict the U.S. wine supply and value chains based on the three-tier distribution system. The activities described in the three pillars of the dynamic capability framework, through the application of A.I. technologies, will moderate and/ or mediate the activities within the ecosystem, as described in Figure 3.

Fig. 1: Graphic Representation of the Wine Supply Chain based on the “U.S. Three Tier Distribution System”



Source: The management of production, operation, and distribution in the wine supply chain (A. A. Camillo, 2022)

Fig. 2: Graphic Representation of the Wine Value Chain based on the “U.S. Three Tier Distribution System”.



Source: The management of production, operation, and distribution in the wine supply chain (A. A. Camillo, 2022)

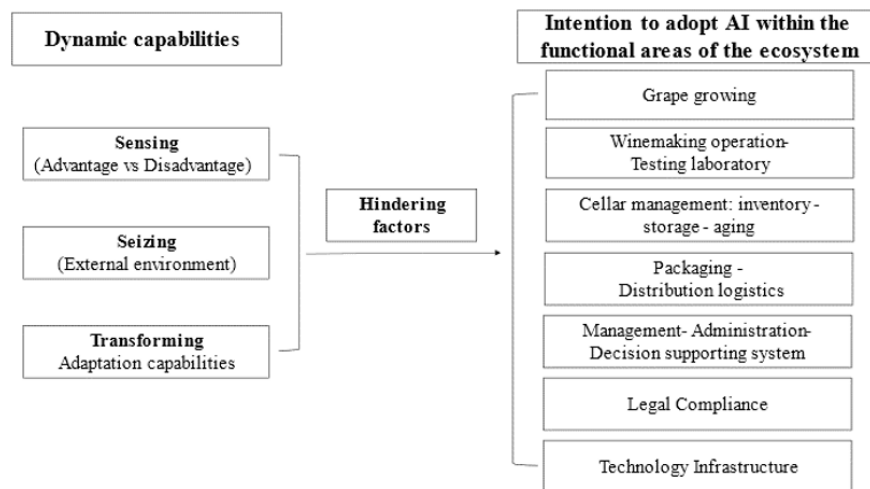
Fig. 3: below shows a proposed wine business ecosystem based on the wine supply chain and wine value chain models presented above in Figures 1 and 2.



Source: Authors' elaboration based on the U.S. wine business supply chain and value chain

Purpose of the paper. *This study investigates the role of dynamic capabilities on companies' intention to adopt AI-based technologies in the wine sector, with the aim of determining A.I. adoption intensity and management in the global wine ecosystem and the creation of competitive advantage. Specifically, we intend to determine the moderating or mediating role of the influential factors in the decision-making process on adopting A.I. technologies to gain and sustain competitive advantage. To the best of our knowledge, no previous study has addressed the effect of dynamic capabilities on A.I. adoption, particularly in the wine sector, and the effect of hindering factors such as financial investment and organizational and operational capability, and capacity constraints. Accordingly, we propose the following research model to be tested.*

Fig. 4: shows a graphical representation of the theoretical model to be tested



Methodology. *This research adopts an exploratory approach, given the lack of literature on artificial intelligence and the role of dynamic capabilities applied to the wine business ecosystem. We plan on applying qualitative and quantitative methodologies based on dynamic capabilities theory through adopting and managing artificial intelligence technologies to investigate how wine business managers create a sustainable competitive advantage for the ecosystem. This study will use focus groups and face-to-face interviews with wine industry players to collect data to develop a questionnaire to survey a purposive sample of participants. The questionnaire will be self-administered online. Depending on the variables' development from data collected through the focus group and structured interviews with industry experts, the final instrument may contain multidimensional variables which will allow measuring the effect and the probability of adopting A.I. technologies through possible regression analysis and partial least square and structural equation modeling.*

Results. *The preliminary results of non-intrusive observations of wine companies that have adopted new technologies indicate that staying competitive is no longer a matter of whether to adopt new technologies, but rather the level of technological adaptation intensity. This is a work in progress and the final results will be available following the focus group interviews, face-to-face interviews with industry leaders, and an online survey with a purposive sample of participants who operate a wine business in the United States, which functions as a benchmark player for the purpose of this study.*

Research limitations. *Despite this study being a work in progress and, therefore, not having produced any results thus far, we can certainly detect a first limitation of the research due to the fact that the focus groups and face-to-face interviews will be primarily directed only to successful cases of A.I technology adoption. Future avenues of research can, therefore, focus on investigating the limitations of A.I technologies adoption under the lens of poor dynamic capabilities presence.*

Managerial implications. *This research can produce effective replicable results for Europe-based wine producers, by suggesting to managers in the wine industry a dynamic capability framework that can boost their ability to adopt A.I technology and manage it for the benefit of the entire wine ecosystem.*

Originality of the paper. *To the best of our knowledge, no previous study has addressed the effect of dynamic capabilities on A.I. adoption, particularly in the wine sector. To investigate the phenomenon, we propose a model that represents the wine business ecosystem and a research model to test the effect of A.I. on current wine business operations or make predictions for future investments. The ultimate goal of the study is to measure and determine the effect of the "hindering" or moderating - mediating factors within the A.I. - dynamic capabilities frameworks, such as financial investment, organizational and operational capability, and capacity constraints, among other factors unknown at this point. Accordingly, we wish to present this developmental paper to seek feedback from peers to help us strengthen our research.*

Keywords: *Artificial Intelligence, Wine Industry Technology, Competitive Advantage, Wine Ecosystem, Dynamic Capabilities.*

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Artificial intelligence and digital entrepreneurship: literature review and further research

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Framing of the research. *In recent years the word “Artificial Intelligence (AI)” is increasingly common and used in different contexts because it could be referred to different types of applications.*

Several studies have focused on the theme of artificial intelligence; however, it is still difficult to give a comprehensive definition (Long and Magerko, 2020). Some authors say that AI is a process able to mimic human behaviour and decision-making abilities, so it is a manner to train software and devices to accomplish reasoned tasks (Legg and Hutter, 2007; Vaishya et al.; 2020). AI was also defined as “intelligence demonstrated by machines – or, in terms of an academic field, the examination of how digital computers and algorithms perform tasks and solve complex problems that would normally require or exceed the human intelligence, reasoning, and prediction power needed to adapt to changing circumstances” (Giuggioli and Pellegrini, 2022). Artificial intelligence (AI) provides start-ups chances to compete with industry giants in cross-border; in addition, AI not only creates several digital start-ups, but also changes the way in which entrepreneurial research and practice interact (Li et al., 2022). There are many articles that show how AI is used in different contexts and many organizational areas, with different application (Panch et al., 2019 ; Cox, 2021), promising potential challenges and opportunities, among these, artificial intelligence is considered a central theme in the field of Industry 4.0 (Lasi et al., 2014; Arrieta et al., 2020) and is also integral for Internet of things (IoT) (Ahmad et al., 2021) and for blockchain (Treiblmaier, 2018). AI also functions as an enabling factor and as government, society and global peace transformer, as a matter-of-fact bibliometric analysis can be used as a key mean to the achievement and the maintenance of a digital transformation and evolution, that respect people and nature (Carayannis and Draper 2022). Regarding the relation between AI and entrepreneurship, it seems that artificial intelligence plays a crucial role regarding how entrepreneurs decide to organize, develop, and design their firms (Chalmers et al., 2021). As stated above, the digital technologies represented by AI technologies have contributed to the growth of the national economy through big data, the Internet of Things (IoT), edge computing accelerating, also due to the Internet rise, the process of industry 4.0, which brought fresh blood to entrepreneurship (Javaid et al., 2021; Khan and Javaid, 2021; Viriyasitavat et al., 2019). Nonetheless, more attention is needed in entrepreneurship research (Zhang and Van Burg, 2020). Even though some large incumbents may find difficult the full embracing of these new technologies that emerge (Obschonka and Audretsch, 2020), here, technological change acts as an external enabler of entrepreneurial activity, introducing new economic activities to present new products or services through entrepreneurship, for instance AI Brain, Banjo and DeepMind. AI can improve entrepreneurs in their decision-making strategies, in terms of efficiency and effectiveness (Kraus et al., 2020). In the recent years there was wider and deeper application of AI in different types of industries such as shopping platforms (e.g. Amazon), social network (e.g. Tiktok) and also personal assistant (e.g. SIRI) (Xiong et al., 2020). Many scholars consider different types of AI as something that can modify the markets, companies, and entrepreneurial activities (von Briel et al., 2018). Some articles have also demonstrated positive effects of AI on sustainable entrepreneurship thanks to its ability to influence, among others, the global productivity (Gupta et al., 2023). Finally, authors highlight how AI could improve knowledge, human learning using some technologies as: perception, practise, imitation etc. (Yang et al., 2021). In this wider research context, we also tried to pay particular attention to the major areas of application of AI in specific types of companies; more specifically we want to understand the differences between companies belonging different sectors of the economic system. In particular, we chose the agricultural firms for the primary sector, fashion industry for the secondary sector and financial firms (intended as service society) as tertiary sectors; in this way we could understand the effect that AI could have on companies very different from each other.

Purpose of the paper. *This paper aims to understand the relationship between artificial intelligence and entrepreneurship. In particular, we want to answer two research questions: Which is the state of the art in the field of*

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artificial intelligence and entrepreneurship? Which are the different kinds of applications of AI between companies belonging to the primary, secondary and tertiary sectors? Which directions should researchers pursue to advance AI research? Our purpose is twofold: give a theoretical background on the literature related to the connection between AI and Entrepreneurship, analysing, among others, countries, authors, documents and keywords; subsequently we offer a comprehensive description of the various application of AI in the aforementioned types of companies and, eventually the positive impacts on them.

Methodology. To answer all research questions, we conducted a systematic literature review (SLR) (Kraus et al., 2020). According to Kraus et al., (2022), a SLR is a rigorous and relevant approach that produces knowledge, helps identify trends and research pathways, and potential future research. These reviews follow a systematic manner using an adopted protocol to guide data analysis, thus enabling transparent and replicable dissemination (Lim et al., 2022a; Kraus et al. 2020). Going in depth, according to Tranfield et al. (2003), this structured method relies on filtering such that the process is replicable allowing bias in the results to be minimized. In this paragraph, we analyse the main steps involved in methodology with the aim of developing a systematic, transparent, and replicable 3D literature review methodology. Specifically, the first D requires the definition of the research questions, which Massaro et al. (2016) defined as the preliminary step to conduct a SLR. For the purpose of this study, some research questions were identified: what is the state of the art in the field of Artificial intelligence and entrepreneurship? Which are the main trends in literature? Which are the main themes on which to focus future research? To answer these questions, we move on to the second D, that is Design, a review protocol that helps us to determine the articles to be included and perform a comprehensive search of the material. In this phase, the guidelines followed were the ones related to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2009), in order to minimize errors in interpreting the results of the collected studies. Finally, going through the last D, a coding framework was developed. This approach was chosen to improve the value of the literature review results and minimize errors in interpretation (Fahimnia et al., 2015). The methodology chosen for the analysis is the bibliometric methodology (Kraus et al., 2022; Cobo et al., 2011). In particular, we used the tool called “Biblioshiny”, included in the Bibliometrix package of R-studio, that we used for our bibliometrics analysis “a quantitative approach for analyzing academic literature using bibliographies to provide the description, evaluation and monitoring of published research” (Garfield et al., 1964; White and McCain, 1989; Aria and Cuccurullo, 2017). To do that, we did our research on the Web of Science platform “a database of bibliographic citations of multidisciplinary areas, relating to journals of medical, scientific and social sciences, as well as humanities (Translational Bioinformatics in Healthcare and Medicine, 2021). Previously, we searched articles using just the word “Artificial intelligence” AND “Entrepr*” and this gave us 1918 documents; after that, in order to narrow our search, we used some filters that allowed us to select just English documents restricted in the fields of management and business and economics, in the period between 2015 and 2023. We choose this period because, according to De la Vega Hernández et al., 2023 “AI space is dynamically and disruptively evolving from both a technological and social point of view and, according to a business perspective, analyses and meta-analyses (including bibliometric methodologies) need to be periodically repeated, including means such as bibliometrics, surveys, semi-structural interviews etc.” The material search phase was conducted in February 2023. Despite these filters (of the total of 322 documents), we obtained 150 works related to themes such as medicine, psychology, history and environment. Different information coming from these articles have been analysed, in particular we focused on: sources, authors, documents, themes and countries in order to obtain a clear overview of this topic (Kraus et al., 2022).

Subsequently, we pay our attention in the research, again on the platform Web of Science, of articles related to the use of AI in the selected types of companies (agricultural firms, fashion companies and financial companies), doing three different research, one for each type of company. Many articles were not considered because they were too general and they were published many years ago, when artificial intelligence was considered something new. On the contrary our research aims to be current and specific; this approach gave us the possibility to obtain information about how this firm works today, to understand how they have implemented AI in their activities and if this introduction has brought some improvements.

Results. Firstly, we pay our attention to preliminary information, such as: documents, keywords, authors etc. These main findings show the number of authors, which in the specific case are 515, and the type of documents examined, where the articles predominate. In addition, it is possible to have an idea of the evolution of scientific production, in terms of the number of articles published over the years. It can be seen that the growth in the number of publications begins around 2015, reaching a peak in 2022, the year in which 49 articles were published, with an average annual growth rate of about 19%. We also understood which are the countries with a high productivity rate; among these we found China, USA, India, United Kingdom, France, Germany and Italy. In the results related to the analysis of documents, we tried to understand which are the most frequent words used by the authors.

In order to avoid expected results, we created two TXT files (to be used as a filter), containing keywords as “artificial intelligence, digital entrepreneurship and innovation; results show that the most used words are, among others, technologies, impact and model and it seems that authors are interested in understanding how technologies could impact the firms. Results related to conceptual structure, in particular to the thematic maps, are useful to understand how the research themes have evolved over the years, analysing their position within the Thematic Map.

Consequently, the thematic table was generated, consisting of 4 different quadrants, where each of these refers to a particular theme that needs to be defined. In constructing the table, two parameters were considered: Centrality (X-axis) and Density (Y-axis) (Callon et al., 1991). Main two characteristics of Motor Themes are high centrality and high

density; indeed, these are identified as the themes that have gradually become more prominent and are the "leading" research themes. Basic Themes are characterized by high centrality and low density. Also, due to the underdeveloped and marginal topics they deal with, Emerging Themes have low density and low centrality. Finally, Niche Themes have high density (highly developed) and low centrality, due to the fact that they are very isolated themes. In order to give a better explanation, we must say that the entire time frame of analysis was divided into two, using 2020 as the "cutting year," thus obtaining two different Thematic Maps. These outputs given, we can notice how in the first period, until 2020, the "Motor" themes mainly concern the sphere of applications and technologies based on AI (machine learning, international business and management, international entrepreneurship, blockchain and digitalization). Whilst future use is niche (robots, IoT and big data), the theme that refers to artificial neural networks and digital economy is counted among the emerging themes. From 2020 onward, the motor themes tend to focus more on various factors concerning digitalization, such as digital entrepreneurship, servitization and transformation with their effects on value creation. It will be interesting to observe how during this period applications and technologies based on AI (machine learning, IoT and innovation management) become a basic theme, as in the post covid period issues related to applications and technologies based on AI become established.

In order to create different clusters, a Co-citation network (Small, 1973) where developed. The analysis returned three clusters, referring to different research topics:

- the first includes all contributions in the literature that analyse the impact of AI on firm's activities (Reier et al., 2021; Mikalef and Gupta, 2021);
- the second cluster includes works that address issues related to the sphere of innovation and management (Liu et al., 2020; Wang et al., 2022);
- the third cluster includes the relation between AI and "business performance" (Wamba et al., 2020; Lee, 2020).

Finally, we analysed collaborations between and among countries, using 50 nodes and a minimum of two edges, we found three different clusters: the biggest one is composed by 16 countries, among them, the greater contribution to the analyses was given by UK, USA, India and China; the second cluster is represented by 4 countries, where two are European (France and Spain) and the last one is composed by 5 countries (Sweden, Finland, Norway, Switzerland and Colombia). Nevertheless, there are also collaborations between countries belonging to different clusters. Results coming from the analysis carried out to answer the second research question demonstrate, as we expected, that there are many differences in the use of the AI and in the problems that this technology aims to solve. Articles related to the use of AI in the agricultural sector show how different types of AI methodologies such as: machine learning, smart sensors, computer visions etc. are used to solve many problems in agriculture as, for examples, crop diseases, pesticide control, lack of irrigation and water management (Elbasi et al., 2022; Choudhury et al., 2022). It seems that the use of AI in the agricultural sector could produce benefits for farmers and companies. The use of different technologies could improve the control of farms and help farmers in the resolution of possible contingencies; industries can take advantage in terms of data collections and process automation that will also reduce waste and maximize efficiency (Elbasi et al., 2022) and this is also positive in terms of increase in production to meet the growing demands for global food (Hunter et al., 2017). Fashion companies, but in general companies belonging to the secondary sector, try to keep up with times, adapting their strategies to customers' requests and technological innovations. Artificial intelligence has been used a lot in the fashion companies but the most important applications regard the trends forecasting and decision making in supply chain management (Boos, 2021); social media, influencer marketing and user-generated content have become fundamental in this reality of consumption and it's undeniable that these have an impact on driving trends and push consumers to see and buy more (Vitorino et al., 2022). Another important application of AI in this type of companies regards chatbots, able to guide the consumers through the online shopping experience, helping him suggesting items that he might like; this is possible thanks to data obtained during the period of time that the customer spent on the website and his past shopping experiences (Saponaro et al., 2018). Finally, we analysed articles related to the use of AI in the tertiary sector, with particular attention to the companies that offer financial services. "The finance sector is arguably the most benefited industry segment among the different applications areas of AI. The financial sector extensively uses AI in machine learning, chatbots, digital personal assistants and cognitive computing" (Prمود and Raman; 2022). This sector has shown great development opportunities thanks to the rise in the number of firms like Microsoft, IBM Watson etc (Sharbek, 2022). This type of companies is able to analyse financial big data and lead firms to take the best decision, for example in terms of investments (Wang et al., 2020); moreover, is possible to use AI for fraud prevention (Mahalakshmi et al., 2021).

Research limitations. As the theme of AI is constantly evolving, there will be further contributions in the future; for this reason, it will be necessary to repeat this type of bibliometric analysis in a few years to observe the evolution of the theme. In addition, we investigated just three types of companies and it's reasonable to expect that considering other types of firms (belonging to the same sectors), the AI application and the relative benefits will change.

Managerial implications. From the bibliometric analyses we can note how the artificial intelligence theme is constantly evolving, authors productivity has grown in recent years, reaching a peak in 2022, and how this theme is discussed worldwide. Moreover, observing the thematic maps, we can note that clusters related to innovation and digitalization are growing including more thematic areas; themes like big data and internet of things, that previously were minor, became basic and finally, digital entrepreneurship that we can assume it could be the central theme of future researches. Thanks to a deeply analysis of documents, we can now say that the effect of AI changes according to the type of company. Benefits of AI on the agricultural sector are closely related to solving farmers' contingencies and to helping firms to maximize production and minimize waste. In the case of fashion companies, benefits are mainly

referred to the effects on consumer behaviour; it seems that the use of AI could help firms to understand what consumers are looking for and what he may desire in the future. Finally, many financial companies have already adopted different AI technologies; however, their principal use is related to fraud prevention and decision making.

Originality of the paper. This research offers a description of the state of art on the “AI and entrepreneurship” theme analysing how this relation has evolved during the years. More specifically, we proposed a systematic literature review concerning the use of AI in companies belonging to different sectors to understand if the effects on the firm’s performance is related to the type of company.

Keywords: artificial intelligence; entrepreneurship; bibliometric, emergent themes, applications

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Beyond the Virtual Realm: an introductory investigation on Inward and Outward Emotional Responses to Sustainable Fashion Products in the Metaverse

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Abstract

Relevant trends, affecting the development of the Metaverse together with other technological innovations, are currently shaping the way through which individuals' emotions are elicited, when exposed, in a context of para-social interaction, to brands and products. In this context, limited attention has been devoted to exploring the effects of this new touchpoint on consumers' specific inward and outward emotions. Therefore, the aim of the present work is to analyse the differential effect on forming individual emotions in the Metaverse - a 3D virtual reality - comparing the outcomes with the conventional 2D environment (Webex platform) in the context of sustainable high-end fashion products. Findings suggest the presence of significant relationships between the environment in which the discussion is conducted, and the way through which some specific emotions are evoked during individuals' exposition to sustainability's stimuli, in turn affecting the perceived financial value of the goods.

Introduction

Over the recent years, businesses have focused their efforts on being part of the Metaverse, a fast-evolving 3D virtual environment (Dincelli et al., 2022; Joy et al., 2022). The Metaverse is defined as a fully developed digital world existing in parallel to the one in which we live (Kim, J., 2021), with the potential to shape the way through which people work (Pantano and Viassone, 2015), do business (Papagiannidis et al., 2017), socialize (Laukkanen et al., 2022) and entertain (Dwivedi et al., 2022). Indeed, the use of the 3D technology allows people to visually simulate complex physical environments and communicate using avatars - digital versions of themselves (Bainbridge, 2007; Jin et al., 2009). Both professionals (such as IBM) and academics have acknowledged the ability of such a rich medium also for virtual collaboration (Wilson, 2009; Van der Land et al., 2011). In this perspective, para-social interactions can take place between users and digital characters or avatars in virtual environments (Chung et al., 2007), thus letting customers experiencing a feeling of intimacy with a media personality or avatar, without any actual reciprocal communication or personal contact (Zhang et al., 2022). Para-social interaction within the 3D virtual world offers a higher level of interactivity thus enabling an increasing engagement and enjoyment of individuals (Niedenthal et al., 2005). As a result, these technologies can be applied by companies to engage groups of consumers during all stages of the customer journey (Flavián et al., 2019a) and thus offering a valuable and holistic experience (Petit et al., 2019).

While the Metaverse marketing literature is in its infancy, it is growing rapidly in several domains, including high-end goods (Joy et al., 2022). Such industries are embracing disruptive technologies (Xue et al., 2020) and new channels of communication (Arribas et al., 2022; Blázquez et al., 2014) to better understand emerging needs (Trabelsi-Zoghalmi and Touzani, 2019) and meet consumers' growing demands for more immersive experiences (Buhalis et al., 2022). While implementing these strategies - and given the relevance of the Metaverse in today's technological environment (Martínez-Navarro et al., 2019) -, it is imperative for these companies to design integrated online platforms (Blázquez et al., 2014) in order to elicit a emotional responses (Hartmann et al., 2006), Dwivedi et al., 2022; Martínez-Navarro et al., 2019) that could lead to purchase (Fuxman et al., 2022). Compared to two-dimensional (2D) online platforms, in fact, the 3D virtual space provides a more immersive and interactive experience that enhances customers' emotions, attitudes, and behaviors toward the products (Wu et al., 2021). Moreover, through a high level of media richness and visual vividness, the 3D virtual space promotes engagement and enjoyment (Wu et al. 2021).

As limited attention has been dedicated to the impact of the Metaverse in eliciting consumers' emotions, this introductory research investigates the differential impact on forming individual emotions in the 3D dimension (Horizon Workrooms app with access to Metaverse) vs. the 2D dimension (Webex platform), during para-social interaction, applying it to group of individuals when exposed to products and brands. For this investigation, we then selected the

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case of the high-end fashion industry, where consumers form their emotions also in expecting well-known brands to play, through their products, an increasing role towards sustainability (Kim and Hall, 2015; Gimenez et al., 2012; Akrouf and Guercini, 2022).

The remainder of the paper is organized as follows. After an overview of the extant literature, we present our methodological approach, results, and main findings. We close the work highlighting the theoretical and managerial implications, the limitations of the study and further research trajectories.

Theoretical Background and Research Hypothesis

Emotions have been defined as “states of feelings that arise as reactions to experiences” (Mehrabian and Russell, 1974). As the technology evolves, the arrival of new devices (Tussyadiah et al., 2018) has altered the way through which individuals perceive (Flavián et al., 2019), interpret (Laukkanen et al., 2022), and interact with their immediate environment (Tussyadiah et al., 2018), and between each other (Fox et al., 2009). As the virtual experience has both cognitive and emotional aspects (Lin et al., 2012; Trabelsi-Zoghalmi et al., 2019), it has been postulated that the multi-sensory stimuli provided by the Metaverse hold special potential by improving immersiveness and promoting not just the transfer of information (Lee et al., 2021), but also feelings and emotional reactions (Kim et al., 2020; Laukkanen et al., 2022). Furthermore, in comparison to the traditional 2D environment, 3D virtual reality can influence customers' perception by offering them a more accurate representation of products and services, enabling customers to experience them in a more meaningful way, and thereby enhancing the emotional aspects of customers' perception (van Herpen et al., 2016). As stated by Yim et al., (2017), “interactive technologies that present more vivid product visualizations are linked to a more positive affective emotional experience”, enabling customers to enjoy the thrill of discovering realistic products. This, in turn, produces varying degrees of positive emotional evaluations (i.e. enjoyment) that are felt as happiness, contentment and joy (Yim et al., 2017; Jin et al., 2009).

As far as the high-end sustainable fashion industry is concerned, companies have the opportunity to exploit the capabilities of this new and richer communication medium, which can arouse positive emotions towards the products (Flavián et al., 2019). Experiencing positive emotions is then of paramount importance for generating satisfactory experiences and attitudes towards brands (Khan et al., 2017). Specifically, through the use of the Metaverse, users can experience a sense of psychological involvement (Mollen and Wilson, 2010), and thus feeling intense emotions (Mayer et al., 2020) that lead to a high degree of engagement (Bilro et al. 2019).

We then hypothesize that using the Metaverse will produce more positive emotions compared to the conventional 2D environment.

Moreover, emotions can be classified into two main categories (Laros and Steenkamp, 2005), where inward emotions are complemented by outward emotions to form individuals' emotional reactions towards specific situations or products (Algoe & Haidt, 2009). On the one side, inward emotions refer to feelings that individuals perceived when exposed to situation, such as the display of a sustainable high-end fashion item, and can be outlined in: a) Pride b) Contentment c) Happiness d) Admiration e) Love (Table 1).

Tab. 1: Inward emotions related to sustainability's stimuli - Tested scales.

Construct	Description	Reference
Pride	Feeling that occurs when a consumer feels superior compared to another person because of the product	Laros, F. J., & Steenkamp, J. B. E. (2005)
Contentment	It is a feeling of quiet satisfaction generated by the product	Laros, F. J., & Steenkamp, J. B. E. (2005)
Happiness	It is an emotional state characterized by feelings of joy and fulfillment generated by the product	Laros, F. J., & Steenkamp, J. B. E. (2005)
Admiration	Feeling of surprise associated with some pleasure and a sense of approval towards the product	Algoe, S. B., & Haidt, J. (2009)
Love	Feeling of passion and love generated by the product	Algoe, S. B., & Haidt, J. (2009)

On the other side, outward emotions relate to the emotional connection with particular products or with the relative company. As stated by Algoe & Haidt (2009), the elicited outward emotions associated to the exposure of a sustainable high-end fashion product/service are: a) Gratitude b) Inspiration c) Elevation d) Awe (Table 2).

Tab. 2: Outward emotions related to sustainability's stimuli - Tested scales.

Construct	Description	Reference
Gratitude	It involves being thankful and appreciative towards the company behind the product	Algoe, S. B., & Haidt, J. (2009)
Inspiration	Being mentally stimulated by the company behind the product to do or feel something	Algoe, S. B., & Haidt, J. (2009)
Elevation	It is a response to acts of moral beauty of the company behind the product in which individuals feel as though they have become less selfish, and they want to act accordingly	Algoe, S. B., & Haidt, J. (2009)
Awe	Feeling of appreciation, respect and esteem generated by the product	Algoe, S. B., & Haidt, J. (2009)

Therefore, we expect that:

H1: *Inward emotions are enhanced during exposure in the Metaverse (vs. 2D platforms) to sustainable high-end fashion products*

H2: *Outward emotions are enhanced during exposure in the Metaverse (vs. 2D platforms) to sustainable high-end fashion products*

Moreover, financial value plays a key role in high-end fashion (Henninger et al., 2016), and it is considered one of the main drivers of consumption choice when compared to the other values (Sheth et al., 1991); a study carried out by Khan et al., (2017) demonstrated that personal emotions have a great impact on financial value, when exposed to a sustainable products/services. This research attempts then to highlight how, in the high-end fashion, the use of different media impacts customers' emotions (Chae and Ko, 2016; Wu et al., 2021; Pezzuti et al., 2021), when dealing with sustainability's stimuli (DiRusso and Myrick, 2021), that in turn affect perceived financial value (Khan et al., 2017).

Therefore, as the use of 3D virtual reality platforms is supposed to stimulate consumers' emotions (Yim et al., 2017; Jin et al., 2009), we expect specific inward and outward emotions to mediate the impact of 3D technologies (vs. 2D platforms) on the financial value of sustainable items, and specifically:

H3: *Emotions mediate the interaction effect of the type of media (2D vs. 3D platforms) on the financial value of sustainable high-end fashion products*

Methods

Data collection and Sample

Data was collected at the end of each experiment from 133 Master students ($M_{age} = 23$, $SD_{age} = 1.8$) at Luiss University in Rome, rewarded for participating in the project with extra points in their final course grade. The sample was divided into 2 main groups (Group A and B), and students were randomly assigned to teams with a size range of four to six individuals. A total of 15 teams for Group A and 16 teams for Group B resulted from such aggregation process.

Procedure

All participants were exposed in advance to a training stage necessary to become familiar with the use of Metaverse platforms and the Oculus, the VR headset tool provided by Meta to handle the Metaverse world. Individuals were already familiar with the use of Webex platform, as part of other online learning activities. Pre-tests were run to evaluate participants' attitude and usage motivation for technology.

The experiment was conducted in two different rounds, following the wait-list control group model (Elliot, 2002), where participants used sequentially the two different technologies (3D Metaverse and 2D Webex App. Specifically, part of the team of Group A performed a prioritization task to reach group-consensus on the ranking of specific factors ("experimental group") of a sustainable high-end fashion item, while part of the team Group B was exposed to the same task on the Webex platform ("control group"). The opposite for another subset of each group. As a result, each group meeting ended when the group's leader exposed the answers agreed upon during the 30-minute meeting. Respondents knew that every groupwork has been evaluated by the teaching team. The structure of the experiment had the aim to avoid bias in the students' responses, given the novelty of the Metaverse platform, and to allow participants to work with the same technologies.

In each round, drawing on Elliott et al. (2002), the first intervention group was exhibited to the stimulus prior to the second one functioning as a control group. This method allows us to include students from both Groups in the project while keeping technological constraints in mind. To ensure that the variance of the process was minimized and to guarantee equality of information between the students, a structured protocol for both the training and intervention phases was prepared.

Stimuli and measurement scales

To establish the adherence to a real managerial situation, the business case and the associated stimuli were developed with the support of the management of a leading, well-known international high-end fashion company.

Stimuli were visual display of the product, related details and sustainable initiatives of the company. Inward and outward emotions were based on Laros and Steenkamp (2005) and Algoe and Haidt (2009) work on consumers behaviors and emotional responses, and the consumption driver (i.e. financial value) on Hennigs et al., (2012) study on consumption values in luxury.

Statistical Analysis

We performed a quantitative data analysis, through which a t-test was carried out using IBM SPSS Statistics 28 by retrieving data from the Qualtrics questionnaires. In particular, in Study 1, we aim at observing (**H1** and **H2**) which of the investigated emotion is affected by the use of 2D vs. 3D media, evaluating the main direct effect between the use of 2D/3D technology and each inward and outward emotions. Taking into account the results of Study 1, in Study 2 we analyze the mediating effects of emotions retained from the previous hypotheses, in the relationship between technological platform's type (2D/3D) and the financial value of the sustainable product (**H3**). To this end, we utilized the PROCESS macro for SPSS (Model 4).

Results

Study 1

All tested constructs were reliable (Table 3), as the Cronbach’s alpha of each variable was higher than the cutoff value of 0.7 proposed by Kaynak (2003). Moreover, results from the t-test underline few significant relationships between medium and emotions. As regard to Inward emotions, the 2D platform received higher scores than the 3D environment both for happiness ($M_{2D}=5.36$; $M_{3D}= 4.7$; $t(135)= 2.96$, $p<.01$), and contentment, which measures the feeling of a quite satisfaction generated by the product ($M_{2D}=5.19$ vs. $M_{3D}=4.78$, $t(135)=1.96$, $p<.05$). With regards to outward emotions, significant difference is exhibited for the variable inspiration ($M_{2D}=5.41$ vs. $M_{3D}= 4.90$, $t(135)=2.00$, $p<.05$) and elevation ($M_{2D}=4.63$ vs. $M_{3D}= 4.18$, $t(135)=1.90$, $p=.05$).

Tab. 3: Inward and Outward emotions elicited by 2D/3D environment: means and standard deviations.

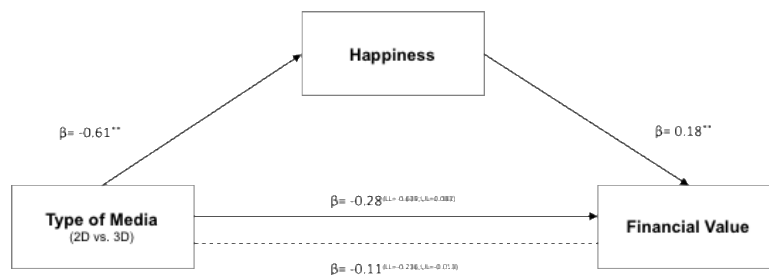
	2D condition (n= 64)	3D condition (n=73)	t-Test statistics	p value	α
Inward Emotions					
Pride	4.76 (1.3)	4.63 (1.5)	$t(135)=.52$	$p=.60$.916
Contentment ⁽¹⁾	5.19 (1.1)	4.78 (1.3)	$t(135)=1.96$	$p=.04$	
Happiness	5.36 (1.1)	4.7 (1.4)	$t(135)=2.96$	$p<.01$.916
Admiration	5.01 (1.2)	4.8 (1.4)	$t(135)=1.33$	$p=.19$.940
Love	4.68 (1.3)	4.33 (1.4)	$t(135)=1.50$	$p=.14$.928
Outward Emotions					
Gratitude	5.02 (1.3)	4.60 (1.5)	$t(135)=1.64$	$p=.10$.945
Inspiration ⁽²⁾	5.41 (1.3)	4.90 (1.6)	$t(135)=2.00$	$p=.04$	
Elevation	4.63 (1.4)	4.18 (1.4)	$t(135)=1.90$	$p=.05$.982
Awe	4.82 (1.5)	4.48 (1.5)	$t(135)=1.33$	$p=.18$.953

- (1) Measured as a single-item scale: “I feel contented”
- (2) Scale composed of a single item: “I feel inspired”

Study 2a

For Study 2, we took into consideration only the variables which displayed a significant difference in Study 1. To test the hypothesized model (H3), we first assessed the conditions of mediation of the variable happiness (Figure 1). We coded the 2D as 0, and the 3D as 1. The results of the regression analyses showed that the type of media (X) significantly predicted happiness (M) ($\beta = -.61$, $SE = 0.23$, $p < 0.01$), and M significantly predicted financial value (Y) ($\beta = 0.18$, $SE = 0.06$, $p < 0.01$). The total effect of X on Y was not significant ($\beta = -.27$, $SE = 0.18$, $p = .13$), indicating that type of media has not a direct effect on happiness. On the other hand, the indirect effect through the emotion was significant ($\beta = -.11$, $SE = 0.06$, $LLCI=-.23$, $ULCI=-.01$), indicating that happiness mediates the relationship between the media and the financial value. These results suggest that the type of media has an indirect effect on product’s financial value through the feeling of happiness, however in the opposite direction vs. what expected. Specifically, our results showed a full mediation.

Figure 1. Estimated path coefficients of the hypothesized model - 2D/3D, Happiness, Financial Value

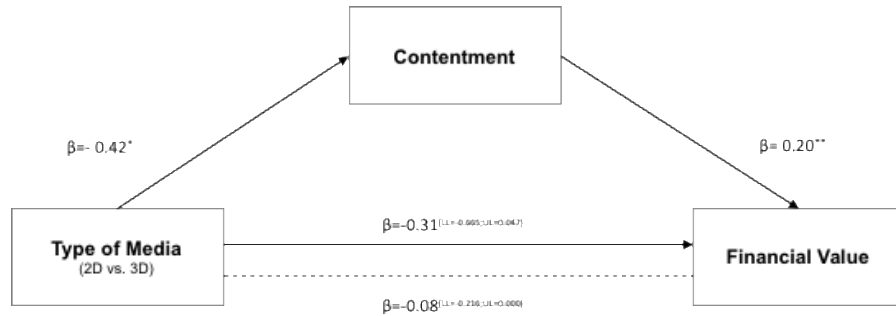


* $p<.05$; ** $p<.01$; *** $p<.001$

Study 2b

To test the hypothesized model (H3), we first assessed the conditions of mediation of the variable contentment (Figure 2). We coded the 2D as 0, and the 3D as 1. The results of the regression analyses showed that the type of media (X) significantly predicted contentment (M) ($\beta = -.42$, $SE = 0.22$, $p = 0.05$), and contentment significantly predicted financial value (Y) ($\beta = 0.19$, $SE = 0.07$, $p < 0.01$). The total effect of media on financial value was quasi-significant ($\beta = -.31$, $SE = 0.18$, $p = .08$), indicating that X has a direct effect on Y. The indirect effect of media on financial value through contentment was significant ($\beta = -.08$, $SE = 0.05$, $LLCI = -.21$, $ULCI = -.000$), indicating that this variable mediates the relationship between media and financial value. These results suggest that the type of media has an indirect effect on product's financial value through the feeling of contentment, again in the opposite direction vs. what expected. More in detail, our results demonstrated the mediated role of contentment between our independent and dependent variables.

Fig. 2: Estimated path coefficients of the hypothesized model - 2D/3D, Contentment, Financial Value

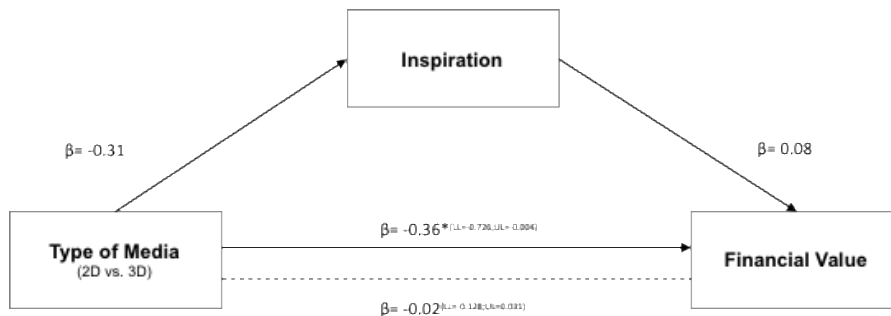


* $p < .05$; ** $p < .01$; *** $p < .001$

Study 2c

To test the hypothesized model (H3), we first assessed the conditions of mediation of the variable inspiration (See Figure 3). We coded the 2D as 0, and the 3D as 1. The results of the regression analyses showed that the type of media (X) doesn't significantly predict inspiration (M) ($\beta = -.31$, $SE = 0.27$, $p = 0.25$), and M doesn't significantly predict financial value (Y) ($\beta = 0.08$, $SE = 0.06$, $p = 0.14$). The total effect of X on Y was significant ($\beta = -.36$, $SE = 0.18$, $p < .05$), indicating that X has a direct effect on Y. On the other hand, the indirect effect of X on Y through M was non-significant ($\beta = -.02$, $SE = 0.04$, $LLCI = -.13$, $ULCI = .03$), indicating that M does not mediate the relationship between X and Y. These results suggest that the type of media has only a direct effect on product's financial value, excluding the interaction with inspiration. More in detail, our results didn't demonstrate the mediated role of inspiration between our independent and dependent variables.

Fig. 3: Estimated path coefficients of the hypothesized model - 2D/3D, Inspiration, Financial Value

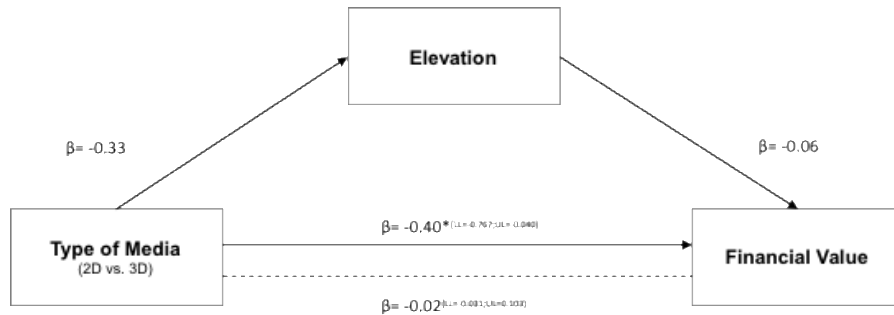


* $p < .05$; ** $p < .01$; *** $p < .001$

Study 2d

To test the hypothesized model (H3), we first assessed the conditions of mediation of the variable elevation (Figure 4). We coded the 2D as 0, and the 3D as 1. The results of the regression analyses showed that the type of media (X) doesn't significantly predict elevation (M) ($\beta = -.33$, $SE = 0.25$, $p = 0.18$), and M doesn't significantly predict financial value (Y) ($\beta = -0.06$, $SE = 0.06$, $p = 0.30$). The total effect of X on Y was significant ($\beta = -.40$, $SE = 0.18$, $p < .05$), indicating that X has a direct effect on Y. On the other hand, the indirect effect of X on Y through M was non-significant ($\beta = 0.02$, $SE = 0.03$, $LLCI = -.03$, $ULCI = .10$), indicating that M does not mediate the relationship between X and Y. These results suggest that the type of media has only a direct effect on product's financial value, excluding the interaction with elevation. More in detail, our results didn't demonstrate the mediated role of elevation between our independent and dependent variables.

Fig. 4: Estimated path coefficients of the hypothesized model - 2D/3D, Elevation, Financial Value



* $p < .05$; ** $p < .01$; *** $p < .001$

Conclusions

General Discussion and Managerial Implications

In the current context of fast evolving emerging technological, multiple devices are enabling VR experiences, through which consumers communicate and interact. Accordingly, the use of this new interactive setting might impact customers' emotions, attitudes and behaviors towards the product (Wu and Whang et al., 2021; Fisher et al., 2008). With regards to the adoption of true sustainability practices, affecting individual feelings and emotions (Kyu Kim et al., 2021; Fuxman et al., 2022), the paper highlights the presence of a differential effect when customers, engaged in group discussion, interact in a Metaverse/ 3D virtual reality environment vs. when they do the same in a 2D environments.

In this scenario, our findings reveal that only a limited set of inward (Laros and Steenkamp, 2005) and outward emotions (Algoe et al., 2009) are affected by the type of media setting in which the discussion takes place. More specifically, this introductory research showed a direct effect between the use of different media and specific inward emotions such as Happiness, Contentment, Inspiration and Elevation. Differently from what expected, 2D settings still have a better influence on such emotions when dealing with sustainable high-end fashion products.

The above suggests that those emotions need to be carefully stimulated, as they might be a central element in a potential engagement plan in 3D media setting. Thus, future effective marketing strategies in the Metaverse should focus on improving Happiness - as the "emotional state characterized by feelings of joy and fulfillment generated by the product" - and Contentment - as the "feeling of quiet satisfaction generated by the product". The impact of these emotions would then be translated in a differential perceived financial value of the sustainable products: results from our path analysis indicated, indeed, that the emotional reaction (i.e. happiness and contentment), obtained from the display of the sustainable high-end Fashion items, mediates the effect of the type of media (2D vs. 3D platforms) on the product's financial value.

In order to boost users' feelings and behavioral intentions towards high-end sustainable fashion products, especially with embodied technologies, Choi et al. (2018) suggest that users may need to be enjoyed and engaged in the virtual experience, and thus managers should carefully reflect on how to develop appropriate communication plans in a multi touch-point environment.

As a result, experiences with highly embodied and virtual devices (i.e. Oculus) can generate a higher level of emotional display which, in turn, might influence the individual perception of the product's sustainable qualities and the reasons for its associated value. In their quest to discover fresh emotional approaches for promoting products, marketers ought to consider the influence of the Metaverse and how to set-up proper immersive experiences. In order to be effective in the market, accordingly, a profound and careful investigation should be run to understand the impact of the setting of the Metaverse; managers might then explore how to enrich their VR tools, its sensory inputs and interactivity (i.e. working on Avatars) to enhance positive emotional reactions (i.e. enjoyment and engagement) and attitudes towards sustainable products.

Limitations and Future Research

This study has several limitations that could generate future research avenues. First, the sample size of our research is relatively small with limitations on a specific age group, already more prone to the use of innovative technologies; thus the validity of the outcomes might be increased by enlarging the sample and the expanding to other socio-demo groups. Second, the stimulus analyzed was the display of one sustainable high-end Fashion product of an international well-known Fashion company. It would be interesting to use different stimuli (i.e. different types of products) and different Fashion brands to compare the effectiveness of the different media (i.e. 2D vs. 3D platforms). Third, all variables, including inward and outward emotions and financial value, were measured self-reportedly (i.e., Likert scales), and there was a limited exploration of more behavioral variables. Future research can go beyond these limitations and extend our findings by conducting qualitative data analysis based on coding semi-structured interviews on respondents' emotional states and attitudes. Finally, the validity of the results might be explored also in other

industries to understand whether a common differential pattern exists on emotional responses and on other consumption drivers in different contexts, when customers interact to form their opinion in the Metaverse vs. other touchpoints.

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Prototyping new organizational forms to develop and transfer digital innovation: design and validation

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Framing of the research. Knowledge is considered a source of competitive advantage, which is why the discussion concerning knowledge and the transfer of knowledge, as well as technology, have gained increasing importance for the competitiveness of enterprises (Spender and Grant, 1996; Argote and Ingram, 2000). Knowledge transfer is relevant, especially in the ongoing digital transformation, which has been generating profound transformations of organizations, industries, labor market, and society (Schwab, 2017), due to the introduction of new technologies that have opened new opportunities for knowledge creation and innovation (Dougherty & Dunne, 2012). Digital innovation regards both the adoption of digital technology for innovation processes and the digital outcome of innovation (Nambisan et al. 2017). In addition, digital innovation is reshaping consolidated configurations of value creation and appropriation, also with the involvement of new and heterogeneous actors characterized by different goals and capabilities (Iansiti and Lakhani, 2014; Porter and Heppelmann, 2014). In particular, the science-industry relations and related knowledge transfer have been affected by significant changes in recent times (Arora et al., 2018; Zahra et al. 2018), emphasized by these context transformations. Knowledge transfer issues are not limited to the dyadic relation “science-industry” but encompass the different knowledge bases that characterized the so-called “innovation ecosystems” (Granstrand and Holgersson, 2020), which cross several industries due to the increasing blurring of sectorial borders. The interdependencies of the actors in this context of digital transformation are posing relevant issues regarding new organizational forms for the development and transfer of digital innovation (Albats et al., 2020). Despite the effectiveness of some exemplary experiences of knowledge transfer across organizations, replications of templates proved to be to large extent unsatisfactory. The growing and ubiquitous presence of digital innovation that is progressively spreading pervasively calls into question the effectiveness of technology transfer models that have already shown their limitations.

Purpose of the paper. Over the last decades, various organizational forms have been proposed as solutions for fostering science-industry knowledge transfer, such as establishing science and technology parks (Phillimore, 1999; Hobbs et al. 2017), the creation of fab labs for firms and scholars interactions (Maravilhas and Martins, 2019), science-based open-labs (Fritzsche, 2020; Paskaleva and Cooper, 2021), digital platforms (Dahlander et al., 2021), big science center (e.g., ITER, Dahlander et al., 2021), and corporate science labs (Arora et al., 2021). However, how new organizational forms for digital innovation are designed and validated is overlooked. Therefore, this paper aims at exploring how new organizational forms better foster knowledge creation and knowledge transfer in a digital context.

Specifically, this paper outlines what options and patterns are most effective for knowledge transfer between heterogeneous actors, as well as the role of open innovation intermediaries (Agogu e et al., 2013) for value creation processes in knowledge creation and transfer processes of both the intermediaries and the other involved actors (such as university, research institutes, large companies, and SMEs).

Methodology. In order to answer the exploratory research question, this study relies on an inductive qualitative research method. In particular, the author samples the case study of some open innovation intermediaries that are part of a Competence Center (we will call it “I4.0 Competence center” for guaranteeing anonymity). In general, Competence centers are public-private partnerships whose task is to carry out guidance and training activities for companies involved in digital transformation, as well as support the implementation of innovation, industrial research and experimental development projects (<https://www.mise.gov.it/>). The Competence centers are a consequence of a policy measure introduced in Italy in 2018, which lists several ways of conducting business training, but for the purposes of this study, the following is the relevant one: implementation of one or more demonstration production lines within the competence center with the aim of presenting, in a real environment, the application of technologies in the context of Industry 4.0. Hence, the aim of the Competence Center is the realization, by the user companies, in particular small and medium enterprises (SMEs), of new products, processes or services through advanced digital technologies. These open innovation intermediaries, which we will refer to as Live Showcases (LSs) in order to guarantee anonymity, are spaces, such as laboratories, that enable the innovative technology transfer specifically related to Industry 4.0 (i.e.,

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the application of digital technologies in the manufacturing industry). This case is particularly relevant with respect to our research question because LSs have been intendedly designed and implemented to foster digital technology awareness, adoption, and innovation in the Italian Northeast area, which is characterized by the strong presence of traditional manufacturing industry, enabling knowledge transfer and collaborations. In order to analyze the knowledge transfer within a complex organization such as the I4.0 Competence Center, which contains different LSs, the authors decided to investigate in depth two LSs. The LSs are thematic facilities based on an industry or a technology: digital twin, agrifood, wine industry, machine-to-machine technologies, and human-to-machine technologies. The LSs that we selected for our paper are the ones involved in human-to-machine technologies (LS1) and in digital twin technology (LS2), respectively. In particular, LS1 was selected because it is the LS that has been the last inaugurated. Conversely, LS2 was the first LS inaugurated and it has the peculiar aspect to be a “non-physical” LS since it does not have a physical laboratory but it is only digital (we will deepen this aspect afterward).

This paper uses case study analysis as a basis for understanding due to “its revelatory potential and richness of data” (Langley and Abdallah, 2011, p. 109). The data are then analyzed through the Gioia method (Gioia et al., 2013). The study aims to understand any similarities or differences between the two LSs, which are both parts of the context of the I4.0 Competence center and are therefore conceived by the same organization but deal with different topics in different territorial contexts. The data collection consists of 6 semi-structured interviews with the various actors involved in the observed LSs. The interviews were carried out online through the Teams platform between January and February 2023. In order to bring back the intrinsic complexity of these LS structures, it was decided to interview actors with different roles and contexts: researchers and scientific representatives, end users, and technology providers, as well as LSs project managers. The interviews were recorded and transcribed by the authors. Moreover, the authors had access to the documentation provided by the I4.0 Competence center in order to triangulate the data collected through interviews.

The topics explored in the interviews included the interviewees’ perception of what a LS should be, the objectives and expectations that led them to enter this collaboration, potential similar projects that they experienced during their professional life, as well as an assessment of how the LS objectives have been reached thus far. Besides general questions, customized questions were asked based on the type of interviewed subject (i.e., researcher, end-user and technology provider, and project manager). The questionnaire was initially validated by a manager of the Competence center in order to provide robustness to the questions. The following macro-themes have been identified: LS nature and purpose, actors’ motivations and expectations, actors’ experience with similar projects, inter-organizational learning generated by conceiving and developing the LSs, observed knowledge transfer effect, emerging interaction structures, critical issues emerged in the design and the implementation of LS, and expectations fulfillment.

Details about the interviews, as well as the list of actors who participated are displayed in Table 1.

Tab. 1: Interviews’ information (source: authors’ elaboration)

Interviewee name	Name LS	Role of the actor interviewed	Date	Length of Interview
R1	LS1	Scientific referent	02.02.2023	25 min
TP1	LS1	technology provider	08.02.2023	28 min
PM1	LS1	LS Project Manager	03.02.2023	49 min
R2	LS2	Scientific partner	26.01.2023	51 min
EU1	LS2	End user/technology provider	20.01.2023	54 min
EU2	LS2	End user/ technology provider	01.02.2023	40 min

Results. Through the application of the Gioia method, the aggregate dimensions that we identify are the following.

LSs as a showcase for SMEs: From the interviews, we can infer that the concept of what a LS is more or less the same for both LSs, and heterogeneous actors involved in both LSs also agree. The LS is generally seen as a space for showcasing the usability of specific technologies so that SMEs can observe concrete applications of digital technologies developed by large companies and then integrate them as solutions that can be adapted to their own business context, as well as actively helping SMEs to identify digital solutions serving their current problems. LSs support knowledge transfer as they expose potential adopters to concrete applications that may be adapted into solutions that serve their needs.

Heterogenous motivations of open innovation intermediaries: In this case, we can notice a difference between LS1 and LS2. All the actors belonging to LS2 reported as a relevant motivation the unnecessary duplication of R&D investments that can be avoided if academia and innovative firms work together on applied projects. These informants are persuaded that cooperation between academia (scientists) and business saves effort, resources, and time. EU2 in fact mentioned “cooperation which does not kill competition”, in particular with respect to the optimization of the manufacturing process, which is a major need all big companies face, and could more efficiently be solved within a networked context, by dividing the investments and sharing the results. When it came to LS1, the motivation to be part of a network emerged as well. In this case, actors acknowledge the value of having access to multiple collaboration projects, as well as of finding more applications for existing technologies to show to their customers. In comparative terms, a difference between the two LSs emerges also in terms of network size and development. In the case of LS2, the regional environment is characterized by the presence of many potential players that aim at being connected. Conversely, at this stage, LS1 is primarily focused on the identification and selection of projects to demonstrate useful applications of digital solutions to existing customers.

New organizational forms as a combination of existing forms: The similarities and differences of LSs from other projects are surely more complex to identify, as they largely depend on the heterogeneous professional experience of the informants of this study. In general, we can say that every actor belonging to a company mentioned other projects that their firm carried out in the past or is still carrying out as similar to LSs. More specifically, a common structure has emerged: similarly to LSs, a larger company provides spaces and machinery for SMEs to test and experiment with their technologies. In this regard, LSs have been compared also to accelerators and research institutes concepts. Indeed, an interviewee stated:

“BMW acceleration hubs and Fraunhofer Institut’s investments consist of labs which can be experienced and used by smaller companies. This can be both compared to a LS activity and act as an inspiration for future activity” (EU2, LS2).

From the researcher’s point of view, the LS project has been compared to some university projects abroad. For instance, the German “Lernfabrik” has been mentioned as an experience similar to LSs, since the university provides SMEs with some spaces and technologies so that they can experience and test innovations developed by research. Therefore, this example resembles the template described by companies.

“Conventional” science-industry projects usually entail a contract between firms and research institutions to precisely set the deliverables. Nevertheless, in LSs’ case, a contract is put in place but without clear deliverables and deadlines. Therefore, the partnership between LSs, technology providers and universities is based mainly on mutual trust and commitment. Here is what was stated by an end user:

“When talking about university-company interaction [...], when we establish a contract with a supplier it is defined both in terms of time, duration and the actual cost. If something exceeds, the relationship stops. The point with the LS is that obviously the parties have to enter this partnership in good faith.” (EU2, LS2).

Critical issues of the early-stage organizational forms establishment: A critical aspect that emerged from actors of LS2 is the excessive complexity of the displayed usecase. A complexity that may exceed the needs and experience of most SMEs who come to visit the LS. In addition, the non-physical nature of the adopted digital technology (LS2 is specialized in digital twins) increases the perceived distance between the proposed solutions and the current needs. On the other hand, the opposite situation, meaning the display of too simplistic and trivial applications of digital technologies that may not attract the attention of SMEs has been raised as a serious concern. Moreover, LS1 experienced significant difficulties in finding partners to populate the LS, and later motivating them to collaborate on projects within the Competence center network. Thus far, word-of-mouth has been identified as the main driver of visitors to the LS. However, the evangelist role of actors already involved in LSs proved to be decisive in bringing new people to visit and engage with the LS.

Recruitment of skilled HRs to support the implementation of LSs activities is also a critical issue. LS2 explicitly mentioned the difficulty in recruiting skillful individuals, as well as providing them with the right documentation when needed.

Finally, selecting the right technologies to be showcased in the future has emerged as a significant concern, since selected technologies need to be of great interest to I4.0 Competence center, universities, and SMEs. However, this issue is more closely related to the ideation phase of the LS, rather than the operations phase.

The bridging role of the open innovation intermediaries: Inter-organizational collaboration has been fostered in different ways for the two LSs. Relationships in the context of LS1 are mostly still in an early stage, whereas LS2 entails more established relationships. After interviewing actors belonging to LS1, we can conclude that in this case, technology providers and research institutions have the strongest collaboration. Around 50 end users have come to visit the LS1 thus far, highlighting the importance of the tangible nature of the displayed usecases. physical facility to engage end users, especially SMEs. When it comes to LS2, the technology is intangible (i.e., digital twin) and thus more difficult to perceive and acknowledge the concrete value of what is displayed. For this reason, the main interactions merely involve technology providers and research institutions: and the technology provider (that in this case is a large firm) mentioned other large firms, as well as researchers as their privileged partners and vice-versa.

However, when asked about the relationship with SMEs, i.e. who the authors identified as the main end-users of the LSs, neither the research institution nor the technology providers reported having contact with them.

In comparative terms, LS1 and LS2 developed two distinct templates of interaction among the involved actors.: While in LS1 researchers are always present in the demonstrations and technology providers actively try to bring their customers into the LS, LS2 fostered rather few interactions between researchers, technology providers and SMEs, thus far. Furthermore, the project manager of LS1 was asked to make an assessment of how he evaluates interactions within the LS from his point of view. From the interviews, it emerges that during the planning phase, the relationship between technology providers and end users was nonexistent, as was the relationship between researchers and end users, precisely because the end users were not involved before the inauguration. After the inauguration, these dynamics have changed slightly. PM1 reported that:

“During the inauguration, the technology providers were present and had their own workstation to communicate with the end users too, whereas during the demonstrations it is low, we hand out flyers but there is no direct contact, perhaps LS1 does not need this kind of interaction.” (PM1, LS1).

Finally, PM1 reported a very low interaction between multiple technology providers in LS1:

“We tend to have TPs that are not too repetitive, so there may be some interest in exchanging applications and integrations but they are not simple.TP interactions may occur, but outside the LS; in the future, it could actually be a way of involving the TP.” (PM1, LS1).

This observation points to another element that emerges as a difference between LS1 and LS2: the motivation to be in. As mentioned above, large companies entered LS2 also to minimize R&D investments and reduce research duplications. As it became more apparent, LS1 does not share a similar concern, because even technology providers are often very heterogeneous, so the risk of conducting the same resource twice is considerably lower, which is why technology providers do not interact as much with each other.

When it comes to the knowledge transfer structures, actors of LS1 perceive the I4.0 Competence center as a facilitator and container for knowledge transfer, but not necessarily as an active player. This changes when we observe the assessments made by actors belonging to LS2. The actors involved expressed the need to place the project manager of the I4.0 Competence center at the center of the collaboration, as a bridge between the university and industry. A further noteworthy aspect is that in the case of LS2, often technology providers and end users overlap due to the intangible nature of the digital twin technology - technology providers develop the technology with and thanks to the university and are also the end users of the developed technology. In this case, the I4.0 Competence center should act as a bridge to attract other end users (different from technology providers) in order to grasp the full potential of the LSs.

Expectations matching of heterogeneous actors: The last aggregate dimension included is expectations matching. More specifically, this analysis will explore two subtopics. Firstly, we will briefly talk about the satisfaction level per se, for sake of completeness and because satisfaction level affects trust and other parameters that are the object of further analysis. Secondly, we will elaborate on the learning experience and the amount of learning, especially inter-organizational, that was fostered by the collaborations enabled by an open innovation intermediary.

Members of LS2 are generally satisfied with the collaboration, R2 mentioned that one of the technology providers created a new collaboration with a research institution to fund an industrial doctorate after collaborating with the I4.0 competence center, therefore this partnership already laid the grounds for further future inter-organizational collaboration and knowledge transfer. Both EU1 and EU2 mentioned not having a tangible service yet but stated being satisfied with the partnership anyways because, during this project, they had the opportunity of conducting innovative analysis and understood the potential of some technologies (EU1), and gained new knowledge in Machine Learning and Artificial Intelligence more in general (EU2). The opinions were not so unilateral in the case of LS1. While TP1 appeared rather enthusiastic about the cooperation both with the I4.0 Competence center and the research institution, mentioning that her company started to address a market need after the cooperation with the I4.0 Competence center:

“We are developing a digital factory, which was really born out of a market need that we were aware of but didn't address yet, so we are trying to acquire as much knowledge through this cooperation as possible. We can state that our employees are enriching their knowledge base as well.” (TP1, LS1).

However, the research institution claimed to be expecting more and bigger projects coming from the Competence center's side. In turn, PM1 assessed the activity of the LS positively, as he noticed that end users and researchers got together during the demonstrations, which managed to successfully show the end users that a concrete application of the technologies is possible and necessary. The generally higher satisfaction level in LS2 can be explained because, as stated above and also mentioned by R1, LS1 has been launched very recently so it has not reached its full potential yet.

Discussion. The results outline the design and validation phases of a new organizational form which is shaped as an open innovation intermediary between heterogeneous actors.

We observe that knowledge transfer occurs, not without problems, between academia and industry, thanks to the bridging role of the LSs. The LSs enable knowledge creation and transfer processes that are not limited to the “traditional” paradigm wherein the university produces basic research and the industry carries out the applied research phase. Indeed, what emerges from the study is that there is a mutual and reinforcing cycle of knowledge between science and industry, which is triggered by the opportunities enabled by LSs. Moreover, the R&D process does not entail only “vertical” relations within the same sector but the open innovation intermediaries allow cross-sectorial collaboration, enabling cross-fertilization between different fields.

Another aspect that appears from the results is the parallelization of the “innovation-development process” (Rogers, 2010). Indeed, usually, the innovation process disentangles into the following phases: identification of a need or problems, research (basic and applied), development, commercialization, diffusion and adoption, and assessment of the consequences (Rogers, 2010). The analyzed organizational form breaks the pattern that the development precedes the diffusion. In this case, LSs enable to develop a technology while, at the same time, finding a diffusion path. Digital technologies have the power to ease the unfolding of these two steps simultaneously. Indeed, while LS users look for new spaces of application, they start the innovation process.

Regarding the LSs that we examined, they are embedded in a technology park, which serves as a sort of “incubator” for the LSs. Therefore, the LS can be seen as a prototype of a technology park. If LS will be validated further (through other case studies and longitudinal analysis), it may work autonomously (without the park “support”) acting as a “lean technology park”, wherein actors can gather and collaborate in a space of knowledge creation and transfer.

Originally, LSs was born mainly as a training center. However, the customer of the LS (usually a SME) can be seen as not only the end user of the technology but the pioneer of end users. Therefore, the presence of these pioneer end users can “train” a number of other SMEs, shortening the penetration line which is needed for the diffusion of the digital transformation in the ecosystem.

Research limitations. Regarding the limitations, the empirical analysis includes two of five LSs. The involvement of all the LSs would provide completeness and robustness to the results, as well as longitudinal analysis (e.g., updating the

results presented in this paper once LSI will be up and running). These limitations may be the subject of a future research agenda. Finally, the I4.0 Competence center conceptualizes the North-East of Italy as a big innovation ecosystem, however, in the interviews, it appears that this multiregional ecosystem is in turn composed of smaller regional or even provincial ecosystems, and in-depth analysis could be conducted to investigate characteristics and dynamics of this configuration.

Managerial implications. This paper lies the foundation for understanding how value is created, delivered and captured through LSs, both for Competence centers and the involved actors. For this reason, this investigation is a valuable starting point that may be useful for Competence centers' business model development and for future related in-depth analysis.

Originality of the paper. This paper explores how new organizational forms foster knowledge creation and knowledge transfer in a digital transformation context. Specifically, this paper sheds light on particular new organizational forms that were born for supporting and spreading digital innovation, especially to SMEs. In particular, the paper explores the design and validation of the prototype of this new organizational form labeled as open innovation intermediary, investigating what patterns are most effective for knowledge transfer between this new subject and involved heterogeneous actors (such as university, research institutes, large companies, and SMEs).

Keywords: digital transformation; digital innovation; knowledge transfer; prototyping; new organizational forms.

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Living Labs: A systematic literature review

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Abstract

Living labs (LLs) have gained popularity as an innovation practice and have gained the attention of the debate on multi-stakeholder and collaborative innovation rooted in Open Innovation (OI) and User Innovation (UI) conceptual frameworks. Despite the fast expansion of the LLs field and the breadth of topics related to LLs, only a handful of systematic reviews have been carried out so far. The paper aims to conduct a systematic, up-to-date literature review in the domain of Living Labs (LLs). In our study, we categorized the scientific articles into six different streams. The results of this study offer innovation management scholars an organized framework of internal and external characteristics and practices of LLs. Our study can also help business practitioners set up and manage LLs for innovative targets and different contexts, and profit from them.

Framing of the research. *This research put into perspective the LL method so that it contributes to the two overarching UI and OI paradigms. Eric von Hippel introduced the UI paradigm in the 70s, in which users are the leading innovators, and the OI was put forward by Henry Chesbrough later in the early 2000s, who proposed to enlarge the innovation resources to the outside borders of firms that embrace multi-stakeholder perspective.*

Purpose of the paper. *LLs are deemed as virtual or physical sites where stakeholders ranging from firms, public agencies, universities, institutes, and users meet to find a solution for an unsolved challenge (Westerlund et al., 2018). LL discussion draws on various streams of the innovation literature, primarily “Open Innovation”, “User Innovation”, and “co-creation” studies which have contributed to understanding lead users’ needs and participation in co-creating value and innovation (Chesbrough 2003; Schuurman et al., 2016; von Hippel 1976). The sticky nature of users’ ideas makes it hard for firms to understand their real needs and perceptions while the specificity of needs reduces a firm’s incentive to develop users’ innovations (von Hippel 1994). Hence within LLs, firms could collaborate with participants using various tools and techniques depending on the project’s goal to tap into their actual needs. The research on LLs has been increasing in scope ranging from the characteristics and motivations of participants, the methods and tools applied, and the structure and governance of the LLs (Leminen et al. 2016; Leminen and Westerlund 2019). In recent years, the research on LLs has moved away from the conceptual framework of what LLs are, how they are perceived, and who takes part in the practical applications toward how to design and manage LLs, their processes, and participants, especially users, as key stakeholders (Westerlund et al., 2018).*

Despite the fast expansion of the LL field and the breadth of topics related to LL, only a handful of systematic reviews (bibliometric and thematic analyses included) have been carried out so far. A subset of existing reviews are mostly conceptual-oriented and revolve around: i) exploring the emergence and evolution of LLs over time (Leminen and Westerlund 2019; Westerlund et al., 2018); ii) identifying key research streams in terms of how LLs are perceived and applied (Leminen and Westerlund 2016); iii) pinpointing the main perspectives on LLs and understand how they have been incorporated within the more established innovation theories (Schuurman et al., 2015); iv) realize how LLs as a concept and research approach has expanded, proliferated and prompted scholarly research (McLoughlin et al. 2018).

Over time and with the expansion of LL utilization in different settings and industries, studies, specifically the empirical ones, have focused on more niche topics. Hence, another subset of conducted reviews are narrower in topic i) exploring different research streams concerning the role of specific groups of stakeholders (e.g., users) (Huang and Thomas 2021), ii) how LLs are utilized as processes and methods to organize innovation in particular sectors, and contexts, e.g., higher education, energy, public administration, Information and Communication Technologies (ICT),

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etc. (Dekker et al., 2020; Følstad 2008; van den Heuvel et al. 2021), and iii) what is the impact and effectiveness of LLs (Bronson et al., 2021; Paskaleva and Cooper, 2021). Hossain, Leminen and Westerlund (2019) carried out the most comprehensive review in the field so far in which LLs have been investigated from different angles, including the origin of the LL concept, their fundamental characteristics, as well as stakeholder roles, contexts, challenges, primary outcomes, and sustainability.

Given that LLs literature is growing in scope and quantity (150 publications only in 2022), we aim to carry out a comprehensive review of studies to discover the lacunae in current studies and to map the evolution of LLs, the internal and external-related characteristics, and potential key performance indicator (KPIs). Accordingly, we tried to identify consolidated research themes, emerging trends, and literature gaps. Unlike previous reviews, our study proposes a framework on different angles of the LL phenomenon by taking a holistic approach to the topic. The current review will provide a consolidated and comprehensive blueprint for establishing, managing the LLs, and benefiting from them.

Methodology. The methodology used in this article is a Systematic Literature Review (SLR). We have chosen SLR since it is a trustworthy and rigorous methodology for assessing and understanding previous research relevant to a particular phenomenon of interest. We have followed the standard steps for conducting an SLR. First, we searched for relevant documents in the Scopus database. We used the word *living lab** as the main keyword because it covers all the related keywords such as *living lab*, *living labs*, *living laboratory*, *living laboratories*, and *living labbing*. We limited the search inquiry to articles and conference papers in scientific areas of business, management and accounting, social sciences, and economics published in English. We included conference papers since they unfold interesting and novel ideas in many ways. We believe that the chosen scientific areas better fit our aim to better understanding the underpinned theoretical backgrounds and LLs' core functioning traits and settings. This process yielded 883 results. We extracted the basic information, such as the article's title, the list of authors, the name of the journal, the publication year, and the abstract. Next, we read the abstract of each article and, if needed, the main text. In the next step, to ensure that living labs were the main focus of the article, we applied two exclusion criteria:

- Topics that try to respond to a specific societal or technical challenge without going in deep about the operational characteristics of utilized LLs. As our goal is to focus on the management processes and mainstream innovative outcomes unfolding within LLs, we excluded articles driven by technological perspective without referring to the functioning of LLs in terms of stakeholder engagement, regulatory mechanisms, outcomes, and unfolded impacts.
- Studies in which LLs are studied passively, for instance, exploiting LLs dataset to answer the research question.

As a result, we ended up with a final set of 155 journal and conference articles to be reviewed in this study. Then we applied content analysis to the remaining articles and coded them while reading the full texts of the papers. The coding work was performed iteratively by three authors separately, and any disagreement was resolved in iterative discussion sessions. In the final step, we fine-tuned the codes and clustered the articles into 6 groups.

Results. Studies of LLs have appeared in a broad range of journals and conference proceedings. The journals hosting the largest number of papers are *Sustainability* and the *Journal of Cleaner Production*. The LL studies gained popularity after 2014; the peak year was 2021, with 136 published papers. We looked at the most frequent keywords in the resulting articles, and, besides the primary keywords (e.g., *living lab* and *living labs*), the most frequent keywords are *innovation*, *sustainability*, *smart city*, *sustainable development*, *cocreation*, and *Open Innovation*. Diving deep into 155 articles, we grouped them into five groups. These clusters answer six main questions associated with LLs.

1. What are the definitions and theoretical underpinnings?

More than 20 years after the emergence of LLs in scholarly literature and practice, there is still no agreed-upon definition. A bulk of studies see LLs as real-life testing environments in which new technologies, products, services, and processes are co-created, tested, and evaluated (Leminen and Westerlund 2016) with the crucial role of users as stakeholders. Other studies define LLs as the "network" or "ecosystem" because they include multiple stakeholders in innovation and development activities (Hossain et al., 2019; Leminen and Westerlund 2016). Other scholars view LLs as "tools," "methods," or "intermediaries" that can be used to favor public and user involvement (Hakkarainen and Hyysalo 2013; Leminen & Westerlund 2012) or an agile approach for fast testing and validating based on user feedback and data (Andone et al. 2022). An overarching definition of LLs is the one proposed by a network of Living Labs (ENoLL), which defines a LL as "a user-centered, open-innovation ecosystem, often operating in a territorial context (e.g., city, agglomeration, rural area), integrating concurrent research and innovation processes within a public-private-people partnership."

The theoretical foundations of living labs mainly draw on two theoretical grounds: "Open Innovation" and "User Innovation," which are premised on two fundamental principles of "User-centeredness" and "Co-creation". From a design perspective, LLs draws on various disciplines, including User Centered Design (UCD), participatory action research, and systems thinking.

2. **Who are the stakeholders, and how do they get engaged?** The main focus of this group of studies is the multi-stakeholder nature of LLs in which a broad range of stakeholders, from users, companies, public agencies, universities, and various institutions, participate (Ballon and Schuurman 2015). The multiple stakeholder argument in this literature builds on the triple helix model of innovation based on the partnership among university, industry and public administration (Feurstein et al. 2008) or the quadruple helix model, which considers also the role played by civil society (Del Vecchio et al. 2017; Vallance et al., 2020). Although participants' roles vary from enablers, providers, users (Westerlund and Leminen 2011), many recent articles have studied the role of users and the attributes associated with their characteristics and level of involvement as well as innovations being developed by them (Leminen et al., 2015; Sadowski 2017). Given that choosing the right stakeholders for a specific challenge that

LL seeks to respond to is of utmost importance, studies focus on mapping the right stakeholders and their interests (Chen and Musango 2022), the best practices and enablers for in-depth involvement (Lupp et al. 2020), identifying users' real needs, expectations, and motivations (Callari et al. 2019; Marone et al., 2020), along with the role patterns within LLs (Leminen et al., 2014; Nyström et al. 2014).

3. **For what aims are LLs created?** LLs have been shown to foster innovation outcomes in a variety of domains, such as health, smart cities, mobility, and education. The innovation outcomes of LLs can take various forms, including:
 - 1) New or improved products or services, or technologies: LLs can lead to the development of new products, services, and technologies or improve existing ones that meet the needs and preferences of end-users (Ballon et al., 2005; Rodrigues and Franco 2018);
 - 2) New business models: LLs can generate new business models that are more user-centric and better aligned with the needs and preferences of end-users that can be more sustainable and profitable in the long run (Mastelic et al., 2015; Rits et al., 2015);
 - 3) New policies or policy changes: Living labs can influence policy aiming to support innovation and the adoption of new products or services. Policy changes can include new regulations, standards, or incentives (Mulder et al., 2008);
 - 4) Enhanced user experiences: LLs can improve the user experience with products or services by involving end-users in the design process that can lead to products or services that are more user-friendly, intuitive, and enjoyable to use (Almirall and Wareham 2008);
 - 5) Increased social and economic impact: LLs aim to solve real-world problems, and therefore the innovations developed in LLs have the potential to generate significant social and economic effects, such as improved public value, and increased sustainability (Compagnucci et al. 2021; Hansen and Fuglsang 2020).
4. **Which co-creation methods are applied in LLs?** LLs typically employ a variety of co-creation methods to involve users and other stakeholders in the innovation process, including UCD and co-designing processes. In LLs, users can have both active and passive roles, depending on their level of involvement and the specific goals of the LL. Active engagement of users are facilitated by following methods:
 - User workshops: LLs often hold workshops to engage users in co-creation. These workshops can take many forms, such as ideation sessions, design sprints, and user testing sessions (Kayaçetin et al., 2022; Sarabi et al. 2021);
 - Surveys and feedback: LLs may also use surveys and feedback forms to gather input from users and stakeholders. These methods can help collect qualitative and quantitative data and identify patterns and trends (Kayaçetin et al., 2022; Sarabi et al. 2021);
 - Prototyping and testing: Prototyping and testing are critical co-creation methods used in LLs for fast experimentation and validation of new ideas and technologies in real-life contexts, which accelerates the innovation process and reduces the time-to-market for new products and service (Gordon et al. 2023; Schaffers et al. 2007);
 - Co-design sessions: Co-design sessions are collaborative design sessions that involve users, stakeholders, and designers working together to create new solutions (Zingraff-Hamed et al. 2020);
 - Living lab experiments: Living lab experiments involve real-world testing of new products or services in a controlled environment allowing LLs to gather data on how users interact with the innovation and identify areas for improvement (Engels et al., 2019; Kronsell and Mukhtar-Landgren 2018); and, more recently, with digitally aided co-creation techniques (Mačiulienė and Skaržauskienė 2020).

Yet, there is not a clearcut boundary between the active and passive role of users in such methods. Generally, passive users are more of observers or beneficiaries of the LLs. They may provide some input and feedback on the design and implementation of new products, services, or systems, but they are not directly involved in the co-creation process. Instead, they may use the new products, services, or systems in their daily lives and provide feedback on their experiences and satisfaction.
5. **How are LLs implemented and managed over time?** LLs are formed and managed in various ways depending on the goals and objectives of the initiative, as well as the resources and stakeholders involved. However, by categorizing the results of studies we identified seven steps from creation of LL to the achievement of specific outcomes. In the first step of designing a LL, the scope and objectives of the targeted initiative should be defined, including determining the living lab's purpose and goals and identifying target stakeholders (Gordon et al. 2023). Planning the living lab infrastructure and developing the necessary infrastructure for the LL, including the physical space, technology, and resources, are among the primary building blocks of LLs that are very much context-related (Chronéer et al., 2019; Della Santa et al., 2022; Grotenhuis 2017). Engage stakeholders and enable their participation and ensure that their needs and expectations are considered throughout the process by, for example, overcoming communication barriers (Robaeyst et al. 2021). Once the living lab infrastructure is in place and participants have been engaged, the next step is experimenting, collecting data, and learning from stakeholders to test hypotheses and gather insights (Habiyaemye 2020; Wade et al., 2022). A LL requires proper management methods and tools to ensure it operates smoothly and effectively. This includes ongoing communication with stakeholders, regular data collection and analysis, establishing intermediary roles to smooth the communications and orchestrate processes, establishing mutual trust among collaborators, and governance arrangements, including managing Intellectual Property Rights (IPRs) for identifying collective goals between living lab actors and aligning joint activities across different stages of living lab development (Cantù et al. 2021; Cellina et al. 2020; Hakkarainen and Hyysalo 2016; Pitkänen and Lehto 2012). The results of experiments are then analyzed and, if needed, disseminated to inform policy and decision-making.

6. **How to evaluate the impacts and effects of LLs?** Although the experience with LLs has been growing along different avenues, the literature has not kept pace with these advances. In particular, the outcomes of LLs are still poorly understood because of limited evidence reported in empirical studies (Paskaleva and Cooper 2021). Measuring the outcomes of LLs is essential to evaluate their effectiveness, identify areas for improvement, and justify investments. A group of studies considers quantitative performance indicators to define and track the performance and impact of a LL. These indicators mainly measure the diffusion of innovations developed in the LLs, consisting of the number of prototypes developed, the number of participants engaged, the number of new partnerships formed, or the level of satisfaction among stakeholders. In contrast, other studies take a more qualitative approach to measuring the LLs' impacts, namely the economic and social effects on job creation, increased revenue for local businesses or the environment and community (Ballon et al., 2018; Kayaçetin et al., 2022; Schuurman et al., 2016). Another gauge for measuring LLs' impact is analyzing case studies that showcase the success stories of the living lab and its impact on the community (Kayaçetin et al., 2022). Other studies are based on network and participatory evaluation that measure the relationships between participants, within and outside collaborations and knowledge exchange effectiveness, and satisfaction among actors (Ståhlbröst 2012; Van Geenhuizen 2018).

Research limitations. This systematic literature review suffers from some limitations. Some papers could have been left out from the review of this study because we chose only Scopus, the primary database for selecting related articles, and also due to selecting specific subject areas.

Managerial implications. Initially, LLs were set up by companies to get end-users to do their design work under the banner of "co-production" (Paskaleva and Cooper 2021, p. 2), which suggests that managers are probably aware of the benefits and challenges of LLs. However, the concept LL is now associated to "innovation ecosystems", a dimension that might be not well understood to managers. Hence, scrutinizing and evaluating various aspects of LLs is paramount for practitioners and managers. The results of this study offer managers an organized framework of internal and external characteristics and practices of LLs that can help them set up and manage LLs for innovative targets and different contexts and profit from them.

The originality of the paper. The results of this study extend the inquiry of LLs beyond only characterizing the definitions and most applied methods by broadening the scope of the research to the managerial mechanisms, micro-foundations, and impacts. This study reviews the most recent published articles within LL literature and, unlike the previous reviews, is broad in scope by diving the phenomenon into different dimensions of stakeholder engagement, management processes, and co-creating methods, as well as outcomes and impacts.

Keywords: Living Labs; Open Innovation; User; Innovation; Literature review

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Innovation and Peripheries: cross-disciplinary evidence from a bibliometric review

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Framing of the research. *The debate on innovation implicitly departs from stories of success, either from an individual, business, sectorial or place-based perspective. On the one hand, the academic discourse has traditionally leaned towards the analysis of innovation processes linked to conditions found in well-functioning core regions (Dawley, 2014; Isaksen, 2015), dynamic high-technology sectors (Asheim et al., 2011) or out-of-the-ordinary and central individuals (Hohberger, 2016). On the other hand, insights on peripheral actors seem to lie outside major theoretical debates and empirical generalizations on innovation, either from a geography perspective (Petrov, 2011), social networks (Cattani and Ferriani, 2008) or business strategy (Santangelo, 2009). In particular, the mainstream debate has been centered around innovative actors in core regions or, at most, geographically segregated locations of emerging economies. On the contrary, innovators active in the periphery have been mainly studied as recipients of subsidies in an economic convergence policy framework or single cases of success in deprived areas.*

We recognize that “peripherality” is a fuzzy terminology that might refer to different concepts of distance in terms of geography, economy, politics, technology or network composition - among other dimensions - . As such, the “periphery” appears to be more a relative than an absolute concept: the peripheral and core statuses exist as opposed to each other and might change over time even though relative disparities persist over time. However, when deepening our understanding of “peripheral areas”, an evident link seems to exist among them: locations that are physically distant from the economic core (geography) and usually manifest poor connections with the central and vibrant environment of the leading regions (networks) where central government offices are usually located (politics), thus further hindering the development process (economy). Indeed, these locations might be mainly characterized by a lack of a critical mass of innovative firms, the dominance of SMEs operating in traditional and resource-based industries, low levels of R&D and innovation, weak absorptive capacity from outside the region and thin and less specialized structures of knowledge and support organizations (Doloreaux and Dionne, 2008; Karlsen et al., 2011; Todtling and Trippel, 2005; Virkkala, 2007).

Even in the global periphery, innovative centers might arise and be source for further upgrading (Nilsen et al., 2022; Santangelo, 2009). However, they are more likely to be the “special case” rather than the “general case” (Isaksen and Karles, 2016). In fact, for innovative firms to flourish outside a solid local industrial cluster in the peripheral regions, they must compensate for the lack of resources (Grillitsch and Nillson, 2017). The organizational thickness, openness and connectivity of the territorial systems - and their economic actors -, and the consequent flow of knowledge and expertise has become increasingly central to the economic success and technological development - especially for the “periphery” - at several levels, including individual entrepreneurs, organizations, industrial clusters, and even broader geographic regions. Although the availability of traditional local advantages is still a critical condition for success, it is no longer a sufficient condition in the race to achieve and sustain a leading innovative position. Besides, globalization forces continue to push towards an organization of the regions along a core-periphery structure to the detriment of economic activity in the periphery (Benito and Narula, 2007).

In light of this consideration, a more systematic understanding of both achievements and dysfunctions faced by organizations in these contexts would be helpful to deepen our understanding of the factors that shape innovation capabilities and strategies to move upward in the global value chains.

Purpose of the paper. *This project aims to understand how knowledge of innovation processes in the peripheries is organized, where it is sourced and co-created and which are its main pillars. In particular, the goal is to sketch a chart that enables a better understanding of the published scientific literature and how it has evolved over time. To this end, we apply a combination of bibliometric techniques such as citations, co-citations and social network analysis. Such*

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pressing interests originate from the long-standing research tradition and the heterogeneous interests in the topic, which has been moving along multiple social science fields (mainly economics, geography and management studies). The knowledge produced has been building up quickly, spreading its roots deeply and broadly. Despite sharing much in common, each field has progressed mainly in parallel for over 50 years while enjoying the occasional scholarly efforts to foster interconnections. Then, we believe times are mature for a comprehensive sum-up of the existing knowledge base.

Methodology. In line with previous applications in management, we employ scientific methods to analyze and synthesize prior research to develop research inquiries which integrate the field of management with other non-management disciplines. Specifically, we leveraged bibliometric techniques (Zupic and Čater, 2015) to investigate the formal properties of knowledge domains (Donthu et al., 2021). We employed four bibliometric techniques using VOSviewer software (Van Eck and Waltman, 2009: co-citation, bibliographic coupling, co-occurrence, and co-authorship). Co-citation analyzes the relationship between two items based on the frequency with which they are cited together in the literature (Small, 1973). It reveals the intellectual roots of a research field by identifying its fundamental works (Vogel and Güttel, 2013). Unlike co-citation, the bibliographic coupling is based on the identification of bibliographic references common to two documents (Egghe and Rousseau, 2002). As it can capture the most recent contributions not yet cited, it is well suited to determine the state of the art of young subject areas characterized by vigorous publication activity and to identify emerging research trends (Zupic and Čater, 2015). Co-citation and bibliographic coupling are complementary methods that complement rather than replace each other because they produce considerably different results (Jarneving, 2005). Co-occurrence analysis is a content analysis technique that identifies the most frequently addressed topics in literature by mapping the interactions and strength of association between keywords (Callon et al., 1983). Finally, co-authorship describes intellectual collaboration in scientific research (Acedo, Barroso, Casanueva, Galan, 2006).

We relied on Clarivate Analytics' Web of Science (WoS) database to select relevant documents in relevant fields. Since we want to implement a search strategy that would be as broader and more inclusive as possible, we identified all English articles containing the keywords "innovation*" and "periph*" either in the title, abstract or keywords. We will refer to such string query as "focal construct" moving forward. We also included all publications from 1985 to 2022 falling under business, economics, and management categories. This search strategy has produced a final sample of 572 papers (for the detailed process, see Table 1). All the main relevant characteristics are reported in Table 2, while distribution of publications and received citations are included in Figure 1.

Results. In our bibliometric analysis, we first establish a picture of the current state of accumulated knowledge on the topic, focusing on "how", "whose" and "where" related scientific literature has been published. Building on bibliographic coupling, we analyze the connections and similarities among the most impactful publications. In detail, we set a threshold at the value of the sample-average citations per publication (32) to qualify for inclusion into the analysis and impose to cluster the 118 items into five groups to improve readability. As shown in Figure 2, the resulting network does not offer a clear clusterization pattern. Some clusters show slightly more clear-cut edges (green, yellow), while others overlap entirely (red and blue). However, an in-depth analysis of the content of each cluster confirms the validity of the analyses in terms of similarity within the same color-coded group (see Table 3 for details). This configuration suggests that the cumulated academic knowledge shows some degree of similarity and co-localization in the knowledge space within certain groups. However, the documents do not differentiate from each other. Results are similar when restricting the analysis to the last ten or five years or moving the thresholds. We can identify a meaningful pattern only when significantly raising the bar in terms of impact (threshold above 85 citations per document), meaning the "average (or more recent) paper" still struggles to locate in a specific strain of literature and instead holds middle-ground positions.

One possible explanation could derive from the extreme heterogeneity in the field of research involved in the topic in terms of publication sources (Table 4). Indeed, looking at the distribution of focal documents in widely recognized journals - namely, those included in the ABS Journal Guide -, we can derive some general information (Figure 3). Among the most prolific fields overall, publication in Innovation (INNOV), and Organization (ORG STUD) and General Management (ETHIC-CSR-MAN) seems to have reached their maturity stage. On the other hand, publications in Regional Studies, International Business (IB&AREA) and Entrepreneurship (ENT-SBM) continue to increase significantly. Strategy (STRAT) and marketing (MKT) are also increasing, but their overall contribution is minor. Looking at the bibliographic coupling between journals, we can extract further insights regarding the distribution of specialization/similarity in the field, thus inferring field-specific interest in the topic. Then, we map the network of all the journals with at least two documents and ten received citations (70 items over 239). In Figure 4a, journals in the same-colored cluster reveal a higher similarity, while groups closer to each other share stronger association linkages. The size of each node indicates the average normalized number of citations as a proxy for impactful research production, while the thickness of edges measures link strengths. In Figure 4b, the size of each node measures the number of sample papers published in the journal, while the color gradient tends to be yellow for the most impactful sources as measured by average normalized citations. We can infer several results from these network configurations. First, management-related journals tend to be concentrated on the left-hand side and more impactful in terms of citations received, while publishers in economics, regional studies and geography are located in the other half of the quadrant and they are more productive but less impactful. However, two central nodes - namely, «Research Policy» and «Technological Forecasting and Social Change» - arise as main gatekeepers among all the clusters. In contrast «Regional Studies», despite being the more connected node in the network, lies in a more decentralized position

(Fig.4a). All in all, the journal bibliographic coupling seems to confirm that interest in our focal construct is widespread across different scientific fields with a rich and intricated web of connections. In management, top-tier generalistic journals lead the way over publications specialized in technology and innovation.

Another possible explanation for the depicted fragmentation of knowledge might derive from the nature of authors' networks. We then sifted through the authors to identify the most impactful ones (having at least two documents) and analyze their collaboration patterns. In Figure 5, we mapped the co-authorship relationships of all the scholars with at least two publications in the sample, weighting the results by normalized citations to control for impact. The bibliometric analysis identifies eight clusters (over 47 total) with at least three authors (more details in Table 5). The compelling un-connected multiple clusters highlight the weakness and disaggregation of collaboration networks. No significant changes appear when restricting time frames or inclusion criteria. On the same train of thought, in Figure 6 the analyses of author citations underline that scholars interested in our focal construct do not cite each other if they are on the external boundaries of the network. Only the central groups (which are also among the most impactful), cite each other.

On the final steps of this journey, we turn back to identify the roots of this ensemble of publications. Co-citation analyses provide a picture of which fields constitute the literature's backbone, measuring the similarity between two documents based on the number of times the focal sample publications simultaneously cite them. In Figure 7, the resulting map emphasizes the existence of a common, balanced and interconnected knowledge base organized in four clusters: social network theories (blue), economic geography (blue), roots of the economics of innovation (red) and fundamental theories in strategic management (yellow). For the details for each cluster, see Table 6.

Research limitations. Our study has limitations arising from the methodological choices and the idiosyncratic nature of the research question. As per the latter, we stressed that the word "peripheral" lacks a clear definition and taxonomy, not only across disciplines, but also over time and often within the same academic field. This can potentially bias the research finding, especially since we did not adopt any subjective exclusion criteria to select our sample. Despite this choice generating noise in the results, a comprehensive overview of the consolidated knowledge on the topic requires minimally altering the selection of sources, at least at an early stage. In this regard, using allows to a broader search scope thus reducing researcher bias. Future improvements might consider filtering the sample through a multi-stage process to exclude those articles which deviate from our concept of "peripherality". This additional step might result in a convergence process through a systematic review of the contents, which would require extensive effort and introduce extreme subjectivity. However, due to the complexity of the constructs we are trying to investigate and the multi-disciplinary nature of our investigation, the best solution could be to exploit a rational convergence process to improve the search algorithm (in terms of sources, keywords or other elements) to feed additional divergent analyses. In this case, the natural complement of the analysis would be to adopt content methods to analyze the rich corpus of literature. As per our methodology, bibliometric techniques reduce researchers' bias in interpreting the literature content, risks of exclusion of relevant publications or fundamental citations. However, they do not entirely eliminate the subjectivity from the analysis and require an additional effort to deepen the understanding of the corpus, asking the right questions and pushing forward the research inquiries. Finally, they do not allow to systematically analyze the paper's content, but only identify connections at the word level.

Managerial implications. This project shows long-term indirect managerial implications related to the novel research questions and systematization of existing knowledge on leveraging specific resources - i.e., capabilities, skills, human capital or connectedness - for knowledge creation and exploitation in peripheral areas. Understanding the relative importance of local and non-local resources, how they interact, and the factors that affect the competitiveness of organizations operating in particular places is pivotal to identifying successful strategic approaches for practice-oriented implementation.

Originality of the paper. We contribute at the current academic debate on innovation processes in the peripheries under multiple perspectives. First, we sketch a comprehensive map, which analyzes and synthesizes prior literature, that can help navigate existing knowledge about our focal construct. Mapping and consolidating knowledge on our focal construct constitutes the first step to creating a common foundation for advancing knowledge, stimulating novel research questions and hopefully developing novel [unifying] theoretical lenses. Second, while previous similar literature reviews have mainly handled one specific issue at a time or focused on the most impactful and acknowledged literature, we implement a search strategy that is as inclusive as possible. Finally, while other scholars restrict their analyses to a single scientific field, we aspire to learn from all the many shades of expertise involved in innovation studies to decline knowledge into a novel strategy framework.

Keywords: innovation; periphery; bibliometric analysis; literature review; strategy.

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Tables and figures

Innovation and Peripheries: cross-disciplinary evidence from a bibliometric review

Tables and figures

Tab. 1: Searching strategy on Web of Science

<i>Step</i>	<i>Counts</i>
<i>Topic: "innovation* AND periph*" AN D years: "1985-2022"</i>	<i>2449</i>
<i>Categories: "management ", "economics " "business"</i>	<i>683</i>
<i>Document types: "articles "</i>	<i>606</i>
<i>Language: "English"</i>	<i>572</i>

Tab. 2: Descriptive information on the collected articles

<i>Description</i>	<i>Results</i>
<i>MAIN INFORMATION ABOUT DATA</i>	
<i>Timespan</i>	<i>1987:2023</i>
<i>Sources (Journals, Books, etc)</i>	<i>232</i>
<i>Documents</i>	<i>572</i>
<i>Annual Growth Rate %</i>	<i>3.93</i>
<i>Document Average Age</i>	<i>8.42</i>
<i>Average citations per doc</i>	<i>32.01</i>
<i>References</i>	<i>28038</i>
<i>DOCUMENT CONTENTS</i>	
<i>Keywords Plus (ID)</i>	<i>1209</i>
<i>Author's Keywords (DE)</i>	<i>1791</i>
<i>AUTHORS</i>	
<i>Authors</i>	<i>1237</i>
<i>Authors of single-authored docs</i>	<i>118</i>
<i>Average # docs per author with at least 2 docs</i>	<i>2.54</i>
<i>Average cits per author with at least 2 docs</i>	<i>71</i>
<i>AUTHORS COLLABORATION</i>	
<i>Single-authored docs</i>	<i>121</i>
<i>Co-Aiithm-s per Doc</i>	<i>2.42</i>
<i>International co-authorships %</i>	<i>31.12</i>
<i>DOCUMENT TYPES</i>	
<i>article</i>	<i>528</i>
<i>article; book chapter</i>	<i>11</i>
<i>article; earv access</i>	<i>21</i>
<i>article; proceedings paper</i>	<i>12</i>

Tab. 3. Bibliographic coupling of documents - top 5 based on number of citations

Author	Year	Title	Journal
1 ranganathan	2014	do ties really bind? the effect of knowledge and commercialization networks on opposition to standards	academy of management journal
1 lipparini	2014	from core to periphery and back: a study on the deliberate shaping of knowledge flows in interfirm dyads and networks	strategic management journal
1 coronado	2008	attitudes to innovation in peripheral economic regions	research policy
1 lovejoy	2010	efficient structures for innovative social networks	management science
1 soh	2003	networks of innovators: a longitudinal perspective	research policy
2 glueckler	2014	how controversial innovation succeeds in the periphery? a network perspective of basf argentina	journal of economic geography
2 mcadam	2014	determinants for innovation implementation at sme and inter sme levels within peripheral regions	international journal of entrepreneurial behavior & research
2 karlsen	2011	the challenge of constructing regional advantages in peripheral areas: the case of marine biotechnology in tromsø, norway	entrepreneurship and regional development
2 isaksen	2015	industrial development in thin regions: trapped in path extension?	journal of economic geography
2 grillitsch	2015	innovation in peripheral regions: do collaborations compensate for a lack of local knowledge spillovers?	annals of regional science
3 sengupta	1998	some approaches to complementary product strategy	journal of product innovation management
3 komninos	2014	smart specialisation strategies in south europe during crisis	european journal of innovation management
3 hoecht	2006	innovation risks of strategic outsourcing	technovation
3 borzillo	2011	a journey through communities of practice: how and why members move from the periphery to the core	european management journal
3 griffin	2009	voices from the field: how exceptional electronic industrial innovators innovate	journal of product innovation management
4 harris	2011	models of regional growth: past, present and future	journal of economic surveys
4 caniels	2001	barriers to knowledge spillovers and regional convergence in an evolutionary model	journal of evolutionary economics
4 hewitt- dundas	2011	creating advantage in peripheral regions: the role of publicly funded r&d centres	research policy
4 baldwin	2000	the core-periphery model and endogenous growth: stabilizing and destabilizing integration	economica
4 gao	2020	the impact of high-speed rail on innovation: an empirical test of the companion innovation hypothesis of transportation improvement with china's manufacturing firms	world development
5 kratzer	2008	the social structure of leadership and creativity in engineering design teams: an empirical analysis	journal of engineering and technology management
5 ateljevic	2009	tourism entrepreneurship and regional development: example from new zealand	international journal of entrepreneurial behavior & research
5 mainemelis	2006	ideas are born in fields of play: towards a theory of play and creativity in organizational settings	research in organizational behavior
5 cornish	1997	product innovation and the spatial dynamics of market intelligence: does proximity to markets matter?	economic geography
5 lu	2007	domesticating globalisation, new economic spaces and regional polarisation in guangdong province, china	tijdschrift voor economische en sociale geografie

* 1 - red; 2 - blue; 3 - green; 4 - yellow; 5 - purple.

Tab. 4: The 20 most productive publications ' sources

Publication Titles (rating ABS Guide 2021)	N. papers (%)
Regional Studies (4)	39 (6.82%)
Research Policy (4*)	22 (3.85%)
Entrepreneurship and Regional Development (3)	17 (2.97%)
Technological Forecasting and Social Change (3)	16 (2.80%)
Technology Analysis and Strategic Management (2)	16 (2.80%)
Annals of Regional Science (2)	14 (2.45%)
Journal of Economic Geography (4)	14 (2.45%)
International Journal of Technology Management (2)	13 (2.27%)
Organization Science (4*)	10 (1.75%)
Technovation (3)	10 (1.75%)
Economie Geography (4)	9 (1.57%)
Industrial Marketing Management (3)	8 (1.40%)
Science and Public Policy (2)	8 (1.40%)
Strategic Management Journal (4*)	8 (1.40%)
Industry and Innovation (3)	7 (1.22%)
International Journal of Entrepreneurial Behavior and Research (3)	7 (1.22%)
Journal of Business Research (3)	7 (1.22%)
R and D Management (3)	7 (1.22%)
Tijdschrift voor Economische en Sociale Geografie (1)	7 (1.22%)

Tab. 5: Co-authorship clusters and characteristics

Cluster	Author	Total link strenght	Documents	Citations	Norm. Citations	Avg. Citations	Avg. Norm. Citations
1	glueckler, johannes	2	2	44	0.9002	22	0.4501
1	doloreux, david	6	8	317	12.2247	39.625	1.5281
1	shearmur, richard	8	7	168	8.081	24	1.1544
1	martinus, kirsten	2	2	12	0.9186	6	0.4593
2	dunn, adele	8	2	5	0.1269	2.5	0.0634
2	mckitterick, lynsey	8	2	5	0.1269	2.5	0.0634
2	patterson, david	8	2	5	0.1269	2.5	0.0634
2	quinn, barry	8	2	5	0.1269	2.5	0.0634
3	harris, richard	8	5	100	2.883	20	0.5766
3	mccausland, irene	6	2	41	1.4859	20.5	0.743
3	mcadam, rodney	17	8	161	6.8542	20.125	0.8568
3	reid, renee	9	4	83	2.4843	20.75	0.6211
4	barbosa, anabela	4	2	1	0.0145	0.5	0.0073
4	fradinho, ermelinda	4	2	1	0.0145	0.5	0.0073
4	oliveira, alvaro	4	2	1	0.0145	0.5	0.0073
5	pinto, hugo	3	3	122	4.5538	40.6667	1.5179
5	fernandez-esquinas, manuel	3	3	105	4.3757	35	1.4586
5	uyarra, elvira	2	3	97	4.959	32.3333	1.653
6	grillitsch, markus	4	4	202	7.1779	50.5	1.7945
6	nilsen, trond	1	2	17	0.5639	8.5	0.282
6	nilsson, magnus	3	3	198	7.1779	66	2.3926
7	mason, colin	1	2	83	2.3137	41.5	1.1568
7	brown, ross	2	4	176	10.1389	44	2.5347
7	lee, neil	1	2	53	2.6602	26.5	1.3301
8	frenkel, a	4	3	367	5.7682	122.3333	1.9227
8	roper, s	2	2	61	0.9716	30.5	0.4858
8	shefer, d	4	3	367	5.7682	122.3333	1.9227

Tab. 6. Cited documents co-citation clusters

Cluster 1 (red)	Cluster 2 (blue)	Cluster 3 (blue)	Cluster 4 (yellow)
Roots in economics of innovation	Economic geography	Networks and connections	Fundamentals in strategic management
lundvall, 1992	boschma, 2005	powell, 1996	cohen, 1990
cohen, 1989	totdling, 2005	borgatti, 1999	eisenhardt, 1989
jaffe, 1993	bathelt, 2004	granovetter, 1985	nelson, 1982
krugman, 1991	grillitsch, 2015	granovetter, 1973	march, 1991
cooke, 1997	doloreux, 2008	ahuja, 2000	teece, 1997
krugman, 1991	asheim, 2011	cattani, 2008	zahra, 2002
audretsch, 1996	lagendijk, 2007	porter, 1990	henderson, 1990
morgan, 1997	asheim, 2005	dyer, 1998	teece, 1986
pavitt, 1984	etzkowitz, 2000	burt, 2004	langley, 1999
romer, 1990	eder, 2019	uzzi, 1997	eisenhardt, 2007
dosi, 1988	storper, 2004	owen, 2004	chesbrough, 2003
saxenian, 1994	mccann, 2015	burt, 1992	tushman, 1986
oughton, 2002	asheim, 2002	freeman, 1979	dosi, 1982
storper, 1997	martin, 2006	gulati, 1999	penrose, 1959
griliches, 1990	frenken, 2007	barabasi, 1999	barney, 1991
lucas, 1988	ashiem, 2005	coleman, 1988	kogut, 1992
romer, 1986	cooke, 2001	podsakoff, 2003	laursen, 2006
florida, 2002	neffke, 2011	nahapiet, 1998	wernerfelt, 1984
porter, 1990	gertler, 2003	gulati, 1998	teece, 2007
bottazzi, 2003	giuliani, 2005	uzzi, 1996	gioia, 2013
jaffe, 1989	breschi, 2009	wasserman, 1994	meyer, 1977
cooke, 1992	moulaert, 2003	rowley, 2000	adner, 2010
cooke, 2000	virkkala, 2007	powell, 2005	miles, 2019
grossman, 1991	vernon, 1966	schilling, 2007	grant, 1996
anselin, 1997	porter, 1998	tsai, 2001	cantwell, 2005
maskell, 1999	shearmur, 2015	rogers, 2003	christensen, 2016
nelson, 1993	hidalgo, 2007		
cooke, 1998	isaksen, 2015		
von hippel, 1994	jensen, 2007		
von hippel, 1988	shearmur, 2016		
nonaka, 1995	torre, 2005		
lundvall, 1988	humphrey, 2002		
barro, 1995	martin, 2010		
mankiw, 1992	duranton, 2001		

Threshold set at 10 citations. Items ordered by number of citations in each clusters.

Fig. 1: Temporal distribution of publications and citations in the sample

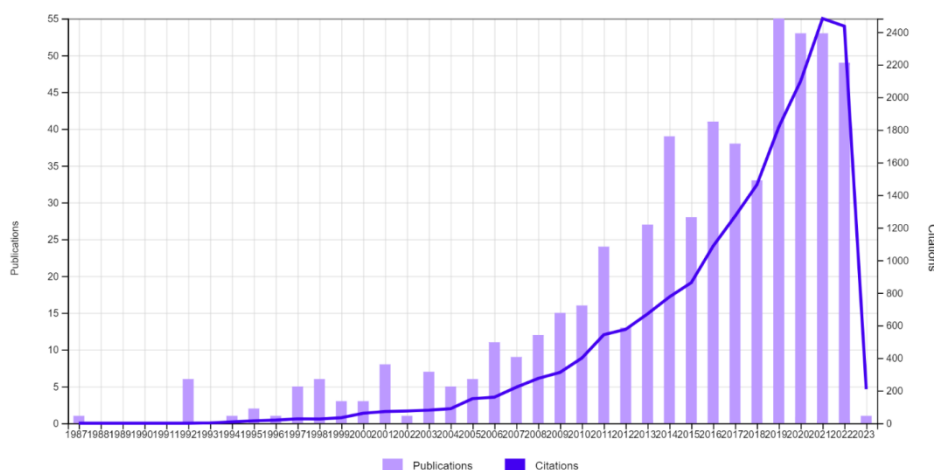
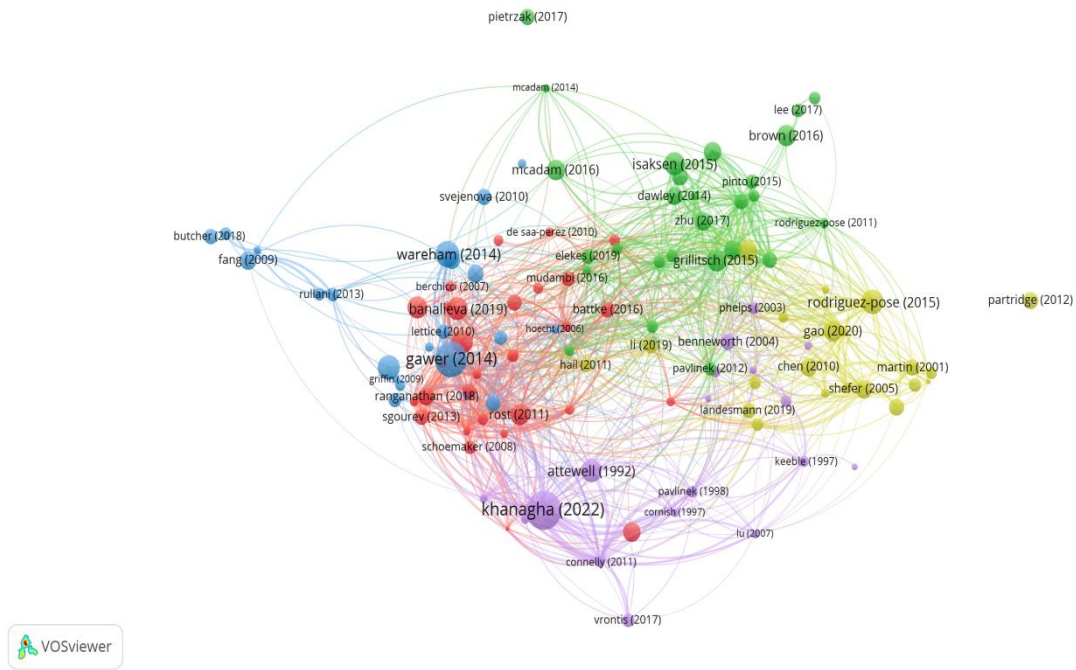
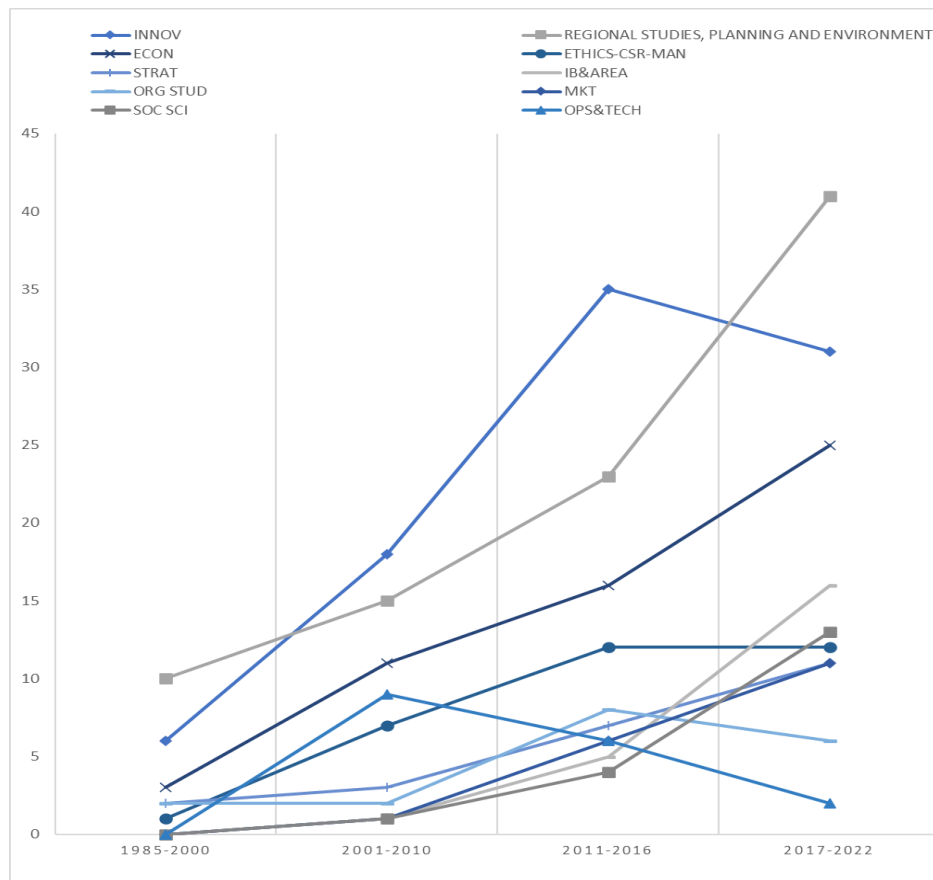


Fig. 2: Document bibliographic coupling



Notes: Threshold set at sample average value (32 citations): 118 selected items in clusters 5.

Fig. 3: Temporal distribution of publications by ABS categories



The order in the legend reflects overall number of publication per ABS field

Fig. 4a: Journal bibliographic coupling - cluster network visualization

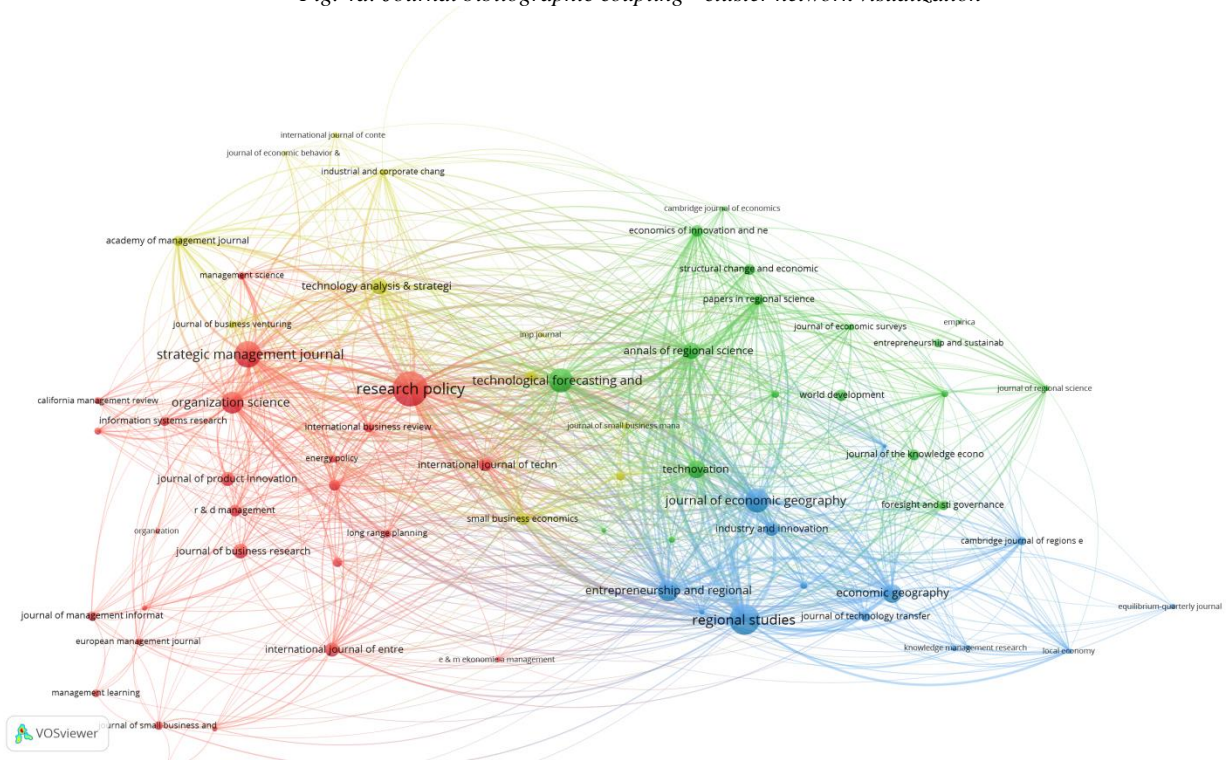
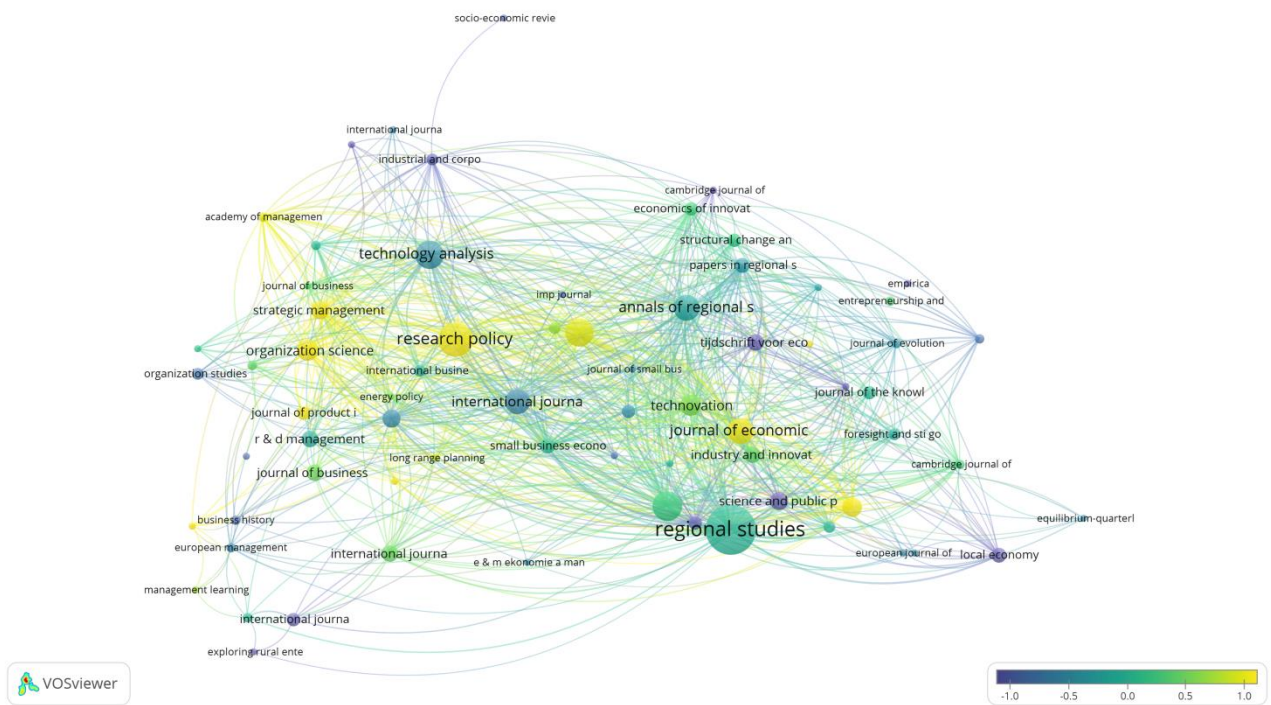
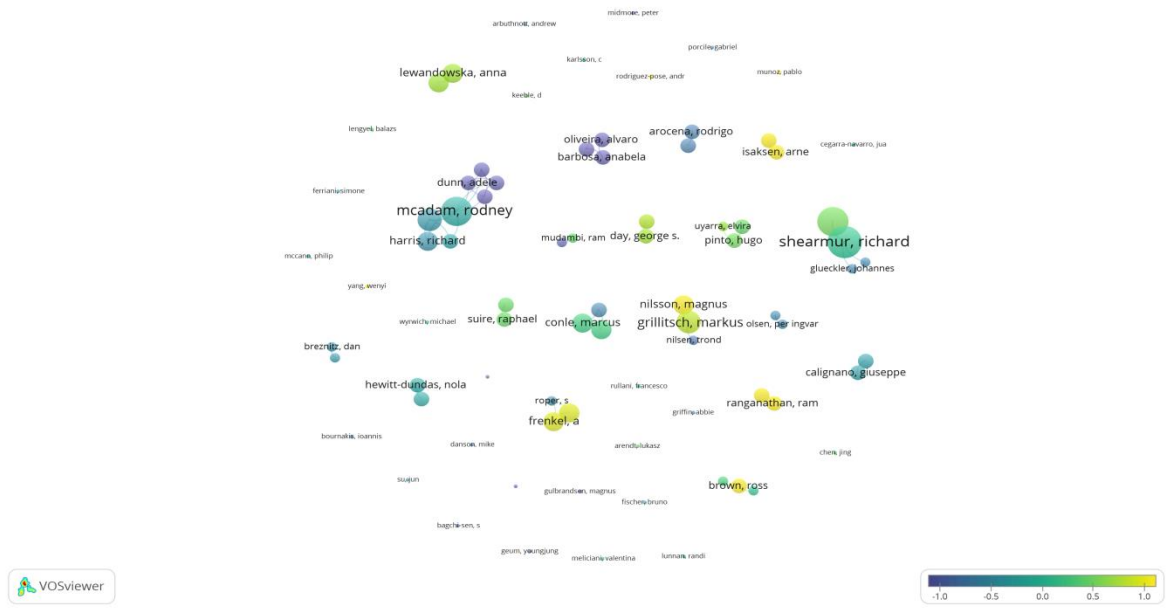


Fig 4b: Journal bibliographic coupling - overlay visualization on normalized citations counts



Notes: Threshold set at 2 documents and 20 received citations per journal. 70 items selected. Node size is total link strength, color score is centered average normalized citations.

Fig. 5: Co-authorship network



Notes: Threshold set at 2 documents, 80 items selected. Node size is total link strength, color score is centered average normalized citations.

Fig. 6: Author citation network - relatedness measured by times they cite each other

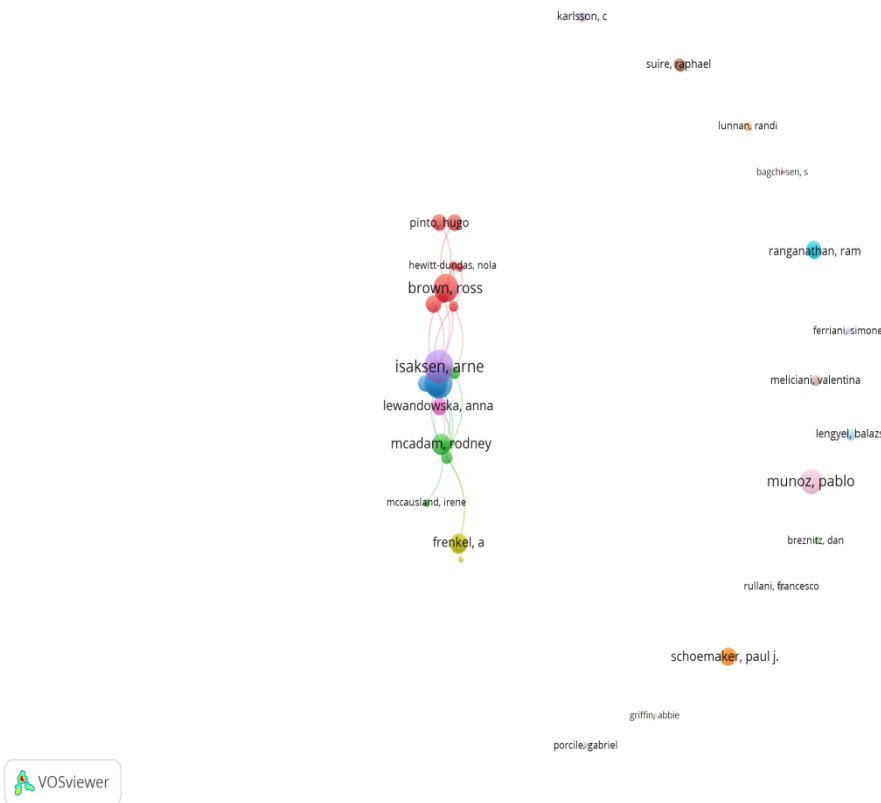
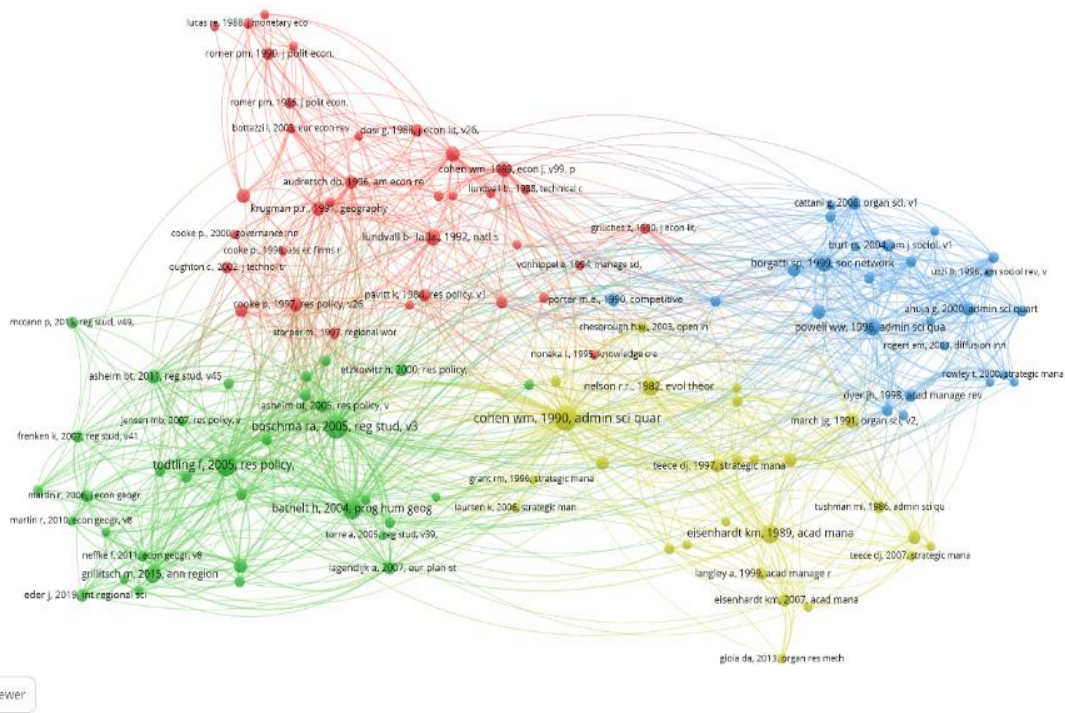


Fig. 7: Cited documents co-citation network



Notes: Threshold set at 10 citations, node size weighted by citations.

A bibliometric analysis of the effect of emerging technologies on management theories: current themes and research agenda

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Framing of the research. *The debate about new technologies in all areas of business management (management, marketing, accounting, finance) has been present for many years, it concerns many aspects and takes place in different ways. Already 20 years ago, Patterson et al. (2003) says that technology changes almost every day and its applications in business as well, the companies need to adopt these new technologies in many areas of the business to avoid the loss of competitive advantage.*

This debate has had a dividing line with the advent of industry 4.0 (Optimal, E, 2020)., a paradigm that, in fact, uses technologies that already existed previously.

With the advent of industry 4.0, studies regarding new technologies in management have multiplied. One of the most important first article about the topic (Shrouf et al, 2014) says that, after the creation of IoT, governments and companies will launch an evolutionary journey. It predicts that industrial production of the new era will be highly flexible, and it consists in extensive integration between customers, companies, and suppliers, and above all sustainable.

However, all this debate always focused on the use and impact of new technologies in companies: for example, Flavian et al. (2019) analysed the impact on the customer experience; Guo and Liang (2016) analysed the impact in the banking industry and Zhu et al. (2012) analysed the managerial application in different industries. New technologies and paradigms are not only changing how companies are managed and their strategies, but also relations and collaborations between them (Pucci et al., 2023). Furthermore, firms' relations and technologies adoption and related effect also influences industrial districts (Fiorini et al., 2022). There are many studies about the application of this technology (Li et al., 2020) but is not clear how these technologies created new management theories. Alfano et al. (2020) say that several readiness and maturity models have been proposed in recent years, but an accurate analysis and classification of these models are not yet available. Furthermore, in 2021 Klingenberg et al. say that value-creating technologies, which apply data in order to develop new solutions, are still rare in the literature.

Purpose of the paper. *The introduction of new technologies and above all the changes in the technological paradigm have always prompted management scholars to question themselves about the changes that these phenomena produce on the way and of doing business (especially in terms of effectiveness and efficiency: the possibility of new processes, improvements performances, etc.). Nevertheless, scholars have more rarely question themselves about the possibility that some emerging technologies could have changed the same conceptual schemes and theories that explain the way of doing business. For these reasons, in the wake of the importance of the fourth industrial revolution and the digitalization processes that companies are going through, this work questions which new managerial theories have been pushed and promoted by the emergence of new technologies.*

Given the importance that technologies assume in the society and, more specifically, in business we believe it is appealing to examine the studies in management concerning new technologies. The purpose of this research is twofold: to record the development of the works related to new technologies and to investigate the theoretical branches that they contribute to create.

Methodology. *As for many studies with similar purposes, we decided to use the bibliometric analysis (e.g. Casprini et al., 2020). We are interested in analysing the communities of scholars and the theory that comes out from research on the shared references of the documents. This is why the bibliographic coupling represents the best analysis to*

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perform. Thus, we used the VOSviewer 1.6.19 software (Van Eck e Waltman, 2010), being the perfect solution for our purpose.

In table 1 the procedures followed for conducting this study are reported in brief.

SCOPUS has been chosen as the database, while keywords derived from the study conducted by Bonaccorsi et al. (2020): we decided to take this article because the authors made a deep analysis of words related to new technologies. In order to incorporate the new technologies as much as possible, we decided to take all the words they have found, so we chose the words in the Table A1 (Coverage of emerging technologies by Wikipedia pages. Part 1: Academic papers (all year) and in the Table A2 (Coverage of emerging technologies by Wikipedia pages. Consultancy reports and official documents. Year 2018-2019). We included contributions from 2003 to 2022: we chose this range of years because the fourth industrial revolution is generally traced back to 2011 (Kagermann, 2015). We have considered 8 more years because some technologies were already being used. It can also be seen from the timeline graph below: we have had the shot since 2011, but before that something was already there. At first, we limited our analysis to the top journals (4 and 4*) identified by the Academic Journal Guide-ABS. We obtained a total of 5,778 documents, with 43,1408 total citations. We then restricted the analysis to top theoretical journals of management. The number of documents obtained after this restriction was 1640, while citations were 114,155. We then decided to focus our research on top journals of management and strategy.

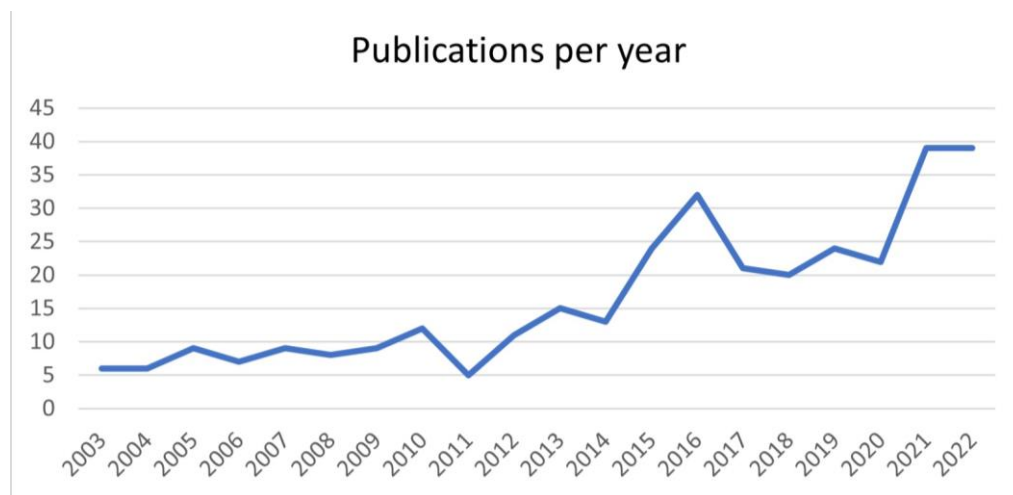
Tab. 1: Data collection procedure

Step	Action	No. Docs
1	Search	-
	Based on Bonaccorsi et al. (2020), limit to English Journals published between 2003 and 2022. 4 and 4* ABS	
2	Selection of: - Articles or review - In English - Published on Journal	-
3	Definition of the timespan, between 2003 and 2022	5778
4	Further selection of ABS sources (Association of Business School) following the Academic Journal Guide 2021 (4 and 4*) in: Entrepreneurship and Small Business Management, General Management, Ethics, Gender and Social Responsibility, Innovation, International Business and Area Studies, Management Development and Education, Operations and Technology Management, Operations Research and Management Science, Strategy	1640
5	Further selection of top management and strategy journals	331
7	Exclusion of 4 documents resulting as outliers when applying the bibliographic coupling analysis. These documents are not linkable to any other document in the bibliographic coupling analysis.	326

Source: Authors' elaboration

Results. As expected, there is an increasing trend of publications. (Figure 1).

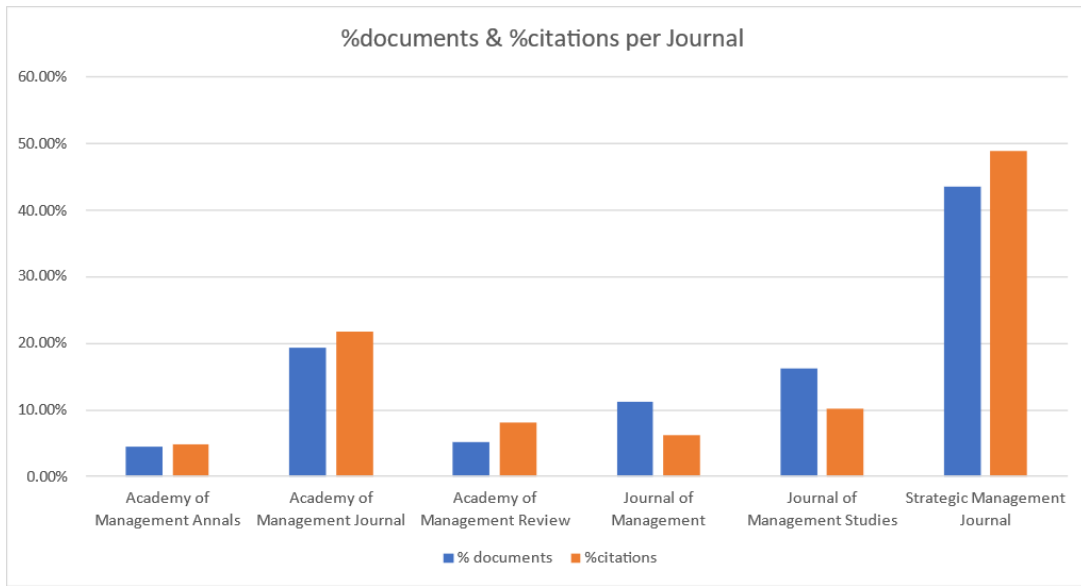
Fig. 1: Trend of intellectual core



Source: Authors' elaboration

The top journals identified are reported in the following figure and table (Figure 2, Table 2). We notice that some of them published a significant higher number of papers dealing with new technologies from a management's perspective.

Fig. 2: documents and citations per journal



Source: Authors' elaboration

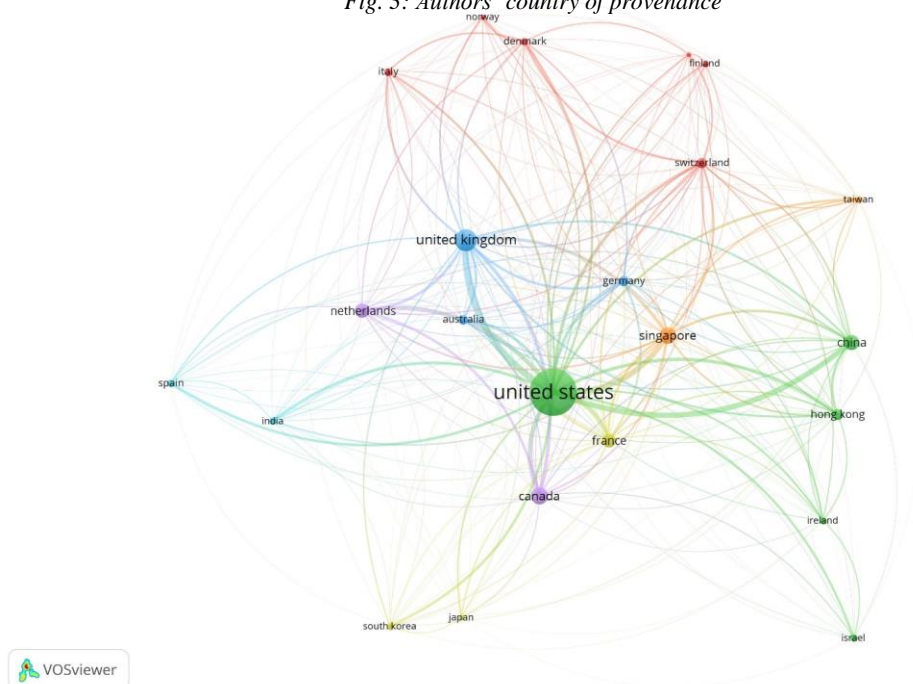
Tab. 2: Main journals

	<i>documents</i>	<i>% documents</i>	<i>citations</i>	<i>%citations</i>
<i>Academy of Management Annals</i>	15	4.53%	1677	4.89%
<i>Academy of Management Journal</i>	64	19.34%	7481	21.80%
<i>Academy of Management Review</i>	17	5.14%	2757	8.03%
<i>Journal of Management</i>	37	11.18%	2139	6.23%
<i>Journal of Management Studies</i>	54	16.31%	3482	10.15%
<i>Strategic Management Journal</i>	144	43.50%	16785	48.91%
Total	331	100.00%	34321	100.00%

Source: Authors' elaboration

Not all the journals publishing the highest number of documents researching on new technologies receive the same proportional quota of citations. As expected, when analysing the countries from which those researches originate, two countries show the highest contributions: UK and USA (Figure 3).

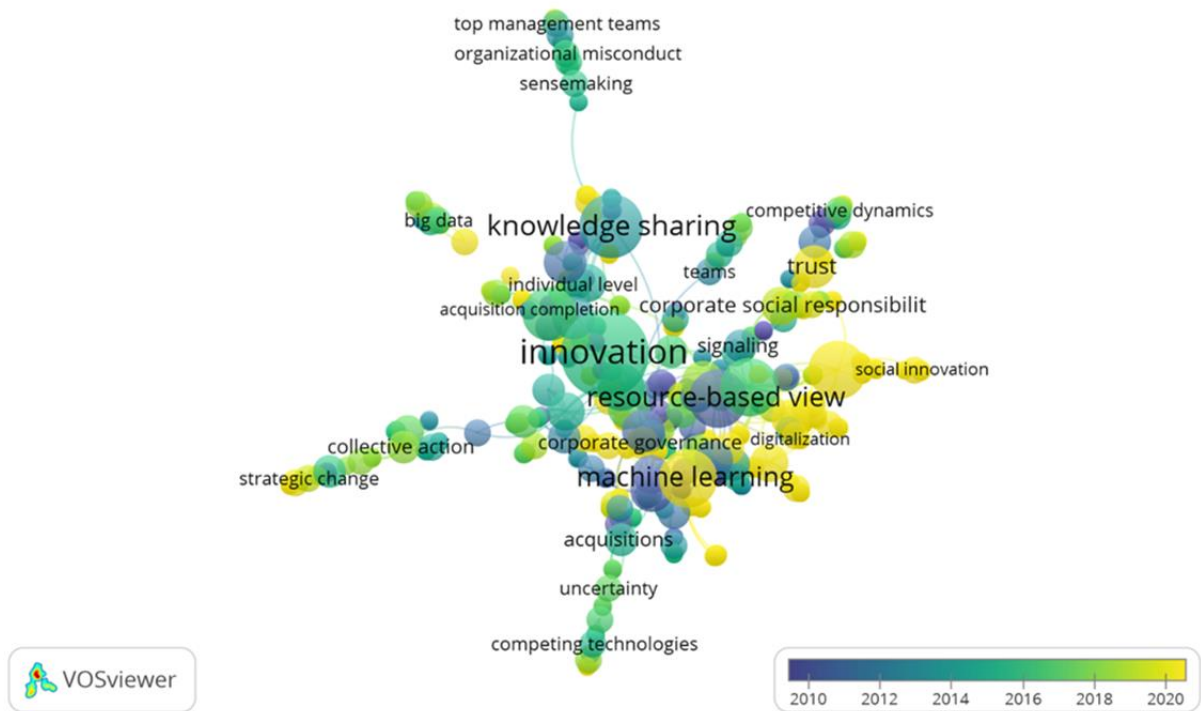
Fig. 3: Authors' country of provenance



Source: Authors' elaboration

We then analysed the recurring keywords and we choose those used at least three times (Table 3). Amongst them it is worthy to notice that one specific technology has an occurrence of 9, even if it emerged less than 2 years ago in the literature: machine learning. Co-occurrence and period of appearance are shown in figure 4.

Fig. 4: Keywords co-occurrence



Source: Authors' elaboration

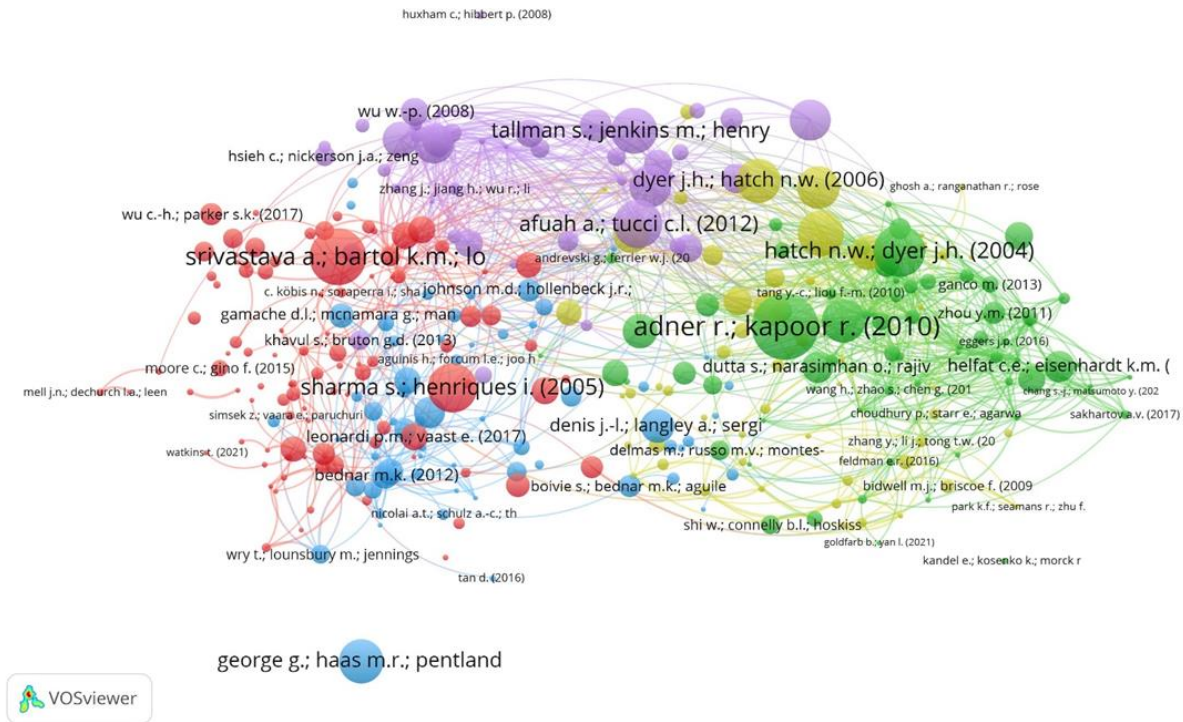
Tab. 3: Most recurring keywords

Keyword	Occurrence	Keyword	Occurrence
innovation	21	social networks	4
knowledge sharing	11	acquisitions	3
entrepreneurship	9	collective action	3
machine learning	9	corporate governance	3
resource-based view	9	employee mobility	3
sharing economy	9	firm performance	3
organizational learning	8	governance	3
patents	6	human capital	3
capabilities	5	information asymmetry	3
knowledge management	5	knowledge recombination	3
knowledge transfer	5	knowledge spillovers	3
modularity	5	legitimacy	3
networks	5	market entry	3
performance	5	renewable energy	3
trust	5	replication	3
alliances	4	securities analysts	3
artificial intelligence	4	signaling	3
business models	4	sustainability	3
corporate social responsibility	4	technological change	3
corporate strategy	4	technology	3
diversification	4	value creation	3

Source: Authors' elaboration

Finally, we performed the bibliographic coupling analysis. This helped us in clustering documents in thematic groups that emphasise the existence of a management theory link with new technologies. 5 clusters were identified. (Figure 5).

Fig. 5: Bibliographic coupling



Source: Authors' elaboration

The thematic blocks emerged from citation analysis can be represented as in Figure 6.

Tab. 4: Bibliographic coupling clusters

Cluster	time	N*	Main articles	main topics
1 Red "Strategic management"	2003 - 2022	98	- Raisch and Krakowski (2021) Hanningan et al (2019) Gregory et al (2021)	adaptation of strategic management tools for new technologies
2 Green "Knowledge management"	2004 - 2022	68	Krakowski et al (2022) Roy and Sakar (2014) Maslach (2016)	Relationship between knowledge and innovation
3 Blue "Corporate governance"	2003 - 2022	61	Choudhury et al (2019) Momtaz (2020) Pahnke et al (2014)	Use of various new technologies in diverse areas of corporate governance
4 Yellow "Sharing economy and new platforms"	2003 - 2022	55	Garud et al (2022) Khanaha et al (2022) Chang and Sokol (2022)	the introduction and enabling of the sharing economy and New platform and the adaptation of management and strategies to them
5 Purple "Information sharing"	2003 - 2022	44	Afuah and Tucci (2012) Piezunka and Dahlander (2014) Wu (2007)	How Information sharing and Crowdsourcing can impact management and managerial strategies

Source: Authors' elaboration

Fig. 6: Results of the bibliometric analysis

Strategic management and business models (Clusters 1 and 4)	Knowledge management (Clusters 2 and 5)	Corporate governance (Cluster 3)
New business models adapted to new technologies employment Sharing economy New platforms	Managerial approaches to exploit: Information sharing Crowdsourcing Innovation-knowledge relationship	governance models and the usage of new technologies

Source: Authors' elaboration

From this analysis emerges that scholars are mostly referring and adapting the traditional strategic-managerial theoretical lenses for analysing new technologies in management. In all the clusters the topic studied are not discussed through new proposed theories, instead authors refer to (adapted) traditional theories. We can identify, amongst others, theories from the 80's: the Resource Based View proposed in 1984 by Wernerfel, the theory about competitive strategies that dates back to 1985, by Porter. Moreover, there are theories deriving from mid-90's and the beginning of 2000, as the Knowledge-based theory (Grant, 1996) or, Corporate Social Responsibility and Sustainability (here we can identify even "older" theories, as Bowen, 1953, together with more recent ones: McWilliams and Siegel, 2001). Furthermore, there is a significant number of papers dealing with strategic management and business models. Even if we could expect new theories regarding strategic management and business models deriving from the adoption of new technologies, scholars are still using "old" theories, with some adaptations, to explain and study how those technologies affect firms and strategic management. Thus, we can identify that scholars still adapt theories that, maximum, were published in the first decade of this century (Chesbrough and Rosenbloom, 2002; Osterwalder et al., 2005; Zott and Amit, 2007; Baden-Fuller and Morgan, 2010). However, from the second decade of the XXIst century disrupting technologies and paradigm has been emerged (e.g. Industry 4.0 and related technologies, Kagermann et al., 2013), scholars did not propose new theories to capitalize on them from a managerial and strategical perspective. There is a need for new conceptual tools. Raisch and Krakowski (2021) pointed out that, with new technologies (Artificial intelligence, specifically for their research) a substantial change is required in how new technologies are currently conducted in order to develop meaningful theory and to provide practice with sound advice: "we also argue that a substantial change is required in how AI research is currently conducted in order to develop meaningful theory and to provide practice with sound advice" (Raisch e Krakowski, 2021, p. 192).

Therefore scholars are still using old theories for studying new technologies, while it would be needed new theories that can fully explain to both scholars and practitioner the impact on management. The need of new theories is also mentioned in older studies (i.e. Pahnke et al., 2014).

To propose some examples deriving from the topic emerged from the clusters, we can analyse the case of new technologies that empowered the possibility to share information and knowledge. They also enabled the employment of distant and external knowledge that could be beneficial for the company if appropriately managed. Therefore, management scholars investigated if and how crowdsourcing and innovation sharing should be effectively managed. However, this has been done referring to "old" theories while new ones should have been proposed.

The choice of choosing leading and renewed journals in the management and strategy fields has been done because we expected that new theories would have been proposed in these top journals. It could happened that new theories emerged in other fields, but we await to find the management theories in the analysed ones

Research limitations. This research has some limitations. The first is the selection of only the most important journals about management. Future developments of the work should also take into consideration more journals. Widening the number of contributions under analysis could also decrease the heterogeneity of smaller clusters where the sharing of some references can derive from individual articles with very different focuses. For the same reason, the second limitation is related to the choice of scientific fields of investigation. This does not exclude that there may be interesting and useful works for the purpose of this study also within different disciplines (e.g. marketing). A final limitation refers to the analysis of the results. Although the use of bibliometric methods helps to reduce subjectivity, this does not exclude the possibility that the analysis of the main topics covered is limited by interpretative distortions.

Managerial implications. Since we expect new and disruptive technologies and paradigms to strongly affect management and strategies, but it does not emerge from the analysis of academic documents any significant new theory, this study points out the need for new theories emerged from the rise of new technologies. New theories not only would be effective for scholars, but they would also provide fruitful insights for managers. Practitioners would benefit from learning new theories because they would help them in capitalizing on the adoption of new technologies. Adopting new technologies with an "old" approach might diminish their effect.

Originality of the paper. The literature has always extensively analysed new technologies. However, to the best of our knowledge, there are not systematic literature reviews trying to study the effect of new technologies on management and strategy and the existence of theories promoted by them.

Keywords: new technologies, management, strategy, theory, review

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The impact of technological improvements in the agri-food sector: a literature review from a managerial perspective[♦]

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Framing of the research. *Emerging technologies have been leading the industrial revolution in the past few decades. However, the magnitude of their integration and adoption to different sectors is still heterogeneous. Despite all the efforts to facilitate and to boost technology understanding, adoption and acceptance, the concept of “emerging technologies” remains complex, untapped and challenging (Small et al., 2014, Carroll, 2017). Many highlight the potential of these technologies to revolutionize the economy (Porter et al., 2002). Indeed, technological breakthroughs refine every industry today, from traditional ones like agriculture (Rudi, 2009) and food (Misra and Mention, 2022), to more modern ones, as oil and gas (Monteiro, 2019).*

Notwithstanding the challenges facing agriculture and food sectors, such climate change (FAO, 2017), the need to fully understand, explore and benefit from these technologies is critical to address them. However, many literature broach the subject of technology intertwinement to agrifood, such as artificial intelligence and sustainability (Sood et al., 2022), digitalization and sustainability (Abban et al., 2022), agrifood supply chain and technological innovation (Dadi et al., 2021, Cricelli et al., 2022). Nonetheless, comprehension of emerging technologies and agrifood remains limited.

This paper discusses the concept of emerging technologies and their implications to the agrifood sector presenting an overview of the state-of-art of management studies over the past two decades and providing a detailed future research agenda to guide researchers, policy makers and stakeholders.

Purpose of the paper. *The aim of this research is to provide a widespread overview of the scientific awareness on how new technologies impact the production, distribution and consumption of goods in the agrifood sector. The paper has several economic and political implications; while providing an overview on the growth trends of new models and methods of doing business, it also outlines a strategic and political guide towards a more sustainable world, both from an economic, environmental and social perspective.*

Methodology. *We decided to adopt two bibliometric techniques. The first refers to the analysis of bibliographic coupling “to group papers based on their shared references. The higher the reference overlap between the two papers, the more these two papers were deemed to belong to the same community” (Casprini et al., 2020, p. 4). The other relies on keywords analysis, where the authors have analysed the linkage among the authors keywords in the observed papers. In other terms, this second technique refers to the co-occurrence analysis on authors’ keywords. These two investigations allow us to identify research mainstreams.*

We recurred to VOSviewer 1.6.8 software (Van Eck e Waltman, 2010) since it is among the most flexible and useful to the research aim.

The whole procedure is implemented following different steps. We used SCOPUS database, recurring to keywords linking the concept of «new technologies» for the agri-food sector. In order to identify the keywords implemented in the research query on SCOPUS we followed a rigorous and objective criterion based on two different definitions:

- *The concept of new technologies was defined following Chiarello et a. (2018) where they build an algorithm to identify the most relevant technological innovations;*

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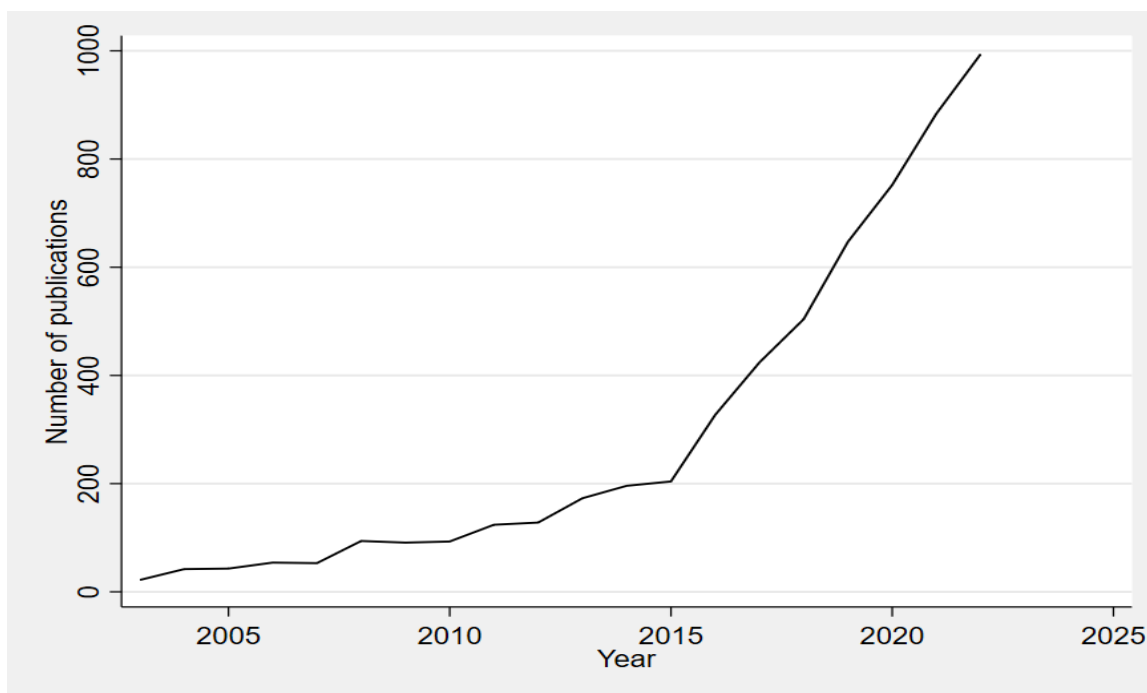
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- The agri-food sector was defined through the analysis of the main research lines which have been defined by the PNRR project.

The analysis was limited to publication sources published between 2003 and 2022 (included) since, despite the arrival of industry 4.0 can be collated around 2010, the arrival of technologies related to this industrial revolution was, in some case, earlier than this date.

Results. Starting from the descriptive analysis of scientific production, the temporal distribution of the contributions covered by the intellectual core has shown a growing trend, although the growth rate has only been remarkably increasing in the last ten years. (Figure 1).

Figure 1: Trend of intellectual core



Source: Authors' elaboration

With respect to the Journal distribution on the debate on technological improvements in the agrifood sector, Table 1 shows that 7 journals summarise more than half of the discussion.

Tab. 1: Main journals

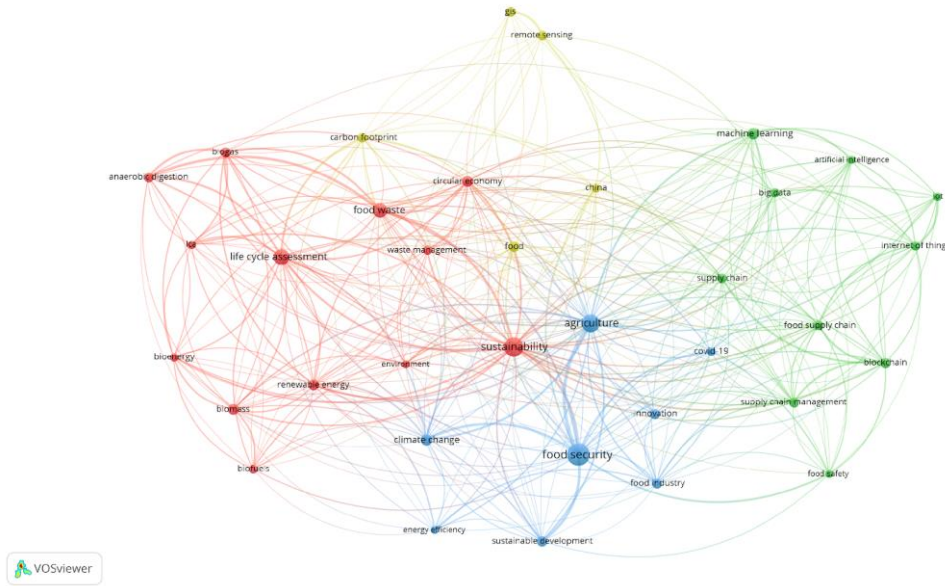
Source	Documents	Citations
Applied Geography	224	10637
British Food Journal	241	4855
Eastern-European Journal of Enterprise Technologies	57	161
Food Science and Technology Research	64	367
International Journal of Recent Technology and Engineering	104	232
Journal of Cleaner Production	1956	70060
Journal of Environmental Management and Tourism	53	239
Technological Forecasting and Social Change	87	3790

Source: Authors' elaboration

The analysis of the linkage across keywords shows the key role of sustainability to foster technological innovation in the agri-food sector. Indeed, as well as being one of the predominant elements of the network, it plays a key role in the connection across the different areas of analysis.

The network identifies 4 main categories: the red part relates to food waste management and related recycle systems, the blue area is concerned with food security and traceability, the green side provides an overview of all the systems and applications of new technology to the area of management and marketing, while the yellow area relates to system for reducing carbon-emissions.

Fig. 2: Keywords co-occurrence



Source: Authors' elaboration

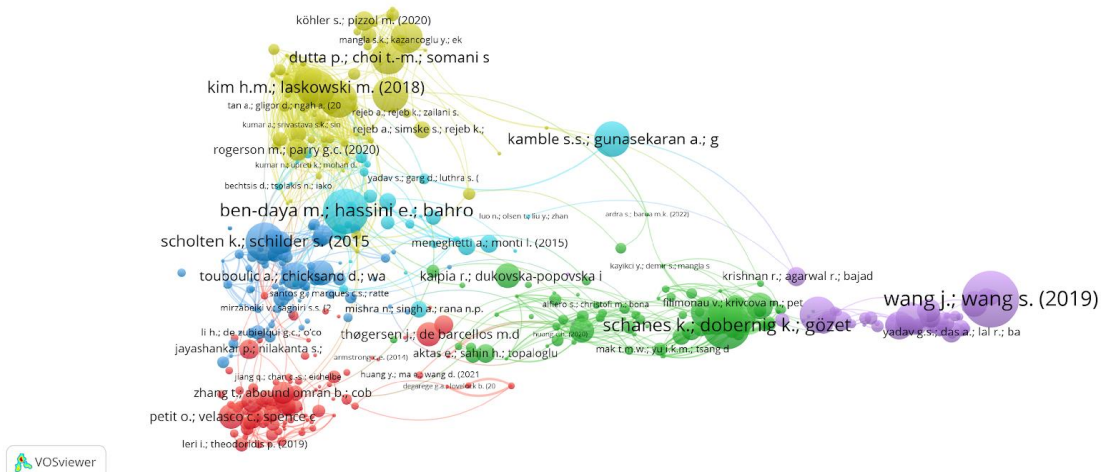
The bibliographic coupling analysis provides similar results to the keywords analysis and it divides the sample in 6 different clusters, as illustrated in Figure 3.

Tab. 2: Most recurring keywords

term	occurrences	term	occurrences
Sustainability	317	Anaerobic digestion	89
Food security / safety	430	Carbon footprint	73
Life cycle assessment	213	Artificial intelligence	60
Food waste	177	Waste management	81
Climate change	119	Big data	52
blockchain	87	Traceability	40
biomass	97	Remote sening	83
Renewable energy	99	Smart-farming	26
Circular economy	100	Industry 4.0	31
Supply chain	82	water	29
Biogas	86	acquaculture	49
Machine learning	113	Green house gas emission	43
Internet of things	78	Precision agriculture	30

Source: Authors' elaboration

Fig. 3: Bibliographic coupling



Source: Authors' elaboration

Relying on the most common method used in analysis, bibliographic coupling (Gao and Ding, 2022), we identified 6 distinct clusters, illustrated in Figure 3.

Cluster 1 comprises 115 publications (timespan 2004-2022) and discusses consumer perception of restaurants on social media (Park, et.al, 2016), consumers loyalty (Wu and Chen, 2018), food tourism (Richards, 2021), food advertising (Wong, et.al., 2019), food waste and consumers (Scarpi, et.al., 2021) and food purchasing (Ma, et.al., 2021).

Cluster 2 contains 92 articles, and explores food waste related topics (timespan 2013-2022). This cluster analyzes supply chain and waste management (Kaipia, et.al., 2013), food waste governance (Warshawsky, 2015) and food waste prevention (Mullick, 2021; Kör et.al., 2021).

Cluster 3 combines 89 articles (timespan 2008-2022), it discusses supply chain food quality (Juan Ding, et.al., 2014), supply chain innovation (kronborg, 2014), sustainable supply chain management (Mehdikhani and Valmohammadi, 2019) and information sharing in food supply chains (kiil, et.al., 2019) .

Cluster 4 is composed 85 articles (timespan 2018-2022) and discusses blockchain technology related topics, either for precision agriculture (Liu, et.al., 2021), blockchain and sustainability (Tripti, et.al., 2021), food tracibility (Aldrighetti, et.al., 2021), and blockchain for food service distribution (Vivaldini, 2021).

Cluster 5 contains 71 publications (timespan 2014-2022) and discusses cleaner production strategies (Gruda, Bisbis and Tanny, 2019), circular economy practices (Do et al., 2021), environmental sustainability (Yadav et al., 2020) and life-cycle assessments in sustainability (Notarnicola et al., 2017).

Cluster 6, has 38 contributions (timespan 2015-2022) and discusses IoT for food supply chain (Yadav, Garg and Luthra, 2020), IoT for agriculture (Singh et al., 2020), artificial intelligence for food supply chains (Dora et al., 2021) and data analytics for perishable food products decision making processes (Chaudhuri et al., 2018).

Tab. 3: Bibliographic coupling clusters

Cluster analysis	
• Cluster 1	Marketing
• Cluster 2	Food waste
• Cluster 3	Supply chain
• Cluster 4	Blockchain
• Cluster 5	Life cycle assessment
• Cluster 6	Internet of Things-AI- Data analytics

Source: Authors' elaboration

Figure 3 provides a summary of the results of the bibliometric analysis by proposing a grouping of the thematic blocks and clusters identified through bibliographic coupling according to the analysis perspective adopted: individual dimension, organizational dimension, and contextual dimension.

Research limitations. The research aim was to identify and to map new and emerging technologies' role in the agri-food sector development which has led us to adopt a very inclusive approach both in terms of keywords to be used for SCOPUS research query, and in terms of research streams. An inclusive approach endows us with a fair degree of confidence on the linkages significance and networks identified in the analysis. Such a wide overview may not allow us to correctly assess the pure goals of each assessment included in the analysis. However, this is only an initial step in a research journey and our future goals will include more focused analyses on the single domains, both from the point of view of discipline, technologies and fields.

Managerial implications. The understanding of how new technologies can improve the efficacy and efficiency of production processes is a key aspect in the sciences of management. Society and the global political agenda are characterized by an increasing attention toward sustainability goals, both from an environment and a social perspective. The systems of production will face the challenge to preserve the cost-effectiveness of their business while meeting this ideological shift. The role of new technology, if correctly addressed, could be crucial in such a mission and, in order to identify the possible future steps, we must be aware of the successes and failures that have occurred in the past.

Originality of the paper. The literature on the impact of new technologies in the agri-food sector has been increasing in the last decade. However, at least to our knowledge, there has not yet been an effort to map the whole basket of technologies in single research for this sector. This will provide a general overview that may be useful to understand and compare the agri-food sector with other fields, in order to define possible future directions.

Keywords: emerging technology; innovation; agri-food; literature review; bibliometric coupling

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Determinants of Digital Financial Behavior

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Framing of the research. *Since decades, the financial industry has experienced a continuous evolution in service delivery due to digitalization (Gombert, 2017). In the last years there was a shift in the focus of digitalization from enhancing the delivery of traditional tasks to implementing new business models and opportunities for financial services companies. Recently, the digitalization of the financial system is also changing the financial consumers' habits and the behavior.*

The investigation of financial behavior is a crucial topic since a poor financial behavior has fatal consequences not only for individuals but also for the global economy (Goyal, 2021). Previous studies have demonstrated that financial literacy (FL) is a key tool to improve the overall financial behavior (Kim et al. 2019). In particular, Gutierrez-Nieto et al. (2017) demonstrate the effect of FL on debt behavior. Deuflhard et al. (2019) discovered a positive effect of FL on wealth accumulation, savings, and investment behavior. The same positive effect was found on stock market participation (Sivaramakrishnan et al., 2017), retirement planning (Clark, et al. 2017), insurance participation (Lin, et al. 2017), and financial well-being (Lee, et al. 2019). Grohmann et al. (2018) highlight that a higher level of FL increases financial inclusion, while poor decisions relating to mortgage refinancing are related to financial illiteracy (Bajo, et al. 2018).

During the last decade, technology-driven transformation has created emerging challenges for education systems worldwide to adequately prepare future generations to meet the demands of a changing environment. The complex problem of the 21st century society require the development of a wide set of digital skills for life and work (Lyons, et al. 2019). Aleke et al. (2011) underline that if individuals of a country are digitally literate (DL), they will be able to effectively and efficiently use ICT to perform tasks and achieve goals. In recent years, digital financial services (DFS) have rapidly expanded mainly driven by fintech and further accelerated by the Covid-19 pandemic Lyons et al. (2021). Starting from the idea that maybe the traditional FL is insufficient to empower individuals to access and use DFS, the authors investigate the concept of digital financial literacy, which includes some aspects of FL and DL. Lo Prete (2022) motivates her study by the idea that people need both DL and FL to share the benefits of the digitalization of banking and financial markets. This study underlines as the use of digital payments are associated to the ability to use digital technologies, at all levels of FL, while personal financial choices are linked to FL, at all levels of DL. In their study, Kass-Hanna et al. (2022) have developed an index to measure the level of DL. The digital literacy index was constructed by summing the scores across three different dimensions: mobile technology access, mobile phone proficiency; and mobile money proficiency. The total score of this index ranges from 0 to 15. The finding of the study by Kass-Hanna et al. (2022) are in line with the idea that both FL and DL are key factors to building inclusiveness and financial resilience. Differently from the case of FL, studies that specifically focus on DL and financial behavior are virtually non-existent (Kass-Hanna et al. 2022). Some studies have analyzed the impacts of DFS on saving behavior finding that mobile money increased the probability of savings and money transfers and reduced the propensity to use informal savings channels (Apiors et al., 2018; Demombynes et al., 2012; Mbiti et al, 2015; Ouma et al., 2017). Bharadwaj et al. (2019) and Seng (2017) have found a positive relationship among mobile money and informal borrowing.

In this framework of innovation and digitalization of the financial system, in 2019 the Dutch bank ING has published a report in which investigates a new technology tool, cryptocurrencies. Cryptocurrencies are the digital money that, in theory, allows everyone to economically and transparently transact or invest around the world with a click. The ING International Survey conducted on cryptocurrencies ask what people know about cryptocurrency and whether they have a view of what the future holds. This study reveals that while most Europeans had heard of cryptocurrencies and know what they are, many of them did not understand how they work. The sample of the survey was 12813 respondents that were asked to assess the validity of five statements about this tool. The level of knowledge was evaluated measuring the frequency of correct answer given to the five statements. This survey can be considered the first mapping of the level of knowledge of the European population regarding cryptocurrencies. Rázvan (2021)

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investigate the level of FL and digital financial literacy in the European Union observing general attitudes towards novel Fintech solutions, cryptocurrencies, and digital money. The result of the study supports the idea that FL and DL must be combined together in order to guarantee the individual's financial well-being.

In this analysis is important to consider what happens at cognitive level when a person faces a high-tech service or product. Previous literature introduced the concept of perfect automation schema (PAS), defined as a cognitive scheme containing beliefs about the performance of automated systems. Dzindolet et al. (2002) proposed two aspects of PAS. First, they proposed that the schema is associated with high expectations for automation performance. In other words, users with strong PAS should report expectations that the automated aid will perform with near-perfect reliability. Second, they hypothesized that users would be less prone to forgive automation mistakes than human mistakes. While human mistakes can be attributed to variable factors such as momentary inattention or fatigue, users may make more stable attributions for aid errors. Thus, individuals with strong PAS may exhibit all-or-none thinking regarding aid performance: either it works perfectly or not at all. The PAS personal beliefs influence human-automation interaction (Merritt, et al. 2015), which is an important element to consider when investigating the behavior of consumers in relation to digital financial services. These cognitive aspects are also important in order to evaluate if the individual differences in the PAS could be reflected in different behaviors towards digital financial services.

Purpose of the paper. The main purpose of the paper is to investigate which could be the determinants behind the digital financial behavior. In particular, we aim to evaluate whether and how digital financial behavior is affected by individuals' difference in FL and DL, and further explore the role played by cryptocurrency literacy (CL), and (PAS). In the analysis individual's sociodemographic and socioeconomic characteristics are also taken into account.

Methodology. The analyses were conducted developing and administering a survey to Italian consumers. The sample consists of 502 individuals equally distributed on the territory. The survey is composed of 47 questions which investigate various aspects including questions of financial literacy, digital literacy, cryptocurrency literacy, perfect automation schema, demographic and socioeconomic.

The digital financial behavior (DFB) which is what we want to investigate is the dependent variable of our study and is identified as the proxy of the tendency of subjects to prefer the digital delivery channel over the traditional one. To develop this indicator eleven questions were posed about different products and services, such as stocks, bonds, cryptocurrencies, payment cards, online banking accounts, and virtual advisor, asking which channel was used by the individual to buy or activate a product / service. Two different channels were identified. The first, called "traditional channel", refers to the physical bank branch, financial consultant, banking consultant, or independent consultant. The second, defined as "digital channel", includes online platforms and online banking. So, for each of the eleven questions the respondent must select which channel he/she used to purchase the specific service or product, if they have used it at least once. For example, the question about stocks asks "Have you ever bought stocks?", and if the respondent answers "yes" the following questions is "Which channel have you mainly used?". At this point the respondent must select the channel he/she has used, i.e., the traditional or the digital one. The DFB is calculated as the sum of the time where the answer provided was "digital channel". We also calculate the digital financial behavior extended (DFBextended), which is the result of the previous sum plus the answer given to the question which investigates which innovative services a person would use. This latter question was developed in order to capture the respondents' appetite for new possible digitally advanced financial tools and services. The question proposes three digital services. The respondent has the possibility to choose more than one alternative. At the same time, subjects can show their non-interest by answering "none of the above".

As explanatory variables we considered FL, DL, CL, and PAS. To evaluate the level of FL we have used the big five questions developed by Lusardi and Mitchell (2011, 2013). One of the hypotheses formulated is that a higher level of FL positively affects the DFB of a subject given that the individual with high FL could feel more confident in their decisions to prefer a digital channel over the traditional one. The DL was calculated using the index created by Kass-Hanna et al. (2022); the relative hypothesis is that the higher the level of digital literacy the higher is the implementation and use of the digital channel. The level of CL is calculated as the sum of the correct answers given to the question which asks about the characteristics of cryptocurrencies. This question is composed of five statements regarding the characteristics of cryptocurrencies and was created and used in a report conducted by ING bank (2019). Each statement provides three possible alternatives "yes", "no", and "I don't know", and the respondent must choose the correct answer based on their knowledge. The idea is that greater is the value of this indicator greater is the confidence with technology. We expect a positive relation between the dependent variable, DFB, and CL. The last independent variable is PAS, which is a cognitive schema focusing on an automated system (Tschopp and Ruef, 2020). This question wants to evaluate the trust of a subject in a technology and in the automated system. The idea is that the higher the trust in algorithms, the greater the predisposition to rely on technological tools and services. Therefore, PAS should have a positive impact on digital financial behavior.

In order to investigate the determinants behind the DFB, the relation between the dependent and independent variables are investigated using an OLS (Ordinary Least Square) multivariate regression model, where the dependent variable is DFBextended, the independent variables, added one by one, are FL, DL, CL and PAS. Moreover, the educational level, the marital status, the income level, and the age of the respondents are added in each regression as control variables.

Results. *The descriptive results show that the sample is composed by women (52%) and man (48%) equally distributed on the Italian territory.*

From the preliminary analysis emerges that only 23% of the population is considering investing in cryptocurrency in the future and only 10% is able to answer correctly to all the five statement of the cryptocurrency literacy. These results highlight how the Italian population is interacting with one of the newest technological tools applied to the financial world.

Another relevant result is what emerge from the question that wants to test the digital appetite of consumers. This question asks which of three different potential high-tech financial services the consumer would use. Results show that the majority (56%) of the population would not use any of the proposed tools. On the other hand, only 8% would be interested and would like to use all the proposed three services. The idea behind this question was to understand how much Italian consumers want and are interested in the introduction of highly technological financial instruments and services that are currently not yet available but potentially implementable. Results show that just a small part of the population has a high financial appetite and is aware and interested in possible new frontiers. At the same time, results show that the majority have no interest and curiosity in experimenting with new potential high-tech financial services, such as financial advice in the metaverse.

Given these initial results, this study wanted to go further investigating what could be the determinants of DFB of Italian consumers. The first multivariate regression looks to the relationship between DFBextended and the FL. Results show that the FL positively affects the DFB. So, a higher level of FL has a positive impact on the propensity to have a financial behavior more digital oriented. This result is in line with our initial hypothesis.

The second analysis focuses the attention on the impact that DL has on the dependent variable. The level of DL is positively related to the propensity to be more incline to use digital financial services and instruments. This result is in line with the expectations, indeed, having greater knowledge and familiarity with digital tools lowers the barriers to using the technology in new sectors, such the financial one.

Moreover, the third step studies the relation between DFBextended and the level of knowledge of cryptocurrencies (CL). Also, in this case the relation is positive. This means that the higher the level CL the higher the propensity to have a DFB. This result may mean that greater knowledge of a highly technological financial tool increases the propensity to use digital products and services in the traditional financial system.

The last step of this study investigates which is the role played by the level of trust that a person has in the automation schemes and algorithms (PAS). The significant and positive relationship between the two variables is in line with the expectation: a person with greater trust in automatic schemes and algorithms is more predisposed and more inclined to use digital and technological tools. In other word, results support the hypothesis that a person who has more faith in automated system will have more active digital financial behavior.

The results emerging from the analysis conducted in this study reveal that together with socio- demographic and socio-economic variables, DFB of Italian consumers is positively influenced by FL, DL, CL and PAS. These results highlight that DFB is thus influenced not only by the level of FL but also by other abilities and knowledge, underpinning that also DL, CL and PAS could be improved to foster consumers' ability and confidence in this new age of finance. Since the digitalization of financial products and services is a consolidated reality with which consumers will have to deal with every day, these findings are useful in order to understand which are some of the abilities relevant to support a financial behavior more in line with the new era.

Research limitations. *One of the main limitations of this study could be related to the limited geographical area of the study. In particular, it could be interesting to administer the same questionnaire in other countries and compare the results obtained in two or more different countries.*

Moreover, this study does not take into consideration the real and perceived risk appetite of the consumers. The risk propensity could be another element that affect the DFB, that should be considered in future analyses.

Managerial implications. *This paper focuses the attention on how consumer behave in relation to the implementation of new digital solutions available from the financial industry. Banks and financial institutions can use the results of this study on different tracks. First, by analysing their consumers, they will be able to segment them and offer services and products in line with their client's skills and knowledge. Secondly, they could participate and incentive initiative aimed at increasing the skills and knowledge that positively influence digital financial behaviour, to improve the adoption of new digital solutions by customers. Finally, the expectations and new needs of customers that manifest themselves in an evolution of traditional financial behaviour to digital oriented financial behaviour can be an opportunity for the offer to promote new service and develop new businesses.*

Originality of the paper. *Previous literature has demonstrated how financial consumers' behavior is affected by individuals' sociodemographic and socioeconomic characteristics and literacies such as financial literacy and digital literacy. Anyway, no study has yet investigated the concept of Digital Financial Behavior and in particular the determinants of digital financial consumer's behavior (DFB). This study is the first work that analyses a new form of financial behavior that is the digital financial behavior. Since, the impact of digitalization of financial system is changing habits and behaviors of financial consumers, it is important to understand which could be the determinants of digital financial behavior. So, this work is a first investigation about the financial behavior of consumers in a digital era and about the implementation and use of digital tools.*

Keywords: *digital financial behavior; financial literacy; digital literacy; perfect automation schema; cryptocurrency literacy; fintech.*

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- ZUCCHETTI A., COBO C., KASS-HANNA J., LYONS A.C. Leaving No One Behind: Measuring the Multidimensionality of Digital Literacy in the Age of AI and other Transformative Technologies.

Evoluzione del modello di business nella filiera agroalimentare: l'impatto degli investimenti tecnologici

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Inquadramento della ricerca. *La quarta rivoluzione industriale ha indotto le imprese ad adattarsi ad un nuovo paradigma basato sull'interconnessione digitale e sulle capacità di rispondere in maniera sempre più rapida alle esigenze dei consumatori e degli utenti. Nello specifico, l'Industria 4.0 cambia il modo di fare impresa, tramite l'impiego di soluzioni tecnologiche che influenzano l'intera filiera produttiva e distributiva (Quattrococchi et al., 2022). In questo contesto, la filiera agro-alimentare è stata investita da una crescente attenzione inerente all'utilizzo delle tecnologie digitali e l'impatto che queste hanno sulle dinamiche operative ed ambientali. Al presupposto di sviluppo tecnologico è associato, invero, quello di sostenibilità. Basti pensare all'impatto che la filiera agroalimentare produce in termini ambientali, responsabile nel suo complesso di una quantità rilevante di emissioni di CO2 pari al 20% dell'intero Food System (Quaranta, 2021). In coerenza, dunque, con gli obiettivi fissati dall'Agenda 2030, la quale demanda ai Paesi membri l'adozione di strategie volte a ridurre gli impatti ambientali e le emissioni derivanti dai processi industriali, il settore agri-food deve necessariamente essere considerato come uno dei (principali) settori coinvolti al contempo nel processo di green and digital transformation.*

In questo scenario, la letteratura ha individuato nell'Agricoltura 4.0 una delle principali allecite tematiche, quale modalità di sviluppo che mira a definire l'integrazione di diverse tecnologie per automatizzare attività e processi cyber-fisici, consentendo una migliore pianificazione e controllo dei sistemi agricoli (Lezoche et al., 2020). Uno degli obiettivi di Agri 4.0 è da ricondursi alla riduzione degli impatti ambientali che potrebbero scaturire dalle attività agricole (Lytos et al., 2020). Nell'ambito della trasformazione digitale del settore agricolo, le nuove tecnologie sono considerate importanti per la gestione dell'intera filiera contribuendo in termini di tracciabilità, sicurezza, qualità, trasparenza e scalabilità (Dal Mas et al., 2023). L'analisi della letteratura evidenzia, altresì, teorie opposte; Rijswijk et al. (2021), ad esempio, hanno affermato che le attuali tecnologie digitali possono generare diversi impatti negativi che diverranno visibili solo quando effettivamente questi strumenti verranno utilizzati.

Sebbene si registri un trend crescente di investimenti digitali, l'Agri-food presenta al momento un basso tasso di investimenti tecnologici rispetto ad altri settori (Bjerke e Johansson, 2022) e una limitata centralità delle politiche di innovazione europee (Knudson et al., 2004, Andrade et al., 2020).

Al fine di stimolare maggiormente l'adozione di tecnologie digitali nella filiera agro-alimentare, la presente ricerca si propone di indagare i fattori che ne determinano l'adozione mediante un'indagine in profondità. La ricerca si propone come un primo test sul più importante mercato d'Italia, il secondo in Europa per movimentazione merci, per successivamente procedere ad un'analisi più profonda coinvolgendo tutti i principali mercati italiani.

Obiettivo del paper. *Sebbene diversi studi abbiano investigato specifici aspetti inerenti all'adozione delle tecnologie nel settore agri-food, ancora poco indagate sono i driver che ne determinano l'adozione; inoltre, non si rilevano in letteratura ricerche che relazionano tali fattori alla reale conoscenza, da parte degli imprenditori agricoli, degli effetti generati da queste tecnologie. Sulla base di queste premesse, il presente contributo si propone di indagare le principali tecnologie adottate nell'ambito della filiera agro-alimentare, nonché i fattori che ne influenzano l'adozione. Più in dettaglio, il lavoro si propone di fornire implicazioni di carattere teorico e manageriale; dal punto di vista teorico, mediante una revisione della letteratura il paper si propone di definire un framework teorico inerente agli effetti che le nuove tecnologie digitali possono innescare a livello strategico, operativo e relativamente ai valori aziendali. Sotto il profilo empirico, la ricerca tenterà di analizzare i driver o le barriere che concretamente influenzano l'adozione delle tecnologie digitali da parte degli imprenditori operanti nella filiera agri-food, allo scopo di definire implicazioni per manager e policy makers utili ad incentivarne l'adozione.*

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Metodologia. La ricerca in fase di sviluppo muove da un'analisi della letteratura volta ad indagare i principali effetti legati all'adozione delle tecnologie digitali, con particolare riferimento al settore dell'Agri-food, per poi investigare i fattori che costituiscono driver o barriere all'adozione. In particolare, la presente ricerca consta di due principali fasi. Dopo aver condotto una literature review mediante un rigoroso scrutinio dei contributi scientifici nel periodo 2012-2023, nella seconda fase è stato sviluppato un questionario suddiviso in più sezioni, con domande miste aperte e chiuse. Il questionario è stato somministrato alle figure apicali delle principali aziende aderenti al MOF. L'obiettivo di tale analisi consiste nell'indagare, come esposto, i fattori attraverso i quali è possibile incentivare l'adozione e l'integrazione delle tecnologie digitali nel settore agri-food ed evidenziare il grado di conoscenza degli imprenditori agricoli verso tali tecnologie.

Risultati. Il lavoro tenterà di misurare il grado di adozione e di conoscenza delle nuove soluzioni tecnologiche nonché i fattori che ne influenzano o inibiscono l'adozione. Il campione osservato è composto da 40 imprese, sui complessivi 85 operatori concessionari del Mof. Il primo item di rilevazione riguarda la composizione anagrafica del board; ciò in quanto uno dei fattori significativi per l'adozione delle tecnologie nel settore agri-food è legato all'età dell'agricoltore. L'analisi della letteratura, invero, evidenzia una relazione inversa tra l'età dell'agricoltore e la propensione dell'impresa a effettuare investimenti di medio-lungo termine, poiché, dati i ritorni economici più lontani nel tempo, tali operazioni risultano ad essi di scarso interesse economico. Ciò a significare che quanto più la composizione del board è giovane, maggiore è l'attitudine dell'impresa a adottare tecnologie innovative (Barham et al., 2004, Diederer et al., 2003). Ulteriore variabile è connessa al grado di istruzione; gli agricoltori più anziani tendono ad avere un grado di istruzione formale inferiore rispetto a quelli più giovani, ma possiedono un livello di esperienza lavorativa tale da renderli meno inclini alla ricerca di conoscenze e informazioni nuove provenienti dall'esterno (Bjerke e Johansson, 2022). Le conoscenze che l'azienda agricola possiede sulle nuove tecnologie sviluppano una correlazione positiva con la loro adozione, così come l'esperienza dell'agricoltore (Ayenew et al., 2020). L'analisi dei dati evidenzia che, sebbene il 45% degli intervistati abbia un'età compresa tra i 30 e i 40 anni, solo il 13% delle imprese intervistate hanno introdotto o stanno introducendo progetti basati sulle tecnologie abilitanti dell'Agricoltura 4.0 e Industria 4.0; ciò evidenzia come il settore agri-food sia ancora fortemente influenzato da logiche tradizionaliste che lasciano ancora poca apertura all'introduzione ed implementazione delle tecnologie abilitanti.

Il secondo item mirava ad indagare l'attività svolta dalle aziende intervistate nella value chain di riferimento. Dalle rilevazioni, le imprese del campione svolgono principalmente la funzione di "grossisti" (66%), mentre, quale categoria residuale, si rilevano imprese che operano in qualità di commissionari. Le interviste evidenziano come gli investimenti in tecnologia siano legati maggiormente alla volontà delle imprese di ampliare e rafforzare i canali commerciali o di distribuzione, a crearne di nuovi e più strategici (60% degli intervistati). È ulteriormente emerso che l'adozione di tecnologie innovative sia correlata alla necessità di incrementare la qualità della produzione ed ad una riduzione dei costi (46% degli intervistati). Solo il 26% investe in tecnologia con finalità di riduzione dell'impatto sociale, inteso come il miglioramento delle condizioni di vita e di lavoro degli addetti; da ciò ne si deduce come la dimensione sociale della sostenibilità non rappresenti, per ora, un obiettivo primario.

Un fattore che incide sulla bassa propensione all'investimento è dato dai legami di tipo sociale poiché la condivisione della conoscenza rappresenta una delle fonti di informazione più importante (Blash et al., 2022). La ricerca verso la transizione 4.0 si è sviluppata maggiormente in ambito di innovazione di processo, riferita alla funzione produttiva (60%) a fronte di un 40% che ha investito sull'innovazione di prodotto (beni e/o servizi). Gli investimenti connessi all'implementazione della tecnologia Industria 4.0, nella filiera agroindustriale nazionale, sono costituiti principalmente dal Cybersecurity e dal Cloud (Quattrococchi B. et al., 2022), tendenza confermata dalla survey con l'adozione di sistemi cloud per il 20% degli intervistati. Nonostante la tecnologia blockchain possa contribuire a garantire una maggiore tracciabilità di filiera ed una riduzione dei costi di transazione (Mercuri F. et al., 2021), l'indagine ha registrato la totale assenza di adozione di questa tecnologia. È plausibile affermare che esiste un legame tra la mancanza di formazione/competenze sulla tematica connesso alla diffidenza ad integrare la tecnologia nei processi aziendali. Infatti, il 30% dichiara che le maggiori criticità sono legate appunto alla mancanza di figure professionali adeguate ed alla scarsa o insufficiente assistenza in materia. Secondo l'indagine la fase produttiva maggiormente attratta dalla tecnologia è la logistica, in particolare le fasi di trasporto, l'immagazzinamento e la distribuzione dei prodotti alimentari. La corretta gestione della logistica permetterebbe di ridurre gli sprechi e i costi associati al trasporto e alla conservazione dei prodotti, aumentando al contempo l'efficienza del sistema e garantendo la massima qualità dei prodotti alimentari (Remondino et al., 2022). Saetta e Caldarelli (2020), per esempio, dimostrano come l'adozione di tecnologie digitali determini una maggiore efficienza nella catena del freddo, garantendo il mantenimento di una temperatura ottimale dei prodotti durante le diverse fasi operative.

Inoltre, l'utilizzo delle tecnologie 4.0 in agricoltura riduce l'uso di sostanze inquinanti per l'ambiente, apporta benefici a livello atmosferico, migliora la qualità del suolo e riduce l'inquinamento nelle falde acquifere (Mazzevoli et al., 2022). I limiti maggiori nell'adozione si riscontrano nella mancanza di adeguate competenze professionali in azienda, che pongano attenzione agli aspetti ambientali e che, in base al tipo di coltura, identifichino soluzioni tecnologiche che meglio si adattano al rispetto dell'ambiente (Sott K. et al., 2020). Una più sostenibile gestione della logistica contribuisce a ridurre l'impatto ambientale della produzione e distribuzione di prodotti alimentari, attraverso la riduzione della Carbon Foot Print (riduzione delle emissioni di CO₂) (Aloui et al., 2021).

Quanto su induce ad affermare che l'adozione di tecnologie digitali contribuisce all'aumento della redditività dei prodotti agricoli lungo l'intera catena del valore (Saini et al., 2022). Tecnologie, ad esempio, quali i droni, i sensori e

le immagini satellitari permettono agli operatori agricoli di monitorare con maggiore precisione i campi e di adottare decisioni operative informate sulla gestione delle colture. L'uso di tecnologie digitali può aiutare i produttori agricoli a gestire meglio le risorse idriche, che sono spesso limitate. I sensori possono rilevare l'umidità del suolo, consentendo ai produttori di irrigare solo quando è necessario, riducendo lo spreco di acqua e il costo dell'irrigazione (Spanaki et al., 2022). Ciò, associato ad un migliore utilizzo delle risorse, genera una maggiore produttività dell'impresa e, contestualmente, una più elevata redditività.

Inoltre, la tecnologia digitale può aprire nuove opportunità di mercato per i produttori agricoli. Ad esempio, i mercati online consentono ai produttori di attrarre clienti che altrimenti non sarebbero in grado di raggiungere, mentre le tecnologie di confezionamento e conservazione possono aumentare la shelf life dei prodotti, consentendo ai produttori di esportare in nuovi mercati.

Infine, è stato condotto uno studio, il quale dimostra che le dimensioni dell'impresa, le aspettative di ritorno della tecnologia, la disponibilità finanziaria posseduta e l'atteggiamento nei confronti dei progetti di ricerca, giocano un ruolo fondamentale nell'adozione delle nuove tecnologie (Barnes et al., 2019) infatti l'elevato costo iniziale d'investimento rappresenta un ostacolo così come confermato dai dati rilevati (41%).

È possibile affermare che la scarsa adozione di nuove tecnologie digitali che si riscontra nel settore agroalimentare può essere associata soprattutto alla mancanza di mezzi finanziari per sostenere l'investimento, alla scarsa redditività economica dovuta alle dimensioni del terreno o, infine, all'incompatibilità delle attrezzature (Zarco et al., 2014; OCSE, 2016).

Limiti della ricerca. Il presente contributo si basa su una analisi esplorativa qualitativa basata sui dati derivanti da una survey distribuita dagli autori. La somministrazione dei questionari e le interviste si trovano in una fase iniziale e si auspica si concluderanno nell'estate 2023. Il primo limite della ricerca è senza dubbio descritto nella rappresentatività del campione, la ricerca coinvolge per ora un numero limitato di partecipanti e quindi potrebbe non essere rappresentativa del gruppo che si sta analizzando. Poiché la ricerca coinvolge un campione limitato, i risultati potrebbero non essere generalizzabili ad altri settori o situazioni. La ricerca si basa sulla raccolta di informazioni soggettive dai partecipanti e quindi potrebbe non essere oggettiva come una ricerca quantitativa. Si propone una discussione di dati che derivano da aziende similari in termini economici e tutte localizzate nella provincia di Latina.

Questa ricerca richiederà tempistiche più lunghe e maggiore utilizzo di risorse rispetto ad una ricerca quantitativa, poiché coinvolge interviste, focus group e analisi del contenuto che vengono realizzate sul campo dagli autori stessi. Infine, a causa della natura altamente contestuale e situazionale della ricerca qualitativa, potrebbe essere difficile riprodurre gli stessi risultati in situazioni simili.

In ottica futura, si ipotizza di affiancare alla ricerca qualitativa uno studio quantitativo che amplierebbe la comprensione del fenomeno consentendo di esplorare in modo approfondito quanto in esame, poiché si combinerebbe l'approccio qualitativo, che si concentra sull'interpretazione e la comprensione dei significati, con l'approccio quantitativo, che si concentra sulla raccolta e l'analisi di dati numerici.

L'utilizzo di tecniche qualitative e quantitative in combinazione aiuterebbe a garantire la validità dei dati raccolti. Infatti, ricerche future potrebbero indagare un campione di aziende più ampio e diversificato. Infine, gli autori segnalano un'importante domanda di ricerca futura che potrebbe invertire il punto di vista dell'analisi ripartendo da una visione post-antropocentrica dettata dalla visione della natura non considerata più come una risorsa da cui trarre vantaggio ma come un sistema collaborativo in cui tre trend principali quali lo spazio fisico, lo spazio digitale e lo spazio psicologico coesistono e si implementano vicendevolmente per rispondere alle sfide di un futuro maggiormente desiderabile. Quindi, gli autori intendono stimolare la consapevolezza critica e la riflessione strategica, immaginando e definendo strategie e soluzioni anticipanti (prodotti, processi e servizi) volte a "ricostruire" i legami persi tra uomo e natura, tecnologia ed ecologia.

Implicazioni manageriali. L'adozione delle tecnologie nell'agricoltura e nella produzione alimentare ingloba in sé implicazioni manageriali che possono influenzare l'efficienza, la sostenibilità e la competitività dell'intera catena di approvvigionamento alimentare. Innanzitutto, l'adozione delle nuove tecnologie può consentire un miglioramento dell'efficienza operativa. Ad esempio, l'uso di strumenti di automazione e robotica può aumentare la velocità e la precisione delle operazioni di raccolta, semina, potatura, irrigazione e movimentazione delle merci. Inoltre, l'uso di sensori e dispositivi di monitoraggio può fornire ai manager informazioni in tempo reale sui dati di produzione, consentendo una migliore pianificazione e gestione delle risorse. In secondo luogo, le nuove soluzioni digitali possono contribuire a migliorare la sostenibilità ambientale dell'agricoltura e della produzione alimentare (Delgado et al., 2019). Ad esempio, le tecnologie di precisione possono aiutare a ridurre l'uso di pesticidi, fertilizzanti ed acqua, riducendo così l'impatto ambientale delle attività agricole. Inoltre, le energie da fonti rinnovabili possono aiutare a ridurre le emissioni di gas a effetto serra. In terzo luogo, l'adozione di tecnologie può giovare alla qualità e alla sicurezza degli alimenti (Feng et al., 2020). Inoltre, i sensori ed i dispositivi di monitoraggio possono aiutare a rilevare eventuali contaminazioni o difetti nella produzione alimentare, consentendo un'azione tempestiva per ridurre i rischi per la salute dei consumatori (Quattrocchi et al., 2022).

Infine, l'implementazione di soluzioni Agri4.0 induce le imprese ad essere maggiormente competitive sul mercato (Hermundsdtir et al., 2021). Infatti, l'uso di tecnologie innovative può consentire alle imprese di differenziare i propri prodotti rispetto alla concorrenza, aumentando la loro quota di mercato e la fedeltà dei clienti.

In conclusione, i manager del settore agri-food dovrebbero essere in grado di identificare le tecnologie che meglio si adattano alle esigenze della loro azienda e del mercato, sviluppando una strategia aziendale orientata alla creazione di valore.

Originalità del paper. *L'originalità del paper si fonda in primis sull'unicità dei dati raccolti presso le aziende afferenti al "sistema" MOF, la cui analisi potrà offrire un contributo e spunti di riflessione su diversi aspetti legati alla tematica trattata, tra cui:*

- *Innovazione tecnologica come mezzo utile ad una progettazione di nuovi metodi di produzione o di trasformazione degli alimenti che consentano di migliorare la qualità, la sicurezza e l'efficienza.*
- *Approccio integrato alla gestione dell'azienda agrifood. Gli autori hanno inteso considerare non solo gli aspetti tecnici della produzione, ma anche quelli finanziari, organizzativi, di marketing e di gestione delle risorse umane.*
- *Possibilità di svolgere un'analisi volta ad identificare le best practices e le sfide del settore, fornendo spunti per migliorare la gestione aziendale.*

In generale è intenzione degli autori delineare nuove sfide ed opportunità del settore, al fine di applicare metodi e strumenti di gestione innovativi e di fornire soluzioni pratiche e sostenibili per migliorare la gestione aziendale.

Parole chiave: *Agrifood, Industria 4.0, Sostenibilità, Nuove tecnologie digitali*

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International Marketing and Spirituality: is there a relationship?

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Framing of the research. Defined by Cleveland et al. (2013) as the most pervasive and thorny element which affects consumer behavior, culture has significantly emerged as a decisive factor in international business. In fact, awareness of cultural differences across the world is essential in order to successfully penetrate different markets in the world (Steenkamp, 2001): on one side, international marketing strategies cannot be implemented, especially in some areas, with a lack of knowledge of local cultures; on the other, disregarding these differences can cause damages to a product or brand image.

Involving the most intimate part of a human being, religion is an important component of a people's culture (Cohen, 2009), as it embraces a system of values which affect cognition, attitudes, and behavior (Saroglou and Cohen, 2011). Research, to this end, has shown the influence of religion on consumer behavior (Essoo and Dibb, 2004): Owens (2015) studied religion as a determining factor for global strategies, while Agarwala et al. (2019) highlighted that faith affects some behaviors linked to materialism, intolerance, ethics, risk aversion and consumer attitude toward religious products and economic shopping behavior.

Insights of this relationship are provided by Izberk-Bilgin and Nakata (2016), who name this phenomenon as faith-based marketing and highlight the opportunity it provides for companies, and by Mathras et al. (2016), who reveal that religion affects consumer psychology and behavior through four dimensions: beliefs, rituals, values and community.

Interestingly, Singh et al. (2021) stress the differences between intrinsic and extrinsic religiosity, with the first one discouraging consumer indulgence in unrestrained buying, and similarly Arli et al. (2016) investigate how these kinds of religiosity impact on the attitudes towards luxury brands. Impact of religion is further visible on marketing mix, according to Hashim and Hamzah (2014), who asserts that the same mix can differ from the traditional one if applied to Islamic marketing; this, confirming Cornwell et al. (2005), who underline cross-cultural differences in terms of ethical positions among Christian, Muslim and Buddhist consumers. Religious percepts also impact on food habits and preferences (Pettinger et al., 2004) and this is particularly evident in Islam and Judaism, where the relevance of faith is further shown by different product characteristics required by consumers.

Purpose of the paper. Research on the relationship between religion and marketing is growing (Ogden et al., 2004) although it still is an under-researched topic in marketing (Cleveland et al., 2013). Research is also fragmented (Kumar et al., 2022), focused on single religions only and not on religion in general, or connected to social sciences, medicine and psychology, rather than marketing (Oviedo, 2016). To our knowledge, existing systematic reviews (Christofi et al., 2021) focused on international marketing does not explore the relationship with spirituality: specifically, the performance of religion and international marketing as a field of research remains unknown. On these premises, this research aims at systematically reviewing current research on international marketing and faith, considering the role of religion in driving marketplaces dynamics (Cruz et al., 2018), and that of culture in international business (Lopez-Duarte et al., 2016). This, to generate new knowledge on the state of art for academics and practitioners, identify eventual research gaps and suggest future research perspectives. On these premises we selected articles that:

- 1) specifically interconnect international marketing with religion;
- 2) describe how faith impact on international marketing strategies;
- 3) focus on Christianity, Islam, Judaism, Hinduism and Buddhism;
- 4) are published in top marketing journals.

Articles focused on culture in general were not considered, as well as those with no international perspective. No differences were applied between the companies and consumers sides.

Methodology. To investigate the existing evidence, we applied the methodology of systematic review, following the stages described by Tranfield et al. (2003): planning, conducting, reporting, dissemination.

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Once defined our research question, whose answer has to clarify how current literature explains the relationship between international marketing and religion, we started to select the papers on EBSCOhost Research Database, due to its coverage of relevant disciplines (Christofi et al., 2021; Bhimani et al., 2019). The research strings we considered are these ones: religion OR religious OR church OR mosque OR synagogue OR temple OR Christian OR Muslim OR Islam OR Jewish OR Sikh OR Buddhism OR spirituality OR religi* OR faith AND marketing OR customer OR consumer OR export OR market OR entry OR internationalization OR network OR innovation OR product OR price OR promotion OR distribution OR channel OR brand OR Internet OR international marketing OR finance OR banking.

Tab. 1: Source of the selected keywords

Keyword used (in detail)	Source
“religion”, “religious”, “church”, “mosque”, “synagogue”, “temple”, “Christian”, “Muslim”, “Islam”, “Jewish”, “Sikh”, “Buddhism”, “spirituality” are from	Tracey (2012)
“religi*”, “faith” and “spiritual”	Kumar et al. (2022)
“marketing”, “customer”, “consumer”, “export”, “market”, “entry”, “internationalization”, “network”, “innovation”, “product”, “price”, “promotion”, “distribution”, “channel”, “brand”, “Internet” are from	Christofi et al. (2021)
“international marketing”, “finance” and “banking”	Battisti et al. (2021)

Results. Once selected the keywords, we established the following inclusion and exclusion criteria, in coherence with the leading systematic review (Vrontis and Christofi, 2019):

- 1) academic peer-reviewed articles related to marketing area were included, excluding books, book chapters, magazines, and editorials;
- 2) academic papers written in English and published on peer-reviewed top journals were selected, with reference to ABS (Association of Business Schools' Academic Journal Guide, www.charteredabs.org) 3, 4 and 4* ranking. This, in order to be methodologically rigorous and guarantee the selected papers are the best in terms of quality and in terms of debate among scholars (Christofi et al., 2019).

Finally, all the data were extracted and analyzed systematically by an analytical and deductive approach. This suggests that research is at an early stage (Younis et al, 2022; Kumar et al., 2022).

Our final sample consists in 36 articles (35 from database research + 1 from cross-reference).

With regards to publication outlets, the Journal of Business Research is the host journal for religion and international marketing papers (n=8, 20.5%), followed by the Journal of Business Ethics (n=5, 12.8%), and the Journal of Consumer Research, which published 3 articles (7.7%); then, the International Marketing Review, Marketing Theory, the European Journal of Marketing and the Journal of World Business, both hosting 2 manuscripts (5.1%). In details, the Journal of Business Research published on Religion and Consumption and Consumer Behavior in International markets (Sood and Nasu, 1995), International Marketing Communication (Iyer et al., 2014), Ethnic identity and religiosity (Cleveland and Chang, 2009) and Religion in multicultural marketplaces (Cruz et al., 2018). The Journal of Business Ethics published papers on the role of Spirituality in International Business Ethics (Jackson, 1999), Religion and International Market Entry (Ning, 2008), the role of Moral for Business Leaders (Thompson, 2010) and, like the previous journal, Consumers' faith and International business decision (with a Christian perspective in Swimberghe et al., 2011, and a Muslim one in Tsalikis and Lassar, 2009). With regards to the Journal of Consumer Research the focus is Religion and International Firms or Brands (Hyodo and Bolton, 2021). We identified 71 different authors from 15 different countries. Only three authors appear to have published 2 papers based on religion, that are Jafari Aliakbar, Özlem Sandıkçı, and Mark Cleveland. Considering the first author's institutions, we find that American Universities are the most represented (15.49% n= 11 authors), followed by the United Kingdom (14.08%, n= 10 authors) and Canada (5.63%, n= 4 authors). Other contributions come from Pakistan, Australia, Egypt, Malaysia, Turkey, the Netherlands, China, Qatar. With reference to the number of authors, most of the papers are co-authored by two authors (36.1%, n=13) or are one-author article (33.3%, n=12). In 25% of the sample the authors are 3, while only 5.55% of the papers are coauthored by 4 scholars.

Not surprising, considering the topic, that most of the papers are written by authors based in different countries (44.4%, n=16), then there are the articles written by only 1 author (33.3%) and those published by scholars who work in the same country (22.2%, n=8).

In terms of citation index, which is a relevant tool of measurement of manuscript quality and its contribution to current knowledge the most cited papers are:

- 1) Belk et al. (1989): 963
- 2) Dow and Karunaratna (2006): 432

In terms of methodologies adopted, most of the considered papers are quantitative studies (44.44%), followed by qualitative ones (27.78%), conceptual/theoretical papers (19.44%), literature reviews (5.55%) and editorial (2.78%). It is evident that quantitative studies are well distributed along the period 1987-2021, with a peak in 2013, despite concentrated to two main journals, which are Journal of Business Research and Journal of Business Ethics. Qualitative papers are, furthermore, present especially in the two-years period 2006-2007 and 2013-2014. In terms of journals, there are few publications on this topic (per journal) and, usually, limited to 1-2 articles since 1987 to 2021. Empirical evidence along with theoretical insights suggest the important role of religion in international marketing processes among different cultures. Despite this, research seems to be concentrated to Christianity and Islam and there is little

work in marketing or management (Li, 2008). It is relevant, therefore, to push the research to a more focused investigation on implications for companies, also considering the increasing number of them entering the global market through cross-borders alliances (Li, 2008) and the particular sensitivity required for accessing markets by leading on faith and spirituality (Longenecker et al., 2004). As underlined by Cleveland et al. (2013), religion affects consumers towards brands and products, even though Cruz et al. (2018) revealed that some companies avoid considering its marketing influence and ignore its role in facilitating entry in different marketplaces. Younis et al. (2022) considered religion as one of the most relevant forces of internationalization, especially for SMEs; in the same way, Richardson (2014) underlined the role of religion in reducing cultural distances between countries in the internationalization process, specifically in this case with reference to Islam, and Beugelsdijk et al. (2017) demonstrated how cultural differences could affect subsidiary performances. Kuzma and Kuzma (2009), moreover, indicated the need for further research, especially with regards to the role of spirituality in driving consumers' choices.

To better comprehend the international marketing content of our sample we applied the pattern-matching technique (Crossan and Apaydin, 2010), finding subjects to match to international marketing. Considering that marketing is a large field of research, we used the scheme developed by Rodriguez Cano et al. (2004) and by Christofi et al. (2021). This is useful to explore the aspects of religion present in international marketing strategies. Morality (Horner and Bordelon, 2006; Thompson, 2010) and spirituality (Jackson, 1999) are founded to be the drivers that affect international strategies, with their role in discriminating what actions are tolerable and what not. Specifically, the topic of morality is linked to globalization (Demangeot et al., 2015), which presents moral challenges connected to social issues, such as economic inequity, human rights, in particular for the Hebrew, the Arabic and the Hindu faith.

Spirituality, on the other side, is conceived as the foundation of freedom and creative imagination in international business ethics (Jackson, 1999) given its influence on consumer behavior (Kumar et al., 2014).

Both morality and spirituality play a key role in the implementation of international marketing process and in managerial practices, in particular relating to decisions on market entry.

As a matter of fact, Li (2008) highlights that when partners are from Christian countries, they should consider religious moral restraints, which may limit opportunism and, of consequence, transaction costs, and improve trust between them. On the contrary, when partners are from atheist countries, opportunistic behaviors could be mitigated through organizational control (e.g. joint ventures). Moreover, spirituality impacts on networks' participants, specifically on their contribution and demand (Kurt et al., 2020) as spiritual values can develop trust and reducing differences in case of home and host countries context (Lo Turco and Maggioni, 2018). In terms of consequences, different religions can impact differently on consumer behavior (Sood and Nasu, 1995) and advertising effects (Fam et al., 2004), with brand concept being influenced by religious values (Hyodo and Bolton, 2021; Minton et al., 2022). Scarce attention has been given to American and European contexts, which means that there is room for further research. Unfortunately, there is not abundant presence of comparative studies, and papers on the impact of Islam represent the majority of the selected articles.

Research limitations. This systematic review is not without limitations. The same nature of the systematic review has its own limits, first of all because it is not a detailed review, and this should inspire new research to deepen the findings of this articles. In addition, we selected the articles by using only three databases (Science Direct, Emerald and Web of Science) which cannot represent the whole scientific production about religion and international marketing. Besides, we excluded articles written in languages different from English, meaning that some important articles could have been ignored.

Moreover, some papers could have been overlooked, especially in the filtering phase. Finally, we selected articles which strictly reported precise references to religion and international marketing in the title and in the abstract: however, this does not ensure that all the relevant articles have been selected.

Once clarified the limitations, it is evident that this study can provide theoretical and practical implications.

Managerial implications. Opportunities for international marketers also emerge from this systematic review. In particular most of the selected studies highlights the sensitivity to religious norms in Muslim countries, even though differences could be among them, while having marketing relationships (Cosgrave and O'Dwyer 2020, underline that, by comparing different religious subjects, Muslims were the most influenced by faith-deriving beliefs). This is particularly important also considering that Islam is one of the most widespread faiths in the world, covering different geographical areas, from some parts of the Balkans to North Africa, from the Middle East to South-East of Asia.

Other religions should also be considered when relating to other cultures (Sood and Nasu, 1995) whose research highlight the relevance for American Protestants, also in terms of environmental concern (Felix et al., 2018).

It is clear that marketers should not ignore religion effects when concretizing international marketing strategies and, practically, faith is a key factor to relate with different cultures.

Originality of the paper. The connection between international marketing and religion, through a systematic review, represents the originality of this study. As a matter of fact, there is scarce attention, currently, to study this relationship with this methodology. Research on the impact of culture for marketing is fundamental, and this is particularly true with regards to religion as well. This is the reason why research on religion and international marketing is increasing, despite there is need for further research, also observing the variety of faiths in the world and the different impact they can have. In an international perspective, studies on Christianity influence would play an important role, considering that it is widespread in Europe, Northern and Latin America, Oceania, and Philippines.

Deeper research should also regard Eastern religions, considering the emerging role of the Eastern economies (e.g., China, Japan and India) in world economy. For example, Lu and Wu (2020) studied the impact of Buddhism in

private firms in China, with findings revealing that religious entrepreneurs have higher accounting performances and spend more in safety for employees: further research should consider a similar analysis, from Chinese consumers' point of view of.

The role of spirituality and religion, in addition, is deeply felt in India (Suchday et al., 2018, Kattimani, 2012): spirituality is an essential part of Indian culture, and this is visible also in tourism marketing (the state of Kerala markets itself as "God's own country", as observed by Bandyopadhyay and Nair, 2019) and India is considered the favorite spiritual destination for Western tourists (Norman, 2012).

Keywords: Spirituality, religion, International marketing, International Business, culture

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Investigating the interdependence of innovation and internationalization

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Framing of the research. *Innovation and internationalization are two key strategies for firms to achieve success and stable and sustainable long-term growth (e.g., Audretsch et al., 2014; Filipescu et al., 2009; Golovko and Valentini, 2011; Zona et al., 2022). According to some authors (e.g., Ruzzier et al., 2013), innovation and internationalization are “inseparable paths”.*

Innovation encompasses the investments and activities aimed at the implementation of a new product (good or service), or process, or firm organizational method, or relationships with stakeholders and is related to the firm’s ability to utilize its existing knowledge base and to acquire knowledge from external sources by means of imitation, licensing, partnerships or acquisitions (Baregheh et al., 2009). Instead, internationalization refers to decisions and operations through which a firm expands its business abroad or its involvement in international markets (Johanson and Vahlne, 1990).

Previous literature indicates that innovation is a driver for internationalization as well as internationalization is a driver for innovation.

Innovation as a driver for internationalisation. Innovation promotes firm internationalization and performance (Henley and Song, 2020; Kyläheiko et al., 2011).

Innovation is essential for competing abroad given the higher competitiveness in international markets (Bannò et al., 2011). In fact, innovation increases firms’ global competitiveness and facilitates foreign market penetration through higher proprietary advantages, the creation of new and superior products, and the development of useful skills (e.g., Filipescu et al., 2009).

At the same time, innovation favours internationalization: innovation provides firms with unique competitive and cost advantages, which can be exploited when internationalizing (Kafouros et al., 2008, Bagheri et al. 2019). Moreover, innovation also increases opportunities and competitiveness when internationalizing (e.g., Ciocanel and Pavelescu, 2015). Finally, successful product innovation increases a firm’s involvement in international markets (Cassiman and Golovko, 2011, Falahat et al., 2020).

Innovation may require inputs from abroad eventually through partnerships with foreign firms, which in turn may increase market information and encourage exports (Hessels, 2007, Moreno-Menéndez, 2018).

Internationalization as a driver for innovation. Internationalization enhances firm experience, innovation capacity and innovation performance since it enables firms to access a wide range of resources, knowledge, and ideas (e.g., Golovko and Valentini, 2011; Boermans et al. 2015). These inputs flow from several countries and a broader group of experts and can also be acquired from the cheapest available sources (e.g., Dabic et al., 2012, Kordos et al., 2016).

Internationalization helps firms to reduce business risks (e.g., risk of economic recession) as well as the risk associated with innovation (e.g., risk of unsuccessful outputs) since firms serve several markets and offer their products to a wider range of customers (Kafouros et al., 2008). Firms can also enhance their profits from innovation efforts and spread innovation costs as well as maximize the benefits derived from R&D investments (Kafouros et al., 2008, Si et al., 2020).

However, internationalization may negatively impact innovation by increasing the risk of knowledge leakage (i.e., the costs of outgoing spillovers may outweigh the benefits from incoming spillovers) and by increasing the costs of coordinating and controlling a global network (Álvarez et al., 2016).

Purpose of the paper. *The causal relationship between innovation and internationalization is controversial (Damijan et al., 2010, Li, 2020). According to some authors, these two strategies are mutually reinforcing in the sense that innovation eases internationalization as well as internationalisation induces innovation (e.g., Hagen et al., 2014; Halilem et al., 2014). Instead, other authors find an insignificant or even negative relationship between the two strategies (e.g., Hitt et al., 1997).*

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A clear and well-recognized causal relationship between innovation and internationalization has not been identified and there is not consensus on the direction of such association: these two strategies are important and determinant for each other and neither of the two seems to prevail on the other (Alarcón Osuna, 2014). Given that previous studies are inconclusive regarding the relationship between innovation and internationalization, further research is desirable.

This research aims to investigate the mutual relationship between innovation and internationalization by applying a structural equation modeling to a database of 20,509 Italian firms. Preliminary results show that innovation has a positive and significant effect on internationalization and vice versa.

Methodology. To examine the relationship between multiple dependent variables the Structural Equation Modeling (SEM) can be used (Ullman and Bentler, 2012). SEM is a type of statistical model that is made up of multiple equations. These equations involve different types of variables, such as random variables (like latent variables, observed variables, and disturbance variables), non-random variables, and structural parameters. In other words, SEM models are composed of a set of equations that describe the relationships among multiple variables, some of which are randomly determined and some of which are not (Bollen, 1989).

Our purpose is to assess how innovation and internationalization affect each other, and so they will be considered as both dependent and independent variables. The study could be complex, but through the SEM model it is possible to take into account the presence of latent variables (unobservable and unmeasurable variables) and carry out a bidirectional study (Maruyama, 1997).

To assess the mutual effect between innovation and internationalization, we decided to use cross sectional data containing the information of 20,509 firms in 2019 and 2020. The data concerning the degree of internationalization of Italian firms were taken from Reprint (Mariotti and Mutinelli, 2017) and the specific data of a firm (e.g., age, location, economic and financial data) were extracted from the Orbis Bureau van Dijk database (Orbis Intellectual Property for data regarding innovation). Table 1 shows the dependent and independent variables of the realized models with indication of the definition and source.

Tab. 1: Description and sources of variables used

Variable	Definition	Source
Dependent Variables		
Innovation <i>t</i>	Logarithm of the number of patents registered by an enterprise until time <i>t</i>	Orbis Intellectual Property
FDI <i>t</i>	Logarithm of the number of FDI made by an enterprise until time <i>t</i>	Reprint
FDI acquisition <i>t</i>	Logarithm of the number of FDI acquisition category made by an enterprise until time <i>t</i>	Reprint
FDI greenfield <i>t</i>	Logarithm of the number of FDI greenfield category made by an enterprise until time <i>t</i>	Reprint
Independent Variables		
Innovation <i>t-1</i>	Logarithm of the number of patents registered by an enterprise until time <i>t-1</i>	Orbis Intellectual Property
FDI <i>t-1</i>	Logarithm of the number of FDI made by an enterprise until time <i>t-1</i>	Reprint
FDI acquisition <i>t-1</i>	Logarithm of the number of FDI acquisition category made by an enterprise until time <i>t-1</i>	Reprint
FDI greenfield <i>t-1</i>	Logarithm of the number of FDI greenfield category made by an enterprise until time <i>t-1</i>	Reprint
Firm dimension	Logarithm of the revenue	Orbis
Firm age	Logarithm of number of years since firm foundation	Orbis
ROE	Return on equity, given by net income on equity	Orbis
Tangibility	Tangible fixed assets out of total	Orbis
Labour cost per employee	Logarithm of labour cost per employees	Orbis
North Italy	Dummy variable equal to 1 if the firm is located in North Italy, and 0 otherwise	Orbis
Pavitt science based	Dummy variable if the firm is in a science based industry, 0 otherwise	Orbis
Pavitt specialized supplier	Dummy variable if the firm is in a specialized supplier industry, 0 otherwise	Orbis
Pavitt scale and information intensive	Dummy variable if the firm is in a scale and information intensive industry, 0 otherwise	Orbis
Pavitt suppliers dominated	Dummy variable if the firm is in a supplier dominated industry, 0 otherwise	Orbis

Source: Our elaboration

As a dependent variable for the first equation, assessing the impact of internationalization on innovation (Model 1a, 1b and 1c), we considered Innovation, corresponding to the logarithm of the total patents registered by the firm until 2020 (De Beule et al., 2007). To measure the degree of Internationalization, we considered the logarithm of the total FDI performed by a firm until 2019 (Zona et al., 2022). In particular, we used the total FDI in Model 1a, the total FDI in the acquisition category in Model 1b, and the total FDI in the greenfield category in the Model 1c. We took into account the characteristics of the firms under study using the following variables: Firm dimension representing the logarithm of firm revenues in 2020 (Riahi-Belkaoui, 2001), Firm age representing the logarithm of the number of years since firm foundation (Hölzl, 2014), ROE (return on equity, given by net income on equity) in 2020 as an indicator of firm performance, Tangibility given by the ratio of tangible fixed assets to total fixed assets in 2020 (Albaity and Ho Sel Chuan, 2013). To consider the context where the firm is located, the variable North Italy (dummy variable equal to 1 if the firm is located in Central Italy, and 0 otherwise) was used in line with Wright et al. (2007). We also considered a dummy variable to indicate the affiliation of a particular industry sector by following the Pavitt Taxonomy (Bogliacino

and Pianta, 2016; Pavitt, 1984): Pavitt suppliers dominated, Pavitt scale and information intensive, Pavitt specialized supplier and Pavitt science based.

In the second equation, we considered FDI (Model 2a), FDI acquisition (Model 2b) and FDI greenfield (Model 2c) as dependent variables. These three variables represent respectively, the logarithm of the total FDI performed by a firm until 2020, the logarithm of the total FDI performed in the category acquisition by a firm until 2020 and the logarithm of the total FDI performed in the category greenfield by a firm until 2020. To take into account the characteristics of the firms under study, the following variables were considered: Firm dimension, Firm age, ROE, Tangibility, measured as in equation one, and Labour cost per employee measured as the logarithm of the cost of a worker incurred by the firm in 2020. As in the first equation, we considered North Italy and Pavitt Taxonomy classification.

Formally, we use the following interaction models:

Model 1 Innovation = f(Internationalization t-1, Firm dimension, Firm age, ROE, Tangibility, North Italy, Pavitt science based, Pavitt specialized supplier, Pavitt scale and information intensive, Pavitt suppliers dominated)

Model 2 Internationalization = f(Innovation t-1, Firm dimension, Firm age, ROE, Tangibility, Labour costs per employee, North Italy, Pavitt science based, Pavitt specialized supplier, Pavitt scale and information intensive, Pavitt suppliers dominated)

Results. Table 2 shows the regression results of the preliminary analysis.

Tab. 2: Regression results

VARIABLES	Model 1a First equation Innovation t	Model 2a Second equation FDI t	Model 1b First equation Innovation t	Model 2b Second equation FDI acquisition t	Model 1c First equation Innovation t	Model 2c Second equation FDI greenfield t
Innovation t-1		0.049*** (0.003)		0.022*** (0.002)		0.045*** (0.002)
FDI t-1	0.367*** (0.018)					
FDI acquisition t-1			0.418*** (0.029)			
FDI greenfield t-1					0.415*** (0.02)	
Firm dimension	0.068*** (0.002)	0.027*** (0.001)	0.076*** (0.001)	0.010*** (0.000)	0.069*** (0.002)	0.022*** (0.001)
Firm age	0.041*** (0.003)	0.010*** (0.001)	0.046*** (0.003)	0.001 (0.001)	0.041*** (0.003)	0.009*** (0.001)
ROE	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tangibility	-0.073*** (0.008)	-0.026*** (0.003)	-0.079*** (0.008)	-0.011*** (0.002)	-0.074*** (0.008)	-0.020*** (0.003)
Labour cost per employee		0.084*** (0.006)		0.024*** (0.004)		0.064*** (0.006)
North Italy	0.012* (0.007)	0.018*** (0.003)	0.018*** (0.007)	0.002 (0.002)	0.012* (0.007)	0.015*** (0.002)
Pavitt science based	0.338*** (0.014)	-0.006 (0.006)	0.337*** (0.014)	0.008** (0.003)	0.340*** (0.014)	-0.010** (0.005)
Pavitt specialized supplier	0.149*** (0.01)	0.023*** (0.004)	0.157*** (0.01)	0.005** (0.002)	0.149*** (0.01)	0.021*** (0.003)
Pavitt scale and information intensive	0.045*** (0.013)	0.027*** (0.005)	0.050*** (0.013)	0.012*** (0.003)	0.048*** (0.013)	0.017*** (0.005)
Pavitt suppliers dominated	-0.013 (0.009)	0.003 (0.003)	-0.012 (0.009)	-0.002 (0.002)	-0.014 (0.009)	0.004 (0.003)
Constant	-0.856*** (0.021)	-1.188*** (0.063)	-0.950*** (0.02)	-0.363*** (0.039)	-0.866*** (0.02)	-0.931*** (0.057)
var(y)	0.205*** (0.002)	0.031*** (0.000)	0.207*** (0.002)	0.012*** (0.000)	0.205*** (0.002)	0.025*** (0.000)
Observations	20,509	20,509	20,509	20,509	20,509	20,509

Significance levels * p<0.1 ** p<0.05 *** p<0.01

Source: Our elaboration

Considering the first equation in Model 1a (impact on Innovation), it emerges that FDI t-1 has positive and significant coefficient (b=0.367 and p<0.01), in Model 1b (impact on Innovation) FDI acquisition t-1 has positive and significant coefficient (b=0.418 and p<0.01) and in Model 1c (impact on Innovation) FDI greenfield t-1 has positive and significant coefficient (b=0.415 and p<0.01).

Considering the second equation in Model 2a (impact on FDI) it emerges that Innovation t-1 has positive and significant coefficient (b=0.049 and p<0.01), in Model 2b (impact on FDI acquisition) has positive and significant coefficient (b=0.022 and p<0.01) and in Model 2c (impact on FDI greenfield) has positive and significant coefficient (b=0.045 and p<0.01).

Firm dimension has a positive and significant coefficient ($p < 0.01$) in Model 1a, 2a, 1b, 2b, 1c, 2c (respectively $b = 0.068$, $b = 0.027$, $b = 0.076$, $b = 0.010$, $b = 0.069$ and $b = 0.022$). Also Firm age has a positive and significant coefficient ($p < 0.01$) in Model 1a, 2a, 1b, 1c, 2c (respectively $b = 0.041$, $b = 0.010$, $b = 0.046$, $b = 0.041$ and $b = 0.009$) in Model 2b is non significant. ROE has a positive and significant coefficient in all the Models and Tangibility has a negative and significant coefficient in all the Models.

Labour cost per employee was considered only in the second equation and it has a positive and significant coefficient ($p < 0.01$) in Models 2a, 2b, 2c (respectively $b = 0.084$, $b = 0.024$ and $b = 0.064$).

As regards the other variables, North Italy has a positive and significant coefficient in Models 1a, 2a, 1b, 1c, 2b, while in Model 2b is positive and non-significant. The differences in terms of Pavitt Taxonomy classification have an effect on performance, Pavitt science based has a positive and significant coefficient in all the Models except for Model 2a where it is negative and non-significant. Pavitt specialized supplier and Pavitt scale and information intensive are positive and significant in all the Models. In the end, Pavitt suppliers dominated is non-significant in all the models.

Research limitations. This research has some limitations. First, our research relies on cross sectional data to examine the mutual relationship between innovation and internationalization. The use of this type of data does not allow to examine the relationship over time and thus understand the timing with which innovation and internationalisation promote and influence each other. Second, the database comprises only Italian firms and their subsidiaries. Therefore, our results may not be extendable to firms operating in other countries. These firms face a different institutional and economic context that may induce or hinder them to innovate and internationalize to a different extent than Italian firms. Second, the impact only on acquisition and greenfield FDI was analysed. Future studies might also consider the impact on majority and minority FDI.

Managerial implications. From a managerial perspective, innovation and internationalization are key strategies for the long-term growth and prosperity of firm. Firms are faced every day with making strategic decisions to expand their business, taking into account the positive and negative effects that internationalisation and innovation can have on business development. This research aims to support the manager in making strategic choices by studying the simultaneous interaction of these two phenomena and demonstrating that investing simultaneously in innovation and internationalization can bring concrete benefits in these two aspects that are fundamental to maintaining competitiveness in the market. In particular, this phenomenon is found in both acquisitions and greenfields, the main methods of internationalization found in the selected sample.

Originality of the paper. Previous studies show that the relationship between innovation and internationalization is not clear. Moreover, these two factors have always been studied unidirectionally. Given the growing importance of innovation and internationalisation as strategic factors for firm growth, it is important to understand their mutual interaction. This research started from these considerations to investigate the mutual relationship between innovation and internationalization by applying a structural equation modeling to a database of 20,509 Italian firms. We found that innovation has a positive and significant effect on all types of foreign direct investment and total investment, indicating how innovation is an important and competitive factor for growth in foreign markets. On the other hand, it can be seen that foreign direct investment also has positive and significant effects on innovation. This indicates the fact that new opportunities and new knowledge can be found abroad due perhaps to a different cultural.

This research is among the few that examine the mutual relationship between innovation and internationalization, an issue that deserves further investigation.

Key words: innovation; internationalization; mutual relationship; structural equation model

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The role of country-of-origin in the relationship between sustainability and consumers' willingness to pay for a brand

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Framing of the research. *This research integrates two influential research streams in marketing: country-of-origin (COO) and sustainability.*

Purpose of the paper. *This paper investigates the impact of sustainability labels and COO on consumers' willingness to pay (WTP) for a brand.*

Methodology. *Two experimental studies with apparel as the focal product category (Study 1: T-shirts; Study 2: Sneakers) are conducted.*

Results. *Findings show that differences in country image favorability do not always translate into significant differences in consumers' WTP. While a positive effect of COO favorability on WTP is found in Study 1, this effect is not replicated in Study 2. However, in both studies, a sustainability label increases consumers' WTP for the less favorable COO but does not affect consumers' WTP for the more favorable COO.*

Research limitations. *The current study is inevitably limited by the set of respondents, COOs and sustainability labels chosen. No moderators (e.g., consumers' skepticism or credibility of the label) were included in this paper.*

Managerial implications. *Managers can easily communicate a favorable COO at a low cost; however, not always a price premium can be implemented. Sustainability labels should be communicated particularly for brands from less favorable COOs and these brands should consider implementing a price premium strategy based on the use of this label.*

Originality of the paper. *Despite the relevance of sustainability to consumers, companies and countries, empirical evidence on its interaction with country-of-origin (COO) is still limited, particularly considering consumers' price responses.*

Keywords: *sustainability; country of origin; willingness to pay*

1. Introduction and Objectives

The importance of sustainability, that is, the focus to deliver value to consumers based on economic, social and environmental aspects (Elkington, 2004) is increasing. Consumers are demanding sustainable products (Petro, 2022), companies are adopting sustainability initiatives (Chernev and Blair, 2021) and countries are promoting sustainable development (Dekhili et al., 2021). In this context, country-of-origin (COO), namely "the country in which the product is manufactured or assembled" (Hamzaoui-Essoussi and Merunka, 2007, p. 412) is increasingly becoming part of consumers' evaluations of sustainable products (Dekhili and Nguyen, 2021) since the provenance of a product may directly involve sustainability issues (e.g., long-distance shipments or working conditions in different countries).

As a result of these developments, there has been growing interest on the link between COO and sustainability in recent years. Research has focused on country green/ecological image (e.g., Chan, 2000; Dekhili et.al, 2021), country-of-origin sustainability reputation (e.g., Cowan and Guzman, 2020), and eco-certification origin (Dekhili and Nguyen, 2021). The relative importance of COO versus sustainable product attributes in consumer decision making (e.g., Brand and Rausch, 2021) and the interaction between COO and social corporate responsibility (e.g., Magnusson et al., 2015) have also been investigated.

Most studies linking COO and sustainability employ "soft" consumer responses (e.g., brand attitudes or purchase intentions) as outcome variables. Using such outcomes, however, ignores the so-called 'attitude-behavior gap' in sustainable purchasing behavior (Wiederhold and Martinez, 2018) since "sustainability attributes do not always drive consumer choice even when consumers value sustainability attributes positively" (Bangsa and Schlegelmilch, 2020, p.2, added emphasis). Price-related outcomes, on the other hand, are closer to actual behavior and include the sacrifice

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incurred by the consumer when actually purchasing a brand (Monroe, 2003). This is important as consumers can have positive attitudes towards sustainable products, but may not be willing to bear additional costs to obtain them.

Against this background, we empirically examine the impact of sustainability and COO on consumers' willingness to pay (WTP), namely "the maximum amount of money a customer is willing to spend for a product or service" (Homburg et al., 2005, p. 85). Specifically, we add to extant literature by investigating whether consumers are (un)willing to pay a price premium for a sustainable product and whether the relationship between sustainability and WTP is influenced by COO favorability. Our findings should be of value to international marketing managers seeking to capitalize on sustainability claims and product origin associations when developing their pricing strategies.

2. Conceptual framework

We draw on signaling theory (Erdem and Swait, 1998) to develop our hypotheses. According to this theory, due to imperfect and asymmetric information, individuals make decisions based on the signals (i.e., informational cues) they receive. Companies convey information about their specific characteristics, such as reputation and product features, to achieve competitive advantage and consumers examine such signals when making their purchase decisions (Erdem et al., 2006). Signals should be credible, non-ambiguous and consistent over time and over markets (Erdem and Swait, 2016).

COO is as an extrinsic cue that acts as a signal and affects consumers' responses (Lu et al., 2016). Therefore, a more (less) favorable COO should increase (decrease) consumers' willingness to pay (WTP) as a result of a positive (negative) signal reaching the consumer. Several studies also indicate a positive relationship between country image favorability and consumers' price responses (e.g., Drozdenko and Jensen, 2009; Koschate-Fischer et al., 2012; Siew et al., 2018). We thus expect that:

H1. COO favorability will have a positive effect on consumers' WTP for a brand.

Sustainability labels are also extrinsic cues used by consumers when making decisions regarding sustainable products (Lee et al., 2020). As consumers value sustainability attributes (Bangsa and Schlegelmilch, 2020), we argue that using a sustainability label should increase consumers' WTP because the brand is conveying a positive signal to the consumer. Furthermore, we posit that this positive effect depends on country image perceptions in that eco-labeled products are not expected to be equally evaluated for brands originating from a more versus a less favorable COO. In line with signaling theory, we propose that a sustainability label will provide a boost to consumers' WTP for brands from a strong COO as it adds to an existing positive signal, enhancing credibility. In contrast, a sustainability label (positive signal) provides a conflicting information to that provided by a weak COO (negative signal), creating ambiguity and a less credible signal overall as incompatible information signals are juxtaposed.

The above argument is reinforced by extant literature, that not only suggests a positive impact of eco-labeled products on consumers' WTP (e.g., Del Giudice et al., 2018; Laroche et al., 2001) but also shows that a brand engaged in corporate social responsibility is evaluated more favorably if it originates in a more (versus a less) favorable COO (Magnusson et al., 2015). We thus hypothesize that:

H2. The use of a sustainability label will increase consumers' WTP only for a brand from a more favorable COO.

3. Method

To test our research hypotheses, we conducted two online experimental studies with Austrian consumers ($N_1 = 123$; $N_2 = 124$). Both studies employed a three-group, between-subjects design. However, within each group, respondents were exposed to two brands differing in their COO and/or presence/absence of a sustainability label (see Figure 1). Specifically, the first experimental group was exposed to two brands differing in their product origin (more favorable vs. less favorable) but including no sustainability information. The second group was exposed to a brand from a more favorable country without a sustainability label and a brand from a less favorable country but with such a label. Finally, the third group was exposed to a brand from a more favorable country with a sustainability label and a brand from a less favorable country without any label.

Fig. 1: Experimental design

	Country-of-origin		Sustainability
Experimental group 1	Less favorable country +	More favorable country +	
	No label	No label	
Experimental group 2	Less favorable country +	More favorable country +	
	Sustainability label	No label	
Experimental group 3	Less favorable country +	More favorable country +	
	No label	Sustainability Label	

We selected apparel (Study 1: T-shirts; Study 2: Sneakers) as the focal product category since companies' sustainability initiatives and consumers' interest in purchasing from ethical and transparent businesses are growing in this industry (Byrd and Su, 2021). We opted for fictitious brand names (Study 1: "D2A" and "L7P"; Study 2: "D2R" and "Y2K") to eliminate confounding effects on WTP due to brand equity and familiarity (Dimofte et al., 2008).

Sustainability information was manipulated with a Fairtrade label in Study 1 and a Carbon Trust Footprint label in Study 2. We selected these labels in an effort to cover both social and environmental aspects of sustainability. The Fairtrade label stands for fairly produced and fairly traded products (Fairtrade, 2022). While buying these products, consumers support both environmental and social causes, such as responsible water and waste management, fair wages, and prohibition of child labor (Fairtrade, 2022). The Carbon Trust Footprint label, on the other hand, is strictly associated with environmental concern, as it captures the total greenhouse emissions generated by a product, from extraction of raw-materials through its whole life cycle (Carbon Trust, 2022).

To manipulate COO information, a "made in" claim was employed.

The chosen country pairs (Study 1: Italy and China; Study 2: USA and Greece) were expected to differ substantially in terms of their country images (subsequently confirmed by manipulation checks) and have indigenous production of the products under study, making them realistic origins for the stimuli brands.

Following random allocation to the experimental conditions, consumers answered the four price questions (too cheap, cheap, expensive and too expensive) on Van Westendorp's (1976) Price Sensitivity Meter, stating the relevant amounts in Euros; WTP was computed as the average of the expensive and too expensive prices (see Diamantopoulos et al., 2021).

Next, only in those experimental conditions which did include a sustainable label, participants stated their recognition of, and familiarity with the label. They also completed established scales on country image (Roth and Romeo, 1992; $\alpha_{ITALY} = 0.53$, $\alpha_{CHINA} = 0.58$, $\alpha_{USA} = 0.82$, $\alpha_{GREECE} = 0.77$); product category involvement (Mittal and Lee, 1988; $\alpha_{STUDY1} = 0.87$, $\alpha_{STUDY2} = 0.85$); price sensitivity (Wakefield and Inman, 2003; $\alpha_{STUDY1} = 0.82$, $\alpha_{STUDY2} = 0.82$); and cause involvement (Hill and Lee, 2015; $\alpha_{STUDY1} = 0.93$, $\alpha_{STUDY2} = 0.87$), the latter construct capturing the significance attached by consumers to environmental and social issues.

4. Findings

4.1. Study 1

A paired-samples *t*-test across all experimental conditions showed that Italy's country image ($M_{ITALY} = 5.67$) was perceived as being significantly more favorable than China's ($M_{CHINA} = 3.42$; $t(98) = 19.83$, $p < 0.001$); thus the COO manipulation was successful. Also consistent with expectations, respondents were found to be familiar with the Fairtrade label, scoring well above the mid-point on the relevant seven-point scale ($M = 6.09$, $SD = 1.15$). Moreover, the majority (81.9%) accurately associated the label with both social and environmental concerns, thus further confirming the successful manipulation of sustainability through this label.

To investigate the COO effect on consumers' WTP, we conducted a paired samples *t*-test within the first experimental group, which allowed the comparison of the WTP for the two T-shirt brands differing only in terms of their origin (Italy and China). As expected, consumers showed a significantly higher average WTP for the Italian T-shirt as opposed to the Chinese one ($t(31) = 5.47$, $p < 0.01$; $M_{ITALY-NO LABEL} = 35.19$, $M_{CHINA-NO LABEL} = 25.00$), thus supporting H1.

To test the effect of sustainability on WTP, we performed independent-samples *t*-tests¹, but now comparing the versions with and without the Fairtrade label, while keeping the product origin constant. No sustainability effect on WTP was revealed for the more favorable COO as, on average, consumers were willing to pay the same amount of money for a T-shirt made in Italy with or without a Fairtrade label ($t(60) = 0.59$, $p > 0.05$; $M_{ITALY-NO LABEL} = 32.95$; $M_{ITALY-WITH LABEL} = 35.19$). On the other hand, significant differences in WTP were found for the less favorable COO; against expectations, consumers were willing to pay more for a T-shirt made in China with a Fairtrade label than a T-shirt made in China with no such label ($t(66) = 3.94$, $p < 0.01$; $M_{CHINA-NO LABEL} = 17.90$; $M_{CHINA-WITH LABEL} = 25.00$). Thus, we could not support H2 in this study.

4.2. Study 2

A paired-samples *t*-test across all experimental conditions revealed a significantly more favorable image of USA ($M_{USA} = 5.27$) compared to Greece ($M_{GREECE} = 3.92$; $t(99) = 8.94$, $p < 0.001$); thus the COO manipulation was successful. However, respondents reported lower familiarity with the Carbon Trust Footprint label ($M = 1.98$, $SD = 1.51$) than with the Fairtrade label in Study 1. Even so, they still accurately associated this label with environment issues (83.60 % correct associations). Thus, the manipulation was still considered acceptable.

Unlike Study 1, a paired-sample *t*-test within the first experimental condition (i.e., the condition with the two

¹ Initially, product involvement, price sensitivity and cause involvement were included as covariates in an analysis of covariance (ANCOVA). However, as none of them turned out to be significant, they were dropped from further analysis and independent samples *t*-tests were performed instead.

sneaker brands differing only in their origin - Greek or American) showed no COO effect on WTP ($t(35) = 0.37$; $p > 0.05$; $M_{USA-NO LABEL} = 87.90$, $M_{GREECE-NO LABEL} = 86.64$). Consequently, H1 is not supported in this study.

On the other hand, consistent with Study 1, a series of analysis of covariance (ANCOVAs)² comparing the two brands with and without the Carbon Footprint label showed a positive sustainability effect on WTP only for the less favorable COO ($F_{1,66} = 7.86$; $p < 0.01$; $M_{GREECE-NO LABEL} = 86.60$; $M_{GREECE-WITH LABEL} = 106.98$). No differences in consumers' WTP were found for the more favorable COO ($F_{1,63} = 0.01$; $p > 0.05$; $M_{USA-NO LABEL} = 88.26$, $M_{USA-WITH LABEL} = 88.89$). Thus, once again, H2 was not supported.

5. Discussion and Conclusion

The current study sought to offer empirical evidence on the interplay between COO and sustainability as informational cues influencing consumers' WTP. First, while COO literature suggests a positive effect of country image on WTP (e.g., Hulland et al., 1996; Koschate-Fischer, et. al, 2012), our results show that country image favorability does not always affect consumers' WTP. Study 1 (T-shirts) confirmed the positive link between country image and WTP while Study 2 (Sneakers) did not reveal a COO effect. However, the latter varies across different products (Tseng and Balabanis, 2011) and consumers do not necessarily allocate price premiums or discounts based on COO differences (Agrawal and Kamakura, 1999). In this context, one could speculate that the lack of influence of COO on WTP on Study 2 is due to the smaller difference between USA's and Greece's country image (1.35) compared to the larger difference between Italy's and China's image (2.25). Further research is needed to throw light on this issue.

Second, despite the documented positive influence of an eco-labeled product on consumers' WTP (e.g., Del Giudice et al., 2018; Laroche et al., 2001) and the predictions of signaling theory (Erdem and Swait, 1998), our findings (in both studies) reveal that such an influence is limited to weaker COOs; sustainability labels had no effect on WTP for the more favorable COOs. This might be because a strong country image is more stable and consumers are not very prone to update their evaluations based on new information (e.g., a sustainability label) whereas a weak country image may be more malleable based on new information (Magnusson et al., 2014). An alternative explanation is that consumers' evaluations increase when they face underdog brands (Paharia et al., 2011). Thus, consumers could have perceived a brand from a less favorable COO as an underdog and perhaps sought to reward such brand for being sustainable by increasing their WTP.

In practice, managers should try to take advantage of a more favorable COO, as COO communication can be easily implemented at a relatively low cost (Diamantopoulos et al. 2021). A more favorable COO might be important in some product categories in terms of influencing WTP (see Study 1) and the implementation of a premium pricing strategy should thus be considered in such product categories. Our findings are also good news for marketers of brands originating in less favorable COOs, as their sustainability efforts are likely to be rewarded with a higher WTP.

There is a clear need for replications of the current study with different product categories (e.g., food, cosmetics), other COOs as stimuli, and different eco-labels (e.g., recycling) to confirm (or otherwise) the observed absence/presence of COO effects on WTP and the lack of an effect on WTP of the sustainable label in more favorable COOs. Attention should also be paid to potential moderating influences such as consumers' skepticism or credibility of the label as these could interact with COO (Dekhili et al., 2021) and potentially influence the effect of sustainability on WTP.

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² We included product involvement and price sensitivity as covariates in an analysis of covariance (ANCOVA). Cause involvement was not added in the analysis because this variable interacted with the independent variable (COO). At the end, only price sensitivity had a significant negative effect on WTP ($F_{1,66} = 9.66$; $p < 0.01$; $F_{1,63} = 8.13$; $p < 0.01$).

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Resilience of Global Value Chains: A multiple case study of MNEs in the healthcare industry

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Framing of the research. Since the 1980s firms' value chains have become increasingly fragmented and dispersed across the world, giving rise to the so-called Global Value Chains (GVCs): multinational enterprises (MNEs) often act as lead firms coordinating production and distribution activities along the chain. GVCs have so far characterised the backbone of international trade (World Bank & World Trade Organization, 2019).

However, recent global developments have brought attention to the shortcomings of having globally dispersed GVCs, such as reduced responsiveness and an excess of rigidity (Gereffi, 2020).

First, from a geopolitical point of view, the free trade imperative that has characterized the world economy in the last decades has weakened, with a rise of protectionist and nationalistic tendencies (The Economist, 2021). Even if we still experience a global economy, governments have been more inclined to the introduction of tariff and non-tariff barriers on imports and measures to reduce both trade and inward investments (Buckley, 2022). Moreover, political developments have exacerbated the level of uncertainty MNEs now face, with the collapse of long-standing assumptions. For example, the Brexit vote in 2016 has pointed out the fallacy of our static view of the economic and political integration of developed countries (Maidment, 2019). More recently, the invasion of Ukraine by Russian forces has opened a new, worrying chapter in modern history and has also impacted global economy: in fact, the Russian invasion has pushed up prices and highlighted the threat of raw materials becoming a foreign policy weapon (The Financial Times, 2022)

Second, climate change is considered the greatest challenge of the century for both businesses and society at large (Schneider, 2011). This aspect is particularly relevant for GVCs since the increasing threat of natural disasters (i.e. geophysical, meteorological, hydrogeological, climatological, and biological) poses a distressing risk for business continuity and logistics (Ghadge et al., 2020; Oh and Oetzel, 2022). An example is the devastating ripple effect the Fukushima earthquake of 2011 had on the global semiconductor value chain (Lohr, 2011).

Third, the recent COVID-19 pandemic has dramatically exposed the fragility of international production systems vis-à-vis the condition of environmental uncertainty (Saurav et al., 2020; UNCTAD, 2020).

Consequently, Buckley (2022) argues that it is not possible to assume that there is a single "environment" for MNEs to operate into and we should not treat disruptions as temporary events, but as the symptom of a "new normality". This new condition requires a long-term shift in how both practitioners and researchers approach how MNEs strategize.

For these reasons, a growing interest has sparked in value chain resilience (e.g. Barbieri et al., 2020; Gereffi, 2020; Strange, 2020), particularly within the international business (IB) research area (Ku & al., 2020; Buckley, 2021).

Resilience in international business

Resilience has been mainly investigated at the firm level (Annarelli and Nonino, 2016; Conz and Magnani, 2019) and from the supply chain management perspective (Christopher and Peck, 2014; Brandon-Jones et al., 2014).

From the IB perspective, the study of how MNEs can cope with risks is not new (Cheng et al., 2013). Rugman (1976) applied the concept of portfolio diversification to foreign direct investment, showing that engaging in foreign operations reduces the MNE's corporate risk. Subsequently, numerous studies have investigated how, in an uncertain environment, international diversification reduces risk without sacrificing performance (Dess et al., 1995; Grant et al., 1972; Levi & Sarnat, 1970). Also real options theory (Myers, 1977) represents a consolidated theoretical perspective in IB: it suggests how the MNE can benefit from internationally dispersed subsidiaries by having the right to shift value chain activities among subsidiary locations in uncertain times (Allen and Pantzalis, 1996; Chung et al., 2010). Nevertheless, these two theoretical approaches have mostly addressed disruptions of economic nature

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adopting the firm level of analysis and they do not consider how diversification benefits can vary across different governance mechanisms (Ioulianou et al. 2021)

Conversely, the study of resilience in IB is more recent. In fact, to the best of our knowledge, it is not possible to identify a widely shared definition of resilience in IB: the most recurring definition is derived from the supply chain literature, according to which resilience is the ability of a system to return to its original state or move to a new more desirable state after being disturbed (Christopher and Peck, 2004). In the past, studies have addressed resilience in the context of uncertain environment within developing countries (Ali et al., 2011; Branzei and Abdelnour, 2010) or as a desired managerial capability (Fainshmidt et al., 2017; Al-Atwi et al., 2020). Following the covid-19 pandemic, however, more recent studies have contributed to this stream of research by conceptualizing how resilience relates in particular to the GVC framework (Gereffi et al., 2022; Mouzas and Bauer, 2022; Dilyard et al., 2021).

GVCs and resilience

In the perspective of the “global factory” as formalized by Buckley (2004), MNEs are identified as the “orchestrators” of GVCs: they coordinate globally dispersed value chain activities through more precise use of ownership and location strategies (Buckley, 2011). MNEs constantly strive to find their optimal balance between the pressures to globalise and the need to stay local. In their seminal paper, Buckley and Ghauri (2004) discuss how global operations increase cost efficiency - i.e. they maximise economies of scale and reduce duplication- while localisation provides revenue based benefits - i.e. differentiation to reach all customer niches and the achievement of responsiveness. In fact, MNEs are increasingly pursuing market-seeking rather than asset-seeking (Makino et al., 2002) or knowledge-seeking (Chung and Alcacer, 2002) strategies.

MNEs also have a crucial role in determining who has control over value chain activities. According to Transaction Cost Theory, MNEs assign “transactions (which differ in their attributes) to governance structures (the adaptive capacities and associated costs of which differ) in a discriminating way” (Williamson, 1985: 18) with the aim of maximising the gains. Cuypers et al. (2021) argues how, although relevant, there is little systematic evidence on the direct effect of environmental uncertainty on governance choices: for example, uncertainty makes it more difficult to contractually specify *ex ante* all the circumstances surrounding a specific exchange.

Because of the complexity of GVCs, we differentiate how three key dimensions can interact with its resilience (Bair, 2009; Gereffi and Fernandez-Stark, 2011): the input-output structure, the geographical configuration of activities and the governance structure.

The input-output structure

The input-output structure allows to identify the main activities and segments of the GVC and typically includes R&D, inputs of production (i.e. sourcing practices), manufacturing, distribution, marketing, and sales (Gereffi and Fernandez-Stark, 2011). This level of analysis is the closest one to the operational level and, in matters of resilience, can exploit useful touchpoints with SC literature (Tortorella et al., 2021; Tang, 2006; Pettit et al., 2010; Wieland and Wallenburg, 2013).

Geographical configuration of activities

A key characteristic of GVCs is the offshoring of activities, i.e. the relocation of parts of production processes to locations abroad irrespective of the ownership mode (Kinkel and Maloca, 2009). For what concerns resilience, it is widely recognized that the geographical configuration of activities can influence the GVC capacity to limit the negative effect of disruption (Gereffi, 1995; Ivanov et al., 2010). However, if on one hand there is a current of thought that considers reshoring or near-shoring of value chain activities as a strategy to build resilient GVCs (Barbieri et al. 2021), on the other hand, scholars support the idea that redundancy of value chain activities may create more responsive GVCs, avoiding overreliance on few locations (Gereffi, 2020; Cohen and Kouvelis, 2020; Strange, 2020). How geographical configuration of activities can influence resilience has been addressed also by practitioners, following the COVID-19 pandemic. In particular, in 2020 UNCTAD proposed four main alternative avenues for the restructuring of value chains worldwide; (i) reshoring, i.e. the rebundling of supply chain and production stages; (ii) diversification i.e. involving more locations and suppliers in the value chain; (iii) regionalization, i.e. fragmented and vertically specialized value chains at the regional or local level; (iv) replication, i.e. distributed manufacturing close to the point of consumption and supported by new production technologies (UNCTAD, 2020).

The governance structure

Gereffi (1994: p. 97) defines the governance structure as the “authority and power relationships that determine how financial, material and human resources are allocated and flow within a chain”. MNEs can choose to outsource some or all of their VC activities, i.e. to obtain semi-finished products, finished products, or services from an outside company if these activities are traditionally performed internally (Simchi-Levi et al., 2004).

For what concerns GVC resilience, previous studies have mostly adopted the internalization theory perspective, positing that in the long-term MNEs will select, adjust and retain GVC configurations that are most efficient (Buckley and Casson, 1976; Kano, 2018). More recently, relational dynamics within governance modes have increasingly captured researchers’ interest, emphasising the ongoing nature of the ongoing transactions among actors (Carson et al., 2006). For the specific case of managerial governance mechanisms associated with GVC resilience, Kano et al. (2022) identifies three groups: inter-firm adaptations, i.e. of relationships among GVC actors; extra-GVC

adaptations, i.e. of relationships with actors outside of formal GVC boundaries; intra-firm adaptations, i.e. of routines, processes, and decision rules inside the lead firm. In particular, recent developments in the study of inter-firms adaptations demonstrate that even under quite stable hierarchical governance, the GVC constantly evolves and transforms whereby internal subsidiaries' configurations, activities, and responsibilities change (Ryan et al., 2022).

Previous studies show how forms of governance in GVCs can change and evolve over time: they are inherently dynamic in nature (Gereffi and Fernandez-Stark, 2016; Magnani et al., 2019) and they can change according to evolving external circumstances (Cuypers et al., 2021). This idea is testified by the recent interest in insourcing tendencies of MNEs (Albertoni et al., 2015) and a new pivotal role attributed to larger suppliers within GVCs (Azmeah et al., 2015). Nevertheless, few studies have addressed the dynamic nature of governance structures (Holcomb & Hitt, 2007; Strange and Magnani, 2017).

Purpose of the paper. The present study tries to contribute to the persistent call for research on resilience in IB, by answering the following research question: "How do MNEs structure their GVCs to foster resilience? How do the dynamics between the lead firm and other GVCs actors contribute to GVC resilience?"

Methodology.

Context of analysis

We chose to contextualize our analysis within the healthcare industry and to investigate how the actors within GVCs contribute to the chain's resilience during crises, such as the Covid19 pandemic. This choice of selecting firms belonging to the healthcare sector had the following rationale:

1. The healthcare sector is traditionally characterized by high international geographical fragmentation of value chain activities (UNCTAD 2020; Gereffi, 2020);
2. In recent years, the healthcare sector was impacted by multiple external disruptions (e.g. Covid-19 pandemic, the Ukraine war) on multiple levels - i.e. demand, supply and logistics (Deloitte, 2022a; Premier, 2022; Deloitte, 2022b);
3. Because of the nature of their business, it is crucial for MNEs in the healthcare industry to maintain business continuity in order to provide the final consumer, i.e. patients, with the necessary medical treatments (Bierenbaum et al., 2009). Therefore, we assume that companies in this sector prioritize resilience of their GVC;

Sampled cases

Case sampling has been carried out according to a set of four purposeful sampling criteria (Patton, 2014):

1. The MNE is a leading actor in a GVC within the healthcare industry;
2. A knowledgeable person, i.e. directly involved in the inner workings of the company value chain, was available to participate in the data collection.

Companies were identified within the authors' personal network and they were preliminarily contacted by email. At the moment of writing, 9 companies have been contacted and 5 agreed to be interviewed, with a response rate of 55%.

Tab. 1: Key cases information

Company	Size (N. of employees)	Turnover (2021, million \$)	Main business	Role in the GVC	Governance structure	Location strategy
Amgen Inc.	24,2	25,979	Human therapeutics	Lead firm	Internalization	Global
General Electric Company	168	74,196	Power, Renewable Energy, Aviation and Healthcare,	Lead firm	TBD	TBD
Pfizer Inc.	79	81,288	Biopharmaceutics	Lead firm	Internalization	Global
Roche	100,92	72,148	Healthcare solutions for disease prevention, diagnosis, and treatment	Lead firm	Internalization	Global
Medtronic	95	31,686	Surgical, medical and dental instruments and supplies	Lead firm	TBD	TBD

Data sources

The principal tool for data collection are semi-structured interviews consisting of 13 open-ended questions. The interview focused on three main aspects: i) the description of the firm's GVC (i.e. input-output structure, the geographical dispersion and governance of value chain activity); ii) the main uncertainties connected to the value chain activities; iii) how geographical and control relationships between the lead firm and other GVCs actors come into play during disruptions (e.g. Covid 19 crisis and Ukrainian war).

All the informants were first approached through email, providing an overview of the research project and a participant informative concerning data treatment. Moreover, whenever requested, also the interview questions were shared beforehand. In-depth interviews took place either in person or through VoIP technology, that were audiotaped

and transcribed. All interviews are double-checked by the authors and sent back to managers for feedback and integrations, where necessary, and then translated into English.

The data analysis is also supported by the triangulation of secondary data (Fielding & Fielding, 1986) collected from proprietary websites (including financial reports and sustainability reports), Form 10-K when available, and ORBIS reports.

Tab. 2: Data collection

Company	Number of interviews, time	Informants (role)	Secondary data
Amgen Inc.	2 interviews 1h 25 min	Portfolio Contract & Distribution Sr. Manager, Italy Head of Value Chain Management EMEA	2022 Form 10-K Company reports ORBIS report
General Electric Company	1 interview 56 min	Order operations manager IMI, GE Medical Systems Italia	
Pfizer Inc.	1 interview 58 min	Supply chain and operational excellence manager, Ascoli Piceno production site, Italy	
Medtronic	1 interview 1h 12 min	Director Logistic Italy, Greece & Israel, Deliver Operations	
Roche	1 interview 1h 2 min	Supply Chain & Customer Care Lead, Roche Italia	Company reports ORBIS report

Data analysis

Consistent with the multiple case study approach (Eisenhardt, 1989), we first conduct a single case analysis for each firm and then proceeded with a cross-case comparison. We build single case histories, used as a basis for the single case analyses focused on the following aspects: (i) the company; (ii) a description of the value chain, with a focus on governance and geographical dispersion of activities; (iii) how control and geographical choices in lead firm relationships with other GVC actors contribute to resilience building in case of a disruption. In the second stage, we will cross-compare the cases to identify similarities, differences, and potential recurring patterns. In both stages, to identify instances of these constructs, we will codify evidence stemming from interviews (the quotations). The final aim of the data analysis is the elaboration of a set of propositions and a model for subsequent quantitative enquiry. This aim will be reached with an abductive approach by systematically combining empirical observations and existing theory (Dubois and Gadde, 2002; Magnani and Gioia, 2022).

Results. The present study’s data analysis is in progress. At the moment of writing, the following single case studies have been developed: Amgen, Roche and Pfizer.

Amgen

Company overview

Amgen is a biotech company that operates in the following therapeutic areas: oncology, hematology, cardiovascular diseases, inflammatory diseases, osteoarticular diseases and nephrology.

Amgen has a commercial presence in approximately 100 countries worldwide reported a turnover of 25,979 million dollars for the 2021 fiscal year.

Value chain structure

For what concerns control of value chain activities, these are mostly internalized. The production process is carried out primarily in eight company-owned plants, located in U.S.A., Puerto Rico, Brazil, Ireland, The Netherlands, Singapore and Turkey. This internal manufacturing network has commercial production capabilities for bulk manufacturing, formulation, fill, finish, tableting and device assembly.

However, certain raw materials and components necessary for product manufacturing are provided by and are the proprietary products of unaffiliated third-party suppliers, certain of which are only sources for such materials. In addition, Amgen uses third-party contract manufacturers to supplement the capacity or capability the internal manufacturing network.

Overall, company-owned distribution centers are located in U.S.A., Puerto Rico, Brazil, Netherlands and Turkey. In the United States, substantially all sales are to pharmaceutical wholesale distributors, which are the principal means of distributing products to healthcare providers. Outside the United States, Amgen sells principally to healthcare providers and/or pharmaceutical wholesale distributors depending on the distribution practice in each country.

On a combined basis, wholesalers accounted for 82% of worldwide gross revenues for 2021.

Therefore, while manufacturing of product lines is global, distribution is regionalized, with regional hubs that serve individual country markets.

Resilience building processes during disruptions

At the operational level, Amgen has long invested in organizational capabilities to enhance responsiveness of the value chain. As reported from our informant:

“We try to improve our value chain with targeted investments in infrastructure, to ensure that production sites can always be operational [...]; in technology, such as centralized control, which is aimed at maintaining constant 24/7 monitoring of inventory management; even with the inventory we manage the stock levels of raw materials, always maintaining adequate inventories for the sales and distribution forecasts”

However, on a more strategic level, Amgen addresses two pivotal aspects. First, the company considers valuable for value chain resilience the dual sourcing approach:

“We spent time and money to ensure that we have dual sourcing in place and that we can switch if needed or change volumes from one source to another very quickly”.

Secondly, Amgen seems to highlight the positive implication that centralised control has over value chain resilience:

“We need to have a function that oversees the value chain [...] There needs to be an overarching framework to take decisions and to understand whether those choices are beneficial for the customer”.

Data analysis also revealed how the relationship with other value chain actors is considered relevant to build resilience.

In the case of suppliers, this relationship is built with a long term approach, based on shared practices and provision of specialized training by Amgen:

“We hold a number of training courses on our procedures, both for production and for distribution, which are also attended by third parties”

Moreover, according to our informants, the investments the company allots to build this relationship is conditional on how important the supplier is for the production continuity:

“Depending on how important the supplier is, there is an engagement program to share forward looking ideas that Amgen has, and those of the supplier in turn [...] This priority is based on the volume of business we are doing and how easily you could switch to another supplier”

Likewise, relationships with distributors are considered crucial for developing a resilient value chain:

“Precisely with the distributor we hold recurring meetings and business reviews [...]. We constantly work together to find solutions to improve processes”

Finally, according to Amgen’s case, the company’s business model adaptation can enhance resilience of the value chain. Resilience appears to be determined by the lead firm ability to adapt its business model in case of altered circumstances:

“Among the various things we did when the Covid started, in March we had already set up a home delivery process: delivery of some medicines directly to patients' homes through external suppliers [...] We did it in the ASL (Local Health Authorities, ed.) that asked for it.”

Roche

Company overview

Roche is a health-care company active in the discovery, development, manufacture and marketing of novel healthcare solutions. Its products and services address prevention, diagnosis and treatment of diseases. Roche has two operative divisions: the pharmaceuticals division and the diagnostics division. In the pharmaceuticals division, the company's portfolio of brands of self-medication products is designed to meet the growing demand for non-prescription remedies. Roche reported a turnover of 72,148 million dollars for the 2021 fiscal year.

Value chain structure

For what concerns control of value chain activities, these are mostly internalized. Roche only engages with contract manufacturers for cost advantage in case of marginal non-strategic activities or to manage demand peaks that cannot be satisfied by internal productive capacity. R&D, manufacturing of products and packaging, and distribution, are managed internally. However, Roche relies on third parties for production inputs. In 2021, the company’s total spend with suppliers and service providers was approximately CHF 20.3 billion: CHF 15.3 billion by the Pharmaceuticals Division and CHF 5.0 billion for the Diagnostics Division. The spend with the top 1000

suppliers accounted for 81% of Roche's total spend. These expenses are so distributed: 60,6% in the EMEA region, 31,5% in North America, 5,9% in the APAC region and 2% in the LATAM region. Approximately 15% of the total spend was with suppliers in non-OECD countries. Manufacturing activities are carried out at the global level through wholly owned FDIs. Distribution is instead localized, with bigger wholly owned regional hubs.

Resilience building processes during disruptions

According to our informant, the main issue that Roche has faced during the phase after Covid 19 peak is the expected demand peak for specific elements in its product portfolio. In particular, the company faced excess demand compared to its manufacturing capacity during covid-19 pandemic. Three main insights on GVC resilience emerged from the company's experience. First, also in this case, it appears that the company's business model adaptation can enhance resilience of the value chain. Roche had tried to implement product distribution directly to the patient rather than intermediaries (e.g. pharmacies) for those products that allowed a correct administration at home. This became possible only during the Covid-19 pandemic, when access to hospitals was limited:

"This determined a first step that Roche implemented on certain types of drugs, creating a home delivery service. We had tried in the past but never succeeded. With this situation, various possibilities have opened up and we have been able to bring the drug to the patients' homes".

In this sense, by adapting its business model, Roche was able to take advantage of an opportunity in the changing environment, therefore compensating for the impossibility to proceed normally with its operations.

The second insight is the need to collaborate with third parties in case of disruptions. In particular, in the case of Roche it was crucial to keep open communications with customers, managing their expectations and sharing timely information with them. This approach allowed customers to re-plan their operations and therefore minimize disruption along the value chain. For example, different modes of administration for the same drug allowed the company to allocate better its production based on the specific needs of the customer:

"For example, if the intravenous formulation (of the drug, ed.) worked well for covid, an attempt was made to understand with the doctors if it was possible to switch patients with rheumatoid arthritis to the subcutaneous formulation, in order to ensure that the intravenous formulation was available for the covid patients."

Finally, since value chain activities are mostly internalized, Roche manages the consequence of external disruptions through a centralized task force that manages resource allocation.

"It no longer becomes a normal inclusion in the planning and replenishment systems, but it is possible to create dedicated task forces which, if the criticality is on a global scale, somehow decide on a global scale to "allocate" the products correctly in the various countries, taking the requested specifications, evaluating them and re-assigning the production."

This approach allowed more efficient decision making because of the higher level of visibility across the whole value chain by the decision-makers.

Pfizer

Company overview

Pfizer is a research-based biopharmaceutical company. As a research-based and a global pharmaceutical company, it specializes in the discovery, development, manufacture and wholesale of prescribed medicines offered under the brand name Pfizer. The company has a leading portfolio of products and medicines that support wellness and prevention, as well as treatment and cures for diseases across a broad range of therapeutic areas. Pfizer reported a turnover of 81,288 million dollars for the 2021 fiscal year.

Value chain structure

Pfizer R&D activity is focused on both discovering new products and adding value to existing ones, i.e improving their effectiveness and ease of dosing and discovering potential new indications. The company's R&D activity is structured to deliver a highly differentiated product portfolio, also thanks to strategic partnerships that enhance creativity and flexibility. While a significant portion of R&D is carried out internally, the company also seeks promising chemical and biological lead molecules and innovative technologies developed by others to incorporate into their products. To this end, Pfizer enters into collaboration, alliance and license agreements with universities, biotechnology companies and other firms as well as through acquisitions and investments. These forms of collaboration allow the company to share knowledge, risk and cost.

Raw materials essential to manufacturing are procured from numerous suppliers worldwide. In particular, the Italian manufacturing plant in Ascoli Piceno has a global supply chain: suppliers are localized for 38% in Italy, 20% in Europe, 15% worldwide except for U.S. and 25% in U.S. The purchase of raw materials is partly managed locally by a local procurement service and by the factory buyers, while another part of the purchases, more strategic or with greater volume, are managed at the corporate level, by the category manager. For global materials, the company

refers to corporate suppliers, i.e. those that guarantee product quality and the required standards and that serve multiple sites globally.

The manufacturing of both products and packaging is carried out almost completely without outsourcing. Third parties' involvement in manufacturing is marginal and only related to specific products. Distribution is global too, in the sense that most wholly owned plants serve the global market: the company sells its products in over 125 countries, including emerging markets. In 2021, Pfizer revenues were so geographically distributed: about 37% in the U.S., 23% in Europe, 15% in the remaining developed countries, and 25% in emerging markets.

The company's prescription biopharmaceutical products are sold principally to wholesalers, but also directly to retailers, hospitals, clinics, government agencies and pharmacies.

Resilience building processes during disruptions

The company considers the procurement of raw materials the main issue in case of disruptions. According to our informant, for example, this issue emerged at the beginning of 2022, as the result of multiple events, such as the pandemic, the Ukraine war and the increase of energy costs. Our in-depth interview led us to uncover three aspects which contributed to Pfizer's GVC resilience in this circumstance: visibility along the value chain, information sharing, and product and supplier diversification on multiple levels.

First, it was critical for the company to have timely updates about the activities along the value chain, in order to re-plan production. In this sense, it was crucial for Pfizer to have an internally developed and customised digital architecture, to run simulations, identify issues and possible solutions in a timely manner. However, for the company it has been necessary not only to have this information, but also to be able to efficiently share it along the value chain, both internally and externally. On the one hand, Pfizer created a cross-functional team when procurement risks arose, in order to have a single comprehensive source of information within the company to re-plan production. Moreover, sharing information among production sites allowed to compensate for the lack of raw materials that were instead available in other locations. In this circumstance, the company considers a benefit that value chain activities are mostly internalized.

At the same time, it became relevant to establish a different relationship with suppliers:

"We started a more frequent communication with suppliers, weekly if not daily. The contact with the supplier has ceased to be a contact closely linked to a plant function and with a commercial relationship. It started to be a collaborative relationship for creating alternatives and sharing best practices"

Finally, the company considers product and supplier diversification relevant for GVC resilience. At the product level, the company enhanced the product portfolio flexibility by broadening the production range of the factory equipment, allowing for substitutability of raw materials:

"Always adhering to the mandatory specifications to maintain quality, the production range of the machines has been expanded (in paper weight, mm of ribbons, etc...). This is to increase the range of materials that can be used with the equipment".

At the supplier level, the company recognizes that multiple sourcing can enhance GVC resilience in case of disruptions. In particular, in the last period Pfizer production plants proceeded to expand the supplier range by identifying alternative suppliers among those already verified and qualified at the corporate level.

Research limitations. Since the study has been developed with a focus in the healthcare industry, its generalization is limited, especially considering the peculiar constraints (e.g. institutions) of the chosen sector. Therefore, future research could consist of either replication of the qualitative study in different sectors or the development of quantitative study to achieve generalizability of findings

Managerial implications. At the managerial level, the present study aims at providing practitioners - both managers in lead firms and suppliers - to identify critical aspects of the relationships with other GVC actors to take into consideration for building more resilient value chains.

Originality of the paper. To the best of our knowledge, this is among the first studies to address empirically how location strategies and governance structures are addressed by MNEs when strategizing for GVC resilience.

Keywords: global value chains; resilience; multinational enterprises; healthcare industry

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Il ruolo di *bridging institutional actor* delle imprese multinazionali nella promozione della sostenibilità

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Inquadramento della ricerca. *La governance pubblica è chiamata a svolgere un ruolo chiave nel garantire l'implementazione dello sviluppo sostenibile a livello globale e locale, provvedendo a fornire infrastrutture e assetti istituzionali efficienti (Bulkeley e Betsill, 2005; Rotmans et al., 2001). Ciò richiede ai governi di attivare politiche e fornire incentivi che guidino le decisioni dei singoli cittadini, delle imprese e, più in generale, di tutte le organizzazioni verso temi di sostenibilità. Tuttavia, i confini delle giurisdizioni limitano i governi a emanare politiche a livello nazionale senza realizzare che l'interconnessione globale tra gli stati impatta sulle crisi ambientali e sociali e che un'azione comune e condivisa sarebbe oltremodo auspicabile (Scherer et al., 2014).*

Nel 2015, le Nazioni Unite hanno elaborato l'Agenda 2030 che rappresenta un piano per raggiungere un futuro sostenibile per tutti, definendo i 17 Obiettivi di Sviluppo Sostenibile (SDGs), come ad esempio "Decent Work and Economic Growth" (SDG8), "Responsible Consumption and Production" (SDG12), "Climate Action" (SDG13), "Partnerships for Goals" (SDG17), e fissando 169 target che ne guidano l'attuazione. Se da un lato, l'Agenda 2030 fissa obiettivi di sostenibilità universali e di ampio respiro, dall'altro lato, le differenze tra gli stati, in termini di istituzioni, livelli di sviluppo, politiche pubbliche e risorse (Campbell et al., 2012), devono essere considerate al momento della loro definizione e implementazione. A questo proposito, molti studi osservano che i governi nazionali, riconoscendo il carattere globale delle sfide di sostenibilità e possedendo un potere decisionale limitato ai propri confini nazionali, hanno cominciato a lasciare spazio ad attori internazionali privati e civili per la promozione di nuovi schemi regolatori (Abbott e Snidal, 2000; Doh et al., 2017).

Numerose regole di sostenibilità, quali codici di condotta aziendali, standard industriali, schemi di certificazione, schemi di reporting e leggi "soft", sono nate da iniziative di attori privati (imprese multinazionali, imprese no-profit, imprese sociali) e organizzazioni della società civile (organizzazioni non governative). Basti pensare ai codici etici elaborati all'interno delle imprese, agli standard e alle certificazioni ambientali elaborati dalla Forest Stewardship Council, agli standard sui diritti del lavoro sviluppati dall'International Labour Organization o ancora agli standard industriali ISO.

Dunque, sfide come il cambiamento climatico, le crisi umanitarie e i disastri ambientali non costituiscono preoccupazioni di singoli stati, ma coinvolgono tutti i governi nazionali, le organizzazioni intra-governative e non governative e tutti coloro che operano per il raggiungimento degli obiettivi sostenibili. Tra di essi, il ruolo svolto dalle imprese multinazionali sta acquisendo un interesse sempre più crescente (Montiel et al., 2021; PwC, 2019; Scherer et al., 2014). Le multinazionali, localizzando le proprie operazioni e attività in molteplici contesti nazionali, possono contribuire in modo significativo all'implementazione di pratiche sostenibili a livello globale e locale, specialmente nei paesi in via di sviluppo dove gli interventi pubblici sono deboli o del tutto assenti. Tuttavia, ciò richiede numerosi sforzi. Le multinazionali hanno bisogno di mobilitare risorse e capacità tra i paesi in cui operano e adeguare gli obiettivi di sostenibilità di portata globale, come gli SDG imposti dall'Agenda 2030, ai contesti locali, provando a creare un "contextual fit" (Argandoña e Hoivik, 2009; Husted et al., 2016; Lee e Gereffi, 2015; Rathert, 2016; Reimann et al., 2012). Ad esempio, da tempo le imprese multinazionali lavorano per formulare e implementare codici di condotta all'interno delle proprie catene globali di valore. Tuttavia, numerosi studi rivelano dei limiti. Kelling, Sauer, Gold e Seuring (2020) parlano di un problema di "decoupling" da parte di quei fornitori che non rispettano le regole di condotta a causa della "dualità istituzionale" tra il contesto in cui nasce l'impresa multinazionale e quello del fornitore. Per far fronte a problemi di tal genere, le imprese multinazionali hanno iniziato ad attivare partnership, così come anche richiesto dall'SDG 17, che coinvolgono attori globali e locali appartenenti alla società civile e alla governance pubblica. Tali partnership attivano processi di deliberazione democratica, in cui ciascun attore può prendere voce e contribuire alle decisioni sulla sostenibilità (Scherer e Palazzo, 2011).

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Obiettivo del paper. *Questo studio in fieri ha l'obiettivo di costruire un framework concettuale che illustri i molteplici attori e i relativi ruoli coinvolti nella definizione degli obiettivi di sostenibilità e come le multinazionali, facendo leva sulla loro intersezione, possono ricoprire contestualmente un ruolo economico, politico e sociale e comportarsi da "bridging institutional actor".*

In particolar modo, proponiamo l'analisi del caso studio di IKEA che, da anni, lavora per integrare nella sua strategia obiettivi di sostenibilità e implementare pratiche sostenibili nei processi produttivi e nei canali di distribuzione. IKEA, operando in più di 50 paesi, non lavora in autonomia, ma richiede la collaborazione dell'intera sua catena di fornitura, nonché dei suoi co-workers e di attori esterni, quali governi nazionali, attori civili, imprese no-profit e imprese sociali.

IKEA non si comporta, dunque, da semplice attore economico ma, in sinergia ad altri stakeholder, può contribuire al benessere sociale e ambientale e ricoprire ruoli differenti. Alla luce di ciò, vogliamo mostrare i molteplici ruoli - economico, sociale, e politico - che una multinazionale può ricoprire per raggiungere obiettivi di sostenibilità e come, muovendosi tra di essi, possa creare una possibile intersezione che definiamo bridging institutional actor svelando promettenti esiti sulla sostenibilità.

Metodologia. *La ricerca si basa su un caso studio esplorativo (Yin, 2003), tale approccio offre la possibilità di acquisire una dettagliata conoscenza dell'argomento di ricerca che non sarebbe raggiungibile con un'analisi su un campione ampio (Golden-Biddle e Locke, 1993; Siggelkow, 2007). Selezionando il caso studio di IKEA e triangolando le fonti di dati primarie e secondarie (Gibbert et al., 2008; Yin, 2003), si presenta uno studio qualitativo per rispondere alla domanda di ricerca «Come le imprese multinazionali definiscono gli obiettivi di sostenibilità?»*

La selezione di IKEA come impresa oggetto di studio è motivata da diverse ragioni. IKEA è una delle imprese più internazionalizzate al mondo, possiede negozi e centri di distribuzione in più di 50 paesi e vanta il primato mondiale come rivenditrice di mobili. La stessa dichiara che "its success lies in both global integration and local responsiveness strategies" (sito web - IKEA).

Inoltre, IKEA è responsabile di circa l'1% del consumo mondiale di legno dal quale ricava i suoi prodotti commerciali e ciò la porta ad essere sotto i riflettori di molti attivisti ambientali (sito web - The Guardian). Tuttavia, la multinazionale svedese già da tempo si contraddistingue per le numerose iniziative sociali e ambientali e per la sua strategia di sostenibilità "People & Planet Positive" la cui implementazione le permette di contribuire al raggiungimento degli SDG dell'Agenda 2030. Dunque, poiché il nostro obiettivo è studiare come le imprese multinazionali coprano ruoli chiave nella definizione di obiettivi di sostenibilità a livello globale e locale, IKEA risponde in modo adeguato ai nostri interessi di ricerca.

Per ultimo, la possibilità di accedere ad un'ampia base di informazioni è cruciale affinché si possa adottare la metodologia di ricerca del singolo caso studio (Locke, 2000; Patton, 1990). A tal proposito, IKEA dà la possibilità di accedere ai suoi report di sostenibilità pubblicati dal 2004 fino ad oggi. Oltre ai dati di archivio che attestano il suo impegno ultradecennale verso la sostenibilità, la multinazionale pubblica sul suo sito web molte informazioni e articoli sulle iniziative di sostenibilità intraprese. Dunque, abbiamo accesso ad una base di dati ricca e variegata.

Riguardo alla raccolta di dati primari, attingiamo ai report di sostenibilità, alle guide specifiche riguardanti le iniziative sociali e ambientali di IKEA (ad es. "Guide - Developing and collaborating with social businesses connected to IKEA value chain") e ai video pubblicati sul suo sito ufficiale. Inoltre, selezioniamo fonti di dati secondari come interviste rilasciate da manager e impiegati della multinazionale e talks pubblicati su Youtube, articoli accademici, libri e capitoli di libri pubblicati in riviste scientifiche e articoli pubblicati sulle migliori testate giornalistiche (ad es. The Wall Street Journal) che trattano di IKEA e del suo impegno verso la sostenibilità. In ultimo, usiamo il teaching case study sviluppato all'Harvard Business School ("Sustainability at IKEA Group"; Rangan et al., 2014). A tal proposito, Ambrosini, Bowman e Collier (2010: 209) rivelano che i teaching case study costituiscono una fonte importante di dati poiché "enable the researcher to retain and explore the idiosyncratic detail of the trees while generating an understanding of the background forest".

Risultati. *Questo studio vuole far luce su come le imprese multinazionali, coadiuvate da altri attori, contribuiscano alla definizione di obiettivi di sostenibilità e al loro raggiungimento offrendo un framework concettuale che rappresenti i possibili ruoli - economico, sociale, politico - ricoperti.*

Le multinazionali, da attori economici, agiscono verso la sostenibilità quando, operando all'interno delle proprie catene di fornitura globali, richiedono ai fornitori di adeguarsi a codici di condotta dalle stesse imposti. Le organizzazioni della società civile, le imprese sociali, e le organizzazioni no-profit rappresentano attori sociali che, agendo sia a livello globale che locale, definiscono standard di sostenibilità, leggi soft e attivano programmi sociali con le comunità locali. Per ultimo, i governi nazionali, le organizzazioni intra-governative e le agenzie governative, in qualità di attori politici, intervengono con leggi nazionali e accordi internazionali su temi di sostenibilità. Recentemente, Schrempf-Stirling (2018) ha descritto alcuni tentativi da parte di governi nazionali che, estendendo la loro giurisdizione, hanno emanato leggi "hard" che limitano le condotte irresponsabili delle imprese e contribuiscono positivamente al raggiungimento di un modello aziendale sostenibile. Riportando esempi come il "Dodd Franck Act" introdotto negli Stati Uniti, il "Foreign Corrupt Practices Act" in Germania e il "British Bribery Act" in Gran Bretagna, Schrempf-Stirling (2018) dimostra che l'intervento statale assume ancora una posizione centrale e affida ad esso un "catalytic role" nell'implementazione dello sviluppo sostenibile.

La tabella 1 rappresenta gli attori coinvolti e i relativi ruoli ricoperti per la definizione degli obiettivi di sostenibilità.

Ruolo	Attori	Meccanismi impiegati per la sostenibilità
Attori economici	Imprese multinazionali e attori appartenenti alle loro catene di valore	Codici di Condotta aziendali Standard aziendali
Attori sociali	Organizzazioni non governative	Standard civili
	Organizzazioni no-profit	Leggi soft
	Imprese sociali	Programmi con comunità locali
Attori politici	Governi nazionali	Leggi hard
	Istituzioni regionali e locali	Trattati e accordi internazionali
	Organizzazioni intra-governative	
	Agenzie governative	
Bridging institutional actors	Attori che riuniscono imprese, attori sociali e politici	Obiettivi e programmi definiti all'interno di partnership pubblico-private

Si sintetizzano di seguito i principali risultati attesi.

Forniamo un primo contributo alla ricerca di *International Business* offrendo un disegno dei possibili ruoli che agiscono per definire gli obiettivi di sostenibilità, degli attori coinvolti e dei meccanismi da essi impiegati.

Inoltre, l'analisi esplorativa del caso studio di IKEA ci permette di comprendere le modalità attraverso le quali le multinazionali, servendosi della loro presenza in differenti contesti nazionali, possono collaborare con attori pubblici, organizzazioni della società civile e altre imprese nell'implementazione di pratiche sostenibili a livello globale e locale. Nello specifico, mostriamo che, a livello corporate, le multinazionali lavorano attraverso strategie di sostenibilità e codici di condotta aziendali per limitare l'impatto sociale e ambientale delle loro catene di valore. Ampliando il livello di analisi, le multinazionali possono divenire attori sociali e politici. Nel primo caso, stringono partnership con organizzazioni della società civile e imprese sociali per contribuire positivamente al benessere delle società in cui operano. Nel secondo caso, agiscono nell'interesse pubblico e influenzano le decisioni politiche attraverso campagne di lobbying e attività politiche che mirano ad ottenere strumenti legislativi che promuovano lo sviluppo sostenibile. Possiamo, dunque, ritenere che le multinazionali non si comportano da semplici attori economici, ma diventano attori sociali e politici e, dunque, offriamo un ulteriore contributo agli studi di *International Business* sui molteplici ruoli che le multinazionali possono ricoprire per il raggiungimento della sostenibilità.

Per ultimo, creiamo un ponte tra gli studi di *International Business* e quelli di *Social Issues in Management*, concettualizzando il ruolo svolto dalle multinazionali come *bridging institutional actor*. Tale concetto evoca quello di "bridging institutional entrepreneurship" ma senza concentrarsi sulla scoperta e/o il riconoscimento di opportunità (Tracey et al., 2011). Da un lato, svolgendo il ruolo di *bridging institutional actor*, le multinazionali forniscono soluzioni innovative per la sostenibilità, impiegando capacità e risorse di tutti gli attori coinvolti. Ad esempio, gli attori pubblici forniscono autorità e legittimità pubblica, le imprese multinazionali offrono capacità finanziarie e tecniche e le organizzazioni della società civile conferiscono conoscenze scientifiche e una profonda esperienza di collaborazione con le comunità locali (Doh et al., 2019). Dall'altro lato, il ruolo di *bridging institutional actor* permette alle multinazionali di conciliare le diverse logiche istituzionali, gli interessi divergenti e gli sforzi indipendenti dei ruoli economico, sociale e politico e di rimuovere i vincoli di ciascuno di questi. Ad esempio, i governi soffrono di una burocrazia lenta, le organizzazioni della società civile non hanno capacità di regolamentazione e non possiedono know-how manageriale, mentre le multinazionali possiedono una conoscenza poco approfondita dei contesti locali e dei bisogni della società nei paesi in cui operano (Doh et al., 2019; van Aalst et al., 2008).

Limiti della ricerca. Questo lavoro presenta alcuni limiti che costituiscono la base di partenza per sviluppare studi di ricerca futuri.

Il nostro studio usa dati raccolti da fonti online, al contrario, effettuare una ricerca sul campo potrebbe offrire dati più dettagliati e specifici al contesto e una migliore comprensione del fenomeno oggetto di analisi. Sebbene questo costituisca l'approccio più adatto per eseguire un caso di studio, tuttavia, lo svolgimento di interviste e osservazioni sul campo e l'analisi e la codifica di grandi quantità di dati richiedono uno sforzo ingente in termini di tempo e risorse, e non per ultimo, l'accesso interno all'impresa andrebbe negoziato e accordato.

Inoltre, il nostro lavoro si concentra su come le imprese multinazionali definiscono gli obiettivi di sostenibilità, ma sarebbe interessante considerare un insieme specifico di obiettivi sostenibili (ambientali o sociali o uno specifico SDG)

per meglio esplorare le diverse modalità attraverso le quali le imprese affrontano problemi ambientali e sociali, quali assetti organizzativi impiegano e con quali attori collaborano a seconda degli obiettivi selezionati da raggiungere.

Per ultimo, la nostra analisi su una singola multinazionale potrebbe essere estesa a molteplici casi studio, esplorando ad esempio come più multinazionali in una specifica industria agiscono per la sostenibilità.

Implicazioni manageriali. Questo studio suggerisce che le multinazionali hanno bisogno di adottare meccanismi di sostenibilità interni ed esterni. Tra quelli interni alla governance di un'impresa, i codici di condotta, i sistemi di controllo e auditing vengono implementati dai manager per monitorare l'impatto della propria catena di valore. Tuttavia, questi non sono sufficienti ed è necessario che i manager attivino partnership con attori esterni e integrino meccanismi di compliance con meccanismi di collaborazione in cui vengano coinvolti fornitori, co-workers, attori civili e pubblici. Studi futuri possono supportare i manager a individuare le modalità con cui creare tali collaborazioni e quali risorse, capacità ed expertise devono formare oggetto di scambio tra i differenti attori presenti in esse.

Originalità del paper. La letteratura esistente riconosce molteplici ruoli che le imprese multinazionali svolgono e attraverso i quali influenzano i contesti istituzionali e le società dei paesi in cui operano (Fortwengel e Jackson, 2016; Leca et al., 2008; Zietsma e Larence, 2010). Nell'affrontare tale tema, la ricerca è però avanzata nel tempo in modo separato, definendo talvolta le multinazionali come attori internazionali economici (Coviello et al., 2011; Morgan e Quack, 2005; Whitley, 1994), sociali (Brown et al., 2010; Hofferberth et al., 2011; Trittin-Ulbrich, 2022) e politici (Scherer et al., 2006; Scherer e Palazzo, 2011; Rasche et al., 2008).

Le imprese multinazionali, come attori economici, "shape their organizational and institutional contexts as their activities internationalize" (Morgan e Quack, 2005: 1765). Quando integrano obiettivi economici con obiettivi sociali contribuiscono positivamente al benessere sociale e vengono definite attori sociali (Brown et al., 2010). In questa prospettiva, esse possono talvolta ricoprire un ruolo politico e, agendo nel pubblico interesse, le loro attività "aim to shape government policy" in modi che possono favorire le stesse (Scherer et al., 2014: 147).

Sebbene, dunque, gli studi in letteratura contribuiscono a rivelare la natura composita delle imprese multinazionali, un chiaro disegno di come queste facciano leva sui molteplici ruoli, sulle loro possibili interazioni ed eventuale intersezione, nella definizione e raggiungimento degli obiettivi di sostenibilità, sembra mancare. Fare luce su come le multinazionali, sovente responsabili di scandali sociali e ambientali, possano diventare attori chiave nelle sfide di sostenibilità rappresenta un tema di ricerca molto discusso e che necessita di un maggiore approfondimento.

Parole chiave: Multinazionali; Sostenibilità; Istituzioni; Caso Studio; IKEA

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Brand Activism: A survey on the level of consumer awareness and involvement

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Framing of the research. *Over the hyper-globalized society, companies and brands have become protagonists of billions of people's lives through their products and services, often orienting them only in a consumerist sense without considering the consequences of their actions. In the last decade the course seems to be timidly changed: companies are assuming a new role, becoming the spokesperson for requests concerning major global issues such as pollution and climate change, economic inequalities, poverty, immigration, the weakness of government systems, corruption, access to education (Mukherjee and Althuizen, 2020). Hence, companies are increasingly attempting to translate into action a tension that is very tangible in all societies and they do so because the new generations are ever more impervious to the allure of consumption and more attentive to the health of the planet. A large segment of the world's population are no longer consuming uncritically, but pays attention to their choices, day by day. In this context, Brand Activism (BA) is gradually emerging as a new, revolutionary way of interpreting the business idea (Kotler e Sarkar, 2020; Sibai et al., 2021). According to Kotler and Sarkar (2020, p. 23), BA is "the set of efforts designed to promote, prevent or influence social, political, economic or environmental reforms or states of inertia, with the aim of promoting or prevent improvements in society". Similarly, Vredenburg et al., (2020) consider BA as "a purpose- and values-driven strategy in which a brand adopts a nonneutral stance on institutionally contested socio-political issues, to create social change and marketing success".*

Starting from these definitions, it is possible to identify four key-characteristics of the phenomenon:

- 1. The brand is driven by purpose and values: under the BA concept, the brand does not exclusively pursue objectives of economic nature, but focuses on a wider public interest, through the realization of social and environmental benefits (Bocken et al. 2014; Kumar, 2020).*
- 2. BA addresses controversial or polarizing sociopolitical, economic, environmental issues; brands are choosing to engage with divisive sociopolitical causes, even at the cost of losing some of their customer base (Smith & Korschun, 2018; Pöyry and Laaksonen, 2022).*
- 3. The issue can be progressive or regressive in nature. The company engages in progressive activism when aiming to improve the world and actively pursues policies that support the common wellbeing. By contrast, regressive activism occurs when the company aims to maintain the status quo conservatively, and pursues policies that harm the common wellbeing (Kolter & Sarkar, 2020; Kozinets and Jenkins, 2022).*
- 4. The company contributes to a sociopolitical issue through brand messaging and practice: BA, indeed, involves both intangible (communication) and tangible (practice) tools for a given cause (Vredenburg et al, 2020).*

BA was born as the "natural evolution" of Corporate Social Responsibility (CSR), but distinguishes itself from it, representing a revolutionary business model where the company takes a position on social, political, economic and environmental issues and actively performs to create a social change (Eilert and Nappier Cherup, 2020; Moorman, 2020). According to Kotler and Sarkar (2020), CSR is no longer sufficient and it is no longer enough to declare oneself responsible, to tell one's story. The public is asking companies to take the field, to act and take a position on issues affecting world public opinion. Thus, BA differs from CSR in two ways. First, CSR activities are considered positive and beneficial by most of the society. Conversely, BA does not always enjoy this consensus because there is often no universally 'correct' answer to the sociopolitical issues involved (Nalick et al. 2016; Barko et al., 2017; Korschun et al. 2019; Miranda and Miguel, 2022). Furthermore, while CSR is mainly focused on internal processes, as the company imposes constraints to discipline itself and become socially responsible, BA is more outward oriented, as the company actively acts to change the external conditions, in addition to internal initiatives in relation to a specific social issue. In

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other words, BA is a complex phenomenon aimed not only at increasing the level of customer satisfaction and trust in the brand, but above all at improving the conditions of the environment in which it is immersed through concrete actions and propaganda (Mukherjee and Althuisen, 2020).

Purpose of the paper. This empirical analysis aims to understand the level of public awareness and involvement in BA and to analyze the effects that brand positions arouse in terms of divisive and polarizing behaviours. In particular, an attempt was made to investigate the differences in the perception of BA between the new and old generations, by focusing the study on the following research questions:

RQ1: What consumers think about companies/brands taking a stand on certain social, environmental and political causes? Do they inform about these aspects before purchasing? Are they willing to pay a premium price for those brands supporting such causes?

RQ2: How do consumers generally consider the BA phenomenon (positive and urgent or negative and marginal)? Do they trust activist businesses, and how do they feel about their level of authenticity?

RQ3: How much consumers are willing to contribute to BA initiatives and what is their propensity to boycott or buycott brands?

Methodology. The survey was carried out through a self-administered questionnaire, using Computer Assisted Web Interviewing, shared by the e-mail channel and the social platforms (Instagram, Facebook, LinkedIn and TikTok). The data were collected in autumn 2022. A total number of 272 consumers took part voluntary in the survey.

The questionnaire was divided into 3 sections: the first section investigated the socio-demographic characteristics of the sample (age, gender, area of origin, educational qualification, profession, average income). The number of interviewees, albeit limited, proved adequate for the identification of a homogeneous sample in terms of gender, age, profession and educational qualification. The second section related to the purchasing habits of the interviewees and investigated which factors affect the product or service choice, the degree of information about the brand's commitment in social, environmental and political causes they request for orienting the decision-making process and their willingness to actually pay a premium price for those brands supporting such causes. This was useful to understand the overall position of consumers towards social, environmental and political causes and, therefore, their positive/negative attitude towards companies/brands involved in such issues. Finally, section 3 provided information on respondents' knowledge, perception and interest about BA. In particular, an attempt was made to investigate their opinion about BA and their perception about the real intentions of companies involved in such practices, i.e. whether they consider them authentic or simply "woke washing". Furthermore, the propensity to boycott or buycott brands (i.e. the consumer practice aimed at promoting the purchase of certain brands) was investigated, with the aim of verifying which of these actions is most commonly adopted today.

As far as data analysis is concerned, it was decided to immediately identify four different generational groups based on the age of the interviewees: generation Z (18-25 years), Millennials (26-41 years), generation X (42-57), and Boomers (58-76 years). These groups served to obtain more detailed results and to compare them in terms of attitude and perceptions towards BA.

Results. Considering the socio-demographic characteristics of the sample, most respondents are female (56.6%); the male interviewees are 42.3% while 1.1% prefer not to specify it. In terms of age, most of them are between 26 and 41 years old, therefore belonging to the Millennial generation (40.1%). The respondents belonging to the Z generation are 27.6%; those who belong to the X generation, from 42 to 57 years are 28.7%, while only 3.7% belong to the Boomer generation (from 58 to 76 years). With regard to the level of education, slightly more than half of the interviewees (51.1%) have obtained a high school diploma, more than 30% have at least a three-year bachelor degree and 14.3% have a middle school diploma. Finally, as regards occupation, most of the respondents have a job (>70%) and among these, 9.6% are student-workers. On the contrary, those who are not employed are 23%, and 18% of them are students.

In the second section, relating to purchasing habits, the BA-related factors influencing consumer choices and their purchasing and consumption behavior were analyzed, in order to address the specific issues of our RQ1. The various factors considered in the questionnaire obtained quite similar values. Notably, respect for workers' rights (mean 4.25; SD 1.09) and operating in a coherent way with the declared values (mean 4.13; SD 1.07) are the main variables influencing a product or service choice, as well as the respect for the environment (mean 3.81; SD 1.10). Commitment to social (mean 3.59; SD 1.21) and political (mean 3.01, SD 1.34) causes received less attention, as consumers expressed almost indifference towards them.

Among the different generations, it emerges that respect for workers' rights is considered as important to a greater extent by generation Zeta (mean 4.35; SD 1.09), followed by those who belong to generation X (mean 4.24; SD 1.09), Millennials (mean 4.19; SD 1.09) and, finally, Boomers (mean 4.00; SD 1.07). Overall, the new generations seem to give greater importance to all factors, including commitment to political causes, which obtains an average of 3.16 (SD 1.34) and 3.08 (SD 1.33) from the Z and Millennial generations respectively. These values are higher than those from the older generations (generation X: mean 2.81, SD 1.35; Boomers: mean 3.00, SD 1.34). Therefore, it is possible to conclude that the new generations pay attention to the causes supported by the brands from which they buy the products and services to a greater extent than generation X and Boomers.

Then, respondents were asked how often they inquire about environmental, social and political initiatives undertaken by companies before purchasing their products or services. Findings show that new generations, in particular the Millennials, get information to a lesser extent than the older ones. In fact, those who say they never or

only rarely get informed are mostly Millennials (57.1%). On the contrary, those who get informed often belong to a greater extent to generation X (32.8%) and those who answered they always get informed all belong to the Boomers generation.

Among the ways through which the interviewees obtain information on the environmental, social and political initiatives undertaken by companies, the social profiles are the most commonly used (53.3%), followed by the corporate website (36%), television (21.3%) and finally newspapers and magazines (12.9%).

As concerning the consumers' willingness to pay for purchasing brands supporting social environmental and political causes. What emerges shows that the new generations seem to be more inclined to pay a premium price for products or services of companies that support shared causes. Indeed, the majority of those who answered "yes" belongs to the Millennial generation (40.4%), followed by the Z generation (29.1%). Conversely, the majority of those who are not willing to pay a premium price belong to the X generation (36.7%). Even among Boomers, those who answered negatively predominate.

Next, *soughing to understand how consumers perceive the BA phenomenon and consider companies involved in BA practices (RQ2)*, the results show that respondents usually consider BA as a positive and urgent practice that companies should adopt (mean 4.00; SD 0.96), despite they often express some uncertainty about the effective ability of BA to bring about changes (mean 3.81; SD 0.97). Through a generational comparison, it is possible to observe how all generations declare themselves more in agreement in considering the activist position of companies as urgent. Particularly, generation Z (mean 4.11; SD 0.97) and Millennials (mean 4.05; SD 0.96) show greater agreement with this statement than generation X (mean 3.95; SD 0.96) and Boomers (mean 3.3; SD 0.98). By observing the data, it is possible to state that Generation Z also seems to be the age cohort expressing a greater level of trust in activist businesses, while Millennials and Generation X show greater skepticism about the effectiveness of activism carried out by companies. Finally, Boomers are the age group that expresses the greatest disagreement on the effectiveness of such practices. As concerning the level of trust/skepticism towards companies/brands engaged in BA practices, respondents were asked to indicate whether they consider such intentions as authentic or simply "woke-washing" (i.e. "activism façade", which occurs when actions are taken by companies that exploit current affairs and public discussion issues but do it just to make a profit) (Mirzaei et al., 2022).

The Z generation and the Millennials agree with the idea that the goal of companies is to generate awareness of certain social, environmental and political issues. Moreover, for both generations, the important thing is that companies act, regardless of whether they are driven by economic reasons or not. Therefore, the new generations, and in particular the Millennials, consider corporate activism important and urgent and show an overall attitude of trust towards them. On the contrary, the older generations express more uncertainty than agreement with the same statements. Another relevant aspect is that while the Z generation and the Millennials are not sure if corporate behavior is adopted only to appear more responsible and to obtain greater profits, thinking that companies carry on a facade behavior, while the older generations tend to trust them more. This might suggest that new generations, despite placing their trust in BA, compared to the older ones, tend to be more skeptical about the real motivations driving companies to act. The cause of this skepticism could lie in the fact that young people, being always online, are more exposed to a very high number of information, which allows them to be more aware of the social networks-related world of mouth – even if this can be often affected by disinformation – thus increasing their skeptical attitude. Therefore, compared to the older generations, Millennials and generation Z are better able to recognize the level of authenticity of the statements and actions taken by brands.

Finally, it was investigated how important the interviewees consider buying the products of companies to support their activism and, in general, the propensity to boycott or buy-cott brands, with the aim of verifying which of these actions is most commonly adopted (RQ3). From the generational comparison it emerges that Z generation agrees to publicly recommend a brand with which it shares the supported cause. Conversely, Boomers disagree with buycott practices. The older generations, unlike the Z generation and Millennials, pronounce themselves uncertain and agree in boycotting a brand with which they do not share the supported cause, by ceasing to purchase its products or services.

In general, it can be said that the new generations are more inclined to buy-cott than the older generations. Furthermore, among the buy-cotting practices, they prefer the more intense one, which involves the activation of positive word of mouth. In parallel, these generations express more strong disagreement than Generation X and Boomers with boycott practices.

Research limitations. It is possible to identify some limitations that may represent starting points for future research. This study was conducted through the administration of a questionnaire that made it possible to generally investigate BA without examining any brand. This could imply less objectivity of the phenomenon. Furthermore, the sample analyzed does not appear to be large enough to make these results completely generalizable. Therefore, in the future it would be appropriate to investigate with respect to a specific brand and identify a more representative sample of all the generational cohorts. Furthermore, it could be interesting to analyze the companies' point of view to understand what are the main challenges and difficulties they have to face when they decide to take a position.

Managerial implications. As regards the managerial implications, this study provides important insights into the BA issue, thus helping brand managers to understand which aspects of this phenomenon are most appreciated and despised by different generations. The survey carried out shows how Millennials and the Z generation mostly adopt a purchasing and consumption behavior that takes into account the BA-related position of the chosen brand. This is why marketing managers should define their communication campaigns and related contents according to the consumers' targets their products are addressed to.

However, being able to satisfy consumer demands is not a simple process, since it implies a radical change as regards the company image. It is no longer enough to declare social responsibility. What consumers are aware of, and in particular Millennials and the Z generation, are brands and companies that actively fight for causes that are in line with their values and beliefs. Moreover, consumers are demanding greater authenticity and consistency between what companies communicate and their current actions in support of the cause.

As it emerges from the results, the new generations are more skeptical about the real motivations that drive companies to act. However, if a brand can demonstrate its authenticity, the new generations would be more inclined to reward it through buy-cotting practices, not only by personally purchasing the products but also by activating a positive word of mouth.

To sum up, this study confirms that BA is positively considered by consumers, who are increasingly expecting brands to take a stand on the hot topics of society. However, companies are required to take specific actions for social, environmental or political causes that are in line with consumers' values, or risk being accused of woke washing by a public of consumers who are increasingly aware.

Originality of the paper. BA is a topic of interest, which has been taken into consideration by the literature very recently. The main publications have developed in the last 5 years, from 2018 onwards and many of the studies have developed from the side of companies and their practices, through the study of case studies. Therefore, this research has the advantage of enriching the literature on BA, providing the consumer's perspective by understanding its level of knowledge and involvement in BA and analyzing the effects that the positions taken by brands arouse in terms of divisive and polarizing behaviors. In particular, it has been investigated the differences in the perception of BA between the new and old generations of consumers, thus adding an intergenerational comparison to the scant literature on the subject.

Keywords: Brand Activism; Generational Cohorts; Woke Washing; Consumer Behaviour; Corporate Social Responsibility.

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Generation Z's reactions to brand activism: the role of self-identity and familiarity

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Framing of the research. *Climate change, the Covid-19 pandemic, wars, and increasing poverty, exacerbated by a growing distrust in public institutions and governments (Radanielina Hita and Grégoire, 2023), have prompted consumers to question the significant role of firms (Cammarota et al., 2021), resulting in a demand for a greater social engagement. More and more often, marketing has been regarded as a problem-solving force (Martin and Burpee, 2022; Chandy et al., 2021; Mende and Scott, 2021), capable of confronting our era's urgent sociopolitical issues.*

In this scenario, brands began to play a political role (Korschun et al., 2020), becoming educators (Moorman, 2020), heroes, or even activists (Sibai et al., 2021) by exploiting their power and visibility. Brand activism is defined as an emerging marketing strategy (Shoenberger et al., 2021; Moorman, 2020) characterised by risk and complexity elements (Bhagwat et al., 2020), that is gaining rapid interest among both researchers and practitioners (Eilert and Cherup, 2020). Brands have begun to take positions on socio-political issues (Klostermann et al., 2022; Sibai et al., 2021) such as LGBTQIA+ rights, cannabis legalisation, abortion, environmental concerns, police brutality or gun control (Schmidt et al., 2022; Bhagwat et al., 2020) about which public opinion is highly fragmented (Vredenburg et al., 2020) making forecasting consumer responses difficult (Warren, 2021). In fact, the risk element of brand activism strategy is largely related to divided and unpredictable consumer responses. Adding to the unpredictability of consumer response is the difficulty of not knowing exactly what factors may influence this response. The impact of contextual factors such as type of cause, brand-cause fit, firm size, or donation amount on consumer response to brand activism strategies was examined in a recent study by Atanga et al. (2022). Additionally, the literature advances hypotheses and directs future research primarily on more personal factors that could influence this relationship. For instance, Ahmad et al. (2022) hypothesise that consumers can have varying levels of affinity or familiarity with different issues and this aspect could influence consumer response or Zhou and Dong (2022) use the degree of experience with a specific issue as a moderator, stating that this familiarity may have resulted from joining advocacy groups, volunteering, or protesting. According to the Social Identity Theory (Tajfel and Turner, 2004), consumers can also express their political orientation and sense of belonging by promoting or boycotting a brand. Activist brands could be able to forge strong and emotional connections with consumers (Schmidt et al., 2022), particularly if the values promoted by the brand and those of the consumer are congruent (Johnson et al., 2022). In this exploratory study, based on the extant literature on brand activism, we hypothesise that familiarity and self-identity with an issue could be influencing factors. We hypothesise that consumers who identify themselves with an issue and/or have familiarity with it will react differently to brand activism actions than consumers who are unfamiliar with the issue and do not identify themselves with it.

Brand activism can be accomplished through statements and/or concrete actions that, generally, can be financial or non-financial in nature (Bhargava & Bedi, 2022; Ahmad et al., 2022; Mukherjee and Althuisen, 2020). The aims of this strategy are diverse (Smaldone et al., 2023; Kapitan et al., 2022); by becoming engaged in delicate issues, brands seek to create a positive social impact (Radanielina Hita and Grégoire, 2023; Eilert and Cherup Nappier, 2020), increasing consumer awareness of the issue, attracting media attention, and putting pressure on policymakers and institutions (Weber et al., 2023). As highlighted by Sarkar and Kotler (2018), Generation Z is given special attention in the brand activism literature because they are thought to be more sensitive to social and environmental issues and thus respond more positively to brand activism actions. According to the generational theory (Schewe and Meredith, 2004), members of a cohort develop similar behaviours and personalities as they experience the same events at a given historical

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moment. Generation Z, or Gen Z, refers to all individuals aged between 11 and 26 in 2023 (Dimock, 2019). This cohort will be the central workforce in society and will dominate the consumer market (D'Arco et al., 2023). They have experienced times characterised by a global recession, terrorism and wars, natural disasters, climate change, a global pandemic, rising attention to civil and social rights, and environmental questions (Branca et al., 2023). Members of this generation are often described as environmentally conscious and more aware of sustainability issues than previous generations (Casalegno et al., 2022). They engage in pro-social and green behaviour, while they look for brands and companies that behave responsibly (Bravo et al., 2019; Van den Bergh and Pallini, 2018). True digital natives are highly influenced by technology (Monaco, 2018). Members of Gen Z are also activists and committed to helping others (Bravo et al., 2019), and they show a propensity toward forms of ethical consumption (Casalegno et al., 2022). They fight for what they believe is important, such as justice, civil rights, and equality, and they wish to have a positive impact on someone's life (Seemiller and Grace, 2016).

Purpose of the paper. Based on these premises, this exploratory study aims to examine the response to the brand activism strategy by Gen Z. First, as pointed out by several studies, the majority of the literature on brand activism focuses primarily on employee and investors responses, ignoring the consumer side (Atanga et al., 2022; Hambrick and Wowak, 2021; Bhagwat et al., 2020). Second, considering the attention this generational cohort pays to activism and civil, social and environmental issues, little is still known about their response to brand activism campaigns. Third, despite the literature on brand activism evolving rapidly, there are significant gaps that should be filled, answering the call for future research emerging in the recently published articles on brand activism (Radanielina Hita and Grégoire, 2023; Weber et al., 2023). First, what are the effects of brand activism and how can they be measured? Second, are there any factors that can moderate consumers' response to brand activism? Understanding the outcomes of brand activism is critical for quantifying benefits and risks for a firm that decides to engage in this strategy. Furthermore, the search for consequential and moderating factors is required to begin operationalising the construct, which remains one of the most significant gaps in the brand activism literature to date.

Methodology. A focus group was conducted in March 2023, to collect qualitative information, not obtainable through a structured survey, and to get a broader range of experiences and thoughts simultaneously, compared to in-depth interviews (Millward, 2012; Wilkinson, 2008). The sample consisted of 8 Generation Z members, all aged between 21 and 26, 5 females and 3 males. At the beginning of the meeting, a brief introduction has been read to participants, presenting the purpose and the topic of the meeting. Participants were also informed that the audio would be recorded during the meeting to facilitate the content analysis. During the focus group, the moderators provided verbal stimuli, inviting participants to interact and argue their answers. The question concerned: the responses and reactions to brand activism campaigns; the influence of self-identity and the familiarity with the issue on individuals' responses. The meeting lasted for about an hour. To identify, investigate, and report the findings, thematic analysis was used; this method is considered central and well-structured in qualitative research (Braun and Clarke, 2006). First, the transcription of the focus group was carefully read and organised prior to data analysis (Ma et al., 2021). The authors immersed themselves in data during this familiarisation phase (Insch and Walters, 2018), taking notes (Braun and Clarke, 2006) and searching for the first inspiring phrases or interesting points. The initial and meaningful phrases, words, or full paragraphs highlighted in the first step were coded and used to extract key information from the text (Ma et al., 2021). Following that, axial coding assisted in recognising group similarity and potential linkages between categories. Finally, the thematic analysis offered the opportunity to code and categorise data into main themes (Saldaña, 2021; Alhojailan, 2012). This analysis used an inductive and deductive approach (Kensbock et al., 2013), thus, the inductive approach generated conceptual themes from the data, which were supported by the extant literature on brand activism and its prodromes. Researchers worked on the data analysis independently (Wang et al., 2021), then the coding process was checked and discussed to identify any typos and the results were discussed in groups.

Results. From the thematic analysis, the following three major themes emerged: brand activism outcomes; familiarity; self-identity. Meaningful insights emerged for the brand activism outcomes, which can be categorised as follows: consumer perceived authenticity, consumer curiosity, brand trust, brand love, brand attachment, consumer boycott, and consumer activism. Authenticity is a key variable in brand activism, and many studies focus exactly on this concept that it must still be operationalised. For instance, the focus group results revealed that an activism strategy is perceived as more authentic in relation to corporate management characteristics or the brand's participation in public events on the subject such as conferences, exhibitions, debates, or seminars. Curiosity is a strong category that has emerged in the theme of brand activism outcomes. Specifically, it appears that a brand that discusses certain issues arouses the consumer's curiosity, leading him to enquire about the topic; this result is evident foremost when the participants discussed issues with which they were unfamiliar. As a result, brand activism actions, even simple declarations, inform the consumer about an issue or prompt him to enquire, raising consumer awareness. Additionally, findings show that a brand engaged in activism with concrete, perceptible, and visible actions, hence perceived as more authentic by consumers generates greater brand trust, brand attachment and even brand love. The construct of the consumer boycott emerged among the categories of brand activism outcomes, i.e., participants declared that they wanted to boycott brands that carried out "negative" activism campaigns because they did not agree with them for the supported topic, the position taken, the type of communication, or the action taken. Finally, among the consequences of brand activism, consumer activism has emerged: an activist brand able to correctly communicate its social commitment, use a correct narrative and engage the consumer in this commitment, would seem to be able to "activate" the consumer himself by generating the phenomenon of "consumer activism".

Our research hypotheses about the personal factors that could influence consumer responses to brand activism seem to be confirmed from these first findings. First, the theme of familiarity emerges strongly, which could be regarded as a significant influencing factor. Indeed, it appears that a high level of consumer familiarity with the issue generates greater attention towards the content of the activist campaign; on the other hand, less familiarity generates less attention towards the content of the campaign, but with very interesting effects. In fact, if on the one hand, a lack of familiarity with an issue generates less attention towards the content of the activist campaign, on the other hand, it appears to increase consumer curiosity about the topic leading them to seek information on the same. In general, greater familiarity with the issue could result in increased brand attachment and, more importantly, consumer activism. Finally, the findings revealed that greater familiarity with the topic increased the brand's credibility in its activist role. Finally, even if in a minor way, the importance of self-identity as a possible influencing factor emerges from these preliminary findings. Greater self-identity with the issue seems to create greater brand attachment and engagement from consumers. A higher self-identity, on the other hand, generates a much more critical judgement towards the brand and its activist campaigns by consumers, consequently, it could be more likely to cause negative brand activism outcomes.

Research limitations. This research, which accounts for the first step in a larger project, has several limitations, which may represent developments for future research. First, from having focused on a specific generational cohort, it follows that the results of this study cannot be extended to other age groups. Furthermore, although the participants had heterogeneous profiles and characteristics, common demographic factors such as occupation and income could greatly influence consumption choices. Second, the sample included individuals of one nationality. Future research could compare studies conducted with samples of different nationalities to understand whether and how cultural differences impact the relevance of personal factors in the response to brand activism campaigns. Third, in addition to the above, the use of a single qualitative methodology could negatively impact the results' generalisability. Future research could exploit the outcomes of this research to structure quantitative studies, such as surveys or experiments, to be submitted to a larger number of participants.

Managerial implications. The present study has both theoretical and managerial implications. Knowing consumers' responses is important for both researchers and practitioners, as it is the basis for addressing firms towards an achievable and better implementation of activism and outlining insights for future research that can make the phenomenon more understandable, measurable, and implementable by brands in a manner consistent with consumers' expectations and the needs of society. From a theoretical standpoint, this study advances knowledge on the construct of brand activism by identifying potential influencing factors and outcomes that can be tested and adopted in future quantitative research. By contrast, from a managerial standpoint, this research highlights some consequences of brand activism, which could be numerous, diverse, and significant. Brand activism can carry relevant risks, such as consumer boycotts; however, if an activism campaign is well-defined and perceived as authentic by consumers, it could generate not only positive business impacts but also significant social effects, resulting in the social change desired by stakeholders and which should be the first goal of brand activism (Korschun, 2021; Moorman, 2020; Sarkar and Kotler, 2018). Besides, this first exploratory study emphasises the significance of factors such as familiarity and self-identity with the issue, which can strengthen or weaken the consequences of brand activism actions, hence, they should be carefully considered and evaluated by brand managers before initiating activism strategies.

Originality of the paper. Brand activism literature is still limited and lacks a comprehensive and measurable construct (Weber et al., 2023; Schmidt et al., 2022; Gulbrandsen et al., 2022; Pöyry and Laaksonen, 2022). To the best of our knowledge, few studies examine consumer responses, and none specifically target Generation Z. This preliminary study appears to be necessary to begin identifying potential variables that will contribute to the development of models for measuring brand activism, useful to both researchers in understanding the phenomenon and brand managers in developing authentic activism campaigns that satisfy the expectations of consumers and civil society in general.

Keywords: brand activism; generation Z; consumer response; authenticity; familiarity; Self-Identity.

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Managing consumer-brand relationships on digital live streaming platform: a comparative study

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Framing of the research. *The use of digital media is radically changing the way consumers interface with the world. This change requires managers to adapt their marketing strategies to meet this new consumer behaviour (Hollebeek and Macky, 2019; Kumar and Gupta, 2016). In fact, the consumer's central role in the decision-making process is even more pronounced in the digital environment, as they can easily give feedback and become part of the value-creation process (Bharadwaj et al. 2013). The ease with which managers in digital platforms can disseminate content becomes an asset for value co-creation strategies with the consumer (Vrontis et al., 2021; Yang et al., 2022). The American Marketing Association (2021) defines digital marketing as using any digital tool for marketing on digital platforms (Krishen et al., 2021). The context in which we live has also pushed many people to spend time online on social media or digital platforms in general. The development of technology and communication systems has led to the emergence of a variety of digital marketing strategies (Tiago and Veríssimo, 2014; Busca and Bertrandias, 2020). This modern approach employs a range of cutting-edge tools including social media, email, applications, search engines, websites, social networks, and digital platforms (Bala and Verma, 2018). Moreover, it is worth mentioning that such tools empower businesses to distribute brand-related content, including photos, images, videos, and audio, among others (Muntinga et al., 2011). Digital content marketing involves disseminating digital content through online platforms to engage consumers, build their trust, and foster brand loyalty (Hollebeek and Macky 2019).*

In particular, live-streaming services are becoming increasingly popular, capturing the attention of various stakeholders (Statista, 2023). Well-known digital streaming platforms include Twitch.tv, YouTube, Facebook, and Vimeo.com. Live streaming can be described as the phenomenon of online content being broadcast in real-time (Wongkitrungrueng et al., 2020). This new phenomenon is similar to what we have become familiar with over time with influencers, in which an actor disseminates content online (Haenlein et al., 2020). The main difference between the influencer and the streamer (the actor performing the live-streaming activity) is that the latter conveys video content in real-time, resulting in more transparency and genuineness to the viewers (Al-Emadi and Yahia, 2020). This entertainment could take the form of a video, image, or a real-time discussion on digital platforms, in which viewers can react and feel as if they are participating in being part of the value creation process (Jodén and Strandell, 2021).

In summary, live streaming activities can be considered as the process in which there is a streamer (i.e. actor/person) that produces content in real-time to entertain viewers (i.e. content consumers) in live streaming (i.e. activities) (Johnson and Woodcock, 2019). These tools are more effective than traditional ones since they are less expensive and can reach more people while being more honest and truthful in communication (Krishen et al., 2021). Moreover, viewers have the possibility to comment, react and participate in creating content giving continuous feedback in real-time, which is vital for managers (Al-Emadi and Yahia, 2020).

From a brand management perspective, even if the digital environment is considered fertile ground for building relationships with consumers and being able to acquire new consumers, it is still a challenging field. Among the greatest difficulties for brand managers are those of creating an online community and establishing a lasting relationship with it (Gummerus et al., 2012; Martínez-López et al., 2017). Groups of individuals who share common interests, beliefs, attitudes, and methods, offline or online, are frequently called "community" (Cova, 1997; Davis et al., 2014; Fariva and Wang, 2022). Advancements in digital platforms and tools have led to the emergence of online communities. These communities are collaborative systems that operate through Internet technology and enable users to produce and interact with user-generated content regardless of their geographic location (Clark et al., 2017; Steinhoff et al., 2019). So, technology plays a crucial role in fostering a sense of community among users by facilitating

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the sharing of similar worldviews and social interactions resulting from common activities (Hawkins, 2017).). Creating attractive content and consumer engagement remains the biggest challenge for brand managers (Ashley & Tuten, 2015). This challenge is mitigated in live streaming as it is the streamer who is in charge of content creation; it remains for brand managers to search for a channel in line with the values they want to convey. In fact, if the streamer gets a large community, this may interest businesses looking to market their brands (Carlson et al., 2019). Creating communities that can engage and prosper on their own on digital platforms is especially important for marketers since it may provide fertile ground for organisations' marketing efforts (Dessart et al., 2015; Clark et al., 2017). Liao et al. (2022) suggest that the challenge of engaging consumers is lessened on digital streaming platforms as it is the streamers, rather than the companies, who are responsible for fostering community involvement (Sun et al. 2019). Streamers are able to engage their viewers through three key dimensions: cognitive, affective, and behavioural (Dessart, 2017). Therefore, brands should focus their efforts on finding a streamer whose community shares similar values and interests, as this will require the most effort.

Therefore, this paper aims to understand how to manage consumer brand-relationship on digital live-streaming platforms. Coherently, our work aims to respond to the following research question:

RQ 1.1: How can digital live streaming platforms be utilised to create and sustain effective brand management strategies?

RQ 1.2: Moreover, what are the antecedents, drivers and consequences that characterise this phenomenon?

Consistent with what is stated above, Figure 1 shows the research design of this paper. The figure shows the digital marketing platform's role in the connection among live streaming, end-user community and the brand strategy. That connection can thrive the value co-creation process among the actor involved.

The structure of the article is organised as follows. Paragraph one introduces and frames the research, which analysed the most recent studies on digital media through digital live stream platforms. It also investigates the role of digital live streams in engaging the community from a brand management perspective. In the second paragraph, the methodology employed to investigate our various cases is elaborated. The third section provides a summary of our initial findings. The fourth paragraph elucidates the limitations of the paper. The paper's theoretical and managerial implications are presented in the fifth paragraph. Finally, the originality of the work is resumed.

Fig. 1: Research design



Source: Author's elaborations.

Purpose of the paper. Live streaming has become a popular tool for businesses to connect with potential consumers in real-time, and it provides an opportunity to engage with them more personally and authentically. Businesses can strengthen brand loyalty, increase customer engagement, and ultimately drive sales by effectively managing their brand's relationship with consumers on digital live streaming platforms.

This paper aims to understand how to manage consumer-brand relationships on digital live-streaming platforms to help businesses and marketers understand how to effectively leverage to build and maintain strong relationships with their target consumers. In this context, "managing consumer brand relationship" refers to a set of strategies and tactics that businesses can use to establish and maintain a positive, meaningful connection with their audience on digital live streaming platforms. These strategies can include things like creating engaging and relevant content, responding to viewer comments and questions in real-time, and using social media to promote live streams and

encourage engagement. Moreover, the work clarifies the antecedent, the driver and the outcome of the live streaming activities is the value creation process.

The objective of the research is twofold. First, to try to understand what the benefits are in the creation of brand management strategies on live stream platforms. Second, to try to understand the process of value co-creation between the actors involved that takes place on a live stream platform.

Methodology. This exploratory study is carried out by adopting a qualitative methodology following proceeding through four stages: (1) research design; (2) data collection; (3) data analysis; and (4) proposing an empirical model. In particular, a multiple case study is based on comparing three brands that are using marketing strategies on digital live streaming platforms (Yin, 2009). The brands that we have selected are Kellogg's, Lavazza and Mulino Bianco. These companies were chosen because they are among the first to have implemented these brand strategies on digital platforms, particularly the Twitch.tv live streaming platform.

Kellogg's is the leading American producer of ready-to-eat cereals and other food products that in 2021 had sales of 14.181 billion.

With a revenue of 2.308 billion euros in 2021, the Italian company Lavazza is one of the major players in the global market for coffee sellers. Mulino Bianco is a Barilla-owned Italian baked goods company that makes snacks and biscuits and had a sales of 3.936 billion euros in 2021. The selected business carried out their branding strategies on the digital platform twitch.tv respectively Lavazza Arena Roblox, Kellogg's Tony Tigro and Mulino Bianco Scacchieri.

We have selected Twitch.tv as a platform that is an Amazon-owned interactive digital platform that enables real-time content broadcasting. The platform has 15 million daily active users and in 2021, Twitch earned about \$2.6 billion.

Several data sources were used to thoroughly understand the phenomenon. The documentation included 1) semi-structured interviews, 2) company documents collected from the official firm website, 3) the official social network page, and 4) the proposed live streaming content. We triangulated data utilising multiple sources of evidence based on this qualitative research approach employing primary and secondary data (Yin, 2003). By comparing data acquired from the interview with data collected from other secondary sources, the validity of the data coding sources was increased (Patton, 1999).

In this work we have collected and analysed data in the following ways: we performed a textual analysis of the case study documents; we compared them to other information received from social networks and the brands' official websites. Using participative observation, the authors watched live streamed content in which brands were involved to study the reactions of consumers/viewers and how the streamers entertained them (Lee and Broderick, 2007). This enabled us to ask more precise questions throughout the interviews in order to elicit more facts and information.

Interviews of approximately one hour were conducted with managers responsible for the digital marketing strategy. The interviews were transcribed and analysed in depth in order to identify the branding strategies used by the managers of the companies analysed.

Finally, we triangulated the data to strengthen the contextuality of our analysis model. Moreover, we analysed the branding strategies adopted by companies on the digital platform to understand the effects on the different actors.

Preliminary results. The evolution of traditional marketing strategies has shifted brands' interest toward digital platforms. From our analysis of selected brands, similar approaches could be seen but with differences in the brands' approach to the twitch platform.

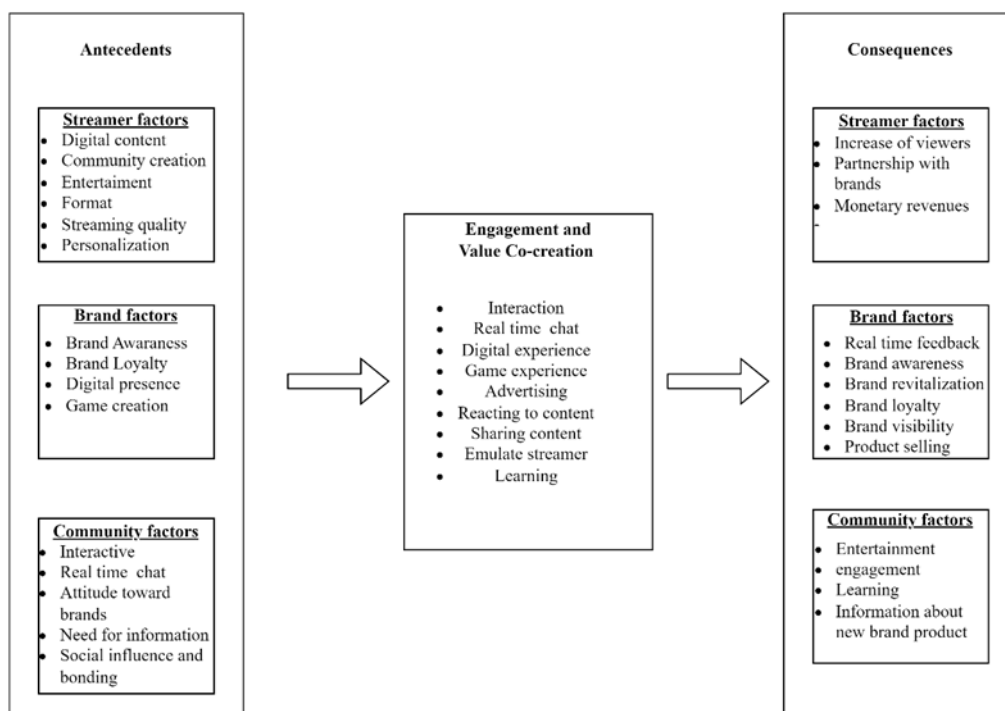
The strategies adopted by Kellogg's were to create an iconic character to perform live on Twitch.Tv. In particular, their famous mascot Tony the Tiger, was used and is the first to work with the video live streaming service Twitch. The live proposals last about two hours, allowing followers to have fun asking Tony things and participating in polls. In addition, Tony the Tiger in the live shows talks about the technology and hardware behind a powerful and functional PC, a tool with which followers connect the most.

The Lavazza case study revealed that the brand suggested on the Twitch platform developed an ad hoc digital campaign to increase customer awareness of environmental sustainability. It achieves so by combining its brand with the development of a game experience offered in a live streaming activity with streamers, which engaged a community that was already concerned about environmental sustainability. The game was created in the metaverse. It is basically a soccer game in which professional streamers and world-class soccer players were involved in the community to increase community engagement on Twitch. In order to get the community more involved, tournaments were organised with streamers and prominent personalities. In conclusion, it can be argued that Kellogg's used his strategies in order to create a show that would entertain followers. Indeed, by transforming its mascot from a drawing to a 'streamer' character, it attracted many consumers curious about this initiative.

Lavazza positioned its brand to enhance its visibility and exposure by promoting itself as a company that could educate the audience through a game experience they were able to access through Twitch's digital platform. In respect of Mulino Bianco's strategy, we could observe how it engaged streamers with an existing community that shared similar values as the brand. As a result, they proposed live-streaming to inform customers about the features and availability of their new product (i.e. Scacchieri). The aim of Mulino Bianco was to entirely carry out an advertising activity on the twitch platform via product storytelling by selected streamers. This action demonstrated how, throughout the live stream, the brand could measure prospective consumers' participation and interest via live chat and directed inquiries from the streamers. Finally, it was able to engage many customers by proposing an ad-hoc produced gaming experience, offered and narrated in live broadcasts by streamers who have a relationship and trust with the community. With these strategies, therefore, Kellogg's, Lavazza and Mulino Bianco were able to engage consumers in a cognitive,

ffective and behavioural way. The results show that the three actors involved in the digital platform all have a role in creating value, and this was found to be key to achieving outcomes. Specifically, the streamer must generate content that may engage, entertain, and engage the community in a way that allows for reciprocal discussion via real-time chat. This phenomenon is supported by the introduction of a novelty, such as a brand-created game experience. During the live broadcast, one may collect real-time data, opinions, and comments that can be used to co-create value for the three stakeholders. The result of the whole strategy has outcomes that target the different actors. Streamers, in addition to having a return in terms of followers/viewers benefit by creating partnerships with brands and a monetary return. The brands gain real-time feedback in addition to the positioning of their brands in a digital channel that has a growing community, thus fostering their awareness loyalty and the possibility of new sales. Consumers/viewers seeing brands positioned in a live streaming channel close to their interests makes them feel related and with similar values. The community on digital platforms has the chance to enjoy fresh and entertaining content, gain knowledge about the game world or social issues (such as Kellogg's and innovation, Lavazza and sustainability, Mulino Bianco and food habits), and stay up-to-date with product launches. The results described are summarised in Figure 1, underlining the relevance of the engagement and value co-creation processes on live streaming platforms supported by some antecedents to reach consequences. In particular, the antecedents of the phenomenon were analysed by looking at the three different levels (i.e. streamer, brand, community) and how they can co-create value with each other resulting in consequences for individual actors.

Fig. 1: Empirical model



Source: Author's elaborations.

Research limitations. The present study has revealed certain significant limitations that can provide a strong foundation for future research endeavours. Despite being an exploratory study that is centered on a particular perspective, the sample size was limited to three Italian companies, thereby limiting the scope of the research. To enhance the validity of the research, future studies could increase the sample size and extend the research to a global context. Furthermore, the research only focused on Twitch's digital platform, and hence, future research could explore other live streaming platforms. Additionally, given that the present study is qualitative in nature, it is recommended that a quantitative study be conducted in the future to identify drivers and variables. Finally, to establish the validity of the conceptual speculations, they are suggested to be applied to other industries as well.

Theoretical and managerial implications. In recent times, digital platforms are changing the lives of consumers and businesses by creating new business models and opportunities for companies. Entertainment on digital platforms, also favoured by the covid and post covid period, has become something that has accustomed people to spending time online in order to search for products and services in an easier and more transparent way.

Despite being in its preliminary stages, this study carries significant implications for both academics and managers. To the best of our knowledge, this is one of the pioneering studies to examine brand management within the context of

digital live streaming platforms. Consequently, this study can serve as a fundamental reference point for future research to develop a more comprehensive understanding of this phenomenon.

In particular, no studies explore the role of digital live streaming platforms in creating and sustaining consumer brand relationships.

Moreover, the study offers valuable insights into the potential of these platforms to facilitate the application of brand management strategies through innovative channels, ultimately engaging more millennials and Gen Z consumers. These findings have promising managerial implications that warrant further exploration and attention.

Originality of the paper. This study investigates the role of digital live streaming platforms in creating and sustaining effective brand management strategies to create consumer engagement. Additionally, the work presents a theoretical framework that illustrates the antecedents, drivers, and outcomes of the process of value co-creation among involved actors, despite being in its early stages.

To the best of the author's knowledge, this study is among the first to study brand strategies on the digital live streaming platform. So this study enlarges the literature about the digital live streaming platform from a brand management perspective. Finally, this study can be helpful for the manager to understand the potentiality of these platforms in creating and sustaining long-lasting consumer brand relationships.

Keywords: Brand Management, Digital platforms, Live streaming, Multiple Case Studies.

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Coping strategies and corrective actions to address consumer vulnerability in the digital context: a systematic literature review

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Framing of the research. *Consumer vulnerability, defined as a temporary situation in which the consumer loses control in market interactions and makes decisions influenced by external factors (Baker et al., 2005), is an important topic. Deceptive business practices trigger consumer vulnerability, prompting consumers to lose control and engage in behaviours contrary to their interests. The prevalence of these practices is wider in the digital world, where the risk for consumers to be deceived is greater. New technologies and virtual reality are tools that can help those in bad faith manipulate consumers and push them to lose control over their choices in market interactions. Concerns have increased even more with the introduction of the metaverse, an immersive virtual world in which the differences with reality are so imperceptible as to make deception easier. In general, then, digitization has made unfair trade practices more common and consumer vulnerability a widespread phenomenon. Therefore, digitization has increased the responsibilities of marketing. Companies, in fact, have a digital responsibility, that is, the responsibility both to take into account the set of values and norms that govern an organization's judgments and choices in the digital context (Lobschat et al., 2019; Herden et al., 2021) and the situations of consumer vulnerability. Companies must, therefore, design strategies to protect the same to prevent potential negative consequences (Liyanaarachchi et al., 2020).*

In the literature, among authors who have addressed the issue of digital consumer vulnerability (e.g., Helberger et al., 2022; Lo Presti and Maggiore, 2021; Strycharz and Duivenvoorde, 2021), Helberger et al. (2022) define it as a universal state of helplessness and susceptibility in the face of power imbalances between consumer and seller. The main factors that trigger consumer vulnerability in the digital context, such as affective and social needs, personality traits, or website design, have been identified in the literature (Liyanaarachchi et al., 2020; Yap et al., 2021; Strycharz and Duivenvoorde, 2021) and the main consequences of vulnerability, such as harmful or compulsive behaviours, skepticism toward technologies, or loss of control (Williams et al., 2017; Batat and Tanner, 2021; Mahapatra and Mishra, 2022). However, vulnerabilities are not necessarily permanent (Helberger et al., 2022). The consumer does not always suffer the consequences of vulnerability, but there are cases in which he or she decides to defend himself or herself and actively respond by engaging in proactive behaviour. In this case, the vulnerable consumer develops so-called "coping strategies" (Kaufman-Scarborough and Childers, 2009; Mahapatra and Mishra, 2022). Few authors in the literature have addressed the issue of coping strategies in the digital context. Kaufman-Scarborough and Childers (2009) defined coping strategies as mechanisms for dealing with consumer vulnerability. Other authors (Batat and Tanner, 2021; Mahapatra and Mishra, 2022; Cloarec, 2022) have dealt explicitly with the topic and identified some coping strategies that the consumer can enact in the digital context, such as, seeking external support, no longer supporting the brand, not completing an online transition, and so on. Other authors (Nadler and McGuigan, 2018; Liyanaarachchi et al., 2020; Fox et al., 2022; Zahrai et al., 2022; Pallant et al., 2022), on the other hand, have identified some defensive actions that consumers may enact, but without identifying them as coping strategies. Therefore, there is difficulty in theoretically conceptualizing the topic and little attention from researchers.

While vulnerability is a state of mind that affects the consumer, it is also true that companies and public institutions are many times responsible for it. Companies often implement deceptive practices that make the consumer vulnerable in the digital; at the same time, vulnerability can be triggered by poor choices or regulations by public managers. However, marketers have a responsibility to protect consumers in the digital context from privacy violations, data misuse, and other unfair practices that cause them to be vulnerable (Lobschat et al., 2019; Liyanaarachchi et al., 2020; Herden et al., 2021). Therefore, consumer vulnerability in the digital context can be seen as a multistakeholder phenomenon. The consumer, who is the one experiencing the vulnerability, is not the only stakeholder involved, but so are companies, public decision makers, and the rest of society. Putting aside the consumer's ability or otherwise to defend himself or herself through coping strategies and proactive behaviour, it is, therefore, also incumbent on other stakeholders to help consumers cope with the state of vulnerability by taking the right corrective actions that can alleviate or avoid the consumer's vulnerability in the digital context. In the literature, some corrective actions have

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been identified that companies could implement, such as educating the consumer or introducing inclusive technologies (Mogaji et al., 2021; Steinmetz, 2021). Public institutions could also alleviate consumers' vulnerability by educating them or introducing new regulations (Nadler and McGuigan, 2018; Batat and Tanner, 2021). Despite this, the literature on this issue appears to be still very fragmented and the results poorly integrated. Moreover, the authors do not consider vulnerability as a phenomenon that involves different stakeholders and, therefore, needs the contribution of all stakeholders to be addressed. The wide spread of the phenomenon of consumer vulnerability in the digital context urges, with urgency, scholars to understand its consequences and to frame the role in a multistakeholder perspective.

Purpose of the paper. The present work aims precisely to identify coping strategies that consumers can develop to protect themselves from vulnerability and corrective actions that can be implemented by other stakeholders involved, such as companies and public managers. This paper seeks to theoretically frame consumer vulnerability in the digital context as a multi-stakeholder phenomenon, involving the consumer, companies, institutions, and civil society at large. In this way, the paper offers an initial outline of strategies that can be adopted by various stakeholders to address vulnerability.

Methodology. This paper uses a systematic literature review to integrate the results of relevant studies on the topic. Systematic literature review, with its reproducible, transparent, unbiased, rigorous, and scientific approach (Cook al., 1997), allows for the identification, extraction, and synthesis of research papers available in the literature (Tranfield et al., 2003). A rigorous research protocol involving three phases was used to conduct the review: a data collection phase, a data cleaning phase, and a data analysis phase. Data collection took place in February 2023 on the Scopus and Web of Science (WoS) search engines, chosen for their broad scope, using a broad search query on the topic to avoid leaving out information important for achieving the research objective. The final search query was “customer vulnerability” OR “consumer vulnerability” AND “digital” OR “susceptibility” AND “digital” AND “marketing” AND (LIMIT-TO (DOCTYPE, “ar”)). The search yielded 341 articles, 309 from Scopus and 32 from WoS. During the data cleaning phase, duplicates (2 articles) were, first, removed and then two screenings were performed. The first screening, based on abstracts, resulted in the exclusion of 275 articles irrelevant to the achievement of the research objectives. In contrast, during the second screening, based on full reading of the articles, 22 articles were excluded that were deemed irrelevant and of little relevance to the research objectives. This systematic process led to the identification of a sample of 42 articles, relevant to the research topic, on which a systematic analysis was carried out. A comprehensive reading of the articles made it possible to extract key information about the coping strategies and corrective actions identified by the authors.

Results. Interesting findings emerge from the systematic literature review. Consumer vulnerability in the digital environment generates consequences that spill over into consumer behaviour. The consequences of vulnerability constitute undesired vulnerability effects that impact on the consumer. These undesirable effects may regard a particular state of mind (e.g. stress, low self-perception, scepticism towards technology) which the consumer suffers due to vulnerability. In other cases, undesirable effects may arise which affect market interactions (e.g. low trust in the company, misunderstandings, compulsive buying behaviour). In both cases, the consumer passively suffers the consequences of vulnerability in the digital context, allowing it to impact on his mood or affect his market interactions. However, the consumer does not remain “unaware” forever, and people who experience vulnerability often develop coping strategies as defence mechanisms (Kaufman-Scarborough and Childers, 2009). In these cases, even though it is true that the vulnerable consumer becomes dependent and not in control, he does however decide to be proactive (Kaufman-Scarborough and Childers, 2009). When the consumer implements coping strategies, he does not passively suffer the consequences but decides to defend himself and react. For most consumers, vulnerability is typically situational and temporary precisely because they eventually develop coping mechanisms to deal with it. However, at the other end of the spectrum there are individuals with enduring vulnerability, such as those with lifelong cognitive disabilities, who in some cases lack the ability to defend themselves (Batat and Tanner, 2021). Therefore, consumers who do not have pre-existing vulnerabilities upon becoming aware of the deception often adopt strategies to react, neutralize and resist deceptive marketing practices (Table 9).

Tab. 9: Coping strategies

Coping strategies	Authors
Seeking social support	Mahapatra and Mishra (2022)
Seeking outside help (es. Friends and family)	Fox et al. (2022), Zahrai et al. (2022), Kaufman-Scarborough and Childers (2009)
Gather information online	Batat and Tanner (2021)
Mental disengagement	Mahapatra and Mishra (2022), Liyanaarachchi et al. (2020)
Seek further assistance before completing the online transaction (e.g., telephone support)	Kaufman-Scarborough and Childers (2009)
Use of Tor and the blocking of ads	Nadler and McGuigan (2018)
Lack of intention to repurchase	Kursan Milaković (2021)
Stop supporting the brand	Pallant et al. (2022)
Moving away from the market	Kaufman-Scarborough and Childers (2009)
Not completing transitions	Kaufman-Scarborough and Childers (2009)
Falsification of information	Cloarec J. (2022)

Source: our elaboration

In the phenomenon of digital consumer vulnerability, the consumer is not the only stakeholder involved. The consumer is certainly the one who suffers digital vulnerability, but companies, public institutions and society in general are also involved in the phenomenon.

In fact, that not all factors that trigger vulnerability concern the individual and personal characteristics of the consumer. There are also trigger factors that derive from unethical and irresponsible behaviour on the part of company managers (e.g. data breaches and misuse) and of public institutions, whose behaviour could cause certain factors (e.g. economic problems) that trigger vulnerability in the consumer. Therefore, it is necessary to involve all the social actors, to engage in a broader and more open conversation about vulnerability and its impacts (Batat and Tanner, 2021). For business managers and policy makers it is essential to implement strategies and corrective actions to alleviate or eliminate consumer vulnerability in the digital context. Several corporate strategies can be used to support consumers and enable management to take a stronger lead in preventing and alleviating hardship for their consumers and society in general (Glavas et al., 2020). The literature examined has highlighted some conceivable corrective actions that company managers could implement. First of all, the company should adopt a radical change and embrace a consumer orientation (Zhang et al., 2022), making him the centre of the entire decision-making process (Liyanaarachchi et al., 2020). In fact, for the company, it is essential to help consumers make the right decisions, without errors, and to protect their well-being (Mahapatra and Mishra, 2022; Batat and Tanner, 2021). In particular, this research classifies corrective actions and groups them into three broad strategies that managers should follow: educate and inform the customer, guarantee technological support and improve privacy policies. These are the three avenues' companies should take to alleviate or eliminate consumer vulnerability. First of all, the company must engage in educating and informing consumers, to prevent them from becoming victims of deception and manipulation. It is essential to ensure transparency and clarity in the information on the products/services on sale to allow the consumer to make the right decisions (Batat and Tanner, 2021; Pallant et al., 2022). Furthermore, the consumer must be educated on how to improve their online shopping experience, on the security risks (Steinmetz, 2021; Kursan Milaković, 2021) and on how to improve digital literacy in general (Batat and Tanner, 2021). The second way to alleviate digital consumer vulnerability is obviously to offer technological support to consumers; please note that the use of technology is one of the main triggering factors in digital consumer vulnerability. First of all, they need to invest in cybersecurity to strengthen digital security (Mani and Chouk, 2018) and introduce new consumer protection mechanisms (Liyanaarachchi et al., 2020). The company could also create online chat rooms and forums to connect all consumers, so they can support each other and exchange information. Furthermore, they must inform the consumer, for example through advertising campaigns, about the addiction that technology could generate (Del Bucchia et al., 2021) and reassure users about the use of new technology (Mani and Chouk, 2018). Finally, the company should improve and strengthen its privacy policies so that consumer concerns would be alleviated (Liyanaarachchi et al., 2020). The company could activate periodic monitoring of the privacy problems of its customers (Guo et al., 2022) and ensure a personalized privacy policy (Guo et al., 2022) so as to offer fair treatment and contribute to inclusion (Mogaji et al., 2021).

Below is a summary table of the research results.

Tab. 9: Corrective actions for responsible companies

Strategies	Corrective actions	Important authors
Educate and inform the consumer	<ul style="list-style-type: none"> - Staff training on safeguarding the consumer - Show users personal statistics on the use of social media - Greater transparency and control - Make educational videos available - Educate the consumer on how to improve his online shopping experience and on the security risks - Improve digital literacy 	Walker (2016), Glavas et al. (2020), Steinmetz (2021), Muñoz-Mazón et al. (2021), Kursan Milaković (2021), Batat and Tanner (2021), de la Cuesta et al. (2022), Zahrai et al. (2022), Pallant et al. (2022),
Technological support	<ul style="list-style-type: none"> - Online chat rooms and forums between consumers - Virtual tours of the products - Traceability of the orders - Platforms dedicated to the management of complaints - Map of the site - Inclusive technology - Inform consumers on the dependency that technology can generate - Invest in and reinforce cybersecurity - Communication strategies that reassure users on the use of IoT - Design assistance software 	Walker (2016), Mani and Chouk (2018), Liyanaarachchi et al. (2020), Mogaji et al. (2021), Del Bucchia et al. (2021), Mogaji, Soetan and Kieu (2021), Mahapatra and Mishra (2022), de la Cuesta et al. (2022)
Privacy policies	<ul style="list-style-type: none"> - Periodic monitoring of privacy problems with the clients - Personalised privacy policies - Ethical adoption of AI in the collection of data - Differentiated approach in the use of data - Strengthening of privacy policies for equal rights and to contribute to inclusion - Reduce privacy concerns 	Liyanaarachchi et al. (2020), Mogaji, Soetan and Kieu (2021), Guo et al. (2022), Pallant et al. (2022), Gao et al. (2022)

Source: our elaboration

Public policies should also implement corrective actions to safeguard the consumer and alleviate his vulnerability. Policy makers should ensure ethical business conduct and customer welfare (Mogaji et al., 2021). With the introduction

of new technology, consumer sharing of information is a long-term ethical issue for individuals and society as a whole, but it can be mediated if marketing and public policy managers implement an authentic education policy and effective regulation to increase awareness and reduce uncertainty (Walker, 2016). It is precisely on these two fronts that policy makers should act: regulatory support and consumer education. Global and national regulators have attempted to introduce strategies to reduce digital consumer vulnerability but they have not always worked (Zahrai et al., 2022). For this reason, new national and international regulatory responses are needed (Muñoz-Mazón et al., 2021; Nadler and McGuigan, 2018). Both regulatory and self-regulatory actions are needed that are however easy to use and implement for the business (Walker, 2016). Regulations should have the aim of safeguarding the consumer in the digital context, therefore it would be useful to regulate the digital choice architectures where the consumer navigates and where power imbalances are generated daily (Helberger et al., 2022). It is also necessary to impose consolidated standards on public and private companies to ensure safe and inclusive accessibility of the websites; to this end, funds and deductions could be granted to companies that incur costs for these purposes (Kaufman-Scarborough and Childers, 2009). Finally, there is a need to improve the privacy regulations (Guo et al., 2022; Mogaji et al., 2021) and strengthen consumer rights in the EU (Strycharz and Duivenvoorde, 2021).

The other road to take regards consumer education; to prevent them from being manipulated in the digital environment it is essential to educate users about online risks (Batat and Tanner, 2021), cyber security (Morrison et al., 2020), the influence of online marketing (Kennedy et al., 2019) and on data sharing (Walker, 2016). Education on this subject must be made compulsory first at school through specific programmes (Kennedy et al. 2019) and then continue at university level (Robson et al., 2017).

Below is a summary table of the research results

Tab. 10: Corrective actions for institutions

Strategies	Corrective actions	Important authors
Regulatory support	<ul style="list-style-type: none"> - National and international normative solutions - Business-friendly self-regulatory and regulatory dispatches - Strengthen UE consumer rights - Regulations for digital choice architecture to avoid power imbalance - Privacy policies that guarantee transparency, control and protection - Compulsory standards for web site accessibility - Guarantee funds or deductions for companies that sustain costs associated with online accessibility 	Kaufman-Scarborough and Childers (2009), Walker (2016), Nadler and McGuigan (2018), Muñoz-Mazón et al. (2021), Strycharz and Duivenvoorde (2021), Mogaji et al. (2021), Helberger et al. (2022), Guo et al. (2022), Riefa (2022), Ong et al. (2022), Gao et al. (2022)
Education	<ul style="list-style-type: none"> - Educate consumers to keep back personal information - Support and money management sessions organized by the universities - Greater knowledge and understanding of the risk of fraud (e.g. through the use of educational games) - Compulsory school programmes dealing in the influence of online marketing - Support forum - Cyber security formation schemes - Programmes and education policies to promote digital well-being and the awareness of the risks to be found online 	Walker (2016), Robson et al. (2017), Fenge and Lee (2018), Kennedy et al. (2019), Morrison et al. (2020), Batat and Tanner (2021)

Source: our elaboration

In the light of what has been said so far, it is now possible to consider digital consumer vulnerability as a multi-stakeholder phenomenon, which involves not only the consumer, but also company managers and policy makers. According to Helberger et al. (2022), digital consumer vulnerability is relational, in that the consumer is not vulnerable alone, but is often vulnerable in relation to others. Therefore, it is the consumer’s relationships with all the stakeholders involved in the process that make him vulnerable. Obviously, corporate managers have an enormous responsibility towards consumers, because vulnerability arises precisely from an imbalance of power between the seller and the consumer (Helberger et al., 2022); if company managers limited this imbalance, through the corrective actions seen above and a more ethical and responsible behaviour, the consumer could be fully or partially safeguarded. Politicians and institutions have the same responsibility as business managers. Therefore, they could on the one hand support companies in the adoption of digital protection systems and on the other hand support the consumer by strengthening his rights and educating him on the risks he runs in the digital world.

Research limitations. The first limitation of the research consists in having examined only scientific, English-language articles, excluding volume contributions and other scientific material, with the risk of having left out information useful for achieving the research objective. The second limitation is the impossibility of generalizing the research results. Consumers’ behaviour and ability to defend themselves may vary due to individual and contextual

differences. In addition, the general results do not highlight the possible differences that may emerge in consumer vulnerability depending on the digital platform being used. These differences may push companies to manage vulnerability differently.

Managerial implications. The results of this paper show what coping strategies and corrective actions, identified in the literature, can be developed by the various stakeholders involved in the phenomenon to alleviate or avoid vulnerability. Understanding how to manage and cope with vulnerability in digital contexts is crucial both for consumers, who are victims of this phenomenon, and for companies and public institutions, which are often responsible for consumer vulnerability. Therefore, this paper aims to frame digital consumer vulnerability as a multi-stakeholder phenomenon so that it can be carefully managed by companies and public managers. The research aims to bring attention to the issue to spur companies to manage the phenomenon more responsibly, suggesting corrective actions for decision makers to implement to alleviate or avoid consumer vulnerability in digital contexts.

Originality of the paper. The review contributes to studies on digital consumer vulnerability and marketing responsibility in the digital age. The research also allows vulnerability to be seen as a multistakeholder phenomenon, as it involves the consumer, the company, institutions, and the entire community. Therefore, the responsibility for such digital vulnerability falls not only on marketing, but also on institutions and civil society. In addition, the paper makes it possible to integrate findings from previous research and identify coping strategies that consumers can develop to defend themselves and react in the face of deceptive business practices that could make them vulnerable. In addition, for the first time, all the remedial actions, identified in the literature, that can be implemented by companies and public decision makers to alleviate or avoid consumer vulnerability in the digital context have been compiled. Beyond the many theoretical contributions that make the paper original, the real originality of the paper lies precisely in the great topicality of the topic. The increasing use of digital platforms and new technologies, including the metaverse, creates the need to address the topic, thus opening the door for future research as well.

Keywords: digital consumer vulnerability; responsible marketing; consumer behaviour; coping strategies; corporate social responsibility; systematic literature review

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The Benefit Factor: Understanding the Role of Benefits in In-Game Advertising Consumers' Responses

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Framing of the research. *Within a context in which digital games an increasingly important role, gaming is benefiting by spreading into popular culture (Hamari and Sjoblom 2017), also becoming a platform that pave the way for new opportunities for brands. Obviously, this has led to an increasing interest among brands in exploiting the popularity of video games to promote their products or services. By integrating branded content within video games, brands can reach their target audience in a more engaging and interactive way, resulting in higher brand recall and recognition (Besharat et al., 2013; Chaney et al., 2018).*

Moreover, if we also consider the fact that consumers spend around 13 hours per week on social media and 12 hours per week on video game platforms, it's clear that active engagement with entertainment is on the rise (Newzoo,2022). Gen Z consumers, in particular, spend more time engaging with games and virtual worlds than on TV, indicating that younger generations are seeking more creative styles of engagement. In fact, nearly three-quarters of Gen Z consumers actively create digital content. As a result, brands are seeking to forge impactful partnerships within the gaming industry, such as HBO's adaptation of The Last of Us and live events hosted by Fortnite and Roblox (Newzoo,2022). Through the embedment of a branded content in a digital game, advertisers expect to have an impact on cognitive, affective and conative consumers' responses (Martí-Parreño et al., 2017). Furthermore, with the rise of the metaverse and the expansion of video games toward virtual reality (VR), we can expect even richer engagement opportunities for consumers and brands alike (Dwivedi et al., 2022).

Although the coupling between product placement and video game is not a whole new topic, it is also true that video games have changed their role. Thus, in-game advertising (IGA) may represent a revolutionary concept that has the potential to change the way we think about advertising. IGA has grown in popularity in recent years as these platforms have become even more popular and immersive, such as metaverse, unveiling a great potential (Chaney et al., 2018; De Pelsmacker et al., 2019).

Imagine being fully immersed in a virtual world in which you are completing quests, and exploring new lands, when suddenly a virtual billboard appears on the side of the road promoting the latest energy drink that maybe purchased in-game and help your character in recovering stamina. This type of advertising is not only more engaging and memorable, but it also allows for a more targeted audience (Tran and Strutton 2013).

IGA can assume different formats, from product placement within the virtual game environment, to banner or video advertisements that may appear during loading screens or as pop-up notifications.

With marketers and game players acting as the actors and the game serving as the mediator, IGA provides a different type of two-sided market (Herrewijn and Poels 2013). Traditional IGA such as static virtual billboards (as in FIFA 23) or in-game product placements, is static and akin to product placement in television shows or motion pictures (e.g., the Monster energy drink placed in Death Stranding). Instead, a dynamic in-game advertising allows marketers to modify adverts via the Internet to fit geographical areas, time points, or players' in-game behavior, allowing them to run time-critical and cost-effective campaigns (Yoon, 2019; van Berlo et al., 2022)

In recent years, several studies have been conducted to understand the role of IGA in shaping consumer responses and purchasing behavior (Herrewijn and Poels, 2015; Verberckmoes et al., 2016; Dardis et al., 2018; Wang and Chou, 2019). The effectiveness of in-game advertising may depend on the characteristics of the game (Dardis et al., 2018) and the advertisement, as well as the players (van Berlo et al., 2022). Moreover, congruity and intrusiveness have a significant impact on consumer attitude towards IGA: advertisements that are congruent with the game environment are likely to be more effective as they are perceived less intrusive, favoring brand attitude and purchase decision (Verberckmoes et al., 2016; Hussain et al., 2022).

Although research contributions have increased in recent years to expand knowledge on the topic, there are also several challenges and considerations to be aware of in placing branded content in a video game, as the overall effect of IGA on consumer responses is small and varies substantially between studies (Ingendahl et al., 2023).

As motivations for playing video games involve escapism, social interaction, gratification, etc. (Cheah et al., 2022), elements that intercede with the gaming activity may result in negative effects on the motivation itself dropping them. In

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this vein, an advertised content incorporated into the game environment may be potentially more subtle and less intrusive to the viewer. If it were not so, then it would result in a psychological reactance (PR) that come out as a result of invasiveness perception of an advertisement by consumer (Brehm and Brehm, 1981; Brehm, 1966). Non-skippable online ads are an example, as consumers may perceive them a kind of forced intrusions or a threat to their freedom (Amarnath & Jaidev, 2021). Thus, an individual that perceives a branded element as an obstacle to their ability to enjoy the game, is likely to reject the advertising content as well may have negative attitudes towards brands that are perceived as too controlling or manipulative (Brehm and Brehm, 1981; Tran and Strutton, 2013).

According to the PR theory, previous research have shown that in-game advertisements (IGA) that are perceived as intrusive or disruptive to the gameplay experience may also trigger psychological reactance in players, leading to negative attitudes towards the game itself and the advertised brand (Malhotra et al., 2021). This because, interruption by an advertisement can be associated with invasiveness and feelings of annoyance, leading players to try and bypass such advertisements.

Conversely, if an IGA is perceived as entertaining, congruent with the game, or providing a benefit to the player's performance, it may attract their attention and create a positive response (Vashisht and Chauhan 2017). Although there is rapid spread of video games and an increasing interest towards this topic, the research is still at a preliminary stage as the technological advancement of games has become very rapid in recent years, opening up various opportunities for brands.

In addition, research contributions focused on consumer responses have mostly investigated the effects that in-game advertising content generates on individuals' memory and recall abilities toward brands, as well as their perceived intrusiveness and attitude (Herrewijn and Poels 2015; Chaney et al., 2018; Hussain et al., 2022; Ingendahl et al., 2023). However, they have not considered the benefits that consumers may derive from in-game sponsored branded content, as discussed by Rialti et al., (2022) in-app purchases. This makes IGAs an area of research yet to be explored.

In order to study the video game players' behavior, most research has relied on the Uses and Gratification Theory (U>) (Kaimann et al., 2018). U> (Uses and Gratifications Theory) suggests that consumers engage in media activities to satisfy a range of socio-psychological needs, which can be classified into five main categories: cognitive, personal integrative, social integrative, and hedonic (Nambisan and Baron 2009; Verhagen et al., 2015). These needs involve using media for acquiring relevant information, fulfilling personal goals such as reputation or self-confidence, building relationships and interacting with others, and finding pleasure and entertainment (Rialti et al., 2022).

Initially developed to study consumer motivation and usage of traditional mass media, such as television, U> has also been adopted to explain the motivation and benefits derived from various digital media, including user-generated content (Shao, 2009). This theory has been widely applied to investigate diverse consumer behaviors, such as participation in online communities, adoption of food delivery apps, co-creation of value in innovation-based brand communities, motivation for browsing social media pages, and luxury brand social media pages (Nambisan and Baron 2009; Verhagen et al., 2015; Ray et al., 2019; Zollo et al., 2020). By identifying and addressing the socio-psychological needs of their target audiences, companies can create more engaging and relevant media content appealing to their consumers.

Furthermore, the U&G theory has been applied in mobile gamified ads by Rialti et al., (2022), which investigate their impact on consumer's benefits and in-app purchase intention. In examining the role of benefit they found that a gamification experience of an advertised content in mobile app may favor in-app purchases but this relationship is mediated by several variables as perceived consumer-benefits, their attitude toward advertising, and the perceived advertising effectiveness. Thus, to create an effective advertising, it should be able to elicit a set of benefits dimensions which refer to social, personal, hedonic and cognitive, as well as be congruent with the context in which the branded content is embedded.

However, they investigate the role of benefit only in relation to purchase while not considering its role in consumers' perception of intrusiveness and attitude to be exposed to in-game advertisements, thereby providing opportunities to study possible different outcomes (Rialti et al., 2022). In addition, since greater entertainment and interactivity may positively foster brand perceptions (Terlutter and Capella 2013), an extension of the research context towards game environments connoted with different characteristics that may affect the entertainment is worthy (Rialti et al., 2022).

Purpose of the paper. The purpose of this research is to investigate the responses of consumers who are exposed to different types of advertising elements and how IGA may be embedded in a beneficial and non-intrusive way to avoid reactance.

In this perspective, building on Use and Gratification Theory (UGT) and Psychological Reactance Theory (PR), the research wishes to explore how consumers' experience deriving from the exposition to a variety of IGA could contribute to the consumers' benefits perception and to the perception of intrusiveness. Moreover, their attitude in being exposed to advertising content during the gameplay is also investigated. In specific, we develop three interwoven research questions:

- RQ1. Does IGA congruity and interactivity influence consumers' perceived benefit of an IGA?
- RQ2. What is the role of consumers' perceived benefits in affecting IGA attitude?
- RQ3. Does the perceived benefit influence the perceived intrusiveness of an IGA?

By answering the question this ongoing research project aims to investigate the complex relationships between congruity and interactivity, benefit, reactance, and attitude in the context of digital advertising in videogames. These variables have been studied in previous research, but little attention has been given to the benefit that a videogame player may perceived during the game experience.

Perceived benefit refers to the positive outcomes or rewards that users expect to receive from interacting with a particular advertisement. These benefits can take many forms, such as increased knowledge, entertainment, or even monetary rewards or receive personalized offers and promotions based on their interests and preferences. Previous studies have suggested that the perceived benefit of mobile advertisement can influence a user's attitude towards the advertisement, which in turn can affect their purchase intentions and actual behavior (Ham and Nelson 2016; Kurtz et al., 2021).

Thus, we aim to investigate the mediating role of perceived benefit in the relationship between congruity and interactivity, reactance, and attitude. Congruity refers to the degree of fit between the advertisement and the context in which it is presented, while interactivity refers to a behavioral element of a users' actions, as they can interact with the surrounding environment in which they are located (Flavián et al., 2019). Reactance refers to the negative reactions that users may have when they feel that their freedom or autonomy is being threatened.

By investigating the mediating role of perceived benefit, we intend to gain a deeper understanding of how these variables interact with each other in the context of digital advertising within a video game. Specifically, we expect that the perceived benefit of interacting with an advertisement will play a key role in determining users' attitudes towards the advertisement and their subsequent behavior. Ultimately, this research may have important implications for advertisers and marketers who are looking to create more effective digital advertising campaigns.

Methodology. The research adopts a 2 (IGA Congruity: high vs low) x 2 (IGA Interactivity: high vs low) between-subject experimental design in which congruity and interactivity are manipulated.

The main dependent variables that will be studied include the perceived benefit, perceived intrusiveness, and the attitude towards IGA. To study these relationships, respondents are exposed to different visual stimuli representing different types of advertisements within the game *Grand Theft Auto V* (GTA). We selected GTA as represents a realistic scenario that can be compared to real-life situations, which can help to better understand the impact of branded content on players. Additionally, the open-world gameplay mechanics of GTA make it an ideal candidate for studying how players interact with branded content in immersive, nonlinear game environments.

The study is carrying out thought the administration of a questionnaire composed by six parts, each aimed at studying each variable mentioned above.

In the first part of the questionnaire, respondents will be asked to answer a couple of question about their knowledge about the video game selected and their level of expertise. Furthermore, they will be randomly assigned respondents to one of four scenarios characterized by different condition of congruity and interactivity (high - low).

For each of the four scenarios, respondents will be exposed to visual stimuli in which different types of in-game advertising are depicted, which include both product placement and billboard advertising as a component of the game context. In each of the subsequent sections of the questionnaire, where the effects of the variables are investigated, assessments of each are made on a Likert scale of 1 to 7 (1= "Not at all agree"; 7= "Completely agree").

In the second part of the questionnaire, respondents will be asked to give their opinion on the perceived level of congruity between the advertised content of the scenario and the game theme. The congruity is studied based on the scale adopted previously by Speed and Thomson (2000) and Verberckmoes et al., (2016).

In the third part, we asked respondents to state their degree of interactivity based on four items adapted from Lee et al., (2014) (e.g. "I can interact with the advertised product in the game). In the fourth part, we investigate the benefit perceived based on items adapted from Nambisan and Baron (2009), which consider different dimension of benefit: cognitive, social, personal, and hedonic.

Furthermore, the fifth part is dedicated to the perception of intrusiveness of in IGA that may lead to a psychological reactance (Malhotra et al., 2021) relying on Li et al., (2002) scale, which include items as "The advertisement is intrusive" or "The advertisement invades the game experience". Lastly, based on Fortin and Dholakia (2005), respondents are assessed on their attitude towards IGA.

Results. The research is still in its early stages since data have to be gathered. Yet, we may discuss about our expected outcome.

First of all, we expect that an IGA with high congruity may be perceived as helpful for the game's advancement and are considered more beneficial, as fulfilling the cognitive and hedonic needs of players. In fact previous research demonstrated that having ads which is congruent with the videogame context has significant effects on how successful they are at generating positive consumer outcomes (Wang and Chou 2019). Conversely, when an IGA is perceived as incongruent with the game, it may be seen as disruptive to the gameplay experience and therefore not fulfilling any needs. This can lead to negative attitudes towards IGA itself.

Moreover, previous contributions have shown that interactivity positively promotes the purchase of virtual items and usage patterns (Wang et al., 2019) has a benefic effect on consumers, favoring the perception of informativeness (Ott et al., 2016) and attitude towards IGA (Vashisht and Chauhan 2017). Consequently, it is plausible to assume that interactive advertising content has a positive impact on consumers' perceived benefit and attitude towards IGA. Within this relationship we expected that the benefit perceived by consumers play a mediator role as when consumers have a higher interaction with products their attitude positively benefits (van Berlo et al, 2021). Ultimately, when a user perceives a positive benefit, we expect that they will perceive the advertising content as less intrusive and thus

psychological reactance will not be generated. Based on previous research, we expect this effect to be stronger for scenarios in which users are exposed to advertisements congruent with the game theme (Verberckmoes et al., 2016; Pelsmacker et al., 2019).

Research limitations. This research has some limitations which could be used as hints for future studies. A first limitation is the game context, which limits its generalizability, as game characteristics influence consumers' responses to IGA. Therefore, it would be interesting to evaluate other types of games as well, including assessing different levels of interactivity, such as virtual reality, which could change the effect of other variables.

Subsequently, future research could delve into consumers' responses to IGA through a qualitative methodological approach, as the large body of studies has been predominantly quantitative (van Berlo et al., 2022).

Managerial implications. For advertiser, to consider these characteristics of an IGA is important to cope with players acceptance, as they may resent being interrupted by ads during their gameplay perceiving ads as intrusive (Tran and Strutton 2013; Verberckmoes et al., 2016). This, results in a psychological reactance as the interactive nature of digital advertisements might be irritating and provide an overwhelming volume of information (Stewart and Pavlou, 2002). Thus, it becomes important to be able to understand how branded content can be placed within video games. Therefore, investigating consumer responses to certain advertising stimuli within a game becomes strategic for practitioners to collimate the need of brands to use new communication channels to engage consumers, with that of users to avoid invasive content.

Originality of the paper. Given that the existing literature has only partially examined the role of perceived benefit in in-game advertising through this work we intend to make step forward providing empirical evidence of the role of the benefit perceived in affecting the perceived intrusiveness and the attitude, in a different context in which characteristics may affect the involvement as suggested by Rialti et al., (2022). Furthermore, the potential for GTA's open-world gameplay mechanics to be transposed into the metaverse makes it an even more relevant example to study. As the concept of the metaverse continues to gain traction and become more mainstream, understanding how branded content can be integrated into immersive virtual environments will be increasingly important for marketers and game developers alike (Dwivedi et al., 2022).

Keywords: in-game advertising, product placement, psychological reactance, brand attitude

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The rise of Virtual Influencers: Bizarrely realistic or scarily uncanny?

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Framing of the research. *The emergence of Web 3.0 has triggered a paradigm transformation in endorser marketing. The convergence of social media and artificial intelligence (AI) technologies is reshaping the way brands and consumers engage with endorsers.*

Traditionally, endorsement marketing is the practice of acquiring experts or individuals with a high reputation, namely “celebrities”, to promote brands’ products or services to others (Liu et al., 2020). Their effectiveness has consistently contributed to positive outcomes in terms of customer attitudes, intentions, and behaviour (Arora et al., 2021). However, the rise of social media represented the first disruptive shift in how marketers engage celebrities. In the last decade, a new phenomenon of so-known “influencers” has begun to outclass traditional celebrities and dominate branding and marketing communication (Feng et al., 2021). According to Ki and Kim (2019), an influencer is an independent, third-party endorser who built a vast social network by publicly expressing opinions. More specifically, an influencer is a specialist in using online presence to promote products or services to the audience, in exchange for compensation from brands or companies (Campbell et al., 2022).

Although traditional influencers are widely recognized, the newest wave in brand communication is to leverage “nonhuman alternatives to traditional celebrity endorsers” (Thomas and Fowler 2021: 11). Prada, Calvin Klein, and Hugo Boss are just some of the most fervent adopters of virtual influencers, who have successfully engaged social media to promote their products and brand reputation (Sands et al., 2022). According to Thomas and Fowler (2021), AI or digital influencers - well known as virtual influencer - are computer-created characters or personas with human features, traits, and personalities that are designed to look and behave like real-life human influencers for the sake of influence. While Arsenyan and Mirowska (2021: 2) refer to virtual influencers as “agents augmented with digital avatars, designed to look human”.

In this regard, Choudhry et al. (2020) acknowledge that virtual influencers are not just restricted to highly human-like representations, but they may differ depending on the extent to which they resemble humans. Therefore, Choudhry et al. (2020) have classified virtual influencers by encompassing those with both human and non-human appearances into these distinct categories: (i) Non-Human, designed without a human identity, instead frequently that of an animal; (ii) Animated Human, designed in the likeness of a human being but as an animated, anime, or cartoon character; (iii) Mimic-Real Human, visually indistinguishable from a human.

The purpose of virtual influencers is akin to traditional influencers, especially in terms of advantages, popularity, status, personality and interactions (Arsenyan and Mirowska, 2021). In this sense, influencers exert their influence via content they create for their followers, while acting as opinion leaders capable of shaping consumers’ decisions (Shan et al., 2019). They have typically a large audience (Taillon et al., 2020), are specialized in a particular niche or product category (Campbell et al., 2022), tie a trustworthy and two-way communication with followers (Boerman and Van Reijmersdal, 2020), and share self-generated content (Karagür et al., 2022). Thus, they balance their advertising content with realism and expression of ordinary routine to enthrall their followers by turning them into narrative advertising, sponsored entertainment and credible EWOM (Breves et al., 2019; Ye et al., 2021).

Although virtual influencers share the same attributes as traditional ones, they present a unique array of advantages.

When it comes to benefits, they provide a balance of flexibility, exclusivity, innovation, and safety, which traditional influencers may struggle to achieve due to the limitations of physical presence (Conti et al., 2022). In terms of flexibility, they are leveraged for promotional purposes in a wide range of settings and times. Due to their adaptability, virtual influencers are unconstrained and able to continue creating innovative content even during times of confinement, as is also demonstrated by the Covid-19 pandemic (Conti et al., 2022).

Furthermore, brands may create or commission virtual influencers to promote their products, which enhances the credibility and authority of their endorsement (Yan et al., 2022). In some cases, virtual influencers are tailored to mirror the brand’s image and values (Sands et al., 2022), serving as organizational stakeholders that perform specific

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functions such as advertising campaigns and strategic communication. By collaborating with virtual influencers, companies avoid the unpredictability often associated with traditional influencers' behaviour (Conti et al., 2022). In addition, virtual influencers lend the company a greater brand reputation, as their implementation establishes the company as forward-thinking and technologically advanced in the eyes of users (Conti et al., 2022). Among other advantages, Thomas and Fowler (2021) highlighted that virtual influencers leverage artificial intelligence technology to maintain uninterrupted interaction with their audience (Thomas and Fowler, 2021).

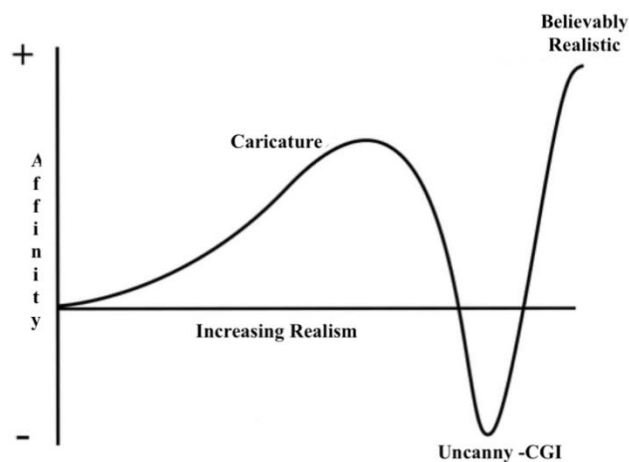
Despite virtual influencers offering an innovative approach to endorsement, they may still receive negative perceptions from certain segments of their audience (Arsenyan and Mirowska, 2021; Lou et al., 2022). This aspect was further highlighted in a recent study on virtual influencers, where a participant's comment "Bizarrely realistic. This online person looks so real... If you think about that... It's kind of scary" (Wortelboer, 2022: 28), supported the notion that the high degree of similarity to human evoke uncanniness.

While virtual influencers may strongly resemble human traits, they are not representative of any real-world human being (Moustakas et al., 2020), leading to confusion among users who may mistake them for traditional influencers (Franke et al., 2023). According to a recent report, 42% of Generation Z and Millennials follow an influencer without recognizing that the profile is virtual (Kim and Park, 2023; Chowdhary, 2019). This is likely due to the remarkably high level of humanization that virtual influencers exhibit, rendering them indistinguishable from human beings (Kim et al., 2023).

In this vein, anthropomorphism is the practice of imbuing non-human beings with human characteristics, desires, and ambitions in order to present them as more sentient (Zhu and Chang, 2020). In fact, this process exceeds merely adopting physical features, assigning human qualities such as consciousness, intentionality, cognitive processing, emotional experiences, and behavioral traits to nonhuman entities (Blut et al., 2021). However, the degree to which virtual influencers exhibit these human features may impact how they are perceived by audiences. Wiese and Weis (2020) suggested that Mimic-Real Humans, or High-humanized virtual influencers, are frequently perceived more negatively compared to Animated Humans, or Low-humanized virtual influencers, and Non-human or Non-humanized virtual influencers.

To well express this concept, we introduce the Uncanny Valley Theory which posits that individuals experience a negative emotional response when faced with an object or entity that resembles a human being (Mende et al., 2019; Mori, 1970). While entities and objects that bear a resemblance to humans can be tolerated up to a certain point, if the degree of similarity exceeds what is considered acceptable due to inconsistent realism or atypical features in the stimuli, they become "uncanny." This sense of uncanniness can unsettle observers and impact their sense of well-being (Lou et al., 2022; Mori, 1970) (Figure 1).

Fig. 1: Mori's graph of the Uncanny Valley Theory (Seymour et al., 2017). The graph shows the Uncanny Valley and the non-linear relationship between increasing realism and the affinity to an entity.



Recent studies have investigated followers' relation to virtual influencers relying on the Uncanny Valley Theory as a framework (Arsenyan and Mirowska, 2021; Block and Lovegrove, 2021; Lou et al., 2022; Yang et al., 2022). According to Arsenyan and Mirowska's study (2021), which examined user comments and reactions to virtual influencer posting, followers had more negative reactions to virtual influencers that appeared too human-like, as opposed to those that resembled more like anime characters or human influencers. Instead, Lou et al.'s (2022) study occupies a middle ground between providing evidence for the Uncanny Valley Theory and challenging its validity. In fact, the study reported that the majority of respondents described virtual influencers as "authentically fake" and perceived them as uncanny when they simultaneously appeared human-like and artificial. However, some respondents were conscious that human-like virtual influencers are artificially created, and consequently continued to engage with their content.

Although scholars have confirmed the virtual influencers' uncanniness, a few studies have suggested that the level of uncanniness exhibited by virtual influencers contributes to their appeal, rather than creepiness (Block and

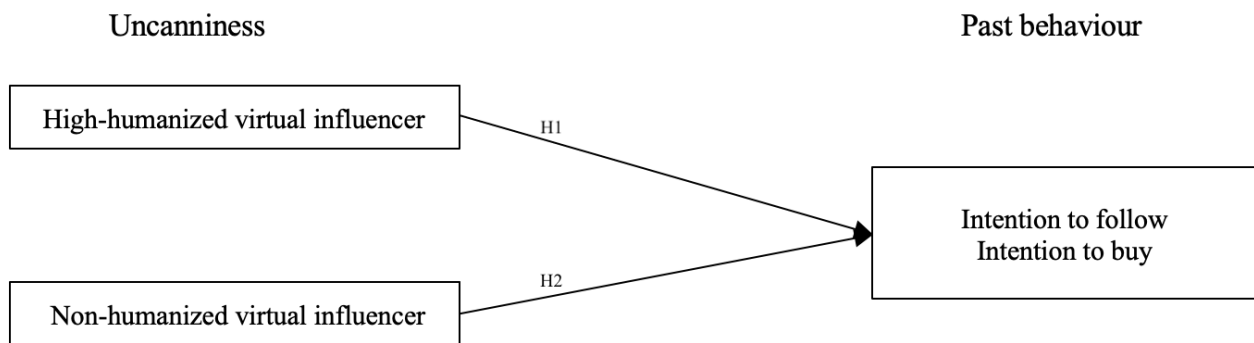
Lovegrove, 2021; Yang et al. 2022). In light of this, Block and Lovegrove (2021) state that virtual influencers' transparent characteristics and ability to display human-like traits ultimately increased their marketing effectiveness in persuading followers. Furthermore, Yang et al. (2022), comparing two types of virtual influencers, one humanlike and one cartoonlike, even further disproved Mori's theory. The authors refuted their hypothesis by acknowledging that virtual influencers with high humanness elicited higher attractiveness, reliability, and expertise to followers.

Drawing on this reasoning, the following hypotheses are proposed:

H1: A High-humanized virtual influencer generates a greater uncanniness that negatively impacts past behaviour

H2: A Non-humanized virtual influencer generates a lesser uncanniness that positively impacts past behaviour

Fig. 2: Conceptual framework



Purpose of the paper. Grounded on the Uncanny Valley Theory (Mende et al., 2019; Mori, 1970), we aim to investigate the degree to which the humanization of virtual influencers may impact customers' past behaviour, i.e., intention to follow and intention to purchase. Specifically, we intend to explore if two different virtual influencers, one non-humanized and one high-humanized, induce a sensation of uncanniness and, as a result, diminish past behaviour.

We intend to clarify the potential (dis)advantages of humanizing virtual influencers and the implications for influencer marketing strategies. First, we provide theoretical implications to guide academics in further studies on this under-explored topic. Second, we provide concrete implications to influencer marketing stakeholders in understanding the degree of which anthropomorphism elicits positive emotions in consumers, thereby facilitating the development of effective product and service promotion campaigns via virtual influencers. Overall, the findings will inform the development of guidelines for humanizing virtual influencers in order to enhance positive consumer reactions and promotes effective marketing strategies.

Methodology. The objective of the paper is to examine the role of anthropomorphization on positive behavioral intentions. In doing so, we considered two different virtual influencers with varying degree of humanization and examined how feelings of uncanniness shape different consumers' intentions to follow the VI, and to buy a product sponsored by a virtual influencer. Adapted from Choudhry's categorization (2022), we redefined the Mimic-Real Human as a high-humanized virtual influencer (HHVI) - Imma Gram - and the Non-Human as a non-humanized virtual influencer (NHVI) - Nobody Sausage. Imma Gram is a model, brand ambassador and virtual influencer, whose bubble gum pink bob and Asian features has already gained 2,8 million followers to 2023. Indeed, she earned more than 300k followers just after appearing on the cover of CGWorld magazine (Conti et al., 2022). Nobody Sausage is a food shaped virtual influencer, which rose to prominence on Instagram thanks to his bright, hilarious, and funky dancing videos. Indeed, this dancing sausage gained the fastest social growth on Instagram in 2021 (Awdziej et al., 2022). While HHVIs are among others followed for applying humanlike characteristics to the brands due to anthropomorphization, whilst NHVI like Nobody Sausage is followed due to the comical and cartoonish looks and contents (Choudhry et al., 2022).

To compare the two virtual influencers, we used a within-subject experiment on a sample of 254 respondents. The study has been conducted on an online sample of US respondents.

The questionnaire was initially aimed to assess respondents' familiarity with virtual influencers. To this end, we asked them to report: (i) subjective knowledge through a single item (i.e., "I know what VIs are") on a Likert scale where 1 = "Not at all agree" and 7 = "Totally agree"; (ii) past behavior, here intended as they proclivity to follow ("I follow virtual influencers on social media"); (iii) country-of-origin effect (e.g., "I prefer influencers of my own country") on a 7-point Likert scale (1 = "Not at all agree"; 7 = "Completely agree") to control for possible cultural effects, especially because of the presence of virtual influencers with Asiatic traits.

In the second part of the questionnaire, we also considered some constructs that according to extant literature may influence consumers' perceptions. First, we asked respondents to state their degree of conformism based on five items

extracted by Schwartz et al. (2012) (e.g., “Obeying all the laws is important to him”; “It is important to him to avoid upsetting other people”).

In the third part of the questionnaire, we investigated: (i) uncanniness (e.g., “I feel uneasy”) and (ii) socio-psychological distance. To control for the social psychological distance, we used three items by Sands et al. (2022) (e.g., “The influencer Imma Gram/Nobody Sausage is far - near”).

Sample

The sample consisted of a total amount of 254 UK respondents. Regarding age, more than half were Millennials (61%), and the remaining were mainly belonging to Generation Z (15.4%) and X (16.5%). Most of the respondents have an income lower than 60.000 \$ (76,8%).

Results. Dimensionality and reliability checks

To obtain a single measure for the variable assessed through multiple items we calculated the average. For each construct, we conducted a factorial and reliability analysis. The analysis showed that all the involved constructs were unidimensional and Cronbach alpha’s were above the threshold recommended by Nunnally (1978).

To estimate the impact of uncanniness on the intention to follow and buy the sponsored product, we conducted an OLS (Ordinary Least Square) regression for each dependent variable. The results are reported in Table 1.

Tab. 1: Regression analysis

	HHVI		NHVI	
	Beta	p-value	Beta	p-value
Uncanniness	-0.07	0.02	0.05	0.11
Conformism	0.07	0.02	0.08	0.01
SPD	0.81	0.00	0.73	0.00
COE	-0.04	0.31	0.00	0.94
Past behaviour	0.03	0.47	0.02	0.60
Age	-0.07	0.02	0.06	0.07
Sex	0.02	0.49	0.03	0.40
Income	0.00	0.99	0.08	0.01

Notes: COE = Country-of-Origin-effect; SPD = Social Psychological Distance; R-Squared_(HHVI) = 0.81; Adjusted R-Squared_(HHVI) = 0.80; R-Squared_(NHVI) = 0.80; Adjusted R-Squared_(NHVI) = 0.79.

Findings underline that for HHVI the impact of uncanniness was negative and significant on the intention to purchase and follow Imma Gram, while for NHVI the impact of uncanniness was not significant. These results provide useful support for our research hypothesis.

We also found a positive effect of conformism for both virtual influencers, whereas a negative effect of age for the high-humanized virtual influencer. The other variables do not have a significant impact on past behaviour.

Research limitations. The current study is not without its limitations. First, we acknowledge that we investigated only two virtual influencers, categorized into two degrees of humanization - high-humanized and non-humanized. Future research could broaden the sample size by including virtual influencers with varying degrees of humanization to further validate our results. Second, our respondents were selected on the basis of their interaction with the virtual influencer exclusively on Instagram. Future studies may consider video-based social media platforms such as TikTok, which is gaining popularity among new generations (Araujo et al., 2022). Indeed, the peculiar characteristics of platforms may influence consumers differently in terms of uncanniness. Third, our research focused on the follower perspective. Future studies may explore the manager perspective if not even the virtual influencer themselves or their creators to gain more insights.

Furthermore, future lines of research could also investigate how virtual influencers facilitate company entry into appealing domains such as virtual communities or metaverse marketing.

Although our results suggest that a high degree of humanization elicits a sense of uncanniness in the follower, more investigation into whether this impact may be moderated by other stimuli, in line with Lou et al., (2022), would provide a more detailed knowledge of the psychological mechanisms underpinning these cognitive responses.

Managerial implications. Companies have increasingly begun to leverage virtual influencers as advertising tools. They can tailor their social media presence via virtual influencers to reflect the brand’s image and values and control the content (Conti et al., 2022). On the other hand, companies are concerned about facing different challenges, among which the humanlike appearance of virtual influencers is outstanding (Sands et al., 2022).

From a managerial perspective, brands that leverage virtual influencers for marketing purposes should evaluate the degree of humanization when designing and implementing their campaigns, as a highly humanized virtual influencer may decrease the consumer’s intention to purchase the sponsored products and follow them. Therefore, managers should carefully consider the level of humanization and test it with focus groups to ensure it is well-perceived. Additionally, since a highly humanized influencer induces a sense of uncanniness, they could monitor customers’ emotional reactions, possibly signs of discomfort and negative emotions, to adjust campaigns accordingly.

Furthermore, managers should be transparent about their virtual influencers being non-human entities, as this can impact the credibility and trustworthiness of the brand. Thus, they can implement a campaign of transparency about the operation of the virtual influencers and their control by human beings, to allow greater recognition by their consumers of their fictitious entity.

Moreover, companies should also consider the message they want to convey as well as the product they are promoting to ensure that the virtual influencer's level of humanization matches the brand's image and purpose. Virtual influencers can be an effective tool in a company's marketing campaign. However, companies cannot only rely on them, but should integrate other endorsers to create a comprehensive, omnichannel, and integrated campaign.

Originality of the paper. This study advances the literature on virtual influencers, a still under-explored area. Specifically, our research focuses on testing the impact of the degree of humanization of virtual influencers on customers' behavior grounded on the Uncanny Valley Theory. Moreover, our research approach differs from previous studies (Franke et al., 2023; Yang et al., 2022; Lou et al., 2022; Arsenyan and Mirowska, 2021; Block and Lovegrove, 2021) by focusing on the comparison of two distinct virtual influencers with varying degrees of humanization. Our study allows for a more in-depth investigation of the impact of humanization on customers' emotional reactions and past behaviour, particularly intention to follow and intention to buy.

Finally, our findings contribute to assisting marketers and managers who are keen to leverage the power of virtual influencers and AI technology in their marketing efforts, while also ensuring that their campaigns elicit positive behavioural intentions.

Keywords: virtual influencers; consumer behaviour; uncanniness; influencer marketing; uncanny valley; endorser

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Something red, something blue. A psychomarketing approach to political branding.

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Abstract

While the relevance of colours in shaping individual perception is widely accepted, it has received limited attention in the political realm. Political marketing literature suggest that a political offer is formed by three elements: party, policies, and leader(s). Each of these yields several association links and nodes, that overall contribute to build the political brand image in voters' minds. Colour is one of the most evident nodes, as it appears in the media, campaign materials, ballot papers, and even in leaders' clothing.

This work-in-progress study aims to investigate the role of colours in political branding, and their effect on voters' ability to associate specific colours to political affiliations.

To quantify the impact of colours on voters' implicit attitudes, we conducted an experiment with 103 participants who underwent an Implicit Association Task (IAT) measuring the ease of association (*d*-score) between colours (red and blue) and words related to Italian political parties or politicians (Left-wing and Right-wing), along with neutral words as a control condition. Participants' individual differences were evaluated through a profiling questionnaire assessing socio-demographic characteristics, political literacy, and cognitive style (as measured by the Autistic Quotient).

Findings show that participants more easily associated red with Left-wing words and blue to Right-wing words rather than the opposite. Also, we observed a positive and significant correlation between the participants' level of political literacy and their ease of association between a colour and a political side: higher levels in political literacy positively correlated to an easier association of red to Left-wing words and blue to Right-wing ones. Finally, a positive significant correlation emerged between *d*-score and Autistic Quotient.

We discuss how voters' decision-making might reflect the influence of colours on their perception, and how unconventional profiling variables, such as autism traits, can help revealing how strong such impact is.

Framing of the research. The concept of branding can be applied to politics, specifically the different elements that make up a political offer. The triple components model by Butler and Collins (1994) provides a framework to identify the key elements of political marketing, which include ideology/policy, party/organization, and person/leader. Within the party element, the party logo is a crucial visual identifier that voters can easily recognize. The logo is a significant part of a party's public image, seen on campaign materials, media appearances, on the ballot papers, and even on leaders' clothing. Colours are a vital component of party logos and are used to create distinctive brand images and group allegiances. Colours can also evoke cultural associations with political ideologies, hence influencing voter perception and behaviour (Elliot and Maier, 2014). For instance, the colour red is often associated with dominance and aggression: in agonistic situations it is perceived as threatening, and may even provide a competitive advantage to individuals or teams that wear red (Hill and Barton, 2005). Companies use colours to consciously capture customers' attention towards products design, packaging, advertisements, in-store environments, and corporate logos. Colour blue, for example, is a popular choice for party logos due to its association with competence (Labrecque, Patrick et al., 2013).

Despite the recognized importance of colours in shaping individual perceptions, their central role in the political arena, the use of colours in the political realm has surprisingly received limited attention so far.

Marini (2017) conducted a study on political logo colours of major European political parties, showing that political parties belonging to the same "party family" use similar colours. Moreover, the author observed that new parties tend to adopt new colours, as a distinctive element from existing competitors. Finally, this study reports that

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colours hue and position on a spatial policy dimension are correlated: the more parties are on the right wing, the more they resort to lower wavelength (away from red) colours. A robust connection between ideology and specific colours hues has been recently pointed out by Casiraghi et al. (2022). The authors observed that logos of left-wing parties predominantly use hues on the red side of the colour spectrum. On the contrary, blue hues are mainly used by in right-wing logos.

The role of voters' cognitive style in political decision-making - *Implicit attitudes are receiving an increasing interest in marketing research (Maison et al., 2001). Unlike explicit actions, implicit attitudes cannot be faked. In politics, the research focus on implicit attitude, as measured by the Implicit Association Test (IAT), has been mostly directed to predicting voting behavior (Gawronski et al., 2015). Friese et al. (2007) conducted an experiment to determine whether the IAT measures for the top five political parties in Germany could improve the prediction of voting behaviour over explicit self-report measures. Their findings supported their hypothesis. Roccoato and Zogmaister (2010) using the IAT showed that implicit attitudes were slightly more effective than explicit attitudes in forecasting the results of the Italian elections.*

In addition to the study of implicit attitudes in political decision-making, recent works have also explored the relationship between political preferences and physiological parameters and cognitive style. Among these, chronotype has been studied in relation to leadership (Guarana et al., 2021). Chronotype, or circadian typology, is the individual preference for sleep and daytime activities timings (Adan et al., 2012): e.g., morning chronotypes tend to wake up early and go to bed early, concentrating their activities in the first part of the day, while evening types prefer to do the opposite.

Guarana et al. (2021) investigated how a leader's chronotype affects charisma and expression, and observed that the synchrony between a leader's chronotype and time of day can impact perceptions of charismatic leadership among followers. Ksiazkiewicz (2019) found that morning types tend to be more conservative and evening types tend to be more liberal, which may be also related to age and habits: young people tend to be more liberal compared to elder people.

In a similar vein, individual differences in autistic traits might influence the ease of association between colours and political affiliations. Pellicano and Burr (2012) proposed that individuals with autism, and to a lesser extent those with high AQ scores, tend to process sensorial information that directly driven by a current sensory input, while less influenced by background expectations, as compared to individuals with lower AQ scores. Given that, for example, the colour red is traditionally associated with the political left for historical reasons, it is possible that individuals with high autistic traits may not be sensitive to the effect of colours in political decision-making.

Purpose of the paper. *This work-in-progress study aims to investigate the role of colours in political branding, and their effect on voters' ability to associate specific colours to political affiliations. We intend to study the easiness of association between colours, i.e., red and blue, with words related to the Italian left-wing and right-wing parties respectively. Individual differences in political literacy levels, as well as in chronotype and autistic traits are considered as possible variables correlated to the ease of association between colours and political affiliations. The overall purpose of this research work is to shed light on the relevance of assessing voters' perceptual and cognitive attitudes towards political branding.*

Methodology. *138 participants were recruited for our experiment. 35 participants were discarded because they did not complete the experiment, so that 103 participants (average age = 38 ± 16.05 years old; 53% males and 47% females) were considered for statistical analysis. All participants were fluent in Italian language and over 18 years old. The study was approved by the Bioethical Committee, and participants signed an informed consent before joining the study. The experiment was entirely conducted online. The experiment consisted of four parts:*

- (i) *The Implicit Association Test (IAT), run on a free-to-use toolkit for cognitive and psychological experiments;*
- (ii) *A self-evaluation of the environmental conditions in which the IAT was taken (i.e., assessing participant's concentration during the task), in order to provide a measure of the quality of the data collected;*
- (iii) *A questionnaire exploring participants' political literacy and other socio-demographic characteristics;*
- (iv) *Two questionnaires measuring the Autistic Quotient (AQ test) and chronotype (the reduced version of the Morningness-Eveningness Questionnaire, rMEQ) of participants respectively.*

Implicit Association Test (IAT) - *the Implicit Association Test (IAT) is based on the assumption that if two concepts are strongly associated in people's minds, it should be easier and quicker to categorize them together when the same response is used. Conversely, if two concepts are not strongly associated, it should be more difficult and slower to categorize them together when the same response is used. The IAT uses this principle by asking participants to categorize stimuli into four categories, with the aim of measuring the implicit attitudes or associations between two target categories based on the differences in response times (latencies) when paired with different attribute categories.*

The IAT design used in this study was based on a model developed by Roccoato and Zogmaister (2010) to predict voting behaviour using implicit measures. This IAT design has two key features: first, the target categories, "Left" and "Right", are always fixed on the corresponding left and right of the screen to eliminate potential bias that could arise from having to press the left key to select the political right (and vice versa). Secondly, they provided a benchmark for the order of blocks, number of trials, and type of stimuli. In this study, the IAT structure was adapted to use the attribute categories of "red" and "blue" instead of "pleasant" and "unpleasant", and these attributes were represented by colored rectangles instead of words. The target categories were "Left" and "Right" ("sinistra" and "destra" in

Italian, respectively, since the experiment was administered to Italian speakers). The colours red for the left and blue for the right were chosen based on previous research on the principal colour displayed in the party logos of European parties and the colours currently used in the logos of major Italian parties at the time of the experiment. The stimuli chosen for the target categories were 24 names of principal parties and well-known politicians at the time of the experiment, with 12 stimuli selected for each category to ensure the stimuli had the same or quasi-same number of syllables to prevent that the participants' reading velocity with could affect their response latency and the validity of the results. The 24 stimuli for the attribute categories "red" and "blue" were chosen among well-known red/blue common items (e.g., sky).

The IAT used in this study was designed as follows: the first and fourth blocks are training blocks that present two rectangles, one blue and one red, as categories. The red rectangle is on the left side of the screen in the first block, and the blue rectangle is on the right. In the fourth block, the position of the rectangles is reversed. The stimuli for these blocks are names of objects that are easily identifiable as either blue or red. The second block is another training block that presents the categories "sinistra" (Left) and "destra" (Right) on the left and right sides of the screen, respectively.

The stimuli for this block are well-known names of political parties and politicians from the left or right wing. The third and fifth blocks are target blocks where participants must categorize both the colours and political labels. In the third block, the red rectangle is on the left alongside the "sinistra" category, and the blue rectangle is on the right alongside "destra". In the fifth block, the position of the rectangles is inverted. To avoid an order bias, there were two versions of the IAT: one with the blocks presented in the order just described, and one with the third and fifth blocks reversed. The version administered to each participant was randomly chosen by the toolkit used to run the test.

The main output of the IAT is the "d-score," a variable that represents the difference in average response time between the compatible blocks (where the colour and political category are both on the same side of the screen) and incompatible blocks (where they are on opposite sides). The d-score is adjusted for errors and very fast or slow responses. In this study, the d-score was calculated by subtracting the adjusted average response time of incompatible blocks from the adjusted average response time of compatible blocks. The attribute categories used in the study ("red" and "blue") were chosen from well-known red or blue common items.

Political literacy - To address the lack of a standardized scale for measuring political literacy in the Italian population at the time of our experiment (to the best of our knowledge), we developed a survey based on the method outlined by Carpini and Keeter (1993), which has also been used by other authors (e.g., Ferrín and Fraile, 2014; Gil de Zúñiga et al., 2017). In their seminal paper, Carpini and Keeter identified three key areas for exploring political knowledge: government, parties, and political history and economy. As their questions were designed for the US context, we adapted them to fit the Italian context, resulting in a pool of 30 questions: 12 about state, institutions, and laws; 12 about parties, people, and current political alignment; and 6 about political history and economy. Each question offered 5 alternative answers, including a DK ("Non saprei" in Italian) option. For each correct answer, participants scored 1 point, and for each wrong/DK answer, they scored 0 points. In the end, we had a 30-point scale of political knowledge for each participant.

Political profiling - Participants were asked to state their interest in politics on a 10-point Likert scale from "no interest" (= 1) to "strong passion" (= 10). Their political orientation was also assessed on a 10-point "left (= 0) - right (= 1)" Likert scale, according to Kroh (2007).

Reduced Morningness-Eveningness Questionnaire (rMEQ) - Participants' circadian typology (i.e., chronotype) was assessed through the reduced Morningness-Eveningness Questionnaire (rMEQ). Based on the final score of this 5-item self-report scale, we can distinguish three main chronotypes: evening types (ET, with a score < 11), neither or intermediate types (NT, with a score between 11 and 18); and morning types (MT, with a score > 18). In this study we used the validated Italian version of the rMEQ (Natale et al., 2006).

Autistic Quotient (AQ) - Autistic traits were assessed through a 50-item scale. Participants could answer to each item on a 4-point Likert scale. Half of the items (1, 2, 4, 5, 6, 7, 9, 12, 13, 16, 18, 19, 20, 21, 22, 23, 26, 33, 35, 39, 41, 42, 43, 45, 46) scored 1 point for the responses "Definitely agree" or "slightly agree". The other half of the items (3, 8, 10, 11, 14, 15, 17, 24, 25, 27, 28, 29, 30, 31, 32, 34, 36, 37, 38, 40, 44, 47, 48, 49, 50) scored 1 point for the answers "Definitely disagree" or "slightly disagree" instead. The final score of the questionnaire was given by summing each item. In this study, we used the Italian validated version of the AQ (Ruta et al., 2012).

Results. In terms of profiling variables, our sample showed an average political literacy score of 19.88 ± 5.18 , with an average AQ score of 16.95 ± 5.89 , and an average rMEQ score of 17.13 ± 3.4 .

To test the first research hypothesis, i.e., whether participants would have found it easier to categorize stimuli when the colour red was associated to the Left-wing and the colour blue was associated with the Right-wing rather than the opposite, we calculated the d-score from the IAT. The d-score in our sample was on average 0.27 ± 0.44 , indicating that participants on average found more difficult to categorize stimuli when the colour red was associated with Right-wing and colour blue with Left-wing as compared to when red was associated to "Left" and blue to "Right".

Moreover, the d-score was positively and significantly correlated to participants' political literacy (Spearman correlation test, $r = 0.37$, $p = 0.001$), so that participants with higher political literacy reported a higher ability in associating a colour to a political side (red to "Left" and blue to "Right").

We also observed a positive significant correlation between the *d*-score and the political orientation of participants (Spearman correlation test, $r = 0.3593$; $p = 0.0002$). This result suggests that the more Right-oriented participants are, the more they tend to associate the colour red with political Left, and the colour blue with political Right, and they find more difficult the opposite associations. In parallel, participants with higher autistic traits showed a higher *d*-score (Spearman correlation test, $r = 0.2521$; $p = 0.0102$).

Finally, we showed that participants' response time for establishing an association "colour-political side" was on average 30.7 ms lower for stimuli representing Right-wing parties/politicians compared to those showing Left-wing parties/politicians (1092.1 ± 231.3 ms vs 1122.8 ± 254.2 ms).

Research limitations. We are fully aware of the limitations of this ongoing research study. First, our IAT experimental design is not standardized, although moving from the well-established version of 5 blocks IAT (Greenwald et al., 1998). Indeed, due to the lack of literature applying the IAT to test voters' ease of association between colours and political sides, this is the first case - to the best of our knowledge - in which coloured rectangles are used as target categories instead of words. This could stimulate new research activities in this direction.

Secondly, despite our sample size is in line with the literature applying IAT (Lane et al., 2007), we may need a larger number of participants to replicate a representative sample of the Italian voting population in order to further explore the role of individual differences based on psychometric measures (namely, autistic traits and chronotype).

A third possible limitation is related to the choice of the stimuli displayed during the IAT. As a selection criterium, we opted for the most voted parties and most known politicians of Left and Right wings at the time of the experiment, but we excluded a well-represented political movement due to the difficulty of positioning it in one of the two wings at the time of the experiment.

Finally, a future study could be conducted to test the same experimental design in a lab setting under controlled conditions. Running this kind of experiments online allows to reach a larger audience. Nevertheless, the quality of data collected might be lower (e.g., due to the limited attention paid in an familiar environment during a remote testing) as compared to experiments conducted in a lab setting.

Managerial implications. Political marketers can benefit from our study on several levels. We here outline a threefold possible practical contribution of this ongoing research for political marketing. First, we highlight that the visual elements selected to build the brand image of a political party might be differently perceived by the voters according to their cognitive style. Second, we provide political marketers with unconventional tools (e.g., psychoprofiling variables) able to differentiate voters' reactions to strategical marketing actions (e.g., the choice of a colour). Finally, we offer a concrete approach to quantify the effect of a political marketing action on voters' perception (as measured through the IAT).

Originality of the paper. The main conceptual contribution of this paper is offering a new perspective on the application of empirical knowledge derived from cognitive neuroscience and neurophysiology into political marketing research. This could provide scholars and practitioners with a promising approach to test the effectiveness of crucial marketing actions in the political realm, such as the choice of the colour for a political party, which should be congruent and easy to associate with the political idea they want to convey. Our study might represent a starting point for a future research agenda directed to uncover the neurophysiological mechanisms underpinning political decision-making, opening new plausible scenarios for the application of neuroscientific tools into political campaigning.

Keywords: Political branding; consumer neuroscience; implicit association; political literacy; autism.

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Food labels in a consumer behavior perspective: a bibliometric analysis[♦]

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Framing of the research. *Consumer lifestyle and purchasing decisions have a significant impact on people health. Despite numerous efforts by different institutions and organizations, obesity has approximately doubled worldwide since the 1980s and has become one of the major societal problems (Chooi et al., 2019). Ultra-processed packaged foods, which are sources of energy, fat, saturated fat, sodium and added sugars, have contributed to the increased risk of chronic diseases (WHO, 2002; WHO, 2017). Furthermore, the obesity pandemic is also an economical burden for society: a high body mass index is estimated to cost USD 990 billion per year globally for healthcare services (World Obesity, 2020).*

There is, therefore, a growing public interest in the long-term link between diet, lifestyle and health. Many actors in the market, including consumer groups, public authorities, retailers and product manufacturers, have all focused on giving more and better nutritional information to consumers. In particular, food labels are considered to be an integral strategy to improve diet by providing consumers with nutrition information at the point of purchase and to promote healthier purchases and choices (Cowburn and Stockley, 2005; WHO, 2004; 2011).

The information conveyed by labels has evolved over time, and they have become more numerous and more complex depending on different goals. For many years the only nutritional labels in use were BOP (back-of-package) labels. They were in form of a small chart with numeric information, but evidence indicates that most consumers are not able to accurately interpret them (Cowburn and Stockley, 2005).

Consumer understanding of food labelling. Even if the self-reported use of nutrition labels in previous research was found to be prevalent (Cowburn and Stockley, 2005), consumers often report difficulty in interpreting quantitative information (Drichoutis, 2006) and in understanding the role of different nutrients in their diet. In fact, the number of ingredients can be high enough to generate an information overload situation that limits the ability of the consumer to process information and to decode the message of the label (Hall and Osses, 2013). Some consumers find different nutrition label formats confusing (Grunert, 2007) and generally prefer graphical information to the traditional label: previous studies have demonstrated that the message in pictorial form is more effective than one in textual form (Jae et al., 2008). Moreover, the greater effectiveness of the combination of textual-pictorial elements in food advertising on the attitude towards the brand and the intention to buy emerged (Luceri et al., 2016). Compared with nutrition labels with quantitative information on nutrient content, several studies have reported greater effectiveness for labels using graphics and symbols, adjective labels and labels with minimal numerical content (Zerbini et al., 2019; Lee et al., 2009; Lieberman et al., 2002). The use of well-recognized health logos and ‘traffic lights’ may be particularly effective (Marette et al., 2019).

Consumer use of food labelling. The use of labels is prevalent among the female population and could be predicted by health awareness, income and education level (Drichoutis, 2006). From the literature emerged that individuals with healthier eating habits report a greater use of nutrition label due to their personal preference or because of requirements of a health-related diet (Satia et al., 2005; Canadian Council of Food and Nutrition, 2006). Consumers read labels more accurately if they (a) are familiar with the label format, (b) are interested in health and nutrition, (c) have a high level of education (Cowborn and Stockley, 2005). Moreover, consumers who spend more time to shop for

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groceries are more likely to use label (Drichoutis et al., 200); in fact, one reason for non-use is often the lack of time (Rasberry et al., 2007), together with size of print on packages, lack of understanding of terms and concerns about the accuracy of the information (Cowborn and Stockley, 2004).

Some efforts have been made to develop designs for labels that are more user friendly (Temple and Fraser, 2014) and by the end of the 20th century, both governments and non-governmental organizations began to implement different front-of-package (FOP) nutrition labelling system:

- nutrient-specific and display information on individual substances (saturated fat, sugar and sodium or salt);
- warning labels on a food package if it has relatively high content of an undesirable substance such as salt or sugar;
- summary labels in which the healthiness of the food is indicated by a single value expressed in a very simple manner such as stars or a thick;
- traffic light labels which typically display green, amber or red labels to indicate whether foods contain low, medium or high amounts of contents such as fat, saturated fat, sugars;
- health Star Rating expressing the healthiness of the product by the number of the stars in the label.

Other elements such as health claims have been increasingly displayed on packages. One goal of nutrient content claims is to communicate the value or relative amount of a specific nutrient within a food product (e.g., good source of fiber, fat free, low calorie). Claims have been shown to impact how other food label information is processed and to influence other dietary behaviors (Mathios and Ippolito, 1999; Williams, 2005). On the other hand, claims sometimes have little impact on product evaluations (Garretson and Burton, 2000) and may even be misleading and confusing (Hasler, 2008). Overall, claim comprehension is higher among those with greater experience and education (Dean et al., 2011; Verbeke et al., 2009).

Manufacturers and retailers in food labelling. In the complexity of this context, many actors in the market are involved with contrasting interests. Policy makers together with companies (manufacturers and distributors) and organizations can have a significant role in helping consumers to behave healthier and food labels can represent an important tool to achieve the purpose.

The impact of any label can be determined by how and to what extent the information can change consumer behaviors and food manufacturers to introduce healthier products (Van Camp et al., 2012). Comparing with the number of studies investigating consumer responses to nutrition labels, literature on industry and distributors in food labelling is evidently poor.

Few studies have examined manufacturers reformulation of food products following the implementation of FOP labelling systems. The most remarkable example is the reduction of the amounts of trans fats in many products after the FDA (US Food and Drug Administration) mandate (Unhevehr and Jagmainate, 2008). In the 1980s, food companies were using both nutrition and health claims such as the 'light' and 'low fat' products, even if in some cases they were misleading and confusing (Petruccielli, 1996; Silverglade, 1996). In 2010 Tesco introduces the FOP nutrition labels and other retailers and producers followed this direction with their own FOP schemes.

From the distribution perspective, in the UK, simplified FOP nutrition labels were initially introduced by retailers. In 2005 Tesco introduced a Guideline Daily Amounts (GDA)-based FOP label and by 2010 all of their private label products has this type of nutrition information (Tesco, 2010).

Purpose of the paper. Different issues and fields of knowledge are related with the world of food labels and a huge amount of literature has been produced on this topic. The aim of this paper is to understand how the food labels topic have evolved over time in order to face the huge problem of obesity and chronic diseases. The research has the purpose of providing a preliminary knowledge map by a Keyword Cooccurrence Analysis on food labels and consumer behavior as well as identifying future trends. The study proposes the following research questions:

RQ1. What is the evolution of the literature on food labels and consumer behavior?

RQ2. Which are the most influential journals, countries, and institutions that have published content on this research topic?

RQ3. What are future research agendas and patterns related to food labels that can be deepen?

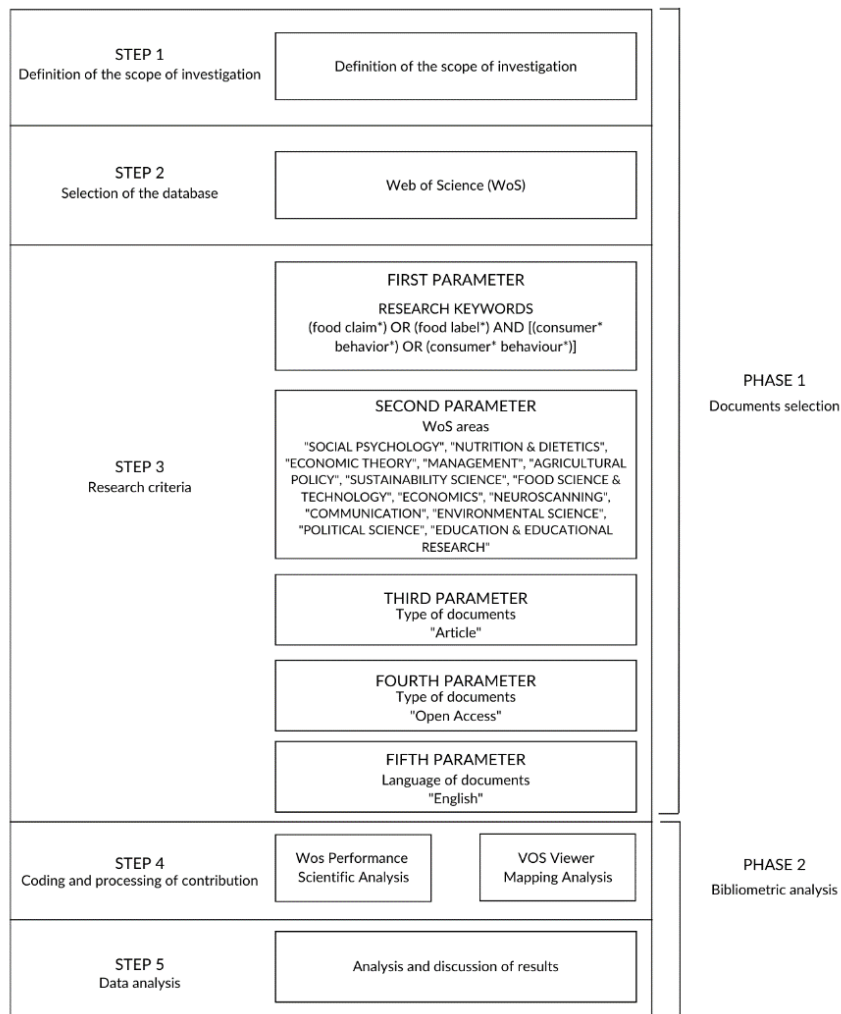
Methodology. In order to analyze the literature on the topic of food labels from the consumer behavior perspective and to answer to three research questions, a quantitative approach based on bibliometric analysis was adopted. Bibliometric analysis allows a systematic and orderly review of the available literature on a specific subject. This methodology was founded in the 1920s and it has recently developed due to the greater availability of online databases and the large number of available publications (Gutiérrez-Salcedo et al., 2018). For this research, the analysis was carried out using the online database Web of Science (WoS) since it represents one of the largest and most structured databases, while the software VOS Viewer was used to develop and provide scientific mapping based on co-word analysis. The present work has been structured in three phases consisting of:

- the identification of the scientific contribution of interest through the WOS database
- the bibliometric analysis through VOS Viewer
- the bibliometric analysis through Scimat (work in progress)

According to the well-respected evidence-based approach widely used in the literature (Castillo-Vergara et al., 2018; Capobianco-Uriarte et al., 2019), the research has followed different steps. The first step concerned the definition

of the scope of investigation: food labels in a consumer behavior perspective. The second step was the selection of the database, Web of Science (WOS). The third step included the definition of (1) Research keywords, with the combination of the terms “(food claim*)” OR “(food label*)” AND “(consumer* behavior*) OR (consumer* behaviour*)”; (2) WOS areas, selecting “Social Psychology”, “Nutrition & Dietetics”, “Economic Theory”, “Management”, “Agricultural Policy”, “Sustainability Science”, “Food Science & Technology”, “Economics”, “Neuroscanning”, “Communication”, “Environmental Sciences”, “Political Science”, “Education & Educational Research” as areas of interest; (3) Type of documents, selecting “Article”; (4) Type of documents, selecting “Open Access”; (5) Language of publication, selecting “English”. In the document selection phase, only “open access” publications have been considered. In the fourth step concerning the bibliometric analysis, a performance scientific analysis in WOS was developed and a mapping analysis in VOS Viewer was implemented. The final sample comprises 487 papers. In the last step, the preliminary results have been discussed. The third phase of the bibliometric analysis using the software Scimat is in progress.

Fig. 1: Bibliometric analysis process

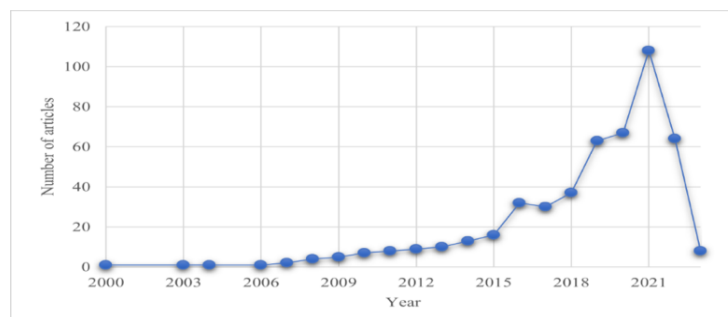


(Source: authors' elaboration)

Results. The first set of findings of the review are related to descriptive analysis of 478 selected papers, related to the year of publication, journal, country or region and institution that have published content, in order to answer to the second research question and identifying the numeric evolution of the literature over time.

Year of publication: the academic production related to food labels in a consumer behavior perspective was almost absent until the 2007 (Figure 2). Since 2007 there has been a general steady increase in the number of publications until 2015. A significant growth of literature on this topic is remarkable between 2015 and 2021. There is a reduction in 2022. The limited number of publications in 2023 is attributable to the fact that the analysis is limited to the articles published in the first two months of the year. In 2022 the publications were 65 and in the first two months they were 11, 8 in January and 5 in February, while in 2023, the publications until the end of February are 8 (7 in January and only 1 in February). In view of this, the number of documents published seems to be slightly lower than the previous same period and the trend of publications seems to be declining.

Fig. 1: Year of publication



(Source: authors' elaboration - Web of Science)

Most influential journals: the Table 1 (below) shows the top ten most influential journals on the topic of the analysis. The table presents the journal, the publisher, the number of documents published on the topic, the SJR (SCImago Journal Rank) and the H-index. The "Sustainability" is at the top of the ranking with 81 documents, the "Nutrients" is at the second position with 29 documents, while the "Foods" ranked third position with 23 documents. The journal "Sustainability" represents alone more than 16 % of the total documents analyzed. It means that it is the most influential journal on the topic of food labels in a consumer behavior perspective.

Tab. 1: Most influential journals

Journal	Publisher	Documents	% of total documents	SJR	H-Index
<i>Sustainability</i>	MDPI	81	16,63	0,664	109
<i>Nutrients</i>	MDPI	28	5,75	1,287	143
<i>Foods</i>	MDPI	23	4,72	0,726	53
<i>Food Quality and Preference</i>	Elsevier	21	4,31	1,146	129
<i>International Journal of Environmental Research and Public Health</i>	Frontiers Media	17	3,49	0,814	138
<i>Bmc Public Health</i>	BioMed Central	14	2,88	1,156	159
<i>Public Health Nutrition</i>	Cambridge University Press	14	2,88	0,904	146
<i>Appetite</i>	Academic Press	13	2,67	0,986	156
<i>British Food Journal</i>	Emerald	10	2,05	0,609	86
<i>International Journal of Behavioral Nutrition and Physical Activity</i>	BioMed Central	10	2,05	2,028	129

(Source: authors' elaboration - Web of Science)

Most influential countries: one interesting aspect of the analysis concerned the geographic division of the published documents. From the Table 2 emerged that the most influential country is USA, with 133 documents published, that represents more than 27% of the total number of publications on the topic. England is at the second place (61 documents) and Italy at the third (48 documents). The analysis output shows that the topic of food labels and consumer behavior is mostly discussed in USA and in EU countries: in the ranking of the top ten influential countries only the most developed regions appear, while developing countries are absent.

Tab. 2: Most influential countries

Countries/Regions	Documents	% of the total documents
<i>Usa</i>	133	27,31
<i>England</i>	61	12,53
<i>Italy</i>	48	9,86
<i>Australia</i>	33	6,78
<i>Germany</i>	33	6,78
<i>France</i>	28	5,75
<i>Netherlands</i>	26	5,34
<i>China</i>	26	5,34
<i>Spain</i>	25	5,13
<i>Belgium</i>	23	4,72

(Source: authors' elaboration - Web of Science)

Most influential institutions: in the Table 3 the top ten influential institutions for the papers' publication on the research topic are displayed. The analysis outlines that the two most influential institutions are based in the USA, with a total of 57 financed documents (more than 11% of the total number of published documents). At the third position, there is the European Commission with 15 financed documents. These results are in line with the most influential countries showed in Table 2, outlining that in USA and in Europe the topic of food labels is part of the institutions' interest. In addition, in the following table, public or private institutions based in developing countries are not present, confirming that the topic is less discussed in these countries and less financed by the governments/organizations.

Tab. 3: Most influential institutions

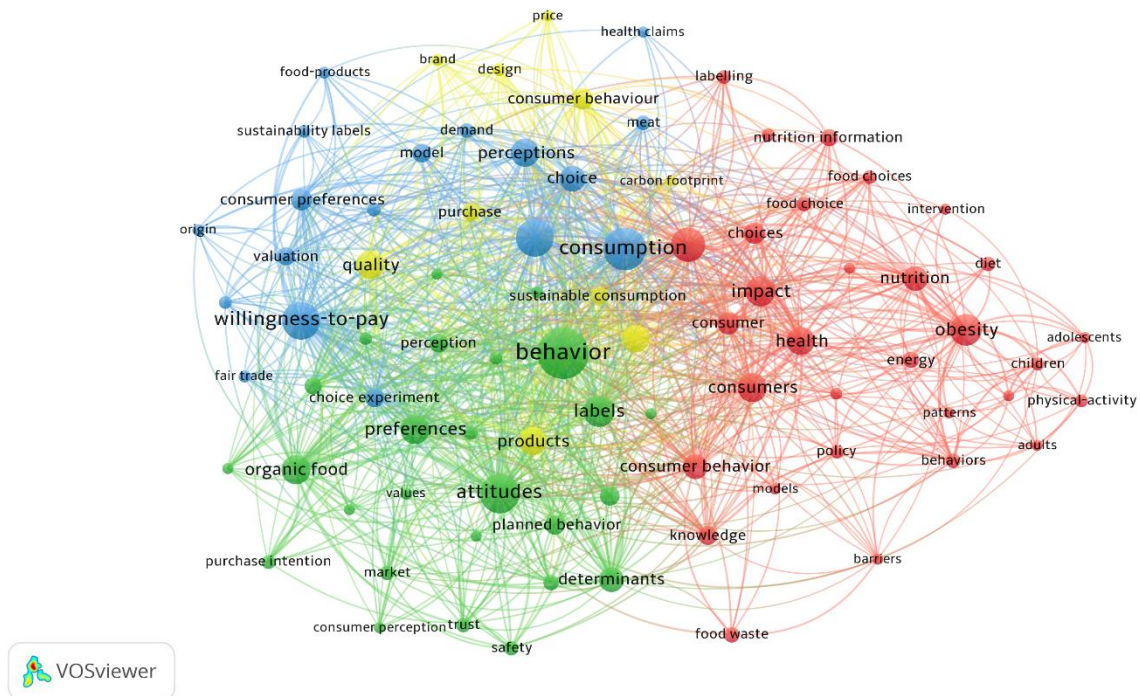
Institutions	Documents	% the total documents
United States Department of Health Human Services	29	5,96
National Institutes of Health Nih Usa	28	5,75
European Commission	15	3,08
United States Department of Agriculture Usda	13	2,67
Nih National Heart Lung Blood Institute Nhlbi	12	2,46
National Natural Science Foundation of China Nsf	10	2,05
National Health and Medical Research Council Nhmrc of Australia	9	1,85
Robert Wood Johnson Foundation Rwfj	7	1,44
Uk Research Innovation Ukri	6	1,23
National Heart Foundation of Australia	5	1,03

(Source: authors' elaboration - Web of Science)

In order to answer to understand the evolution of the literature on food labels and consumer behavior, the possible future research directions and emerging fields of study that can be deepen (first and third research questions), a bibliometric mapping analysis using VOS Viewer software has been developed.

Network visualization map: The network visualization map provides an overview of the items, that are shown as colorful circles of different dimensions. The size of the circle represents the frequency of the topic presence in the documents and the largest the circle, the most frequent the item is. The color of the circle represents the cluster (that is related to a specific thematic) to which the item belongs. Furthermore, the colorful threads in the map are the most frequent co-occurrence of keywords. In the Figure 3 the co-occurrence relationships of the keywords are displayed.

Fig. 2: Network visualization map



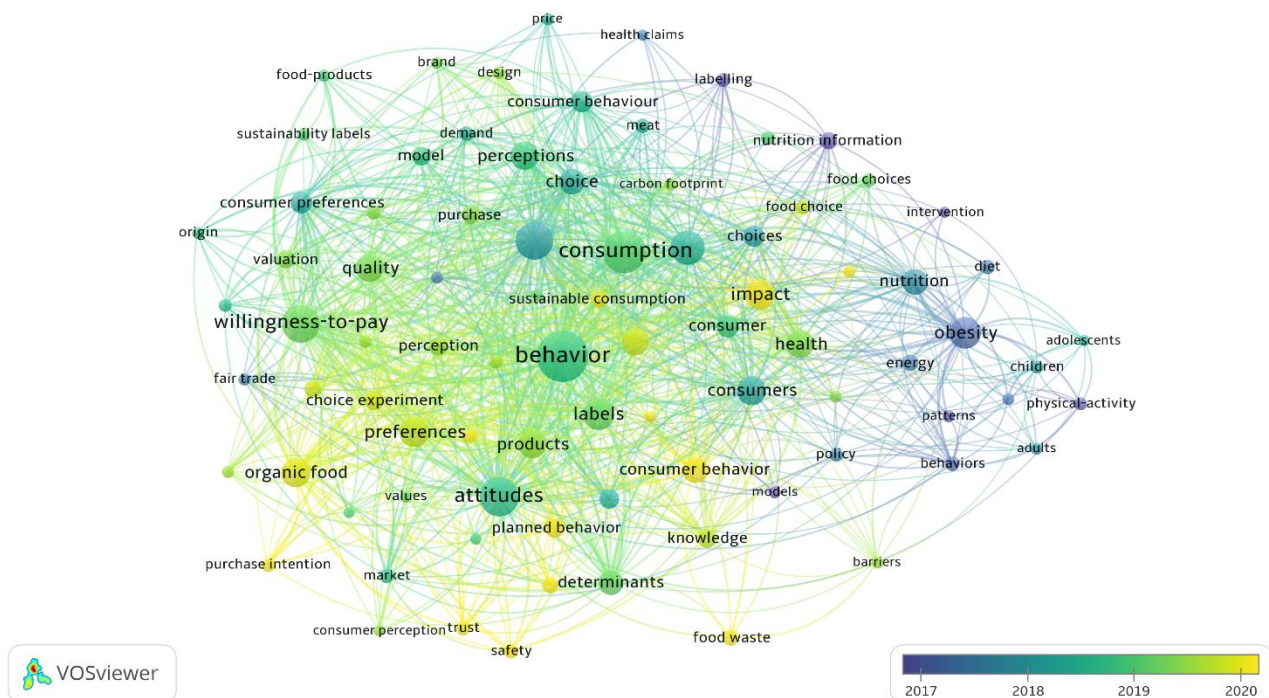
(Source: VOS Viewer)

The map returns four different clusters. The color is given by default by VOS Viewer, but in order to give a clearer overview, a name to each cluster is assigned.

- **Red cluster: nutrition and health.** This cluster is the largest and includes many items. Those that are characterized by a larger size are “obesity”, “health”, “impact”, “nutrition” and “consumer behavior”. The thematic is the problem of the obesity and the impact of consumers’ food choice and nutrition on their health. Given the larger size of the keywords cited, they are more discussed in literature compared to the other items of the cluster. The topic of obesity and nutrition is correlated with the interventions (of different actors in the market) aiming to contrast the problem (Wyse et al., 2019; Gamburzew et al., 2016).
- **Green cluster: attitudes and behavior.** In this cluster, the most discussed keywords in the literature are “behavior”, “attitudes”, “labels”, “preferences” and “determinants”. Since their circle’s size is larger than the others, they represent frequent topics in the documents analyzed and correlated each other. This cluster describes the most relevant determinants of the attitude and of the behavior towards food labels, including the consumers’ preferences, the values, and the purchase intention (Lamonaca et al., 2022; Lorenz et al., 2015).
- **Blue cluster: willingness-to-pay and consumption.** The keywords emerging in this cluster are “consumption”, “willingness to pay”, “information” and “perceptions”. They are the most frequent items of the cluster appearing in the literature analyzed. The term “willingness to pay” is near “choice experiment” and “valuation”, while the item “consumption” is near to “information” and “perceptions”. The cluster describes the finding of several studies focused on consumers’ food consumption and on their willingness to pay. (Hempel and Hamm, 2016; Poelmans and Rousseau, 2017). The cluster includes also less discussed terms correlated with the two topics of consumption and willingness to pay: origin of the product, sustainability labels, health claims and fair trade.
- **Yellow cluster: characteristics of products.** The most relevant keywords are “products”, “quality” and “sustainability”. The cluster includes different characteristics of the products which can influence the purchase by consumers, such as the quality, the brand, the design, the price, the carbon footprint. (Boehm et al., 2019; Margariti, 2021). The topic of sustainability emerges in the literature together with “sustainable consumption”.

Overlay visualization map: the map (Figure 4) is very similar to the network visualization map, but not in colors. In fact the overlay visualization map indicates the thematic development over time. The map returns the evolvement of a specific topic during the years and it can be useful in order to study the evolutionary trend, trajectory and research front of a given topic. The color of a term indicates the average year of publication of the documents in which the term is included. In particular, the closer the color of a term is to blue, the older are the publications in which the term appears, and the closer the color of a term is to yellow or red, the more recent are the publications in which the term appears.

Fig. 3: Overlay visualization map



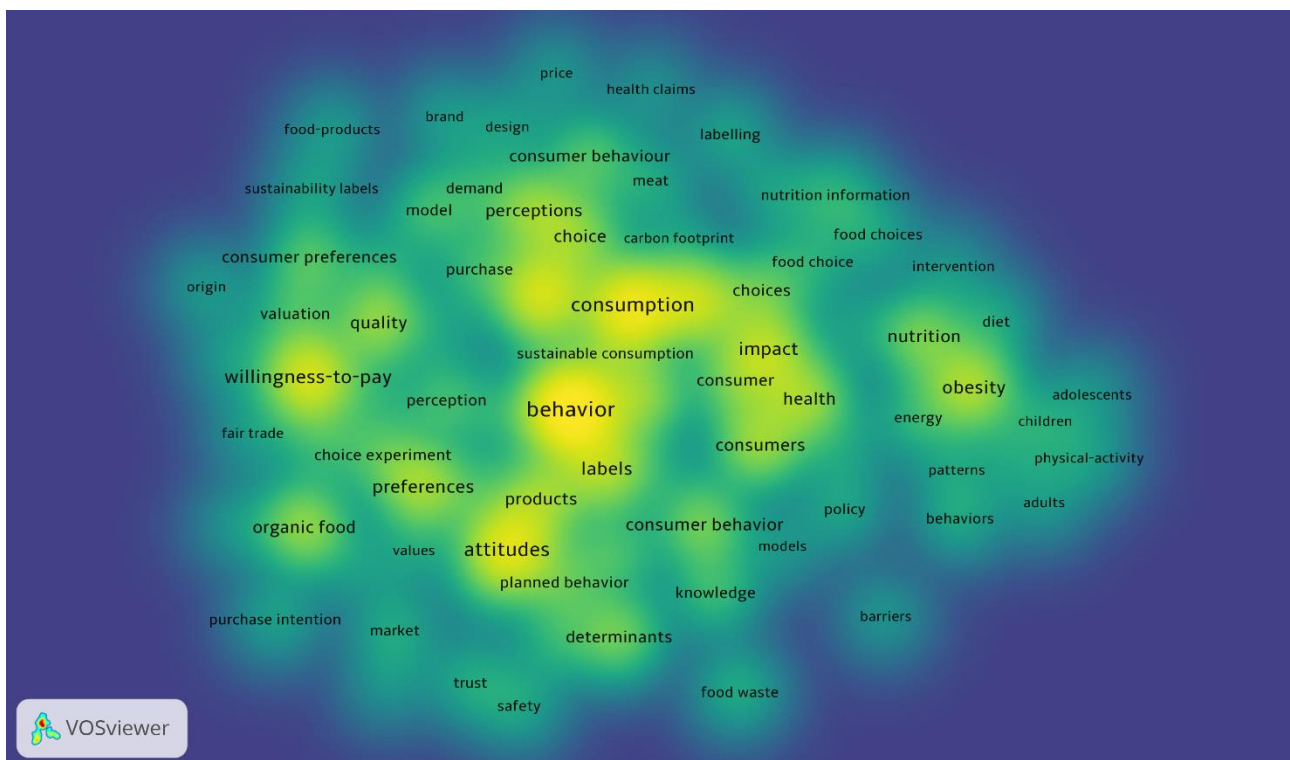
(Source: VOS Viewer)

According to the analysis, the topic of food label and consumer behavior have been discussed especially between 2017 and 2020. In 2017 the theme of obesity and nutrition has started to become popular in literature. In this period also the keywords “policy” and “intervention” have been discussed, probably from the point of view of the governments intervention on food labels. Later, from 2018 to 2019, the attention has been focused on the consumer, his attitudes, and his behavior towards food. More recently, from 2019 to 2020 new thematic have been studied and developed: the topic of food label referring to the health emerged together with the consumers’ preferences for some characteristics of food products (organic, health, perceptions). The most recent keywords appeared in literature are “impact” of food labels, “sustainable consumption” and “safety”, following the increasing attention of consumers in these two emerging topics, especially after the Covid-19 pandemic.

Density visualization map: the density visualization map (Figure 5) returns a clear overview of the amount of literature about a topic exists. Every area in the map has a color that identify de density of that specific area. The color range is from blue to green, until the yellow. The greater the number of items in a specific zone of the map, the greater the weight of the neighboring items (yellow). Conversely, the smaller the number of items in the zone of the map, the smaller the weight of the neighboring items (blue).

The most relevant keywords in this perspective are “behavior” and “consumption” (in deeply yellow). The topic of consumer’s behavior has been deeply discussed in the literature when considering food labels. Moreover, the consumer’s food consumption seems to be another highly discussed topic together with the “food choice” and “attitudes”. Somewhat less discussed, are the issues related to nutrition and obesity, health, consumer’s perceptions, and preferences. Other important topics have a lower weight in the existing literature, and should be examined more, the health claims of food products and the intervention of different actors in the market and policy of governments in food labels are only some of those. The map does not include the role of retailers and industry in food labelling. The documents focused on these two topics are rare and can be a future research direction.

Fig. 4: Density visualization map



(Source: VOS Viewer)

Research limitations. The study presents some limitations that can be considered a good starting point for future research. Since the research is still ongoing, the findings can be considered as preliminary and not final. In order to have a more detailed evolution of the thematic analyzed an additional bibliometric analysis through the use of a specific software is in progress thanks to the software Scimat. The findings should be compared and integrated with the one discussed in this paper.

Managerial implications. The paper offers theoretical and practical implications. At theoretical level, the bibliometric analysis suggests the need for additional research on food labelling also in the online context (rarely discussed) and the need of more field experiments in both offline and online context focused on food choice related to labels (Ljusic et al., 2022; Temple, 2020). At practical level it gives useful insights to all the actors and policy makers in the role of food labelling in consumer’s behavior and suggest the importance of the way to convey nutrition information to consumers in order to enhance their healthy consumption (Latino et al., 2020; Mhurchu et al., 2018).

Originality of the paper. *Although other recent literature review on food labels and their efficacy exists, they are narrative (not bibliometric) and more focused on the FOP labels (Penzavecchia et al., 2022; Temple, 2020; Shangguan et al., 2019). Moreover, no bibliometric analysis of the existing literature on this topic have been made through the use of VOS Viewer software. The study wants to provide an overall, comprehensive, and integrated approach towards the investigation of food labels in the consumer behavior perspective using a reliable tool for bibliometric analysis.*

Keywords: *food label; food claim; consumer behavior; bibliometric analysis; VOS Viewer.*

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The relevance of local business ecosystem in sustainable business model

ROSARIA FERLITO* ROSARIO FARACI*

Framing of the research. *Over the last few years, the market turbulence and increasing levels of competition motivate firms to engage in collaborative processes as a way to gain agility and resilience. This context has created a great interest in the topic of business ecosystems as a new way to represent the competitive environment.*

The first definition of the business ecosystem has been borrowed from biology and provided by Moore that defined it as an intentional economic community made up of “organisms of the business world” (Moore, 1993, p. 26) where a focal firm could play a pivotal role in forming and supporting the business ecosystem (Fielt, 2014). For Teece (2007), it is the environment that the firm must monitor and react to. Business ecosystem includes both formal and informal relationships and transactions between businesses and individuals that contribute to the economic and social vitality of the community. In detail, Moore refers to an extension of stakeholders from suppliers and customers to the broader business ecosystem composed of organizations that influence the context such as competitors, government agencies, regulatory authorities, and investors (D’Souza et al, 2015).

In managerial literature ecosystem perspective has emerged because the value chain theories presented limitations in explaining how the entities interact with, depend on and share their experience with other actors. With the notion of the business ecosystem, it has become easy to explain the phenomena of cooperation, collaboration, co-creation, network value, and co-production among economic entities (Kim et al, 2018). For this reason, this topic has become pervasive in discussions about strategy, entrepreneurship, business model, multi-sided markets, alliances, technology innovation, and supply chains. About the business model researches, business ecosystem has raised awareness of the existence of new ways of value creation and capture (Adner, 2017) based on the interdependencies between different organizations and new value co-creation mechanisms (D’Souza et al, 2015). In particular, the role of the business ecosystem becomes even more important in sustainable business models (SBMs) where the aim of firms is to generate positive impact or/and reduce negative consequences for the environment and society “through changes in the way the organisation and its value-network create, deliver value and capture value” (Bocken et al, 2014, p.44). So the perspective behind a SBM is extended from a single business to an ecosystem perspective, and from a purely organisational to an embedded systems view (Breuer et al, 2018).

Ecosystem perspective requires a long-term vision and an open mindset. Furthermore, it requires firms to have good listening and communication skills, to involve the various stakeholders. Some authors provide the definition of regional business ecosystem to underline the network of local businesses, customers, suppliers, service providers, and other stakeholders that interact with each other within a specific geographic area (Kim et al, 2018). The local business ecosystem is characterized by its interdependence, as businesses rely on each other for resources, support, and referrals. By leveraging the strengths of the local business ecosystem, sustainable businesses can create long-term value for themselves, their communities, and the environment.

Purpose of the paper. *Most of the current research has focused only on the economic value created by the business ecosystem (Clarysse et al, 2014), the measurement of its performance (Graça, & Camarinha-Matos, 2017), and technology that enables it (Li, 2009). Moreover, if we consider specifically the context of SBMs, the ecosystem perspective has been considered mainly to analyse the circular business models (i.e. Kanda et al, 2021; Geissdoerfer et al, 2020) or the community platform business model (i.e. Zhao et al, 2020; Velu, 2015).*

There are no studies that provide a vision of the role of the business ecosystem in all typologies of business models that present a sustainable design (Geissdoerfer et al, 2020; Haigh and Hoffman, 2012; Tabares, 2021).

To address this gap, our study aims to improve the comprehension of the activities that involve the business ecosystem carried out by firms with a SBM. In particular, the research question that we address is:

“how could a focal entrepreneur leverage its local business ecosystem to adopt a SBM?”

Methodology. *This study adopted a multiple-case study methodology that required a comparative analysis of individual case studies and provided in-depth knowledge of complex social phenomena (Eisenhardt, 1989; Yin, 2013).*

The cases selected were Italian benefit corporations. These for-profit firms have, by definition, a sustainability-driven hybrid business model that combine both market and mission-oriented practices, facing the tension of balancing social, environmental, and economic logic (Hestad et al, 2021; Reuter, 2022; Tykkylainen and Ritala, 2021). The

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business model of benefit corporations is based on the integration of traditional business aims with social and environmental needs, as well as between profit and purpose value creation goals (Reuter, 2022).

Data were collected between July 2022 and January 2023. Firms were first identified by the AIDA database (AIDA Bureau Van Dick, 2022). We adopted the firm’s name as the search criterion, where one of the following abbreviations must be present: “sb”, “s.b.”, “società benefit”. We then selected only SMEs (defined as organisations with an annual income less than 50.000.000 Euros, and with less than 249 employees). Once the selection was completed, we sent e-mails to obtain an interview with either the founder and/or chief of sustainability from each benefit corporation. Seven firms agreed to participate in the research. The industries involved are: beverage, manufacturing and consulting. Due to the exploratory nature of the research, semi-structured interviews were chosen. A defined protocol was used to ensure that the same topics were treated in all interviews. The protocol was based on a business modelling perspective in terms of mission, value proposition, customers dimension, key resources, key activities, partnership, costs and benefits. Interviews were performed remotely using Zoom and were recorded with consent. They lasted between 30 and 60 minutes. To ensure the reliability and validity of data collection we asked the interviewees to provide us with additional documents, such as company presentations, company reports, balance sheet, and other documents, with the aim of triangulating the data acquired through the interviews and secondary information (online company information, including the company website and social media) (Yin, 2013).

The collected data were analysed using the methodology developed by Gioia et al. (2013). Data analysis was performed manually. The coding process is divided into three steps: open coding, axial coding, and theoretical coding.

Initially, we used open coding, to create the “first order codes”. As the research progressed, we attempted to find similarities among categories and moved from open to axial coding. We clustered the open codes into theoretical categories, leading to “second order codes”. We then grouped second-order codes under “aggregate dimensions” (Table 1).

Tab. 1: Data structure

<i>1st Order Concepts</i>	<i>2nd Order Themes</i>	Aggregate Dimensions
-Continuous dialogue with trade associations to dissemination of know-how about sustainable practices. -Promotion of events (e.g. conventions, workshops, study days) with Public Institutions to raise sustainability awareness.	RAISING-SUSTAINABILITY AWARENESS ACTIVITIES	NON-PROFIT ORGANIZATIONS AND INSTITUTIONAL AGENCY
-A continuous dialogue with patent’s Agencies. -Dialogue with trade associations driven by Innovability principles.	OPEN INNOVATION	
-Dialogue with trade associations and Public Institutions to obtain greater legislative clarity on managers' liability, controls, and punishment. -Reporting activity: definition of KPI/Involvement of trade associations in the materiality analysis. -Agreement with non-profit organizations to include socially vulnerable groups in business processes and projects.	GOVERNANCE MECHANISMS	
-Support and aid to the voluntary association to promote the sport culture. -Collaboration with museums to promote culture and arts. -Collaboration with trade associations to improve the quality of life of employees.	COMMUNITY CULTURAL DEVELOPMENT	
-Continuous relationship to customize the product. -Partnership with B2B customers to realize co-production and obtain the Cradle to cradle certification. -Reporting activity: definition of KPI/Involvement of customers in the materiality analysis. -Tools to obtain feedback from customers and know the need of customers. -Implementation of plans to listen to and hold discussions with all the stakeholders.	OPEN INNOVATION	
-Company visits to receive customers.	RAISING-SUSTAINABILITY AWARENESS ACTIVITIES	
-The part of the investments is about the education provided to distributors, in terms of product, the value of firm, and sustainable approach. -Training to raise awareness on sustainable issues.	RAISING-SUSTAINABILITY AWARENESS ACTIVITIES	SUPPLIERS
-Mutual aid to implement business sustainable practices. -Suppliers' aid to define KPI (materiality assessment). -Partnership based on multi-years agreements .	MUTUAL SUPPORT	
-Monitoring of the sustainable approach of suppliers. -Certified and ethical supply chain. -Periodic audits for controlled supply chain. -Assessment tools (i.e. survey) to check the sustainable business model of suppliers. -Selection of suppliers based on proximity to the community also to reduce the negative impact of logistics.	QUALITY AND ETHICS OF SUPPLY CHAIN	
-R&D carried out with suppliers to share experiences, skills, knowledge, and technologies. Co-production. -Collaboration with suppliers to provide a quality products and services to the customers.	OPEN INNOVATION	

-Firm's push on University to create a course about Sustainability to train Chief of Sustainability. -Firms are looking for talented and specialized figures. -Partnership with private organizations to train managers. -Firms' support to research projects about business sustainability approach.	TRAINING & RESEARCH	UNIVERSITY, TRAINING INSTITUTIONS, RESEARCH CENTERS
-Participation in events and workshops organized by Universities to build relationships with other ecosystem actors and disseminate the sustainable approach. -To be member of advisory board of university courses and master's. -Company visits to receive students.	RAISING-SUSTAINABILITY AWARENESS ACTIVITIES	
-R&D with University and research centres.	OPEN INNOVATION	
-Firms' push toward a more sustainable investor business model. -Investors' push toward more sustainable investment.	RAISING-SUSTAINABILITY AWARENESS ACTIVITIES	INVESTORS
-Partnership with investors to the production and the presentation of innovative solutions.	OPEN INNOVATION	
-Investors' push toward the implementation of a sustainable business model. -Investors' push toward the implementation of more transparent business practices.	GOVERNANCE	
-Collaboration with competitors to promote sustainable business practices.	RAISING-SUSTAINABILITY AWARENESS ACTIVITIES	COMPETITORS
-Knowledge sharing to realize innovative solutions. -Co-Branding with competitors.	OPEN INNOVATION	
-Support of certification agencies in implementing environmental and sustainable development politics.	GOVERNANCE	CERTIFICATION AGENCY
-Use of protocols and standards of certification agencies to improve the production process. -Continuous dialogue with certification agencies to improve the business model.	PRODUCTION	
-Collaboration with certification agencies to obtain LCA certification.		

Results. *In this study, we focused on the relation between a focal firm that adopt a SBM and its local business ecosystem. After analysing the selected case studies thought business model lens, we identified (1) the main actors of local business ecosystem; (2) the activities that a focal firm carried out with these actors; (3) the purposes of the relationships with the local business ecosystem.*

The main actors of the local business ecosystem involved by the seven benefit corporations are: the non-profit organizations and institutional agencies (i.e. trade associations, patent agencies, public authorities, cultural organizations), the suppliers, the customers, the University and the other public or private training institutions, the research centres, the investors, the competitors, and the certification's organizations. The focal company carries out a series of activities involving these ecosystem actors.

This activity-system includes (1) partnership with the local ecosystem actors to develop products or services to benefit from complementary skills and shared idea, infrastructure, resources and technologies; (2) exchange of the knowledge and skills with other ecosystem actors through shared training programs; (3) organization and participation in events and initiatives such as fairs and conferences to build relationships with other ecosystem actors; (4) participations in workshops, training activities and recurring meetings with the customer to raise awareness on sustainability issues; (5) continuous dialogue to disseminate sustainable business practices, improve sustainable business model and production processes, and obtain greater law protection in terms of liability, control and punishes; (6) implementation of plans to listen to and hold discussions with all the stakeholders; (7) inclusion socially vulnerable groups in business processes and projects; (8) philanthropic activities, such as donations to voluntary association or cultural organizations to promote culture, arts, sport and so on; (9) adoption of common standards and protocols to guarantee interoperability between the various actors of the business ecosystem to encourage collaboration and information sharing; (10) sustainable investing; (11) actions to guarantee a controlled supply-chain, which is inspected at every stage and certified by an independent entity.

The role of business ecosystem emerged by this study can be summarized as follows: raising awareness toward sustainable business approach; (2) open innovation; (3) ethical governance mechanisms; (4) improvement of internal infrastructure in terms, for example, of human resources and production process, (5) cultural development of the community; (6) mutual support with customers, suppliers, non-profit entities (7) implementation of ethical supply-chain thanks to a sustainable supply chain management; (8) training and research about SBM.

In conclusion, the local business ecosystem is relevant for a SBM in several ways: firm can use resources more efficiently and with less negative environmental impact by sourcing materials and services locally; focal firms are more accountable to their local communities, and they are more likely to adopt socially responsible practices such as fair labour standards, environmental stewardship, and ethical and certified local supply chain; focal firms collaborate with local actors to share resources, reduce costs, and pursue common goals, local business ecosystem perspective can foster innovation by creating a supportive environment for entrepreneurs and start-ups, facilitating knowledge sharing and collaboration, and developing new products and services that meet local needs; focal firm are more resilient in the face of economic, environmental, and social challenges because they have strong relationships with their communities, can adapt quickly to changing circumstances, and are more likely to receive support from local organizations and governments.

Research limitations. *Our research presents some limitations, particularly deriving from methodology used. First, with seven cases, our sample size could be considered too narrow to generalise the results. However, according to Eisenhardt four to ten cases are fine (Eisenhardt, 1989). Second, our study addresses only firms operating in Italy. Consequently, we were not able to determine whether country-specific factors affected business ecosystem relationship. Third, the most relevant data were collected through interviews. The respondents were owners and founders of the firms. Thus, the answers might emphasize positive aspects of the phenomenon. These limitations may represent opportunities for future research on this topic.*

Managerial implications. *The findings will provide important implications also for managers and entrepreneurs that want to adopt a SBM based on local business perspective. In particular, the results highlight a way to involve many actors of local business ecosystems with successful results in terms of value creation.*

Originality of the paper. *This study aimed to increase knowledge about the role of local business ecosystem actors within a SBM. Previous research has often considered business ecosystem to analyse circular business models (i.e. Kanda et al, 2021; Geissdoerfer et al, 2020) or the community platform business model (i.e. Zhao et al, 2020; Velu, 2015). Therefore, despite this topic representing a rich research stream, it required more insight into the role of the local business ecosystem in all typologies of business models that present a sustainability-driven design. To address this gap, we undertook a multiple case study of seven Italian SMEs with benefit corporation qualification. The findings presented, contribute to research in the sustainable business model field by shedding light on how a focal entrepreneur could leverage its business ecosystem to adopt a SBM. In doing so, we provided some theoretical contributions.*

First, our findings highlight the shift away from an activity-based view of SBM to an actor-based view (Hou et al, 2020): the first order codes are made up of activities carried out by focal firms, while, in the end, the aggregate dimensions of collected data are composed by all actors of the business ecosystem.

Second, like Jacobides et al (2018), our study considered the firms that adopt a SBM as the fulcrum of an ecosystem, in the sense of a network. Indeed, in our findings we underlined the links that the focal firm has with the actors who influence or are influenced by its activities.

Considering the classification provided by Adner (2017), our results provide insight into both the ecosystem-as-affiliation which sees ecosystems are a community of actors, and the ecosystem-as structure which views the ecosystem as a set of activities defined by a unique value proposition. Moreover, our findings complement those of Walker, Di Sisto, and McBain (2008), who emphasized collaborative innovation as a key characteristic of SBM. Our study also confirms that SHBM instigates or stimulates business ecosystem innovation in terms of business model innovation of ecosystem participants other than the focal firm (Snihur and Bocken, 2022). The key aspect of successful collaboration is a good climate in terms of trust, mutual value, and credibility in relationships (Danese et al, 2019). Consequently, the governance of a business ecosystem should be based on a collaborative approach. Indeed, as in any complex system, there is a risk of conflict within business ecosystems derived from different motivations, such as competition for funding, resources or talent, different opinions on business models, divergent views on strategic priorities, etc. To prevent conflicts, it is important to develop a culture of dialogue.

Keywords: *ecosystem; local business ecosystem; business model; sustainable business models; value creation mechanisms; benefit corporations.*

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The interplay between humanistic management and regenerative development: renewal of community-based destinations in the hinterland

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Framing of the research. *The impact that the exponential growth of our economic systems has had in the last five decades has sparked debates about the foundations of this progress and its future trajectories (Kallis et al., 2015; Meadows et al. 1972; Meadows et al. 2004). The Covid19 pandemic exacerbated further this debate (ATLAS, 2020; Brouder, 2020; Gössling et al., 2020) and prompted the search for approaches to address circumstances of injustice, unfairness, and inequality in uneven systems (Healey and Barish, 2019). Sustainability and sustainable development have become the prominent alternative paradigm and a key priority to tackle this urgent need for change, but their promises have been widely disregarded yet (Hall, 2019; 2022; Hopwood et al., 2005).*

New calls ask for a transformational paradigm that leads our societies into a more prosperous future (Du Plessis and Brandon, 2015) by revising radically the currently present neoliberal models (Gosling and Hall, 2017; Kallis et al., 2015). Values-based paradigms emphasizing equality and ecology concerns (Della Lucia et al., 2021; Niewiadomski, 2020) are gaining credit for tackling the current need for radical changes (Hopwood et al., 2005; Pirson and Lawrence, 2009). While the former prioritises human well-being, the latter gives priority to environmental health and eco-centred concepts. The intensity of the shift in social equality and environmental justice that these approaches advocate respectively, qualifies the transformative approaches and marks their distinction from reformist ones. While reformist approaches look to solve the problems within existing systems or structures, transformative approaches identify the roots of the existing problems in the current neoliberal forms of capitalism and the prevailing relationships existing among humans and with the environment. The fundamental changes in how society functions require a shift in values, mindset and worldview, and may be prompted by decentralized decision-making governance forms and empowerment of marginalized social groups instead of top-down solutions driven by reformist approaches.

Humanistic management and Regenerative development are showing an increasing presence in the debate about alternative development models and may be framed within the transformational approaches valuing respectively social equality and environmental justice to change the current socio-economic paradigm. The former is a novel area of research, practice, policy, teaching, and education (Pirson and Lawrence, 2009; Pirson et al., 2018) that puts human beings at the centre and leverages dignity, ethics and legitimacy to humanize businesses, economies, and societies (Melé, 2016). This humanism and values-based perspective is still largely unexplored and seems particularly relevant to address the challenges of improving societal development from both a theoretical and a managerial perspective. Multidisciplinary in its nature, Regenerative Development is another transformational approach that is gaining credit lately for novel actions for human and nature flourishing (Ateljevic, 2020; Bellato et al., 2022; Cave and Dredge, 2022; Dredge, 2022; Higgins-Desbiolles, 2020; Pollock, 2015, 2019) but was originally introduced by works in the fields of architecture, built sciences and design (Cole, 2012; Du Plessis, 2012; Reed, 2007). This approach is established on the premises of the ecological worldview (Du Plessis and Brendon, 2014) and mutually beneficial relationships between humans and nature. The final outcome is a net-positive result that restores and enhances the overall livelihood of the community and society (Dredge, 2022; Mand and Reed, 2011).

The above-mentioned values-based transformational approaches offer significant opportunities for paradigmatic change within tourism management. Despite tourism has been widely recognized as a driver of development worldwide and peace (WTTC, 2016), it also reveals well-documented (old and new) inherent paradoxes, vulnerabilities, and crises (Fletcher, 2011). The benefits that tourism can bring to the host destinations and countries concern socio-economic development supported through job creation, infrastructure, business and service development; the latter has a positive spillover effect on other industries that already exist or are born thanks to the impact of tourism (Dwyer, 2016). The tourism economy may also support conservation activities by funding these efforts and raising awareness about the importance of nature for the travel sector (Buckley, 1994).

Tourism is also a social force enabling sustainable transformation by empowering active community participation in decision-making (including minorities and marginal social groups) and building capacity through innovation, education, and social relationships (Higgins-Desbiolles, 2006).

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However, tourism also causes social, environmental, and economic problems (Gössling and Hall, 2017) as a consequence of imbalanced tourism growth that does not include all countries equally and neither all social groups. These vulnerabilities and problems reflect the role of tourism as a fuel of neoliberal pro-growth trajectories (Fletcher, 2011) reflected in economic gaps, social inequalities and environmental injustice (Higgins-Desbiolles et al., 2019). For example, over-dependence on uncontrolled tourism development, i.e. overtourism, leads to a decrease in the quality of local livelihood, gentrification, and potential tension between the visitors and hosts. It also damages protected natural areas, landscapes, biodiversity and animal life that cannot be easily repaired (Pollock, 2015).

Values-based transformational approaches have already tried to answer the calls to revise tourism development models for a truly sustainable sector by introducing the notions of Humanistic Tourism and Regenerative Tourism. Humanistic Tourism emphasises the humanistic differences and advantages (Della Lucia et al., 2021c) generated by the application of humanistic management principles to tourism management. It allows the transformation of uneven systems and fosters collective value-creation relationships on different scales (Della Lucia & Giudici, 2021a) by valuing humanistic management dimensions (dignity, ethics and legitimacy) in different human interactions (human-to-human, human-to-nature, human-to-technology and human-to-economy). Instead, Regenerative Tourism echoes equitable co-creation and harmony of tourism development with the socio-ecological context that tourism contributes to transform and improve (Ateljevic, 2020; Bellato et al., 2022). Tourism operators become stewards of regenerative tourism and bridge host communities and visitors (Pollock, 2015).

Among the others, small-scale and remote community-based destinations may benefit from the application of these values-based transformative approaches to address their depopulation and marginalization and value their meaningful social capital and natural and cultural resources.

Purpose of the paper. The aim of this short paper is twofold. First, exploring the interplay between equality and ecology-concerned transformational approaches - i.e. humanistic management and regenerative development - to try to build a blended theoretical framework that sets a paradigmatic change. Bridging these approaches may foster values-based radical changes reflected in a shift in the way people perceive places, communities, nature, and economic activities (including tourism) and outcomes measured not only in economic terms but also assessed through qualitative changes in well-being, community livelihood, and welfare.

Second, as tourism and destination management and development have an urgent need for this type of change, we aim to test the interpretative capacity of this framework through its application to a hinterland community featuring a small community-based rural destination. Smaller scales and hinterland enable better than others to capture patterns among actors and local practices embedding social equality and environmental justice.

Methodology. The research design is based on a systematic literature review carried out through the PRISMA approach (Moher et al., 2009). The sample accounts for 175 articles covering the topics of humanistic management (87 articles) and regenerative development (88). Key concepts provided by this literature were identified through qualitative content analysis (Abbott and Monsen, 1979) and combined to create a novel values-based framework. This framework was then applied to a field-based case study analysis (Eisenhardt, 1989) featuring a rural-specific context, i.e. a hinterland community. The intention was to assess the capacity of the framework to help understand if and how local development was transformed on values that echo humanistic management and regenerative development. The case selected - the local development network of San Rafael (Colombia) and "Zafra", a private nature reserve leading this process - is an exemplary manifestation of a hinterland community that has radically transformed its livelihood and regenerated its community.

Fieldwork was implemented in 2018 through participatory action research (PAR) involving one of the co-authors (Chiu, 2003; Mackenzie et al., 2012). This three-stage process is based on actively guiding and involving community members in the search and implementation of solutions for the problems identified as relevant by the community (Cornwall and Jewkes, 1995). Problem identification, solution generation and implementation enable a joint effort between researchers, community members and local practitioners to foster a radical change (Chiu, 2003). Interactions and dialogues with San Rafael community members and communal leaders were used as preferred methods of analysis to recognize the presence of the main pillars of the designed framework while going through the steps of the participatory action research.

Results. Preliminary results concern the drawing of the novel theoretical framework blending the main pillars of humanistic management and regenerative development. In addition, the identification of the principles and values driving the community transformation in the examined case results from the in-field application of this framework. The main concepts of the integrated framework correspond to the topics characterizing both approaches - holistic view, values of the ecosystem, collective effort, and shared governance models.

A holistic view towards the world, communities, and organizations, is at the core of the framework and feeds practitioners' work in the field. It suggests understanding the interconnectedness between social, economic, and environmental processes in an ecosystem, and recognizing the reciprocal influence that exists between them and the related actors (Dredge, 2022). Individual and group actors do not function isolated one from another, but they are rather involved in mutually influential relationships within a larger system that must be considered on the whole. Human-to-human, human-to-nature, human-to-economy, and nature-to-economy links strive for reciprocity and synergy (Cole, 2012; Della Lucia and Giudici, 2021a; Du Plessis and Brandon, 2015). Thus, interconnectedness recalls mutual respect, responsibility, and ethics.

Interconnectedness among the actors echoes the main values of the ecosystem, blending dignity, ethics and legitimacy brought by humanistic management with environmental justice brought by regenerative development. The

recognition of the dignity and legitimacy of all beings and their needs (Melé, 2009) as an integrated part of the whole aligns with social equality and environmental justice, individual, collective and institutional ethics, and moral and financial logic (Spitzek, 2011).

The holistic approach imbued with ecosystem values implies a responsible collective effort of all stakeholders for the functioning of an ecosystem - multiplying its positive impacts and reducing its negative effects. This joint effort develops throughout the shared value generation process, from value proposition co-design to collective value creation for achieving a common good (Mehmood et al., 2019).

The collective effort also reflects shared governance models of organizations and businesses operating in the ecosystem. They empower values-based leadership, stakeholder engagement, a sense of responsibility, and value diversity and inclusion to serve human ends and human well-being along with respect for the dignity of humans and the environment while generating profit through their activities (Dredge, 2022; Pirson and Turnbull, 2011).

Preliminary insights derived from the application of this exploratory framework to the “Zafra” case are promising. They show that values-based actions (the responsible collective effort rooted in the values of the community) promoted by community-based decision-making (shared governance models manifested in communal leaders identified by the community as agents of change) contribute to designing more livable communities (the renewed ecosystem of San Rafael) in which humans and the natural environment co-exist and flourish (the holistic view of the regeneration process of the community shared by community members).

The area of San Rafael suffered from the deterioration of “social capital and the environment along with poor livelihood” as a consequence of a civil armed conflict that lasted for several decades. A decade ago, at the end of this conflict, the remaining population first acknowledged the existence of this problem and then addressed it by engaging the whole community to find shared solutions and take collective action. The vision inspiring solutions and actions was not economic. It was not just a matter of creating jobs and developing new infrastructures, businesses, and services to improve livelihood and standard of living. Instead, it was a matter of undertaking these processes collectively and responsibly for having a positive impact on the well-being of community members and the environment. In other words, solutions and actions for “giving the community new life” were equality and ecology-driven.

Tourism was one of the solutions identified to catalyze this change. In the past, tourism was not one of the leading activities in the area and only a few accommodation providers were operating. However, the local network created to find solutions recognized it as a possibility to link various actors and activities in collective action towards the renewal of the local livelihood and well-being. Tourism management was based on humanistic premises and was meant to consolidate other sectors into a joint meaningful experience that could deliver the wholeness, purpose, and unity of the complete community. Through open discussions among the members, the network identified nature-based tourism as the main activity they were interested in and capable to provide and that could communicate successfully the local identity and sense of place to the visitors. The network also recognized other activities that could be developed in the area by the local population and that are aligned with the area’s environmental and cultural characteristics, thus creating more opportunities for the multi-scale restoration of local livelihood. The new activities were determined according to one’s skills and knowledge that could express the local population at its best and showcase community members’ intentions and capabilities.

While problem identification and generation of solutions included a variety of stakeholders to capture collective perspectives, actions were carried out by communal leaders, i.e. representatives from several stakeholder groups recognized by the community as the drivers of a collective change inspired by social equality and environmental justice. Their actions included the creation of several accommodations and tourist services reflecting San Rafael’s cultural heritage and natural context. Tourism was complemented by agricultural activities that helped avoid tourism monoculture and single-sector dependence. Cultivation of coffee, honey production, fishery, agroforestry, and organic agriculture were all initiated at different moments of local development, diversifying the local economy and providing possibilities for job creation. These activities enriched the tourist offer to showcase to the visitors the outcomes of joint work and local skills. Community members’ capacity building, social improvement and empowerment were fed through the creation of educational opportunities for youth and formational activities for the community members thus creating a virtuous cycle between the strengthening of social capital and local development. The environmental concern and care were expressed through the implementation of sustainable practices in design and construction, the establishment of protected areas and reforestation strategies, contributing to protecting the environmental context of San Rafael. As a result of all previous actions, depopulating trends in the area slowed down and the gradual rebuilding of the local society was stabilized.

Research limitations. This exploratory work shows several limitations. First, humanistic management and regenerative development are still niche research fields compared to mainstream research. As they advocate disruptive changes compared to mainstream lines, they could be labelled as unrealistic and critical with restricted acceptance and use. Second, compared to regenerative development, the majority of published works so far on humanistic management/tourism are theoretical. The exploratory integrated framework we drew, thus suffers from the exploratory characteristics of the handful of cases that connect humanistic management theory and practice and do not allow the generalization of conclusions. Third, while showcasing an exemplary real case that can serve for future work in this domain, this single case analyzed in this paper is context-based. Its contribution to interpreting values-based transformation in a hinterland community driven by tourism remains limited and the generalization of the findings could be questionable. Therefore, more practical cases including, large-scale destinations, are needed to provide

significant insight to build an integrated transformational framework and assess its interpretative and managerial capacity.

Managerial implications. This novel research contributes to the understanding of the significance and relevance of values-based approaches that are intended to reply to the calls for radical changes in the economy, particularly tourism and destination management, but are still niche research fields. This contribution has both theoretical and managerial value.

The cross-fertilization between equality and environmentally-concerned approaches enables the creation of an integrated framework that grounds a radical values-based transformation of the economy, and tourism and destination management. The key concepts of humanistic management and regenerative development that this framework combines embed the advantages brought by each approach and are catalysed by their in-field implementation.

From a managerial viewpoint, this framework could potentially be transformed into a dashboard used to investigate, guide and monitor the values-based transformation of projects developed by different proponents, in diverse contexts and focusing on different drivers of development (i.e. tourism, agriculture, culture etc.). Thus, tourism and destination management may be considered an exemplary domain to experiment with the integrated framework and evaluate its difference and advantages when applied to case study analysis. Initial results in San Rafael and “Zafra” have shown that humanism-regeneration hybridization provides benefits and opens spaces for pathways to revitalize community-based rural areas through values-based forms of tourism focused on social and environmental justice, heritage valorization, equality, and empowerment. This preliminary insight may be used to create guidelines to feed the application of the aforementioned principles in other contexts. One of these fundamental principles relies on participatory governance models that decrease authority levels and increase value co-creation. The real-life case-study showed the advantages that these models bring to empower community members and generate a collective effort benefiting all.

Originality of the paper. An interlink and blending between two transformative approaches have not been investigated so far, especially one equality-centered and one ecology-centered. Thus, the hybridization between humanistic management and regenerative development is a novel perspective on values-based transformative approaches that are suggested as an alternative to neoliberal economies in tourism and destination management models. The present contribution is part of a broader PhD research that deals with the interplay between humanistic management and regenerative development. This work is based on several simultaneous activities that feed the overall outcome of the PhD research. As such, it has not been published so far in any other outlet.

Keywords: transformative approaches; humanistic management; regenerative development; values-based theoretical framework; community-based tourism; hinterland

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Co-producing chronic care services: two discrete choice experiments, in rural and urban scenarios

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Framing of the research

Introduction

Current turbulent times are forcing policymakers and managers to rethink the relationship between strategies and locations, also in the healthcare sector (Bathelt and Li, 2022). The global crisis produced by the pandemic has produced several important changes and challenges in rural development, population and economies (OECD, 2020). OECD governments showed interest in a more place-based approach to public policy, investments, and expenditure in rural areas, before the pandemic too (OECD Publishing, 2006).

Usually, “knowledge-poor regions, especially smaller and rural cities (...) are excluded from state-of-the-art innovation networks lack upgrading opportunities” (Bathelt and Li, 2022, p. 461). In fact, the locational strategy of organizations aims to get the best access to talent, knowledge, and customers (Florida and Adler, 2022). The availability of infrastructure and facilities, as well as of digital connections and quality of broadband, is also an issue in remote areas (Khan, 2023), which can affect the possibility of people to access to resources and services. In fact, distance and transportation produce logistical difficulties and limit access to basic services, such as education, healthcare and welfare services, employment and workplace (Crandall and Weber, 2005; Khan et al., 2020).

In the healthcare sector, public organizations do not decide where and how to locate and deploy resources: their mission is to provide high-quality services assuring equity and sustainability. Over the last 20 years, the centralization of procedures in several healthcare systems, for reaching a minimum threshold of volumes and assuring more effective services, has localized highly specialized services in organizations of excellent, mainly in urban areas, and produced equity implications in terms of access to optimal care in rural areas (Birkmeyer et al., 2002; Dimick et al., 2004; Liu et al., 2006; Stitzenberg et al., 2009; Ward et al., 2004).

According to a very recent literature review (Gashi Nulleshi and Tillmar, 2022), remoteness, accessibility and the sense of place (the rural locale and sense of place dimension) are crucial topics in rural studies. These aspects are strictly linked to each other, since the human capital of people in rural areas is among the framework conditions for the development, together with access to capital, markets, and public services (OECD, 2020). Human capital in remote areas has been recognized as a key asset by researchers and scholars in the management field, since cultures, social norms, symbols, values, knowledge, and practices compared are different in local and non-local areas, and this can affect perspectives, interactions and networks in local or remote areas (Petheram and Campbell, 2010).

We already know that different prosocial attitudes of citizens can produce different practices of people engagement by organizations: size and characteristics of the organization’s geography play a determinant role in this regard (Attig and Brockman, 2017). What about the determinants of people’s willingness to be engaged? Our aim is to investigate whether living in a rural area can affect the preferences of people to be engaged by organizations that mandatorily provide services in the outskirts of the system, such as public healthcare services.

Theoretical framework. The literature emphasises the significance of recognising users’ roles as more than just passive. Users today take an active part in the creation of value for the services that are offered to them, and they are seen as co-creators (Grönroos and Voima, 2013; Vargo and Lusch, 2014, 2016). The customer-centric logic has emerged as an important concept, with users serving as both a vital source of unique information and active contributors in the development of new value (Prahalad and Ramaswamy, 2004).

From the perspective of the service dominant logic (SDL), services are considered as always co-produced (Vargo & Lusch, 2016). This perspective was also applied to public services, with some adjustments to reflect the characteristics of the public context, which can be considered as a more complex service ecosystem (De Rosis et al., 2019; Osborne et al., 2013, 2016). Osborne and colleagues highlighted the existence of different ways of involving users in the co-

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production of public services. Indeed, along with this more intrinsic co-production process, there are also more explicit ways of involving users in the co-production process, at both individual and systemic levels (Osborne et al., 2016). In particular, voluntary and conscious involvement of service users is needed to improve already existing services or innovate them with the contribution of users themselves (Osborne et al., 2016). In particular, people can be engaged by organizations in the following phases of the public service cycle: co-commissioning, co-designing, co-delivering, and co-evaluating (Nabatchi et al., 2017). Co-commissioning refers to activities aimed at identifying “what needs to be delivered, to whom, and to achieve what outcomes” (Bovaird and Loeffler 2013, 6). It is about strategically identifying and prioritizing needed public services, outcomes, and targets of users, and it is usually prospective. It is also similar to “co-prioritization” and “co-financing” (Nabatchi et al., 2017). Co-design includes users' activities aimed at defining a user-oriented creation, planning or arrangement of services (Bovaird and Loeffler, 2013). In this sense, applying the user perspective can be helpful in better understanding how public services could be designed to be of greater utility and benefit to individuals and communities. It may be future-oriented or concerned with what presently exists or is occurring (Nabatchi et al., 2017). In co-delivery activities, users and providers collaborate to directly provide public services and/or improve public service provision. Co-delivery is typically targeted at currently offered services (Nabatchi et al., 2017). Co-assessment focuses on monitoring and evaluating services. In this sense, users and providers work together to assess service quality, and identify problems, areas for improvement and/or good practices (Bovaird & Loeffler, 2013; Nabatchi et al., 2017). Co-assessment generally has a retrospective nature, which means it concerns services already provided by the organization and experienced by the user. However, the results of co-assessment activities can be used prospectively to improve services.

Our interest is to study the determinants of people's engagement into different kinds of value co-creation processes in the public domain, considering the role that the living context can have on their preferences (Virlée et al., 2020). In particular, in healthcare, some activities can be more complicated for patients who live far away from hospitals and/or in a region where the hospital's service offerings are limited (Virlée et al., 2020). Indeed, geo-physical proximity, which refers to “the connections between geographic locations and their inhabitants by physical contact and the exchange of goods and services” (Kolb, 2008, p. 132) can have an influence on patient co-creation activities at the systemic level (Virlée et al., 2020). More specifically, the authors highlighted that geo-physical proximity has an impact on the compliance of patients with the basics in the context of chronic diseases (Virlée et al., 2020). This can be related to difficulties in engaging in follow ups pre- and post- surgery, or in the revalidation of physical therapy, which leads patients to search for an independent physical therapist. Sometimes the patient finds a revalidation centre close to home; however, if it doesn't happen, the patient is in a difficult situation (Virlée et al., 2020).

Previous studies on the antecedents of co-production provided mixed results and, more important, may vary according to the type of service and activity (Cepiku et al., 2022). Different types of co-production activities may be facilitated by different determinants (Steen, 2021). Steen (2021) categorized co-production antecedents found in literature into citizens' (i) abilities, (ii) opportunities and (iii) motivation. Moreover, other factors such as trust, satisfaction, self-confidence, and context can have an influence (Cepiku et al., 2022; Fusco et al., 2023; Palma et al., 2019).

Purpose of the paper. Given these premises, the present study aims at investigating the patients' preferences for co-producing in healthcare by (i) focusing on the patients, as “experts by experience” (McLaughlin, 2009), and (ii) identifying what moves the preferences with respect to: the type of co-production, opportunities, abilities and motivations, by applying an experimental methodology. In particular, special attention has been placed on the factors above-mentioned, such as trust, satisfaction, self-confidence, and, in particular, the living context. Patients' preferences were detected considering people living in two different settings, namely in an urban or rural area, in order to investigate what moves people with different senses of place, remoteness and accessibility in participating in the value co-creation in the public sector, and, consequently, provide insights on the more proper co-production practices, and relative levers and process to be implemented by organizations to assure a successful engagement of people.

Methodology. This work uses data from a cross-sectional study carried out between September and December 2021, on 7266 patients. The study was based on a web survey including an observational section and an experimental one. The observational section consists of socio-demographic questions and reporting questions with single answers regarding the experience with healthcare services. Namely, we used for this study, variables collected with questions on: socio-economic characteristics, being a chronic patient as a proxy of being a stronger “expert by experience” for repeated use of healthcare services; the reasons for the hospital choice as a proxy of trust; the satisfaction with the last used healthcare service as a proxy of salience.

The experimental part of the survey was represented by two Discrete Choice Experiments (DCEs), administered on the Qualtrics Platform. The two DCEs aimed at analyzing the same attributes (see Table I) with two different scenarios: patients living in an urban area and patients living in a rural area. Patients were randomly assigned to one of the two experiments. Patients were asked to identify themselves with a chronic patient in an urban or in rural area before indicating their preferences. The scenario was introduced by the following sentence: “Imagine that you have a moderate chronic disease that requires regular check-ups”. The first experiment's scenario continued with the following sentence: “and that you live alone in a city with many services.”; the second scenario, instead, continued with: “and you live alone in a rural area.” Both scenarios were closed by: “Which of the two alternatives would you prefer?”. Data collection took place completely digitally. Patients were enrolled after hospitalization in two Italian regions, Tuscany (in both private and public healthcare organizations) and Veneto (in public organizations). For an in-depth description of the process of patients' involvement in the survey, please read De Rosis and colleagues (De Rosis

et al., 2020). The participants could access the study via smartphone, tablet or computer using a link. We administered the observational section of the survey using LimeSurvey and the experimental section through Qualtrics. The study was conducted in Italian.

Tab. I: Attributes and levels

Attributes	Levels
Type or phase of co-creation activities	1. To choose the modality of service provision 2. To do some activities independently 3. Co-evaluation of services 4. Use services as they are
Supportive network	1. Service providers 2. Group (of people with similar needs) 3. Community 4. Alone
Motivation - level of the return	1. Individual 2. Group 3. Collective/social

We carried out:

- 1) a descriptive analysis of the sample;
- 2) a dummy coding of respondents' preferences, by equaling 1 for each selected choice set and 0 for the not selected choice sets;
- 3) an analysis of DCE data through conditional logit modelling using STATA 17 software (Hauber et al., 2016).

Our dependent variable was respondents' preference in terms of co-production activity in the analyzed context.

We analyzed data by reporting the attribute importance and the preference share. The first one is a measure of the influence an attribute has when the respondent is choosing their preferred alternative. The higher the score, the more weight it carries in the decision-making process. Scores add up to 100. The second one measures the preference that respondents have for each level within a feature. The higher the score, the greater its weight in the decision-making process. In performing conditional logit models, we analyzed both main and interaction effects. The latter investigates the interaction between the choice and the variables collected in the observational section of the study. Namely, we used:

- Socio-economic characteristics: age class; sex; educational level
- Being a high-level user / Previous experiences: chronicity
- Trust in the service, measured as the choice of hospital based on the belief that the hospital is the best for the health condition of the respondent
- Salience of the service evaluated, linked to the demand-drive engagement, measured as the overall satisfaction of the hospitalization service and willingness to recommend.

Throughout the analysis, the p -value cut-off considered for statistical significance was $p < 0.05$.

Results. The main characteristics of respondents randomly assigned to the experiments are summarized in Table II. There are no statistical significance differences in the samples of the two experiments.

Tab. II: characteristics of patients in the two experiments.

Variables	Categories	Experiment 1	Experiment 2
Sex	Female	59%	57%
	Male	41%	43%
Age	<18	6%	6%
	18-44	31%	30%
	45-64	34%	35%
	>64	29%	28%
Highest education qualification	No educational qualification / elementary education	13%	14%
	Middle school	27%	27%
	High school	37%	38%
	Graduate or postgraduate	22%	21%
Citizenship	Italian	85%	85%
	Not Italian	15%	15%
Chronicity	Not chronic	60%	63%
	One chronicity	21%	20%
	More than one chronicity	13%	13%
	I don't know	6%	4%
Hospital-Region	Public- Tuscany	50%	49%
	Public- Veneto	36%	37%
	Private- Tuscany	13%	14%

Overall, the most selected reason for choosing the hospital is because the patients' doctor works there (32%), the second one is the proximity of the facility (23%), and the third is the positive reputation of the hospital (16%). The 11% arrived at the hospital with an ambulance and did not choose the hospital. 69% of respondents are very satisfied with the last service used (hospital stay), and around 90% of them will recommend the hospital.

Experiments' analysis

Results of the conditional logit models indicate that the most important lever is related to the support of the co-production activity proposed to the patients, in both experiments (Figure 1 and 2). On a scale from 0 to 100, the relative importance of each of the three attributes, affecting the respondent's choice of the alternative, is reported in Table III.

Tab. II: Attribute importance and preference share for the urban and rural scenarios

Attribute	Attribute Importance		Levels	Preference shares of the levels	
	Urban	Rural		Urban	Rural
Type of co-production activity	37.8	39	Use of healthcare services as they are	16.7%	15.3%
			To choose the modality of service provision	17.9%	15.1%
			To do some activities independently (i.e., measuring some health parameters)	16.5%	15.2%
			To have a direct channel with the company to evaluate the service provided (i.e., what worked and what didn't work)	48.8%	54.4%
Support	43.5	43.6	with the support of the healthcare staff	50.7%	57.6%
			with the support of people with similar healthcare needs	20.3%	17.3%
			with the support of the community (i.e., associations, neighbors, friends)	21.3%	19.5%
			alone	7.7%	5.6%
Motivation- level of the return	18.8	17.4	for a personal benefit	19.5%	17.8%
			whether it benefits patients in similar health conditions to mine	41.2%	42.5%
			if it contributes to the sustainability of the national health system	39.3%	39.7%

Fig. 1: Main effect of the logistic results in the urban scenario

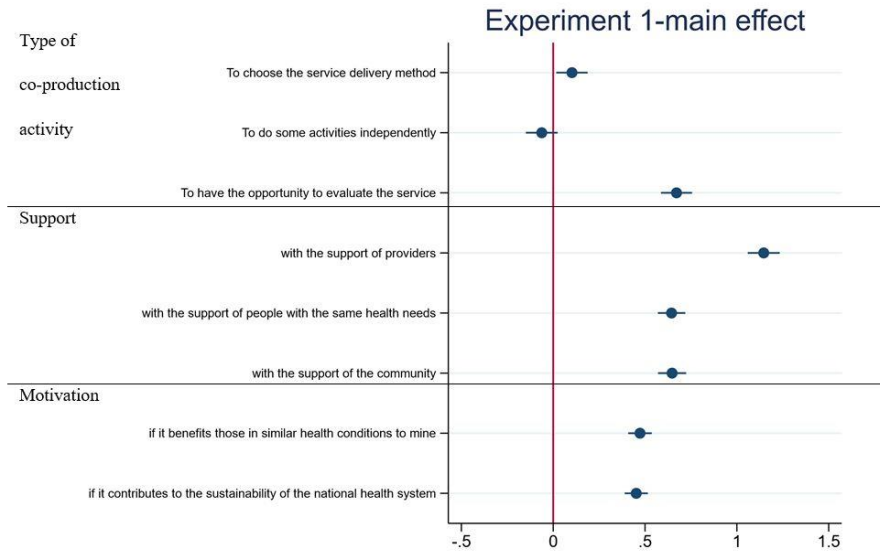
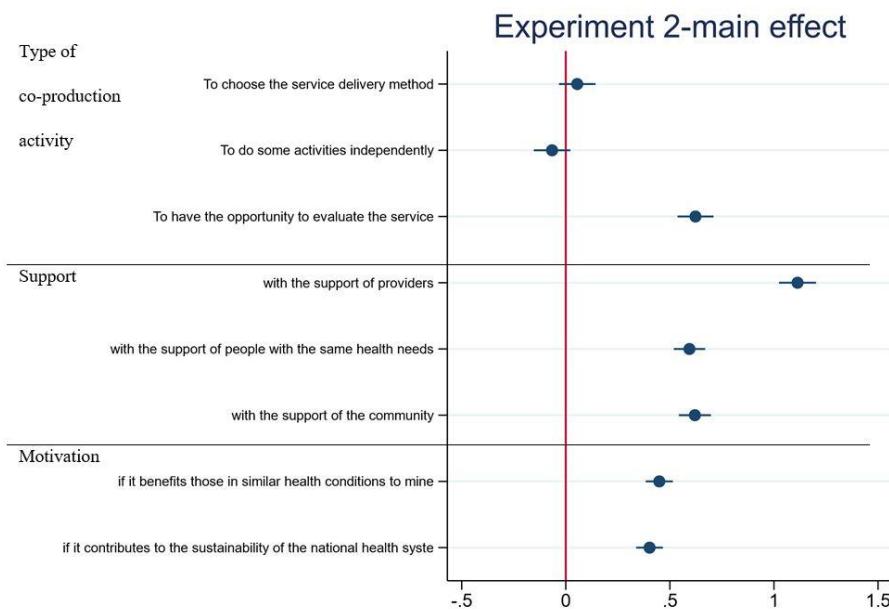


Fig. 2: Main effect of the logistic results in the rural scenario



Overall, our study shows that the preferences of patients, in terms of main effects, are not determined by the different living contexts. The differences we found do not regard the direction of the preferences, but the intensity, if any, and are described in the following lines.

In terms of co-production activity, along a continuum from co-commissioning to co-evaluate the services, the preferred option from patients is the latter (co-evaluation), which moves the choice of patients in both scenarios, with a higher preference share in the rural area. Considering the supportive network, co-production should preferably happen with the providers of the healthcare services, both in rural and urban areas. Also, in this case, the rural scenario counts as a higher preference. Finally, in terms of motivation linked to the return of the co-production activity, patients prefer to co-produce for the benefit of patients in similar health conditions, with a slightly higher preference share in rural areas.

The analysis of the interaction effects driving participants' preferences confirms the results. The direction of the preferences has just some exceptions, and very few variations were observed in the probability of choosing a specific configuration of participation activities for different co-production processes. In the following lines, we list only the statistically significant differences between rural and urban scenarios considering the interaction effects.

Co-assessment is the preferred option. However, we found a higher preference for co-design of services for more educated and younger participants (under 45 years old in the urban scenario, and between 18 and 45 years in the rural scenario). For co-delivery, we registered a change in the direction of the effect (from negative to positive) and a statistically significant difference between patients with the highest level of education and i) the lowest one, in the urban scenario; or ii) with a medium and low level of education in the rural scenario. In the rural scenario, being a chronic patient increases the preferences for the evaluation activity.

For the attribute of motivation, we registered a higher preference for benefits for the community rather than for the group for mild chronic patients (i.e., with one chronicity) in the rural scenario ($p < 0.001$), and for severe chronic patients (i.e., with more than one chronicity) in the rural scenario ($p < 0.001$).

In the following lines, we list the interaction effects we found in both urban and rural contexts, without differences.

In general, in both scenarios, we registered a higher preference for the co-assessment for patients with no trust in the service provider, who have not declared an excellent overall evaluation, and with a minor willingness to recommend. We registered positive preferences for patients with no choice based on trust ($p < 0.005$ in the urban scenario, and $p < 0.05$ in the rural one), and negative preferences for co-design for satisfied patients (who declared an excellent overall evaluation) ($p < 0.001$ in the urban scenario, and $p < 0.001$ in the rural one).

We registered a higher positive preference for co-design for patients with a minor willingness to recommend the hospital (who declared to not be willing to recommend the hospital for sure) ($p < 0.001$).

In terms of support in doing co-production activities: we found a lower preference for the support of providers, the support of patients' groups and the support of the community for older participants. The support of providers and of the group are more preferred by women, particularly in the urban area. The preferences for the support of providers, groups of similar patients and communities are lower for people affected by at least one chronic disease. Also, the preferences for the support of the providers in the co-production activities are higher for patients with trust, while the preferences for the support of the group and the community are higher for patients who have not declared that the choice of the hospital was based on trust.

Research limitations. Our research is not free from limitations, which offers avenues for future research. Although we applied a robust methodology based on an experimental survey, preferences are self-reported by respondents. Also, patients could be supported by caregivers in completing the questionnaire and the experimental part. As a result, they can only be observed as proxies of the actual behaviours of engagement in co-assessment processes. Future experiments are needed for testing the generalizability of our findings on the field. Another potential threat to the external validity of our inference lies in the generalizability of results to other sectors. The healthcare services are per se salient, in an internal as well as external or social perspective.

Discussion and Managerial implications. Our findings provide insights into what moves the engagement of patients in co-production initiatives in healthcare provided in a rural versus urban context.

One of our findings is that the area in which patients live, urban vs rural, does not change patients' preferences about co-production activities. All the variables related to the patient's ability to participate, opportunities, but also trust, satisfaction, self-confidence, as the living context, resulted overall not relevant with respect to the main effects that describe the people's preferences about co-production.

Co-producing with the support of healthcare providers is the strongest determinant of participation in co-production processes, for patients. In the rural scenario, compared to the urban one, results show lower preferences for patients in doing activities alone (the "zero alternative"), and a higher need for support from healthcare providers. This can be explained by the perception of higher need that people in rural areas can have, since their living context can be a poorer region by definition (Bathelt and Li, 2022), and in the healthcare sector in particular (Virleé et al., 2020). In fact, the literature underline how patients may experience greater difficulties in their care when living away from healthcare facilities (Virleé et al., 2020). Moreover, some scholars underline that rural individuals may define 'health' differently from their urban peers on the basis of their personal health-related beliefs, attitudes values and knowledge (Gessert et al., 2015). Thus, healthcare organizations should value the local perspective, listen to the local expectations, values, practices and perspective, in order to better understand and satisfy needs in remote contexts, as well as in non-local areas.

The phase or type of co-production is the second strongest determinant of participation for patients, with a higher preference for the co-assessment. In the rural scenario if compared with the urban one, we registered a higher preference for co-assessment, and less preferences for the other types of co-production activities, where the intensity of citizen contributions is typically higher (Loeffler and Timm-Arnold, 2021). Our results seem to indicate that patients prefer to be engaged in less intensive, more affordable, maybe perceived as an easier co-production activities: when tasks can be easily performed, users are more willing to co-produce (Nabatchi et al., 2017). This is in line with the evidence of the people ability (real and perceived) as an antecedent of participation (Steen, 2021).

In our study, patients' preferences are not directed towards co-delivery of the services, expressed in our study as contributing to the self-management of their care by doing some activities independently. Thus, it is important to understand what would move patients in participating in more intensive activities of co-production, by creating the right "conditions to make individuals, patients and communities able to improve their health and well-being and increase both individual and social value", such as applying person-centred and person-driven models (Leggett, 2014; Oliver, 2015) based on collaborative processes of education, activation, engagement and empowerment of people paying a greater attention to cultural and social contexts (Pennucci et al., 2022).

The motivation that mostly moves patients is the benefits of patients in similar conditions, strictly followed by the benefit for the community, both highly preferred to the personal return. Our findings confirm the importance of intangible rewards in stimulating people's participation in co-production activities (Cepiku et al. 2022). The solidarity-related motivation that move the preference for participation are higher in the rural scenario. Organizations should consider "the sense of belonging attached to rural space" (Gashi Nulleshi and Tillmar, 2022). This can imply the need to link both the co-production initiatives and its results in terms of activities of services' monitoring, re-design and innovation based on patients' co-production practices, with the local conditions, as well as with the local groups of interests and people-in-need.

This result can be also related to the salience of and the trust towards the healthcare services for patients. Unsatisfaction and less trust in the providers affects the preferences of patients to be engaged in the co-production processes. The implications of these results are crucial considering the centralization of high specialized and innovative services, which can regard both surgical procedures and chronic care services. People in rural areas perceive their living place as remote also in terms of opportunity of access to basic community services (Fahmy et al., 2004), and this is another key aspect to consider by organizations that want to engage with their patients.

Originality of the paper. This study applies an experimental methodology to provide insights into what moves the engagement of patients in co-production initiatives in healthcare. It takes a systemic perspective, considering i) different types of activities in which patients can be engaged, from the design of services to their evaluation; ii) two different contexts of living: urban vs rural; and iii) the important role of patients' informal networks.

Keywords: Co-production; Healthcare; User perspective; Discrete choice experiment; Context

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Preferences for monetary and non-monetary rewards in loyalty programs: the effect of gender and generation

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Abstract

When designing a loyalty program, a major decision for retailers concerns choosing which rewards and of which nature (monetary vs. non-monetary) to offer. Customers do not evenly react to the same rewards, urging retailers to maximize efficiency by identifying segments that share a common preference and design programs to target them. Traditionally, such segmentation is based on behavioural variables, such as expenditure or purchase frequency. Our study adopts a different perspective, based on customers' generation and gender, to investigate preference for monetary and non-monetary rewards as well as for loyalty programs overall. Data were collected through a panel survey on 2,009 Italian customers. Significant differences are found with reference to enrollment in a loyalty program and reasons not to enroll, and to preference for rewards.

Framing of the research. Loyalty programs are widespread across many retail sectors, as a way to keep profitable customers close and engaged. Research has shown that retailers may obtain a variety of benefits from loyalty programs, in terms of sales and gross profit growth (Chaudhuri et al., 2019). Moreover, loyalty programs have helped many companies enduring and recovering from the impact of the Covid-19 pandemic (Pascual and Cain, 2022).

Designing a loyalty scheme, however, is a complex task. Retailers designing a loyalty program must take into account multiple characteristics that all contribute to the program's effectiveness in terms of increased attitudinal or behavioural loyalty (Belli et al., 2022). Among these characteristics (e.g. enrollment type, fees, tiers, etc.), the types of rewards offered are key to the program's success. The type of reward, in fact, has a direct effect on store loyalty (Meyer-Waarden, 2015) as well as on retailer profitability (Bombaji and Dekimpe, 2020).

Rewards can be categorized with a variety of criteria: exclusivity, timing (i.e. whether the redemption is immediate or delayed), delivery (i.e. whether the rewards are direct, related to the retailer's core business, or indirect) (Kim et al., 2021). A major distinction is that referring to their nature, that differentiates between monetary (or "hard") and non-monetary (or "soft") rewards. Monetary rewards include all kinds of tangible and financial benefits (e.g. discounts, savings, coupons, and free products or samples). Non-monetary rewards are more difficult to frame, as they can be either tangible or intangible; their main feature is "providing psychological, relational, emotional, and functional benefits" (Meyer-Waarden, 2015, p. 23). Both monetary and non-monetary rewards have been shown to have a positive influence on customer satisfaction towards the loyalty program and the retailer (Bridson et al., 2008); also, non-monetary rewards seem to enhance a customers' sense of belonging towards the retailer, with positive relational outcomes (Lacey et al., 2007). Moreover, from a strategic point-of-view, it is best to offer non-monetary rewards alongside monetary ones as they are unique and not easily replicable by competitors (Chaabane and Volle, 2010).

Customers may react differently to the same rewards offered, for many reasons. For example, personality traits have been found to influence choice of rewards to redeem (Daryanto et al., 2010) as well as likelihood to join the loyalty program (Gómez et al., 2016). Haverila et al. (2022) point out that retailers should work towards identifying customer segments and understand whether and how they value different rewards, in order to improve their program effectiveness. Traditionally, customer segments in loyalty programs have been based on behavioural variables such as expenditure or purchase frequency (Dorotic et al., 2012). To our knowledge, no significant attempt at generalizing generation-related or gender-related differences in attitude towards loyalty program as well towards monetary vs. non-monetary rewards has been made so far.

Purpose of the paper. The present study investigates preferences for different types of rewards, as well as for loyalty programs overall, based on customers' generation and gender.

The Generational Cohort Theory (Inglehart, 1977) states that it is possible to identify distinguished groups of people that are born in the same time period, living similar experiences during their formative years (Meriac et al.,

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2010). These experiences contributed to form similar values, attitudes and beliefs shared by members of the same group, leading in turn to equally similar behaviors (Soares et al., 2017). So far, literature identified five generational cohorts: Silent Generation, Baby Boomers, Generation X, Generation Y or Millennials, and Generation Z, the latest. In marketing, the study of generations has extensively investigated how potential targets belonging to each group react to stimuli of different nature (Schewe and Meredith, 2004), such as social media advertising (Kamal et al., 2013) or price promotions (Eastman et al. 2021). Nevertheless, only a few studies have addressed the context of loyalty programs and generations, and typically with a focus on one generation only (e.g. Tahal, 2014, on Millennials); moreover, the majority of these studies attain to the hospitality and tourism sector. Extant studies depict the younger generations as hyper-connected, due to their early exposure to technology, and very receptive about social benefits (Agrawal, 2022). Generation X has been depicted as heavy spenders compared to Baby Boomers and Silent Generation, who are, in turn, more price-sensitive (Gauzente and Roy, 2012). We expect, therefore, that these characteristics will have an impact on rewards preference in loyalty programs too.

As what regards gender, studies in marketing suggest that men have preference for utilitarian benefits whereas women do value hedonic benefits more (Wolin, 2003). Such gender-specific preference has been investigated with reference to utilitarian and hedonic products (Wang et al., 2021) and sales promotions (monetary and non-monetary, Carpenter and Moore, 2008). Loyalty research on gender has been scant so far. Vilches-Montero et al. (2018) show that women and men differ in the information cues used to evaluate loyalty programs (respectively, innovativeness and perceived benefits of the program), which in turn affects store loyalty. Hu and Zhang (2021) study the effect of gender on utilitarian vs. hedonic rewards in the context of customer referral programs and identify significant gender differences on reward-product congruency. When the referral decision concerns utilitarian products, utilitarian rewards are more effective for men than hedonic rewards; similarly, hedonic rewards work better than utilitarian rewards for women making decisions about hedonic products. The opposite is not true for either men or women. Another study exploring gender-specific rewards preference is that of Melnyk and van Osselaer (2012). The authors address personalized attention and high statuses, that are related to the loyalty program's tier structure rather than the nature of rewards offered. Based on the aforementioned studies, we expect women to show a higher preference for non-monetary rewards, as the benefits offered are of hedonic nature, and men to favor monetary rewards, as utilitarian benefits.

In the present study, we therefore aim to shed light on personal characteristics influencing program and rewards preferences, and specifically we formulate the following research questions:

- RQ1: to find out whether gender and generational cohorts have a role in determining enrollment or non-enrollment in loyalty programs;
- RQ2: to identify generation-specific differences as far as reward preference. We expect that Millennials and Generation X will express a higher preference for non-monetary rewards than monetary rewards, and Baby Boomers and Silent Generation consumers will express a higher preference for monetary rewards than non-monetary rewards;
- RQ3: to identify gender-specific differences as far as reward preference. We expect that women will express a higher preference for non-monetary rewards than monetary rewards, and the opposite for men.

Methodology. The above research questions were investigated through an online survey conducted on a representative panel of Italian consumers by a leading consumer panel research company. A structured questionnaire was designed as follows. Participants were instructed to answer about their purchase behaviors as far as supermarket purchases and electronics purchases were concerned. Moreover, in order to ensure that they could offer reliable behavioral data, they were asked to refer to the retailer they had bought more frequently from in the past 6 months. To facilitate this task, they were provided with a list of all major Italian retailers operating in the supermarket and electronics sectors.

The questionnaire was composed by three sections. The first section investigated consumers' preference for retailers' channels, specifically the frequency of use of online vs. offline channels. The second section focused on loyalty programs: participants were asked questions about the length of relationship with their preferred retailer and its loyalty program, if they were enrolled, as well as engagement with the loyalty program. To measure the latter construct, the scale by Bruneau et al. (2018) was adopted; its internal consistency was verified through the Cronbach's α (Nunnally, 1994) and each item's factor loadings (Gerbing and Anderson, 1988). Those who, in turn, were not enrolled in their preferred retailer's loyalty program, were asked to disclose main reasons for non-enrollment. Finally, in the third section of the questionnaire, participants were asked to express their preferences for monetary vs. non-monetary rewards. Participants were first provided with examples of monetary and non-monetary rewards and asked to indicate their agreement with two items on a 7-points Likert scale (from "completely disagree" to "completely agree"). Also, participants were asked to rank their top three preferences from a list of 18 rewards of either monetary or non-monetary nature. The list was generated by drawing from industry practices.

Generational differences were investigated using the one-way Analysis of Variance (ANOVA), and post-hoc (Tukey's HSD and Tamhane's T2) evaluation of specific group differences. Following Levene's Test for homogeneity of variance, the Welch modification was adopted when needed (Gastwirth et al., 2009). Conversely, differences by gender were investigated through the T-Test for independent samples. Further differences among percentages, for categorical variables, were assessed using the Chi-Square test.

Results. Data were collected in September 2022 on a sample that was purposefully built to be representative of the Italian population. Table 1 summarizes the sample's demographic characteristics that were retrieved from the panel at the end of the survey. 2,009 valid responses were obtained (1,162 answered questions on supermarket retailing and 847 on electronics retailing).

Tab. 1: Sample demographics

Measure	Category	Frequency	Percentage
Gender	Male	1.023	50.9
	Female	986	49.1
Generation	Millennials	455	22.6
	Generation X	645	32.1
	Baby Boomers	739	36.8
	Silent Generation	170	8.5
Education	Middle-school degree	272	13.5
	High-school degree	1.045	52.1
	University degree	692	34.4
Income / Affluency	Low	318	15.8
	Below average	583	29.0
	Above average	630	31.4
	High	478	23.8

Starting with preferences for retail channels, we find that Italian customers are extensively using the offline channel for their purchases. 69.9% of participants in the sample shop exclusively offline, and 15.8% shop mostly offline. Conversely, only 1.1% are buying exclusively online and 3.8% mostly online. Finally, 9.5% of participants state they use offline and online channels without distinctions. Nevertheless, Millennials are more likely to purchase using online channels than Generation X (0.237, SE = 0.061, sign. 0.001), Baby Boomers (0.370, SE = 0.059, sign. 0.000), and Silent Generation consumers (0.394, SE = 0.086, sign. 0.000). In turn, Generation X use online channels more than Baby Boomers do (0.133, SE = 0.051, sign. 0.04). Significant differences are also found for gender, with men using online channels more than women ($t = 4.084$, sign. 0.000).

When it comes to the loyalty program, with reference to generations, Millennials and Generation X consumers show a significantly higher enrollment rate in their preferred retailer's program than Baby Boomers and Silent Generation. Women have a higher enrollment rate than men, too (Chi-square test = 18.263; $df = 3$). This is also shown by enrollment rate in other loyalty programs from the same sector. For example, 12.7% of Millennials and 8.7% of Generation X consumers are enrolled in more than six loyalty programs, against 3.7% of Baby Boomers and 2.9% of Silent Generation consumers. Similarly, 10.1% of women are enrolled in more than six loyalty programs, against 4.5% of men.

We asked the respondents who were not enrolled in their preferred retailer's loyalty program to express main reasons for non-enrollment, so as to obtain some insight about the eventual role played by rewards on this respect. Significant differences are identified for both generations and gender. Silent Generation consumers and men are, respectively, those more aware of the loyalty program's existence, but consciously choose not to enroll. Among identified reasons, issues related to the program design and reward system are prevalent: excessive effort in terms of time and additional payments requested to redeem rewards, rewards are not interesting or not valuable, redeeming rewards after enrollment is too difficult - 67.1%). Issues related to the enrollment procedure follow (privacy concerns, too many communications from the retailer, procedure too complicated or lengthy, lack of clarity about the program - 24.7%). Finally, 8.2% states they won't enroll because another family member is already enrolled in that loyalty program.

We also found that Baby Boomers and Silent Generation consumers, as well as men, are less sure about the retailer having a loyalty program or not than their counterparts. Finally, 23.7% of Millennials as well as substantial percentages for other generations state that their preferred retailer does not have a loyalty program; this issue is also shared by equal percentages of men and women.

Results for enrollment rates and statuses are displayed in Table 2 and Table 3.

Tab. 2: Enrollment status in loyalty programs

	Enrolled in LP	Not enrolled in LP	Not know if ret. has a LP	Ret. does not have a LP
Millennials	54.7	5.9	15.6	23.7
Generation X	52.1	6.4	19.7	21.9
Baby Boomers	48.0	8.3	27.5	16.2
Silent Generation	41.2	10.0	34.7	14.1
	Enrolled in LP	Not enrolled in LP	Not know if ret. has a LP	Ret. does not have a LP
Men	46.3	8.6	25.6	19.5
Women	54.4	5.9	20.1	19.7

Tab. 3: Enrollment in other loyalty programs

	<i>0 - Not enrolled</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6 or more</i>
Millennials	23.7	16.3	20.0	13.2	10.3	3.7	12.7
Generation X	27.0	24.2	18.4	12.2	6.7	2.8	8.7
Baby Boomers	36.3	24.8	22.1	9.3	2.4	1.5	3.7
Silent Generation	48.4	25.9	12.4	7.1	2.9	0.0	2.9
	<i>0 - Not enrolled</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6 or more</i>
Men	35.6	23.1	18.9	10.9	4.8	2.3	4.5
Women	27.3	22.4	20.4	11.1	6.5	2.2	10.1

Questions focusing on reward preferences, as well as the length of relationship with loyalty program and loyalty program enjoyment were addressed only to those participants who were enrolled in their preferred retailer's loyalty program. The following results, therefore, refer to 1,010 individuals out of the 2,009 sample (of which, 707 for the grocery sector and 303 for the electronics sector).

As for generations, it is shown 19.8% of Millennials have been purchasing from the same retailer for 1 to 3 years, 19.1% of them for 3 to 5 years, and 29.2% of them for 5 to 10 years, significantly more than other generations. However, only 20.7% of Millennials have been purchasing from the same retailer for more than 10 years, as opposed to 36.6% of Generation X, 36.9% of Baby Boomers and 35.9% of Silent Generation consumers. Measuring the length of relationship with the retailer's loyalty program yields similar results. Millennials, in fact, display the higher percentages for all time ranges but "more than 10 years". Such progression suggests that Millennials are a relevant target for retailers (Table 4). As for gender, women do display the highest percentage in the "more than 10 years" time range, whereas men display the highest percentage for the other time ranges, for both length of relationship measures. Differences are statistically significant (respectively, Chi-square test = 10.073; $df = 4$, and Chi-square test = 8.702; $df = 6$ - see Table 5).

When testing the loyalty program engagement, differences based on generations are not significant (ANOVA, $p = 0.58$), whereas differences based on gender are significant; women display higher engagement than men ($t = -2.241$, sign. 0.02).

Tab. 4: Generations, LoR retailer and LoR Loyalty Program

<i>LoR retailer</i>	<i>< 1 year</i>	<i>1 to 3 years</i>	<i>3 to 5 years</i>	<i>5 to 10 years</i>	<i>> 10 years</i>
Millennials	11.2	19.8	19.1	29.2	20.7
Generation X	11.0	14.3	16.6	21.6	36.6
Baby Boomers	11.4	13.4	17.1	21.2	36.9
Silent Generation	11.8	18.8	13.5	20.0	35.9
<i>LoR LP</i>	<i>< 1 year</i>	<i>1 to 3 years</i>	<i>3 to 5 years</i>	<i>5 to 10 years</i>	<i>> 10 years</i>
Millennials	12.0	28.5	20.9	24.9	13.7
Generation X	11.9	17.6	16.1	18.5	36.0
Baby Boomers	9.6	18.3	16.1	22.8	33.2
Silent Generation	8.6	22.9	20.0	17.1	31.4

Tab. 5: Gender, LoR retailer and LoR Loyalty Program

<i>LoR retailer</i>	<i>< 1 year</i>	<i>1 to 3 years</i>	<i>3 to 5 years</i>	<i>5 to 10 years</i>	<i>> 10 years</i>
Men	11.5	14.6	18.2	25.0	30.7
Women	11.0	16.6	15.9	21.0	35.5
<i>LoR LP</i>	<i>< 1 year</i>	<i>1 to 3 years</i>	<i>3 to 5 years</i>	<i>5 to 10 years</i>	<i>> 10 years</i>
Men	11.6	19.4	19.8	21.3	27.8
Women	10.3	22.2	15.5	21.6	30.4

When it comes to rewards preferences, the scores obtained for monetary and non-monetary rewards, expressed on a scale from 1 to 7, are shown in Table 6. An overall preference for monetary rewards over non-monetary rewards is shown. Nevertheless, Millennials and Generation X's mean scores for non-monetary rewards are higher than average. The Welch test ($p = 0.002$) identifies significant differences among generations for monetary rewards. As emerging from Tamhane's T2 post-hoc, Silent Generation consumers display higher preference for monetary rewards than Millennials (0.446), Generation X (0.547) and Baby Boomers (0.553). No significant differences were identified for non-monetary rewards (ANOVA, $p = 0.66$). As for gender, no significant differences were found with reference to rewards preference. We can, however, appreciate that men and women display equal scores for monetary rewards, whereas women's preference for non-monetary rewards is above the average.

Tab. 6: Preference for rewards' nature

	Monetary rewards	Non-monetary rewards	Diff.
Millennials	5.94	4.62	1.32
Generation X	5.84	4.62	1.22
Baby Boomers	5.83	4.43	1.4
Silent Generation	6.39	4.37	2.02
Mean	5.90	4.53	
	Monetary rewards	Non-monetary rewards	Diff.
Men	5.90	4.47	1.43
Women	5.90	4.59	1.31
Mean	5.90	4.53	

Finally, consumers expressed preference for a variety of rewards, through ranking. Out of 18 alternatives, drawn from industry practices, significant differences were identified with respect to generations and four rewards: free products/services, birthday gifts, gift upon reaching tier, and special deals only for members (Table 7). According to Tamhane's T2 post-hocs:

- Baby Boomers display higher preference for free products/services than Silent Generation consumers;
- Millennials and Generation X display higher preference for birthday gifts than Silent Generation;
- Silent Generation display higher preference for gift upon reaching tier than Baby Boomers;
- Silent Generation show higher preference for special deals only for members than Millennials, Generation X and Baby Boomers.

Tab. 7: Generations and rewards preference

	Sum of square	Df	Mean squares	F	Sign.
Free products	7.494	3	2.498	2.570	0.04
Birthday gifts	7.827	3	2.609	2.573	0.05
Gift upon tier	10.270	3	3.423	2.959	0.03
Special deals	16.375	3	5.458	5.894	0.01

	(I)	(J)	(I-J)	SE	Sign.
Free products	Baby Boomers	Silent Gen.	0.342	.106	0.01
Free shipping	Millennials	Silent Gen.	0.317	.112	0.03
	Gen. X	Silent Gen.	0.292	.106	0.04
Gift upon tier	Silent Gen.	Baby Boomers	0.389	.141	0.03
Special deals	Silent Gen.	Millennials	0.534	.159	0.01
		Gen X	0.443	.157	0.01
		Baby Boomers	0.485	.156	0.01

As regards gender, differences have been found with reference to: free samples, prizes catalog, birthday gifts, special deals only for members, and the possibility to try (not purchase) new products. As follows:

- Women display higher preference for free samples ($t = -3.227, p = 0.001$), birthday gifts ($t = -2.903, p = 0.004$), and trying new products ($t = -2.228, p = 0.02$).
- Men display higher preferences for prizes catalog ($t = 3.430, p = 0.001$), and special deals only for members ($t = 3.105, p = 0.002$).

Research limitations. The study presents a few limitations, that might also represent cues for future research.

The main limitation concerns the setting in which the study has been developed. Customer preferences towards rewards of a monetary or non-monetary nature might be affected by their culture as well as industry practices in that country. It might therefore be interesting to extend and replicate the study to other countries, where offering non-monetary rewards in loyalty programs is more or less common among retailers than in Italy. On the other hand, data were collected in a period of economic and financial uncertainty for the country, when consumers were deeply concerned about high inflation rates and high energy prices. These factors might have had an impact on the overall predominant preference for monetary rewards expressed by Italian consumers.

Managerial implications. The paper offers insights for retailers as concern the design and redesign of loyalty programs. As regards generations, it has been shown that Millennials and Generation X show the highest percentage of enrollment in loyalty programs, compared to Baby Boomers and Silent Generation. As such, it makes sense for retailers to focus on their retention, and also consider working towards integrating the loyalty program with their online channels - given that Millennials are those more prone towards online adoption for purchases. Differences about channels used and length of relationship are less marked when it comes to gender; men, however, are found as more open towards online channels than women.

No significant differences have been found for monetary and non-monetary rewards, neither across generations nor across gender identities; nevertheless, Millennials, Generation X and women expressed above-the-average evaluations

for non-monetary rewards. Also, preferences towards specific rewards have been identified. Retailers interested in targeting these consumers might consider offering non-monetary alternatives in their programs, and eventually later in the relationship with the customers.

Originality of the paper. The study provides evidence about differences occurring between generational cohorts and gender identities about rewards preferences and enrollment in loyalty programs, thus integrating extant literature. On the one hand, a generational perspective on rewards preferences is offered, opening the discussion about how a generation's shared values and beliefs may affect individual choices in loyalty programs. On the other, data about how genders differ in loyalty are provided.

Keywords: Retailing; loyalty program; generational cohort theory; gender; reward nature

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The gap between real and perceived sustainability inside grocery stores

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Framing of the research. Nowadays sustainability is an important aspect that a retailer must include in its strategy in order to be competitive on the market (Elg and Welinder, 2022). In fact, consumers look for sustainable stores and have an higher opinion of those retailers who act as good citizens (Luo and Bhattacharya, 2006; Kim et al., 2014). Typically, the main motivations for retailers to embark on sustainable strategies are, in addition to economic profitability, environmental regulations and consumer pressure (Saber and Weber, 2019). Bekele, Bosona, Nordmark, Gebresenbet and Ljungberg (2012) highlight the importance for the company to pursue sustainable actions, especially in the food sector, in terms of social, economic and environmental sustainability (Bhattacharyya, Dash, Hewege, Balaji and Lim, 2021). In fact sustainability must be pursued by companies which have the possibility to encourage sustainable behaviours in their customers. Furthermore, sustainability can support brand trust and credibility of retailers (Elg and Welinder, 2022). In fact, it is important to involve sustainable strategies in corporate agendas and guidelines. Luo and Bhattacharya (2006) found that retailers need to implement CSR if they want to build a satisfied customer base. Corporate social responsibility (CSR) can be defined “as an organization’s ethical behavior and social obligation beyond their own financial profits” (McWilliams et al., 2006). CSR can help retailers build their reputation by giving consumers a positive image (Singh, 2016). However, CSR positively influences the performance of companies, such as sales, market share and return on investment (Margolis and Walsh, 2003; Surroca et al., 2010; Abu Bakar and Ameer, 2011; Ko et al., 2013 Saeidi et al., 2015; Chaudary et al., 2016) and enables retailers to build and maintain long-term customers relationships (Hultman and Elg, 2018; Walker et al., 2019). Yazdanifard and Mercy in 2011 conducted a research that highlighted the fact that consumer decide to visit and shop in those store that embody sustainable values, sell sustainable products and develop sustainable initiatives. The literature states that consumers are willing to pay a premium price for green and sustainable products (Yazdanifard and Mercy, 2011). Indeed, Haanpää (2007) said that the consumer’s way of life in terms of environmental attitude greatly affects consumer behaviour and, consequently, consumption and purchasing choices. However consumers give different levels of importance to CRS strategies. Mohr and colleagues (2001) identified four types of consumers. The first group comprises the pre-contemplators, who do not base their choices on CSR; the second group comprises contemplators who take into account CSR, but they don’t take action. The third group is made of action-oriented consumers, who sometimes use CSR as a purchasing criterion. Finally, we have maintainers, who always use CSR as a driver. No matter which is the level of sustainable involvement, according to a study by Su, Duong, Dinh, Nguyen-Phuoc, and Johnson (2021), if consumers recognize the retailer’s commitment to responsible strategies, there is a greater probability that they will select those store and carry out their shopping expedition. What plays a key role in the success of a retailers’ sustainable strategy is the consumer perception. The perceptions of consumers are “shaped from various sources when they obtain information about retailers’ environmental activities, including from print and social media advertisements, word-of-mouth from existing customers, or personal visits to the store” (Kumar and Polonsky, 2019). The link between what the retailer does and communicates and what the consumer perceives is mediated by two fundamental concepts: credibility and trust in the retailer. Communicating a sustainable image creates expectations in the mind of the consumers (Soppe et al., 2011) and what consumers perceive shapes their evaluation of services and offer (Kumar. and Polonsky, 2019) and, as a result, impact trust (Walker and Kent, 2013). Trust can be defined as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer et al., 1995, p. 712). Previous research (Luo and Bhattacharya, 2006; Cacho-Elizondo and Loussaief, 2010; Perrini et al., 2010) stated that retailer’s social responsibility efforts have a positive influence on consumer attitudes and trust. Building consumer trust is not an easy task. Moreover, consumers’ trust can be affected by several factors, like services, salesperson, product etc. (Komiak and Benbasat, 2004). In turn, trust affects consumer perceptions (Nguyen and Pervan, 2020). Indeed, not only credibility and trust influence consumer decision-making (Dawar and Parker, 1994;

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DeWitt et al., 2008; Guenzi et al., 2009 Nilsson et al., 2012;), but the perception consumers have of the information they collect encourages consumers to trust the retailers' product-related information (Kumar and Polonsky, 2019). It is important to stress that not all levers of in-store marketing equally perform in terms of sustainable strategies. According to the Cue Utilization Theory, the cues and information considered are those who are readily available, easily processed and salient (that are relevant for the consumers and have a higher probability to be noticed). Since it is a matter of perceptions, consumers may not be able to correctly select the appropriate cues and perceive certain features (Gaiser, 2020). A previous research conducted by Mauri, Pacicco, Petruzzellis and Pichierri (2022) reported that the elements that consumers consider in the evaluation of the sustainable image of a retailer are low-plastic packaging, reduced plastic waste, local products and finally, because still not properly implemented in Italian retailers, the bulk products. Their research was based on levers of services, social campaign and product range. What is missing in the literature so far is an analysis that takes into account all the levers of in-store marketing.

Purpose of the paper. Given the importance of sustainable strategies, able to influence brand identity and loyalty (Anselmsson and Johansson, 2007; Park and Kim, 2016; Simões and Sebastiani, 2017) and given that customers' perceptions have a high degree of importance in assessing the retailer's sustainable behavior (Grewal and Levy, 2007; Gupta and Pirsch, 2008), it is paramount to understand which levers managed in store contribute better to the image of sustainability of retailers. Our research intends to investigate consumers' perception of sustainable strategies developed by grocery retailers in order to understand in which ways they are involved in the decision making process. The present work aims to enrich the results of previous research by considering not only assortment's strategies but also space management and green instore communication. Specifically, our work intends to answer the following research questions:

Q1 - Which is the main definition of sustainability given by consumers?

Q2 - Which strategies are developed and communicated by grocery retailers and which levers are managed inside the stores?

Q3 - Which are the levers perceived by the customers and which variables do they use to develop their own sustainable image of a store?

Q4 - Is there a gap between real and perceived sustainability?

Methodology. In order to pursue these research aims, we used qualitative methods based on focus group and store checks. Focus group discussion took place between February and March 2022 and involved 40 participants. The sample consisted of 69% women and 31% men. 38.5% were under 25, 36% were aged between 26-40 and 25.5% were aged between 41-61. A screening questionnaire was used in the recruitment process to be sure that all the participants were responsible for buying food products for themselves or their families. Participants who took part in the first phase of the study (Focus Group 1) were asked then to take part in a second step (Focus Group 2) so that we interviewed each participant twice. In the first phase we asked participants to discuss the main concepts of sustainability and sustainable strategies developed by retailers in order to understand their importance in the decision making process. At the end of the first focus group they were asked to indicate their habitual store and were invited, during their next shopping expedition in those stores, to take pictures of everything that seemed sustainable to them. Then during the second focus group they were asked to comment the pictures and to motivate them. Each discussion lasted for about one hour and a half and was sound and video recorded. Sessions have been videotaped and verbatim transcribed for the purposes of thematic analysis. Secondly, store checks were conducted. Researchers from the University of Parma of the marketing area went to the same stores visited by the participants to observe analytically all the strategies implemented. They used a systematic and structured approach for collecting and analysing data in order to compare the results with the levers perceived by shoppers and measure the gap. Our research focused the analysis on physical stores since they represent the most powerful touchpoint. As Lehner (2015) stated, the retail store is an important player in the promotion of sustainable consumption.

Results. In order to answer the first research question, focus groups participants were asked to discuss the concept of "sustainability" and the main meanings associated to it. Then, participants were invited to indicate and comment the "sustainable strategies" developed by grocery retailers they were used to visit. This second section allowed the researchers to answer the second research question. In order to analyze the data, the 'word association' tool of T-Lab has been used. Specifically the software helps identifying the words that were associated most with 'sustainability' and 'sustainable strategies', selected on the basis of their meaning and number of times they occurred (Papaleo et al., 2013). The software presents these correlations as radial diagrams with the word(s) selected at the center and all the others distributed around it at distances proportionate to their degree of association. The outputs are presented in Figure 1 and Figure 2.

Fig. 1: Sustainability's associations

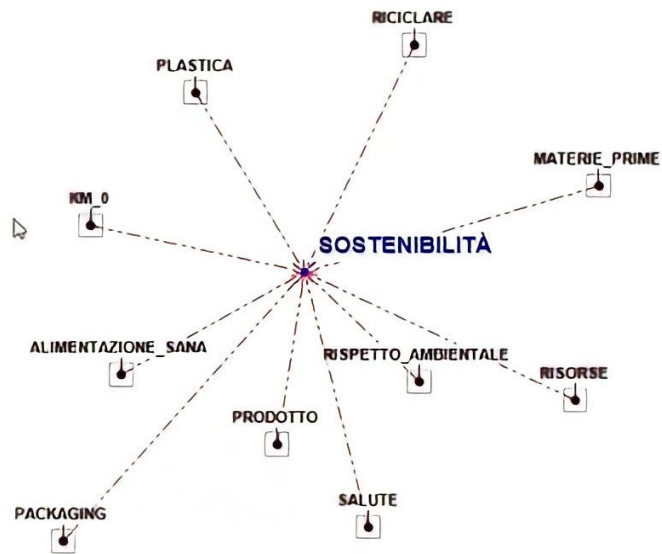


Fig. 2: Sustainable strategies' associations



The results show that the concept of sustainability has an environmental dimension since it is mainly associated with environmental respect and efficient management of the resources, but also a consumption dimension, associated with sustainable products, local products and the quality of raw materials. Furthermore, sustainability goes along with the concept of health and healthy products and the packaging (recyclable and plastic free).

Considering the sustainable strategies, it is possible to find overlap of results, given the already mentioned important role of grocery stores in shaping consumers' behaviors and choices. Thus, sustainable strategies are plastic reduction and sustainable packaging, price reduction of sustainable products, energy saving, sustainable communication, promotion and visibility of fruits and vegetables, control of the supply chain and quality of the raw materials.

The second part of the analysis tried to compare the strategy implemented in store (considering the retail mix) and the levers perceived by shoppers during their shopping. Thus, the researchers took note of all the strategies implemented in store by 10 retailers present in the Italian market and divided them into assortment strategies, communication strategies and space management strategies, considering a total of 18 levers (4 for the price and assortment, 7 for the space and 7 for the communication). The pictures provided by the participants during the second focus groups, were used to identify, among all the levers that a retailer can manage in store, those that were actually perceived by shoppers. Table 1 shows for each retailer (identified with a letter) the percentage of levers not mentioned by shoppers in the three strategic dimensions (assortment, communication and space).

Tab. 1: Strategies implemented vs strategies perceived by shoppers

RETAILER	ASSORTMENT	SPACE	COMMUNICATION
A	0,0%	0,0%	16,7%
B	16,7%	33,3%	50,0%
C	42,9%	33,3%	60,0%
D	33,3%	83,3%	28,6%
E	16,7%	50,0%	75,0%
F	16,7%	42,9%	40,0%
G	42,9%	60,0%	20,0%
H	0,0%	33,3%	83,3%
I	16,7%	0,0%	0,0%
L	16,7%	0,0%	66,7%
average	20,2%	33,6%	44,0%

The table tells us the on average, the communication strategies implemented was not fully considered and seen by shoppers to create their own sustainable image of the retailers they are used to visit. Probably, this is not because its an ineffective levers itself, but because it is not yet exploited adequately by retailers. Communication is a very powerful lever, which could serve as a real guide for shoppers in purchasing sustainable products.

On the contrary, products and assortments, in line with the results of the focus groups, are the strategies mostly mentioned and seen by shoppers. When we talk about the product, we talk about a tangible element, that is not only easier to perceive since it is consumed, but also more credible for the consumer (Elg and Welinder, 2022).

Research limitations. This research is an initial step to better understand the gap between real and perceived sustainability. However, this study has some limitation. In fact, the results are to be considered in specific urban areas, with a sample that does not allow generalization. Secondly, this research only focused on the Italian market, in particular the Northern part, which limits generalizability to other countries and sectors. Further research should focus on quantitative analysis that can statistically measure the data.

Managerial implications. In the grocery sector, being able to communicate to customers the sustainable activities developed by retailers becomes a central element of marketing strategies to positively impact brand image, brand value and store awareness (Marín-García et al., 2021). A sustainable strategy well perceived by the consumers, can give the retailers economic advantages in terms of improvements in the store image and consumer loyalty to stores (Wiese et al., 2015). The retail store has a key role in the promotion of sustainable consumption. However, retailers do not sufficiently recognize this potential (Lehner, 2015). For the retailer it is essential not only to understand how much to invest on sustainability, but also and above all on which levers to invest.. Understanding which strategies can be most effective in relation to the retailer's target must become a priority (Marín-García et al., 2022). Measuring the effectiveness of the different strategies developed and the levers managed could became a systematic practice to better allocate resources and obtain an increase in the performance.

Originality of the paper. For the purpose of the study we analyzed how shopper perceive and use not only assortment's strategies but also space management and green instore communication, in order to enrich the results of previous research. Moreover, we tried to measure the gap between strategies implemented by retailers and strategies perceived by shoppers in the food context, providing useful insight for companies that have to decide on which strategies invest in order to communicate a sustainable image on the market.

Keywords: perceived sustainability; consumer perception; CSR; grocery shopping

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Grocery shopping: just a matter of time?

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Framing of the research. *Pandemic, war, inflation (+8% in 2022), rising costs and restrictive monetary policies: it is a combination of negative factors that puts retailers under stress. On top of this, the Italian retail market is facing several challenges, including a saturated market, a decline in population growth, an increasingly discerning and less brand loyal consumers. Furthermore, challenges include the intensification of market competition, the emergence of alternative distribution channels, the blurring of boundaries between suppliers and retailers, and the elevated bargaining power of prominent retailers.*

Focusing on physical stores, these changes has led to a progressive abandonment of large surfaces in favor of smaller sizes, with a more capillary presence throughout the territory. The new kind of stores are usually very innovative small sales outlets, which make extensive use of technology, also in support of the sales outlet staff. In detail, stores with large sales surfaces (between 1,500 and 5,000 m²) decreased by -12% in 2021 compared to the previous year (Osservatorio eCommerce B2C, Politecnico di Milano). Accordingly, some retailers such as Pam Panorama Spa and Esselunga have recently opened new outlets in strategic locations in Milan to cater to their customers' daily shopping requirements while providing a wide range of products through e-commerce (EuroMonitor, 2022a).

In this context, traditional grocery retailers offering omnichannel opportunities are expected to perform well in the near future. These retailers are also set to invest in improving their services, such as providing sustainable and healthy products and prioritizing health and safety measures, which have gained popularity during the pandemic (EuroMonitor, 2022b).

In short, the grocery retail sector, as the whole retail industry, is experiencing an important evolutionary phase in which the paradigms of competition, costumers management and location choices is rapidly changing following new rationales.

Utilitarian and hedonic shopping orientations

Numerous studies have been conducted to investigate the factors influencing consumer channel choice (Konus et al., 2014; Montoya-Weiss et al., 2003) and their multichannel behavior (Gensler et al., 2012; Konuş et al., 2008; Neslin et al., 2006). Additionally, researchers have explored the utilitarian and hedonic values that drive consumers' shopping behavior (Anderson et al., 2014). This distinction has been extended in the retail context to portray shopping as either work or a pleasurable activity (Fischer and Arnold, 1990; Bloch and Bruce, 1984). These two overarching areas represent the fundamental motivations for understanding consumer shopping orientations, as they serve as the foundation for all consumption phenomena (Babin et al., 1994).

The utilitarian shopping motives refer to the functional attributes of shopping, such as saving time and effort (Babin et al., 1994). Utilitarian and hedonic shopping motives have distinct emotional effects, depending on the consumer's consumption motivations. For instance, Anderson et al. (2014) found that the utilitarian shopping motive has a positive emotional impact in the case of time savings and ease of access to information, as it is viewed as more efficient and rational. Consumers who have utilitarian motives aim to purchase products quickly and efficiently to achieve their goals with minimal effort and avoid any stimuli that may cause irritation.

Furthermore, grocery shopping is mainly an instrumental behavior and is not intrinsically enjoyable. As such, beliefs about specific goal-oriented features of the online shopping environment have a stronger influence on attitudes and intentions to use such an environment. For example, big-box discount stores and warehouse grocery stores are designed to facilitate efficient shopping rather than to entertain and amuse shoppers as for online shopping (Childers et al., 2001).

Utilitarian factors: time-saving and location (proximity)

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Regarding channel choices, consumers employ multiple channels for pragmatic reasons, such as saving time, money, and effort (Hsiao et al., 2012). Utilitarian perceived value explains usage and eventual purchases on the internet or in brick-and-mortar stores. Consumers consider brick-and-mortar stores to have the highest immediate possession value, while the internet has the best price comparison value (Noble et al., 2005). In a multichannel environment, stores are positioned on service, while the internet is positioned on search convenience, ease of information comparison, and, to a lesser extent, money savings (Verhoef et al., 2007).

Apart from saving money, the objective of saving valuable time has been consistently emphasized as significant for pragmatic shoppers who strive to maximize the efficiency of their shopping trip (Kim et al., 2014). Although consumers who favor proximity stores, such as city stores, tend to be more influenced by non-utilitarian factors, they are nevertheless attentive to the time-saving benefits of shopping in their neighborhood (Cervellon et al., 2015).

Proximity, defined as the physical distance between the consumer's home and the convenience store, has a strong influence on channel choice (Gahinet and Cliquet, 2018). Consumers are more likely to patronize convenience stores that are closer to their homes. The study suggests that the closer the convenience store is to the consumer, the more likely they are to choose it as a shopping channel. Consumers' channel choice is predominantly determined by functional proximity, however, it is also favored by consumers as they enable them to save time and organize their visits more optimally (Gahinet and Cliquet, 2018).

Consumers choose stores based on a tradeoff between time-saving, shopping convenience, and price. One-stop shopping has become prevalent due to the increasing demand for time-saving convenience, indicating that consumers value their time more.

The model suggested by Messinger and Narasimhan (1997) indicates that consumers' choice of retail format is influenced by the perceived efficiency of the format in terms of saving time during the shopping experience. They find that consumers are motivated to economize on shopping time due to their busy lifestyles and the value they place on time.

The authors recommend that retailers should adopt more efficient retail formats to reduce shopping time and they identify three retail formats: convenience stores for easy access and quick service, supermarkets and hypermarkets for a wide range of products and lower prices. In a multichannel environment, retailers could also enhance the efficiency of their retail formats by offering services such as home delivery, self-checkout, and online shopping (Messinger and Narasimhan, 1997).

Competition

There are two schools of thought regarding competitive interaction and retail structure: the first is referred to as "symbiosis", the second school of thought, instead, is named "Darwinism". The former suggest that retailers have mutually beneficial effects on one another while the latter wants that retailers fiercely compete for limited consumer dollars in a survival-of-the-fittest type of challenge. Theories supporting symbiotic relationships among retailers include multipurpose shopping (Ghosh 1986), minimum differentiation (see Brown 1989), symbiosis (cfr. Hirschman 1978 and 1979), resource partitioning (Carroll 1985), localized competition (Baum and Singh 1994; McPherson 1983), and social mutualism (Leifer 1985; White 1981; White and Eccles 1987).

Darwinists take the position that competition is a zero-sum game. Generally, it is an accepted tenet of competition that lower differentiation among businesses leads to lower prices, profits, and sales (Aaker 1992; Czepiel 1992; Kerin et al., 1990). Ingene and Lusch (1981) examine intratype competition between mom-and-pop grocery stores and full-line grocery stores. They predict that crowding out occurs because these stores offer similar product lines. Conditionally, multipurpose shopping (Ghosh 1986), resource partitioning (Carroll 1985) and localized competition (Baum and Singh 1994), reach the same conclusion.

The current scenario closely fits this second description. The proliferation of additional shopping channels presents new challenges for retailers, who have to compete in a complex environment in order to avoid the issue of consumer crosschannel free riding (Pantano and Viassone, 2015). Hence, retailers face new challenges to successfully compete in the emergent scenario (Neslin et al., 2006).

Ellickson et al. (2020) argue that competition between retailers is due to consumer preferences and trade-offs between store features (such as assortment, amenities, and prices) and travel distance. The authors suggest that measuring competition requires identifying the relevant consumer choice set, accounting for overlap in ownership across products, and estimating the degree of substitution between the relevant options.

Purpose of the paper. This paper tries to shed light on all these features by providing a comprehensive assessment of the structure, competitiveness and consumer behavior of the Lombardy region's grocery retail sector.

Indeed, The choice of physical retail channel is influenced by a multitude of factors, including product quality and ethical values, as well as utilitarian motivations (e.g., time-saving, location, proximity to the retailer). Understanding the impact of these motivations on consumer choices is crucial for retailers aiming to attract and retain customers.

According to EuroMonitor, the opening and relocation of retail stores to city centers are driven by the increasing demand for convenience and proximity to consumers. However, declining demographics in Italy set a challenge for retailers, as they have to compete for the same marketplaces and consumers. This has resulted in increased competition among retailers, who are striving to differentiate themselves from their competitors and offer unique value propositions to their customers.

In this context, the dynamics of competition among retailers are changing and retailers need to understand the interplay between utilitarian and hedonic shopping motivations to ensure customer satisfaction.

Based on these insights, the following research questions may be relevant for an academic retail marketing paper:

- (1) How do utilitarian (such as time-saving, location, and proximity) and hedonic shopping orientations (such as emotional connections and brand values) impact consumer choices in the context of physical retail channels?
- (2) How are retailers adapting their strategies to the changing dynamics of competition?
- (3) Can we still talk about retail loyalty?

Methodology. Given that the aim of this paper is to answer a threefold research question we have to apply a diversified empirical strategy able to tackle all the different issues we want to address.

As first, in order to investigate which shopping orientation impact the most on consumer choices in the context of physical grocery retail stores, we have resorted to a survey approach which consists of a questionnaire submitted both physically and online to a sample of over 2.000 retail consumers to explore their purchasing patterns, their expenditure, their consuming behavior and their shopping orientations.

Then, to assess how retailers are changing their location strategies and how competition is evolving in the grocery retail industry we provide a measure of the overlap rate of retailers in the major cities in Lombardy and investigate the possible substitution patterns between different physical stores by the same consumer. To do this we resort to a model of spatial demand, that can provide measures of both substitution patterns and competitive pressures (cfr. Ellickson et al., 2020 and Cervellon et al., 2015).

This model allow to estimate the complex spatial interrelations within and/or between stores of the same and/or different group, therefore depicting a more interesting and relevant picture of the contemporary competitive scenario.

Results.

Fig. 1: Relevance of shopping orientation factors obtained from survey answers.
Likert scale from 1 (not important) to 7 (very important)



As can be noticed from Figure 1, distance and accessibility are the predominant elements in determining the choice of stores to go to. On this basis, consumer loyalty tends to fade and to leave space to proximity, accessibility and time-to-shop, which become the key drivers of consumers' choices about the stores in which to shop.

These is reflected in the competitive dynamics traceable for grocery retail stores in the main Lombardy region cities. As it is described by Table 1, there is a high concentration of grocery stores in urban areas, with the closes grocery store that is, on average within 2 minutes and a half by foot and 1 minute and a half by car from consumer's home, leading to

Tab. 1: Average times (in seconds) to reach the nearest point of sale by car or on foot, by province and by type of sales point and in general (Total). SUP stands for supermarkets, IPR for Ipermarkets, LIS for sales area and DIS for discount

Municipality	By Foot					By Car				
	SUP	IPR	LIS	DIS	TOT	SUP	IPR	LIS	DIS	TOT
Bergamo	127	127	102	175	139	42	34	80	50	52
Brescia	159	171	236	164	171	80	71	78	48	67
Como	150	257	181	192	186	37	94	50	104	63
Cremona	211	102	122	200	176	100	52	17	48	60
Lecco	313	84	75	246	225	61	177	25	118	100
Lodi	102	1224	201	101	243	126	191	72	37	89
Mantova	90	157	-	449	219	16	52	-	119	55
Milano	93	189	74	117	94	66	74	73	69	70
Monza	139	200	138	344	184	42	128	40	201	84
Pavia	411	227	132	161	234	110	74	35	31	61
Sondrio	217	-	123	135	158	42	-	62	32	52
Varese	110	100	90	90	101	42	72	133	17	51
Average	126	206	89	160	129	65	81	70	66	68

To further confirm the concentration phenomenon, Table 2 shows that within a “radius” of 10 minutes on foot, the number of points of sale is on average 4 with a peak of 6 in the city of Milan. Moving by car, these figures increase to 62 (within 10 minutes) and 216 (within 20 minutes) with a peak of almost 400 in the city of Milan.

Tab. 2: Average number of points of sale in the three isochrones equal to 10 minutes on foot, 10 minutes by car and 20 minutes by car

Municipality	By foot	By car	
	10 minutes	10 minutes	20 minutes
Bergamo	2	43	143
Brescia	2	39	117
Como	1	21	72
Cremona	2	26	35
Lecco	1	17	40
Lodi	2	24	46
Mantova	1	19	38
Milano	6	105	384
Monza	2	64	324
Pavia	2	26	51
Sondrio	4	17	30
Varese	1	24	74
Average	4	62	216

Research limitations. The results obtained from the paper analysis represents a “screenshot” of single moment in time (albeit an actual one) within a single region. Therefore, it could be interesting to test how these results compare to other analysis in different moments and/or different regions/country.

Managerial implications. The study presents an overview of the current Italian grocery retail market, where people are facing time constraints and have limited time to spend on grocery shopping. To address this issue, large-scale retailers are opening more stores in city centers, providing consumers with easier access to quality products, and catering to their need for time-saving. In addition to offering complete product assortments, retailers are increasingly investing in e-commerce and multichannel retailing, which enable them to bring the store to the customers, delivering products right to their doorstep, thus fulfilling the need for convenience.

This trend is causing a shift in the competition among retailers, as they are cannibalizing each other by opening stores in the same areas, and customers are becoming less loyal to a particular retail store. To measure this competition, the authors developed a retail competitiveness index that helps to identify substitution patterns and assess the level of competitive retail pressure.

The convenience factor has become an essential component of modern retail, and retailers are leveraging technological advancements to cater to the ever-changing consumer preferences. The availability of online and mobile channels is allowing retailers to interact with customers on a 24/7 basis, offering them greater flexibility in terms of product availability and purchase options, but also increasing competition in the retail industry.

This new competition dynamic among retailers is characterized by a focus on proximity to customers and a need to provide greater convenience, as consumers have less time to spend on grocery shopping.

Retailers’ efforts to be closer to their customers, both physically and virtually, are key to their success in the current competitive landscape.

Originality of the paper. This paper represents one of the first attempt to investigate how the retailers’ landscape in a highly competitive region has been shaped by the concurrent shopping practices, by using a two-fold approach that combines a survey and a desk-analysis of geo-referenced data.

Therefore, it allows to take into account how such a complex phenomenon of contemporary shopping orientations are influenced by multiple perspectives.

This is a very relevant point of view for managers as well, as it allows to navigate between within a highly “dense” scenario, focusing their efforts toward what consumers perceive as important within their choices, and not only the mere “physical” presence of stores.

Keywords: Grocery retailer; Lombardy; Shopping orientation; Utilitarian and Edonistic orientations

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The Metaverse phenomenon: a first approach based on bibliometric analysis

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Abstract

The metaverse is a very recent and still developing technology, and despite the skepticism of many, an increasing number of companies are investing in it; it is estimated that profits from the Metaverse market will grow exponentially in the years to come. However, as often happens in the face of phenomena still in the phase of innovation or early adoption, the increase in interest in the issue hardly corresponds to a real clarity of vision on the direction, timing and fate of the phenomenon itself. The metaverse could be the next flop or the next technological revolution. The outlines of the great project are still poorly defined, and it remains to be understood how it will be welcomed by those who in theory should populate it. Therefore, we need to look more closely at the direction and evolution of the phenomenon as well as to the interest of businesses and consumer perceptions. What we present is the first step of an ongoing research on businesses and consumer perceptions and interests in the adoption of this new technology. In order to analyze the literature produced so far on the topic of the metaverse, a quantitative approach based on bibliometric analysis has been adopted. 484 contributions from Web of Science were selected for the systematic review of the existing literature on the metaverse and analyzed with the open source bibliometric software VOSviewer in terms of performance analysis, clustering, evolution of the topic, focus of the contributions. The results suggest that despite being relatively new, the metaverse has been fairly discussed under different perspectives in the literature. Regardless of the coverage the topic has received in the last few years, though, it is important to stress that the metaverse is constantly changing and evolving and that the opportunities it creates are still to be classified. Thus, it is possible to expect an increasing number of studies on the topic and so several future research directions, both toward the theoretical development of the phenomenon and the practical use of it.

Framing of the research. *From artificial intelligence to augmented reality, from virtual reality to mixed reality, from cryptocurrencies to the Non Fungible Tokens (NFT), the virtual world is experiencing a period of extraordinary excitement and change. If it is true that changes in marketing go together with technological changes, then it becomes necessary to focus on one of the current technological innovations, the further development of which will surely have a growing impact on the world of digital marketing: the metaverse.*

The word 'metaverse' was coined in 1922 by Neal Stephenson in a science fiction book (Snow Crash), where the metaverse is described as a sort of virtual reality shared through the Internet where users, through their avatar, can move on an immense black sphere on which they can realize in 3D what they want.

What was just an abstract concept was first developed with video games and then by firms in several sectors (Kim, 2021). As technology evolved, several definitions emerged in the literature. Thus, more recently, Ball (2022) defined the metaverse as "a massively scaled and interoperable network of real-time 3D virtual worlds in which users can experience synchronously and persistently with unlimited numbers of other users, and with continuity of data such as identity, entitlements, objects, communications and payments".

The common idea is that the metaverse is a 3D digital virtual world that goes beyond the real universe (META= beyond; VERSE= universe) inhabited by digital human replicas (avatars). Thanks to the avatars, users can move and interact in three-dimensional spaces with a psychological and emotional involvement resulting from the use of sight, hearing and touch (Dionisio et al., 2013). In this new world people will be able to carry out multiple activities: meeting with friends, working, shopping, building social and emotional relationships, attending concerts, meetings and events, and much more.

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Although the metaverse is still an ongoing project, its first features begin to emerge (Bratu and Sabău, 2022; Hwang and Chien, 2022; Ng, 2022; Reyes, 2020): a) digital nature: it includes any digital experience on the Internet that is persistent, immersive, three-dimensional (3D) and virtual resulting in a digital world that everyone can access, using virtual reality, augmented reality or video game platforms; b) global and decentralized: its matter is composed of data and information, it does not bear geographical or jurisdictional boundaries and its structure is space-time; c) high degree of immersion and interactivity: the interaction between physical reality and virtual reality allows users to interact and communicate with others thanks to the developed technologies that facilitate a dynamic learning scenario of autonomous and collaborative learning; d) corporeity: users, using avatars, move freely in three-dimensional spaces and can live virtual experiences; e) continuous connection and interoperability: the metaverse is a virtual world that mimics real-world settings where digital content can be saved and retrieved even when reconnected to the virtual world thanks to artificial intelligence and machine learning technologies that can manage and regulate the use of metaverse; f) the metaverse is a shared technical structure, not owned by companies, where virtual spaces can be created by the users themselves who make them available to other users g) in the metaverse users can use Non-Fungible Tokens (NFTs) – digital property certificates that documented the unique ownership by the user of a digital product not fungible, such as images, videos, music and other objects (Nadini et al., 2021). NFTs are stored on the Blockchain, a decentralized digital registry, through which users validate transactions made (Bodkhe et al., 2020)

To sum up, we are only at the beginning of a phenomenon that will impact the digital transformation proposing new economic, cultural, managerial, social and organizational models. To date, it is difficult to predict its development and to understand how the possible preference of people for physical reality over virtual reality will affect its concrete applications. What is certain is that the metaverse concerns and will affect different aspects of our way of living and working: thanks to it, for the first time, technology offers everyone the opportunity to create their own three-dimensional virtual worlds, populate them with creativity and explore a reality open to art, services, collaboration and communication, generating increasing investments by companies in the digital future (Dwivedi et al., 2022).

Purpose of the paper. The metaverse is a very recent and still developing technology, and despite the skepticism of many, an increasing number of companies are investing in it; it is estimated that profits from the Metaverse market will grow exponentially in the years to come. According to Statista (2022a), the global metaverse market size is expected to rise to 678.8 billion U.S. dollars by 2030. Although these technologies have not yet reached their full potential, the first changes in the way companies communicate with target users have already begun to occur, and it is therefore necessary to follow the further development of this area.

However, as often happens in the face of phenomena still in the phase of innovation or early adoption, the increase in interest in the issue hardly corresponds to a real clarity of vision on the direction, timing and fate of the phenomenon itself. The metaverse could be the next flop (what we can call 'metacrash') or the next technological revolution. The outlines of the great project are still poorly defined, and it remains to be understood how it will be welcomed by those who in theory should populate it. Therefore, we need to look more closely at the direction and evolution of the phenomenon as well as businesses and consumer perceptions and interests in the adoption of this new technology.

From a managerial point of view, 67% of companies believe that the Metaverse will enter the phase of full success within the next 5 years thus representing the future for their company, a new field full of opportunities or a new way of doing business and interacting with the market (Statista, 2022b). According to a recent research (Osservatori.Net, 2023), the majority of investments in metaverse concern Retail (30%) and Entertainment (30%) followed by IT (17%), Finance and Insurtech (9%) and Food & Beverage (5%). In the retail sector the big brands of fashion and luxury lead the metaverse, opening their stores in the metaverse virtual worlds. The Osservatori.Net (2023) identified 141 existing virtual worlds, populated by the avatars of hundreds of millions of people, with different rules, features and business models. Among these, only the 44% (62 platforms) is already 'metaverse ready': freely accessible by anyone, persistent, economically active, equipped with 3D graphics, with interoperability components that would allow to use digital assets in a cross-platform way. It should be noted that 84% of the projects were developed on the most famous platforms of 'The Sandbox' (43%), 'Decentraland' (23%) and 'Roblox' (15%), demonstrating that companies prefer to launch initiatives within the more known and mature worlds (Osservatori.Net, 2023). However, not all the companies are in favor of this new technology. According to a recent study by Statista (2022c), more than 38 percent of companies that have already invested in the metaverse were most concerned about cyber security in the new digital environment and a further quarter of respondents were doubtful of the metaverse being a long-lasting trend. The Covid-19 pandemic has led many skeptics to test, out of curiosity and entertainment, some virtual worlds, such as 'Fortnite' or 'Roblox'. However, it remains to be seen whether this trend will continue in the near future. Currently, it is still difficult to predict whether we are facing a revolution like the advent of the Internet or at least the spread of social media, or whether it is a bubble ('metacrash'): as always, it is the rate of acceptance that determines the success or failure of any innovation.

From a consumer perspective, the latest surveys by Statista (2022d) show that 74% of respondents in the United States have a desire to participate personally in the Metaverse in the next future. Specifically, the main reason to join the metaverse was to experience things they couldn't do in physical reality (44%), followed by the opinion that the metaverse could be a positive way to unite people (38%) and the desire to become a different person other than their real self (23%) (Statista, 2022d). Despite these positive numbers, many people point to potential ethical problems; according to a research by PCMag UK (2012), almost 77% of individuals believe that the metaverse can cause serious harm to modern society: respondents perceive addiction to a simulated reality (47%), privacy issues (41%), and mental health issues (41%) as the biggest perils of the metaverse. According to some, the Metaverse would drastically reduce physical interactions and daily activities, thus causing potential negative psychological effects (Dwivedi et al., 2021). In

addition, a large part of the world's population highlights dangers related to the violation of privacy, wondering how many and what data will be required by users to ensure access to the Metaverse (Dwivedi et al., 2021).

From the academic point of view, metaverse is already a fast-growing area of research that has attracted interest from several different disciplines. Scholars have started to conceptualize and define the metaverse and its attributes in order to understand how it can transform marketing and business activities. Recently, several top journals (i.e., *Journal of Retailing, Psychology & Marketing*) have proposed calls for papers in the marketing, retailing, brand areas. Specifically, several special issues aim at stimulating further interdisciplinary research and development in order to explore a new phenomenon that can contribute to the further development of the literature in several disciplines. Recent works that offer valuable theoretical and practical insights into business and social opportunities and challenges have emerged in academic literature (Dwivedi et al., 2021).

However, since new exciting metaverse implementations are expected soon and the use of metaverse is expected to disrupt the way people interact in the virtual world, it is crucial to understand prior research in academic literature: theory and theoretical developments are essential for understanding how research progresses, knowledge accumulates and research fields evolve over time. Considering the above, the research we present in this paper is proposed as the first investigation of a wider ongoing research on the phenomenon of the adoption of the metaverse among firms and users. Specifically, we aim to develop a synthesis of both theoretical and early empirical research on the topic and to conduct a mapping of the scientific knowledge on the metaverse that will then offer practical value and trigger new research questions concerning novel opportunities and challenges the virtual worlds can present.

Methodology. In order to analyze the literature produced so far on the topic of the metaverse, an approach based on bibliometric analysis has been adopted. This methodology of analysis allows a systematic and orderly review of the existing literature on the topic analyzed and can be divided into two macro-areas: performance analysis and scientific mapping analysis (SMA) (Noyons et al., 1999; Gutiérrez-Salcedo et al., 2018).

The performance analysis was carried out using the online database Web of Science (WOS) which allowed, through the use of bibliometric indexes based on citations and publication data, to evaluate from a descriptive point of view the characteristics of the contributions (e.g. types, journals, citations, country) (Narin and Hamilton, 1996); the scientific mapping was realized, in a first phase, only with the open source bibliometric software VOSviewer version 1.6.19. VOSviewer is a software tool for constructing and visualizing bibliometric networks (Van Eck and Waltman, 2010). Using this software, it is possible to identify, through a content analysis, the structural and evolutionary aspect of the metaverse (Van Eck and Waltman, 2010). Specifically, the VOS mapping technique aims to define clusters to be further analyzed: each term is assigned to a cluster in a two-dimensional space where terms that do not have a strong relation further away from each other, while terms that are assigned to the same cluster often co-occur in publications and tend to be strongly related to each other.

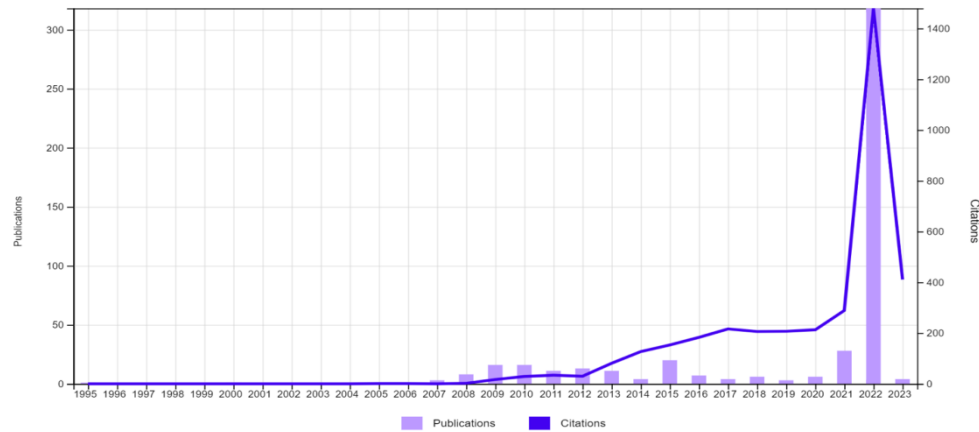
Before proceeding with the bibliometric analysis, we first identified relevant publications in the Web of Science (WoS) bibliographic database. To identify publications related to metaverse, we selected all publications in the WoS database in the period 1985-2022 and the data collection stopped at 31 December 2022. In particular, the research of scientific contributions was carried out using a precise query that also included the type of contribution requested and the research areas within which to search for compatible documents. The final query was as follows: (metavers*) (Topic) and English (Language) and Articles or Proceedings Papers or Book Chapters or Early Access (Document Types). Contributions were also requested in multidisciplinary databases such as Social Science Citation Index (SSCI), Science Citation Index Expanded (SCI-Expanded), Emerging Sources Citation Index (ESCI) and A&HCI, CPCI-S and CPCI-SSH. From the identification of 576 total publications, following further skimming based on the topic treated, 484 contributions were selected for the bibliometric analysis.

Results. The study results unfold in the description of the systematic bibliometric analysis on the topic of the metaverse. This systematic bibliometric analysis structure expands in the following dimensions: performance analysis, clustering, evolution of the topic, focus of the contributions.

Performance Analysis

Starting the descriptive analysis from scientific productivity, Figure 1 shows that there has been a significant increase in academic interest in metaverse issues since 2012, with a first peak in 2017 until further growth in the following years that sees a sudden increase in the number of publications between 2021 and 2022 with 319 contributions, equal to 66% of the total. Concerning scientific productivity among countries, China is on the lead with 102 publications (equal to 21.1% of the total), followed by the United States with 86 publications (equal to 17.8% of the total). Taken together, the productions of the two nations account for more than a third of the total contributions published in the period under review. In third place we find South Korea (64 publications), followed by England (43 publications), Germany (23 publications). Italy accounts for 22 publications, the same for Brazil.

Fig. 1: Times cited and publications over time



Source: our elaboration from WOS

Table 1 shows the top ten most cited articles published in the period 1985-2022. This is a particularly useful analysis as it allows us to understand the influence of publications in the scientific community.

Oliver et al. (2012) are the most cited authors, both on the total of the period (since it is among the contributions published for the longest time) and as an annual average of citations. In this work, the authors study how virtual worlds can be used to support experiential learning and to promote cultural heritage.

Following, albeit with a significantly large gap in the number of citations, the study by Davis et al. (2009) that develops a model of an in-depth characterization of metaverse technology capabilities from a socio-technical view that recognizes the potential for variation in emergent interaction and in outcomes, and the study by Dionisio et al. (2013) in which the authors analyzed the metaverse progress in four areas: immersive realism, ubiquity of access and identity, interoperability, and scalability.

Tab. 1: Citation analysis

Title	Authors	Year of publication	N° citations 1985-2022	Average annual citations
Mongoose: Throughput Redistributing Virtual World	Oliver I.; Miller A. and Allison C.	2012	1,333	111.08
Avatars, People, and Virtual Worlds: Foundations for Research in Metaverses	Davis A.; Khazanchi D.; (...); Owens D.	2009	141	9.4
3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities	Dionisio J.D.N.; Burns W.G. and Gilbert R.	2013	125	11.36
A Metaverse: Taxonomy, Components, Applications, and Open Challenges	Park SM and Kim YG	2022	89	44.5
Making real money in virtual worlds: MMORPGs and emerging business opportunities, challenges and ethical implications in metaverses	Papagiannidis S.; Bourlakis M. and Li F.	2008	76	4.75
Second Life and the new generation of virtual worlds	Kumar S.; Chhugani J.; (...); Kim Y.M.	2008	66	4.13
Introduction: Virtual, Augmented, and Mixed Realities in Education	Dede C.J.; Jacobson J. and Richards J.	2017	52	7.43
Educational applications of metaverse: possibilities and limitations	Kye B.; Han N.; (...); Jo S.	2021	51	17
Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy	Dwivedi Y.K.; Hughes L.; (...); Wamba S.F.	2022	46	23
Retail spatial evolution: paving the way from traditional to metaverse retailing	Bourlakis M.; Papagiannidis S. and Li F.	2009	46	3.07

Source: our elaboration from WOS

Table 2 shows the top ten of the research areas to which contributions pertain. Specifically, the majority of the publications pertain to computer science (195 contributions, equal to 40,3% of the total), followed by engineering (126 contributions, equal to 26.1% of the total) and, with a large gap, business economics (47 contributions, equal to 9.8% of the total).

Tab. 2: Citation analysis

Research Area	N° contributions	% of 483
Computer Science	195	40.373
Engineering	126	26.087
Business Economics	47	9.731
Telecommunications	41	8.489
Psychology	33	6.832
Science Technology Other Topics	32	6.625
Education Educational Research	30	6.211
Materials Science	23	4.762
Chemistry	22	4.555
Communication	19	3.934

Source: our elaboration from WOS

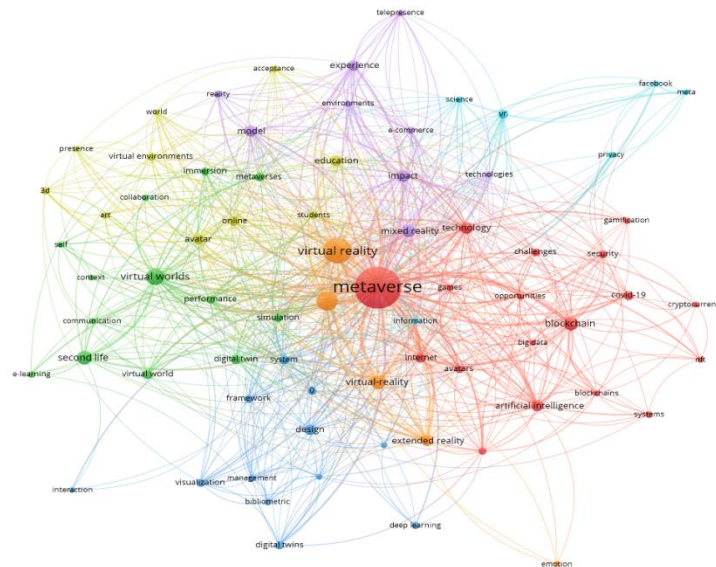
Clustering

In order to understand the connections between different topics, the first step to be developed using VOSviewer is the network visualization map. Thanks to the network visualization, the items are depicted as colorful dots of different dimensions: while the size of the dot represents the frequency of the topic's appearance in the documents – the larger the dot, the more frequent the item –, the color of the dot represents the belonging of the item to a certain thematic or social cluster. Moreover, the colorful threads in the network visualization represent the most frequent co-occurrence of terms.

As noted in Figure 2, our analysis reveals that the most frequent items are: metaverse, virtual reality, virtual words, blockchain.

The analysis also reveals seven main clusters referred to the hard and soft dimensions of the metaverse. The hard dimension refers to the technological side and pertains to three clusters: (a) the blue one, that covers the topic of designing the metaverse and addresses the elements needed to develop it (such as environment design, deep learning, framework); (b) the orange one, focused on the connection between metaverse and virtual reality: it covers topics such as virtual reality and extended reality; (c) the red one, focused on the connection between metaverse and technology, covers topics such as blockchain, avatars, artificial intelligence, cryptocurrency; this cluster is rich in the technological elements that make the metaverse possible and the experience richer. The soft dimension refers to the applications of the metaverse and includes four clusters: (d) the light blue one concerning the connection between metaverse and Meta (formerly the Facebook company): as Meta declared the company commitment to developing a metaverse, this cluster focuses on the main topics it had to address and the technology it'll use (ex. privacy, VR); (e) the purple one covers the relationship between metaverse and experience: it covers topics such as mixed reality, telepresence, environments, and is focused on the mixed experience that one can have in the metaverse, living its environments and interacting with them; (f) the yellow cluster focuses on the relationship between metaverse and education: in the cluster, the focal points addressed are the educational opportunities the metaverse offers in different areas; (g) the green one is specific to the link between metaverse and virtual world: in this cluster the focus is on the performance one can have in the metaverse (diving in the simulation with his/her digital twin).

Fig. 2: Network visualization map

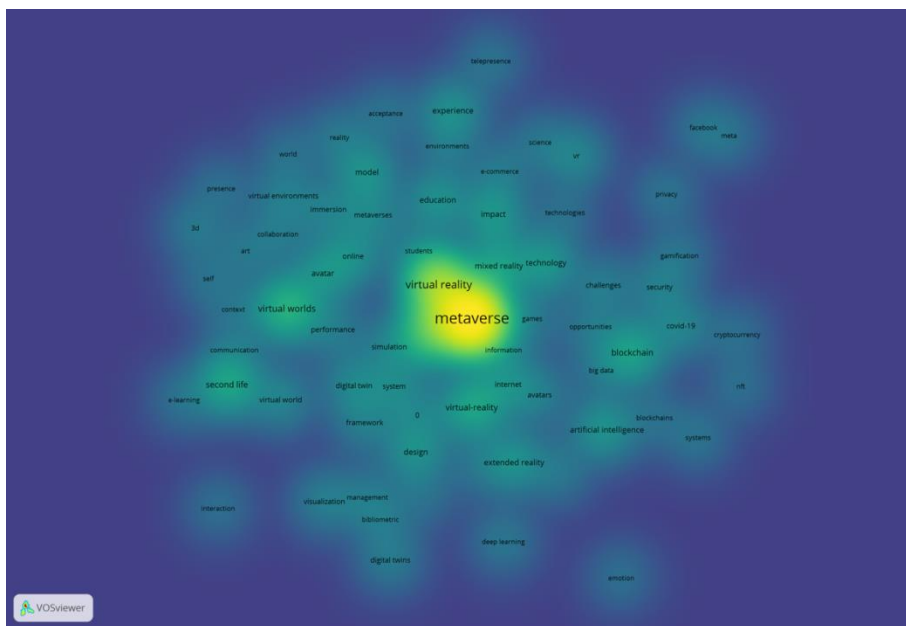


Source: VOSviewer

As noted in Figure 5, according to the cluster density map: a) in the Metaverse and technology (red) cluster, the focus is mainly on blockchain and artificial intelligence topics rather than NFT and gamification; b) in the Metaverse and virtual reality (orange) cluster, the focus is mainly on virtual reality topics rather than emotions; c) in the Metaverse and Meta (light blue) cluster, the focus is equally distributed around the topics; d) in the Metaverse and experience (purple) cluster, the focus is mainly on experience rather than e-commerce; e) in the Metaverse and education (yellow) cluster, the focus is mainly on education and avatars rather than acceptance; f) in the Metaverse and virtual world (green) cluster, the focus is mainly on virtual world and second life topics rather than the self and e-learning; g) in the Metaverse and design (blue) cluster, the focus is equally distributed around the issues. As the overlay visualization map reveals how frequent an item is in the literature, it is fairly possible to say that areas that are less dense represent topics that should be further explored by researchers.

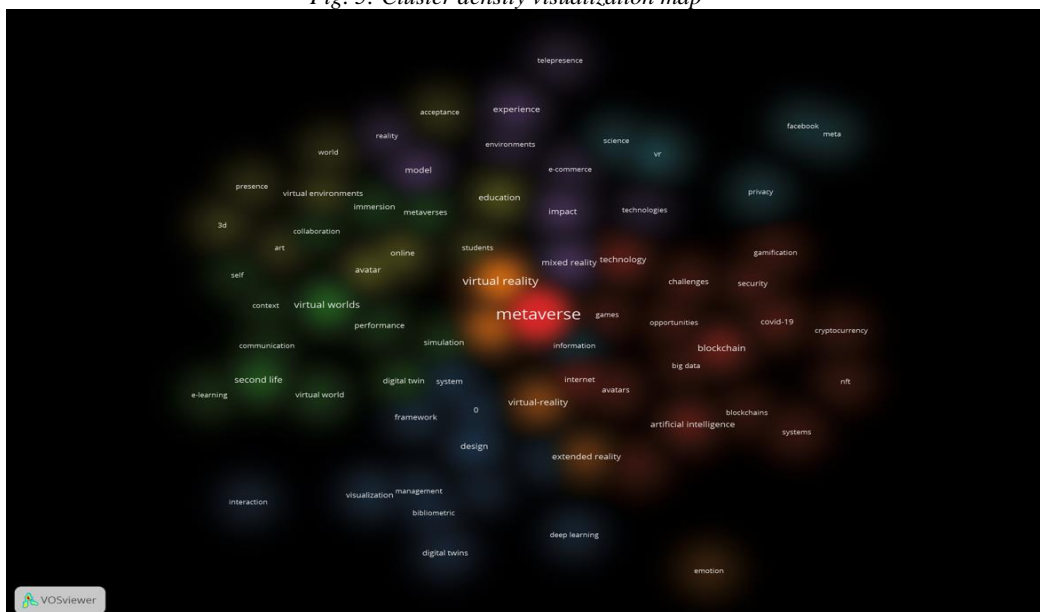
The results of the bibliometric analysis suggest that despite being relatively new, the metaverse theme has been fairly discussed under different perspectives in the literature. Regardless of the coverage the topic has received in the last few years, though, it is important to stress that the metaverse is constantly changing and evolving and that the opportunities it creates are still to be classified. Thus, it is possible to expect an increasing number of studies on the topic, both toward the theoretical development of the phenomenon and the empirical use of it.

Fig. 4: Item density visualization map



Source: VOSviewer

Fig. 5: Cluster density visualization map



Source: VOSviewer

Research limitations. *The study is not without limitations. First of all, the paper focuses on the bibliometric data, not gathering inputs from companies nor including their perspectives to develop theoretical and managerial implications. Then, even though Web of Science is considered one of the most reliable publications databases for most researchers, some relevant papers might not be included and/or might be overlooked. Moreover, VosViewer does not allow an analysis of the emerging topics or the evolution of the themes. Other software – such as SciMAT – should be used for these. For further research we aim to integrate the present analysis with the scientific mapping analysis through SciMAT.*

Managerial implications. *The present paper offers several theoretical and practical implications. At a theoretical level, the bibliometric analysis suggests the need for additional research on the metaverse and on other relatively new and complex topics such as the technological features that characterize it. Literature has focused on both the description of the technology used by and in the metaverse (hard dimension of the metaverse) and its applications (soft dimension of the metaverse). Seemingly disruptive, metaverse is based on long-standing technologies that are nowadays enriched with innovative tools coming from the recent innovation on AI-based technologies. Therefore, there is the need to update the knowledge on the topic in order to develop an organic vision on this new world and understand its potential applications in several industries.*

At practical level the paper gives useful insights to all the actors, such as companies from different industries, that are currently interested in entering the metaverse in order to increment their profits and create new and stronger relationships with their consumers. Showcasing the absence of the marketing applications, this paper proves that the metaverse implications for business are still to be clarified, if they really exist. There is a significant need to understand if and how the metaverse could be included in the value chains of manufacturers and retailers and if and how it can create real value.

According to our research, it is currently necessary to focus on the opportunities and threats that are metaverse related and to understand if metaverse could be a disruptive phenomenon able to impact on business activities, or whether companies are just managing a new phenomenon that we can call ‘meta-washing’ (which recalls the concept of ‘greenwashing’), a form of communication strategy aimed at building a misleadingly positive image of the firm as metaverse-ready company although the firm actually does not effectively and completely implement the metaverse technologies in his business strategies.

Originality of the paper. *The paper gives an overview of the contents the literature has produced over the topic of the metaverse. To the best of our knowledge, the present study is the first to produce a bibliometric analysis on such topic using the VOSviewer software. Moreover, the utility of the paper lays on the fact that this bibliometric analysis allows to early organize the literature on the topic and to ease the future research directions. As previously stated, the literature analysis highlights the current gap in marketing impact and strategies of the metaverse, that demands a further investigation. What we have presented is only the first step of an ongoing research on businesses and consumer perceptions and interests in the adoption of this new technology. The topic needs to be deepened in order to define the rate of acceptance among companies and consumers that predict its development and let scholars understand how the possible preference of people for virtual reality over physical reality (or viceversa) will affect its concrete applications.*

Keywords: *metaverse; bibliometric analysis; VoSviewer; retail; AI-based technology; virtual worlds; virtual reality*

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Artificial Intelligence robots in social groups: an extension of the AIDUA model

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Framing of the research. *The ageing population has grown significantly over the last thirty years. In 2019, the number of individuals who are 65 years old or older has surpassed 700 million and it is expected to double by 2050 (United Nations, 2019). The quantitative growth of ageing population also corresponds to changes in the needs of elderly, in demographic and economic profiles determining different behavioral patterns (Guido et al., 2020). This is what Barusch (2013) defines as “grey tsunami” indicating, with this metaphor, the dispute with the classic stereotypes that conceive the elderly as static, sick and unwilling to spend instead of people asking for wider life expectancy and wellbeing. These requests constitute the practical needs to satisfy. In this context, senior living facilities offering health, clinical, social, daily routines services (Figure 1) should be able to differentiate themselves from competitors enabling end users to live a real and positive experience (Johs-Artisensi et al., 2021).*

Fig. 1: Senior living facilities services

Services	Author/s
Clinical services	Clinical screening (Gnanasambantham et al, 2020) Fall risk screen (Norman et al, 2020) Infection prevention (Shaban et al, 2020) Management of agitation (Watson and Hatcher, 2020)
Daily routines support services	Eating (Maluf et al, 2020) Medication support (Sluggett et al, 2020) Sit-to-stand activity (Kagwa et al, 2020) Oral Hygiene support (Steinmassl et al. 2020)
Healthcare services	Rehabilitation (Mitchell et al, 2020; Simonov and Delconte, 2015; Muhm et al, 2016) Treatment management (Kurch-Bek et al, 2018) End-of-life care (Kong et al, 2017) Avoidance hospital (Shepperd et al, 2016) Mental illness support (Bousa et al, 2016) Disease prevention (MacIntyre et al, 2016)
Social services	Spiritual services (Suchomelova, 2018) Social Vulnerability (Khaksar et al, 2016) Loneliness and Life Satisfaction (Bergefurt et al, 2019; Gmage et al, 2018) Social interaction and relationships (Thomas et al, 2013; Yu et al, 2019)

Purpose of the paper. *The aim of this paper is to investigate the potentiality of the use of Artificial Intelligence (AI) robots in social groups and specifically the antecedents that impact on either senior citizens' willingness or objection to use Artificial Intelligence robots. Knowledge about elderly needs may help to find solutions satisfying the most disparate requests in healthcare. These solutions have to be affordable for everyone. Indeed, accessibility in terms of price, availability and easy-to-use is of fundamental importance to offer equal opportunity (Wang et al., 2010). However, due to the presence of some barriers, healthcare services and products have represented and, in some cases, still represent a mismatch between supply and demand. This is a significant challenge for managers of senior living facilities. Managers are facing problems like labor shortages and increasing cost of labor in healthcare. Firstly, labor shortage of doctors and nurses is a global issue. High turnover level (Tao and McRoy, 2015), constant retirement of*

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medical staff and fewer entrance (Omachonu, and Einspruch, 2010) lower availability of skilled workers in specialized fields of healthcare (Scheffler et al., 2009) represent the main critical points of labor shortage. Secondly, there is the payroll growth of high labor cost of human resources (Cooke and Bartram, 2015), whose work is high knowledge and experience-based and whose outcomes are measured through the performance of care as well as the satisfaction of the elderly patients and the staff members. Thirdly, what appears to be common across countries are the strategies of restraint in the field of public healthcare. This has led to alternative models that marked the transition from a more state-sponsored to a customer satisfaction-oriented model where orientation is towards market (Cooke and Bartram, 2015). They represent the real challenges in this sector and at the same time the impetus for innovation. The approach on satisfaction-oriented model puts the elderly in a central position and the patient experience assumes a key role. The terms hospitality and experience (Johs-Artisensi et al., 2021) constitute an axiom in the actual context of senior living facilities. Managers today have to solve dilemmas about cost of labor while focusing on the elderly satisfaction. Consistent with the expansion of ageing population and the high costs in healthcare, growing attention has been paid to AI in the last two decades (Yang et al., 2020), due to the awareness of healthy lives and well-being at all ages (United Nations, 2019) and to the digital transformation in this field. AI in healthcare has found its attention by the researchers of medical community in order to find real-life implementation and consequent benefits for older population. For example, the humanoid robot NAO (58 cm tall) interacts with seniors, speaking, singing, and dancing since it recognizes subjects and shapes (Pino et al., 2020). Zora, another humanoid robot, has two speakers, several microphones, and a camera to scan and identify shapes and it is able of many things, from demonstrating gymnastic exercises to sing elderly's favorite songs (Melkas et al., 2020). They are supportive for memory-training programs (Pino et al., 2020), for rehabilitation (Melkas et al., 2020). Nowadays, the use of AI in the field of healthcare covers different domains, such as daily physical, cognitive, psychological, and social activities that are expressions of specific elderly's needs from eating and medicine administration to cognitive exercises and mood (Vercelli et al., 2018). Existing literature on the topic of AI in healthcare for aging people (Pino et al., 2020) has been explored according to different perspectives. Given the variety not only of the actors (doctors, caregivers, nurses, family members, elderly, etc.) but also of the scenarios (hospitals, nursing homes, specialized centers, residential aged, etc.), this paper focuses on senior living facilities and retirement communities. Within these contexts, literature has paid the attention on the role of nursing in supporting elderly in using smart technologies (Fritz and Dermody, 2019), on the importance of the phase of diagnosis and treatment making (Graham et al., 2020). Another important focus is on the phase of monitoring since AI tools allow to observe if there are changes in physical or cognitive state and, consequently, to directly act according to the status of health. Indeed, literature covers the union between AI technologies and different actors of the process right from the beginning (i.e., analysis, diagnosis making, etc.) till the end when the older person uses the AI robots. It is at this step and, precisely, in what precedes the use or rejection that our paper focuses on. This clear cornerstone relates to the belief that there is room for improvements linked not so much to the willingness to use but rather to the antecedents that lead to rejection. Paradoxically it is all this focus on the technological component, either conceived as barrier or competence, that represents the real gap in literature. Indeed, the premises at the base of AI are of easy-to-use and versatility (Hansen et al., 2020) and smart features, such as hands free, mark these robots (McLean and Osei-Frimpon, 2019). This means that although these works explore user acceptance within AI context, the used variables relate to older technologies. To fill this research gap, we aim to investigate what can be the antecedents that can have impact on either willingness or objection to use of AI robots. Starting from the above-mentioned assumptions, the following research questions come out:

- 1) What are the antecedents of elderly acceptance of AI robots in the context of senior living facilities?
- 2) What are the antecedents that inhibit the use and, therefore, act on the rejection of AI robots in the context of senior living facilities?
- 3) What role does each antecedent play in accepting or rejecting AI robots in the context of senior living facilities?

Methodology. The topic of willingness to accept the use of AI has been analyzed in literature using different theoretical models, such as norm activation model, planned behavior theory model, innovation diffusion theory model, technology acceptance model, reasoned action theory model, and Unified Theory of Acceptance and Use of Technology Model (Cimperman et al., 2018). Among these, technology acceptance model (TAM) and its expanded versions are the most used in literature. Although they have been used in healthcare studies, these models show several limits. Firstly, they have been originated and implemented in the context of self-service technologies rather than of smart technologies (Gursoy et al., 2019). Hence, they are difficult to apply because they do not capture a series of aspects concerning both the technology per se and the physical, cognitive, and emotional world of the person who will use the technology. Secondly, these models assume that human behaviors are rational without considering any kind of irrational (Zhou et al., 2020) and emotional choices as well as non-utilitarian aims in the decision-making process. Thirdly, the succession of models and related variables has not given sufficient stability to these models (Zhou et al., 2020). In the context of AI and, especially, in healthcare for elderly, a first evaluation concerns the necessity to satisfy a certain need and the following analysis concerning a comparison between human resources and AI devices in terms of who and how it provides the better service (Lu et al., 2019). To date, some studies (Lu et al., 2019) starting from the debate that exists in literature, have developed the model of AI Device Use Acceptance (AIDUA) - (Gursoy et al., 2019), encompassing six predictors (performance efficacy, hedonic motivation, anthropomorphism, social influence, facilitating condition, and emotion) of behavioral intention that can take to two dichotomous ways: willingness to accept the use or rejection to the use of AI technology. This paper also adds social gratification belonging to Uses and Gratification theory. This model has been applied to the hospitality industry (McLean and Osei-Frimpon, 2019; Gursoy et al., 2019), overlapping

both *Cognitive Appraisal Theory (CAT)* - (Lazarus, 1991) and the *Cognitive Dissonance Theory (Festinger, 1962)* and explains the process from which comes the willingness to accept or not the use of AI. Conceived in the psychological field, CAT has been applied in different service settings (Liu et al., 2019). This theory explains the antecedents of consumption emotions since it offers a series of evaluation criteria that require the involvement of cognitive functions. According to this theory (Lazarus, 1991) there is a clear relationship between cognitive appraisal and the associated emotion. The *Cognitive Dissonance Theory (Festinger, 1962)* has been conceived in the social psychological field and it explains the existence of discordant thoughts (Harmon-Jones and Mills, 2019). In addition, this paper adopts the *Uses and Gratification theory (U&G)* - (Severin and Tankard, 1997), initially belonging to mass communication literature, since it links the satisfaction of needs with the willingness to use a specific medium. The topic of gratification is particularly important in elderly healthcare. Actually, according to some authors (Gursoy et al., 2019) the acceptance is part of the decision-making process shaped by three stages: primary appraisal, secondary appraisal, and outcome stage.

Based on the literature review, 21 research hypotheses have been formulated:

Hp1: Social influence positively influences the performance expectancy of AI robots in the context of senior living facilities.

Hp2: Social influence positively influences elderly effort expectancy of AI robots in the context of senior living facilities.

Hp3: Social influence positively influences trust in AI robots in the context of senior living facilities.

Hp4: The hedonic motivations have a positive influence on performance expectancy of AI robots in the context of senior living facilities.

Hp5: The hedonic motivations have a positive influence on effort expectancy of AI robots.

Hp6: The hedonic motivations have a positive influence on positive emotions towards AI robots.

Hp7: The hedonic motivations have a positive influence on trust towards AI robots.

Hp8: Social gratification has a positive impact on performance expectancy of AI robots.

Hp9: Social gratification has a positive impact on social gratification has a positive impact on effort expectancy of AI robots.

Hp10: Social gratification has a positive impact on trust in AI robots.

Hp11: Anthropomorphism is positively related to performance expectancy of AI robots in the context of senior living facilities.

Hp12: Anthropomorphism is positively related to effort expectancy of AI robots in the context of senior living facilities.

Hp13: Anthropomorphism has a positive impact on trust AI robots in the context of senior living facilities.

Hp14: Symbolic gratification is positively related to performance expectancy of AI robots.

Hp15: Symbolic gratification is positively related to effort expectancy of AI robots.

Hp16: Anthropomorphism has a positive impact on trust AI robots.

Hp17: Performance expectancy positively influences the generation of positive emotions toward the use of AI robots.

Hp18: Effort expectancy negatively influence the generation of positive emotions toward the use of AI devices.

Hp19: Trust positively influences the generation of positive emotions toward the use of AI robots.

Hp20: Elderly emotions have a negative impact on willingness to use AI robots.

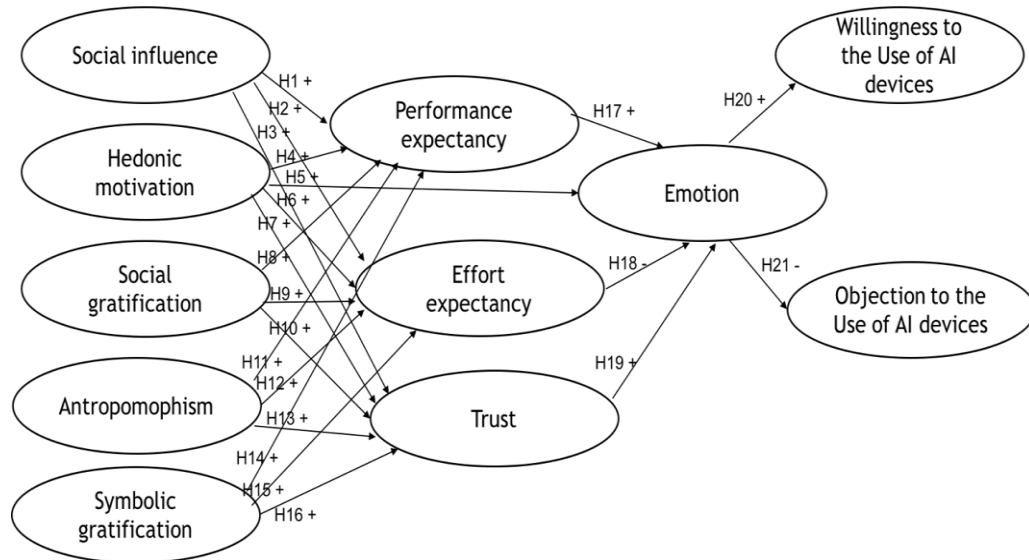
Hp21: Elderly emotions positively influence the objection to use AI robots.

Results. The quality of the model (Table I) is evaluated by considering: the coefficient of determination (R^2) and the goodness of fit (GoF) statistics. R^2 values indicate how much of the variance in the endogenous latent variables is accounted for by their independent latent variables. More specifically, the model explained 54% of the variance in Performance expectancy, 20% of the variance in Effort expectancy 46% of the variance in Trust, 42% of the variance in Emotion, and 41% of variance in Willingness to accept the use of AI devices; and 21% of the variance in Objective the use of AI devices (Table I). A GoF index has also been proposed as a solution for the global fit of the PLS-SEM. It is an index of prediction power for the entire model (Tenenhaus et al., 2004; 2005) and it is 0.47 for the whole model. The bootstrap results are useful for assessing the significance of the parameters of the inner and outer model and it is essential to check whether the constructed interval with the percentile bootstrap contains or not zero. As regards the significance of the path coefficients, Table 2 shows that all the links are significant, except for the impact of Social influence on trust; Symbolic gratification on Effort expectancy; Trust on Emotion. In this case, the path coefficients have an interval with negative and positive values. This study found that social influence was positively related to performance expectancy, Effort ($\beta = .12$, $\beta = .25$), respectively. Hedonic motivation was positively related to performance expectancy and trust ($\beta = .36$; $\beta = .30$) and negatively related to effort expectancy ($\beta = -.17$). Social gratification was positively related to performance expectancy and trust ($\beta = .14$; $\beta = .18$) and negatively related to effort expectancy ($\beta = -.14$). Anthropomorphism was positively related to effort expectancy, Effort and trust ($\beta = .075$, $\beta = .33$, $\beta = .082$).

Performance expectancy was negatively related to emotion ($\beta = -.43$) and the effort expectancy was positively related to emotion ($\beta = -.18$, $p < .001$). In addition, emotion was negatively associated with willingness to accept the use of AI devices ($\beta = -.63$) and positively associated with objection to using AI devices ($\beta = 0.46$). However, findings indicated a non-significant positive relationship between social influence and Trust ($\beta = .10$); Symbolic gratification on

Effort expectancy ($\beta = .08$); and a non-significant negative relationship between Trust on Emotion ($\beta = -.17$). The results show important implications. From a theoretical point of view, the proposed model overcomes the current gaps of existing acceptance models and takes into consideration new items that are strictly related to the specific target of senior citizens and the related needs. From a managerial point of view, the paper deepens possible solutions as a response to the lack of available human resources, as well as how and to what extent robots can be exploited; also, the trade-off costs-benefits in adopting AI technologies and the possible options of usage for the customers are investigated. Moreover, it is important for senior living facilities' managers to look at AI as an opportunity or a threat, depending on users' willingness or objection to the use of AI technologies. It is useful for companies to look at AI through the lens of business capabilities, considering that AI technologies can support three important business needs: automating business processes, gaining insight through data analysis and engaging with customers and employees (Davenport and Ronanki, 2018).

Fig. 2: The proposed model



Tab. 1: R² value

	Original	Mean Boot	Std. Error	Perc.025	Perc.975
Performance expectancy	0.523*	0.526	0.0275	0.477	0.579
Effort expectancy	0.203*	0.216	0.0258	0.166	0.266
Trust	0.460*	0.465	0.0348	0.406	0.539
Emotion	0.414*	0.419	0.0352	0.358	0.485
Willingness	0.407*	0.398	0.0777	0.164	0.492
Objective	0.211*	0.217	0.0546	0.113	0.327

*significant at 5%

Specifically, AI can support the understanding of end-users' choices, by obtaining descriptive models to be used in optimization scheme (Laínez et al., 2009). The greater proximity to consumers enabled by new technologies makes the relationship between a business and its consumer deeper and more robust. In addition, data play a key role in offering personalized services by means of AI-based interface of their level of propensity in supporting strategies that entail extra-sensory experiences and automation.

Research limitations. The study is not exempt from some limitations. In particular, the analysis has been conducted only within the Italian context. Further research should perform a cross country comparative analysis. Furthermore, the second limitation concerns the sample. Too small samples reduce the power of the study and increase the margin of error. Thus, authors suggest to perform the analysis using a large sample.

Managerial implications. The paper shows important theoretical implications as well as for the decision makers of elderly care and for the whole society. From a theoretical point of view the AIDUA model overcome the classical limits of TAM models considering the smart component of these technologies. As regards the managerial implications, this paper suggests how and to what extent elderly would use or not AI devices.

Tab. 2: Significant links

	Original	Mean Boot	Std. Error	Perc.025	Perc.975
soc.inf -> perf	0.1190	0.1246	0.0515	0.0298	0.2105
soc.inf -> Eff	0.2483	0.2458	0.0633	0.1142	0.3517
soc.inf -> tru	0.1008	0.0998	0.0566	-0.0107	0.2158
hed -> perf	0.3584	0.3552	0.0342	0.2762	0.4169
hed -> Eff	-0.1719	-0.1733	0.0439	-0.2577	-0.0851
hed -> tru	0.3048	0.2964	0.0427	0.2174	0.3932
soc.grat -> perf	0.1446	0.1409	0.0494	0.0523	0.2420
soc.grat -> Eff	-0.1422	-0.1384	0.0524	-0.2321	-0.0533
soc.grat -> tru	0.1807	0.1815	0.0576	0.0753	0.2873
ant -> perf	0.0749	0.0823	0.0310	0.0254	0.1362
ant -> Eff	0.3300	0.3357	0.0494	0.2394	0.4292
ant -> tru	0.0822	0.0956	0.0415	0.0199	0.1808
sym -> perf	0.2301	0.2254	0.0536	0.1144	0.3195
sym -> Eff	0.0884	0.0923	0.0626	-0.0102	0.2073
sym -> tru	0.1969	0.1936	0.0552	0.0771	0.2963
perf -> emo	-0.4263	-0.4247	0.0822	-0.5264	-0.2000
Eff -> emo	0.3529	0.3588	0.0655	0.2355	0.4907
tru -> emo	-0.1771	-0.1558	0.0888	-0.2880	0.0640
emo -> will	-0.6378	-0.6097	0.1630	-0.7012	-0.0942
emo -> obj	0.4589	0.4623	0.0602	0.3359	0.5715

Originality of the paper. To explore what are the antecedents of senior citizens' acceptance or rejection towards the use of AI robots in the context of senior living facilities, this paper proposes a revisited Technology Acceptance Model. The model is analyzed using SEM to test the hypotheses and to check the loading of each factor.

Keywords: artificial intelligence; TAM; SEM

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What Open Innovation practices enhance SMEs' adoption of Big Data?

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Framing of the research. Nowadays, the world is overwhelmed by Big Data generated every second, with the growth rate increasing approximately 10 times every five years (Del Vecchio et al., 2018; Hendrickson, 2010; Hilbert and López, 2011). Big Data refers to any set of data that, with traditional systems, would require large capabilities in terms of storage space and time to be analysed (Kaisler et al., 2013; Ward and Barker, 2013). The ability to aggregate, elaborate and analyse Big Data is becoming a key competitive advantage and resource, especially for small- and medium-sized enterprises (SMEs) (Del Vecchio et al., 2018). However, SMEs struggle with the liability of smallness, facing resource constraints and scale limitations and having fewer technological assets to bargain with (Chesbrough 2011; Dahlander and Gann 2010; Narula 2004). Therefore, they have to open up more than their larger counterparts to access external knowledge and technology for innovative purposes (Mesquita and Lazzarini 2008).

In order to adopt Big Data technologies, SMEs can leverage their external networks (Mittal et al., 2018; Spithoven et al., 2013). In fact, external partners can increase SMEs' awareness of the benefits and challenges of Big Data technologies and provide useful knowledge and support for their adoption, thereby reducing their reluctance to invest in them (Bourke and Roper, 2019). More specifically, Open Innovation (OI) practices (Chesbrough, 2003; Spithoven et al., 2013) can support the transformation of SMEs' processes and products provoked by the adoption of Big Data technologies, because the required resources can be made available through the cooperation with other organizations (Terjesen and Patel, 2017). Accordingly, SMEs become able to strategically adopt new technological solutions (Lichtenthaler, 2008). Although OI is commonly included in maturity models to assess a firm's readiness to Big Data technologies (e.g. Prause, 2015; Schumacher et al., 2016), its effect on the adoption of Big Data technologies has not been deeply analysed. Indeed, extant studies tend to focus on the obstacles that hamper their adoption without focusing on the strategy that they can adopt to overcome their problems (Horváth and Szabó, 2019). Actually, some scholars have recently investigated how OI can support SMEs in the adoption of I4.0 technologies (Messeni Petruzzelli et al., 2022). However, their analysis is not focused on Big Data and is limited by the regional context (Campania) used to test their hypotheses.

Purpose of the paper. Our paper aims at covering this gap by investigating how SMEs can adopt a larger number of Big Data technologies by leveraging OI practices. To analyse OI practices, we consider the four dimensions proposed by Spithoven et al. (2013), namely (1) search for external sources of innovation, (2) the acquisition of external R&D, (3) the use of collaborative innovation partners and (4) the exploitation of available IP protection mechanisms. We discuss the relevance of the four OI practices for SMEs below.

Albeit OI is a broad and multifaceted concept that involves a variety of innovation-related practices and processes in companies, the four dimensions highlight the main practices that can be articulated in the well-known categorization of inbound, outbound, and coupled OI processes (Gassmann et al., 2010). First, in OI literature it is acknowledged that firms heavily rely on external sources of information, subsequently combining these external sources with internal sources of innovation (Dahlander et al., 2021). Search strategies have thus been recognized as exerting an impact on the innovation activities of firms (Katila and Ahuja 2002; Laursen and Salter 2006). This OI practice is highly relevant for SMEs since they struggle with the liability of smallness, facing resource constraints such as fewer human resources to screen the external environment, scale limitations and having fewer technological assets to bargain with (Chesbrough 2011; Dahlander and Gann 2010; Narula 2004).

Second, previous research on OI has also emphasized that firms are no longer in a position to perform all R&D internally (Gassmann, 2006). Firms have to acquire-through licensing, venturing or buying-external knowledge. In this regard, SMEs not only lack financial resources but also the required number of skilled workers to perform R&D internally.

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Third, extant studies have also documented that firms can make use of a variety of collaborative innovation partners such as customers, suppliers, competitors, universities, public research organisations, consultants, professional and industrial associations, among others (Leiponen and Helfat 2010). Since the process of developing and introducing big data technologies is more complex for SMEs than before, the use of collaborative innovation partners to innovate can be important to improve or speed up innovation (Laurson and Salter 2006; Messeni Petruzzelli et al., 2022).

Fourth, existing OI studies pointed out that IP protection mechanisms are indispensable to stimulate the firm's propensity to engage in risky and uncertain R&D investments and innovation projects such as big data technologies. In this context, Lee et al. (2010) argue that exploitation of IP protection mechanisms is particularly important for SMEs.

In line with this theoretical approach, we will develop some hypotheses to analyse the effects of these OI dimensions on SMEs adoption of Big Data technologies. Exactly, we will hypothesize that some OI practices may provide a large variety of, potentially complementary, resources that may support SMEs in dealing with the uncertain and complex implementation of Big Data technologies (Messeni Petruzzelli et al., 2022). Conversely, we will assume that other OI practices may support the absorption of some resources, like tacit knowledge, that may improve the implementation of Big Data technologies (Terjesen and Patel, 2017).

Methodology. To test our hypotheses, we will collect evidence on the adoption of Big Data from SMEs' perspective, at the individual firm level. To ensure internal validity, we will select the Italian context to control for normative environment, contextual munificence, and entrepreneurial opportunities (Beckman and Burton, 2008). Italy is characterized by a large prevalence of SMEs, since they employ more than 90% of the national workforce (ISTAT, 2022). In accordance with a study of the Italian Ministry of the Economic Development (MISE, 2020), Italy presents a high percentage of firms that are moving toward I4.0. As a matter of fact, in the last decade, the Italian Government has launched a number of plans and ad-hoc interventions to stimulate firms' digitalization and the adoption of I4.0 technologies, including Big Data. Consequently, considering the peculiar structure of the Italian economy mainly based on SMEs and the recent national policies aiming at accelerating digitalisation, Italy represents an interesting country to catch the complexity of SMEs behaviors toward the adoption of Big Data (Martinelli et al., 2021).

To build our sample, we will access the Italian website "registroimprese" and search for the companies that develop Big Data technologies. A preliminary search on this website produced an initial sample of 3891 companies. Since we are mainly interested to analyze SMEs' adoption of Big Data technologies, we will restrict the sample by selecting those companies that employed less than 250 people and had a turnover lower than 50 millions of euros (Messeni Petruzzelli et al., 2022). After, we will use Orbis database to access the mail and main contacts of the companies. Moreover, we will manually search on companies' websites for data that we will not be able to download. We will contact the selected Italian SMEs and send them an online structured questionnaire to be addressed by their CEOs or founders. We aim to collect more than 150 responses in order to perform a quantitative analysis of what OI practices enabled Italian SMEs' to adopt Big Data technologies.

As regards the operationalization of the variables, we will follow the measures used by previous studies on OI practices in SMEs (Spithoven et al., 2013), especially with regards to Big Data technologies (Messeni Petruzzelli et al., 2022). The explanatory variables of OI practices (namely (1) search for external sources of innovation, (2) the acquisition of external R&D, (3) the use of collaborative innovation partners and (4) the exploitation of available IP protection mechanisms) will be scaled between a minimum value of 0, implying that no use is made of them, and a maximum value of 10, implying that they are all used. Then, we will use composite indicators to examine the effects of OI practices by applying Factor Analysis to resume and to reduce the complexity of the questionnaire answers into the four dimensions proposed by Spithoven et al. (2013) since we cannot measure them directly. Factor Analysis models the observed variables (i.e., questionnaire's answers) as a linear function of a smaller number of underlying unobservable factors (i.e., dimensions of OI practices) as proposed by previous studies (Bigliardi and Galati, 2016), Sun et al., 2020). Each factor will capture a certain amount of the overall variance in the observed variables, and the factors will be listed according to how much variation they explain (Fabrigar and Wegener, 2011).

Moreover, in line with previous studies, our model will include the following control variables: (1) whether the SME operates in a high-tech industry or not (Messeni Petruzzelli et al., 2022), (2) the SME's age (Kelly and Amburgey, 1991), (3) the SME's size (Arbore and Ordanini, 2006; Horváth and Szabó, 2019), (4-5) the SME's potential and realised absorptive capacity (i.e., the R&D expenses on total revenue and the number of patents in the last 10 years; see Cassetta et al., 2020, Zahra and George, 2002), (6) the digital skills of the SME's human resources (measured as the percentage of employees with a STEM degree; see Agostini and Filippelli, 2019, Eller et al., 2020, Giotopoulos et al., 2017, Horváth and Szabó, 2019), and (7-8-9) the CEO's education, age and tenure (Datta et al., 2003; Li et al., 2018; Wiersema and Bantel, 1992).

We will test the hypotheses by running several probit regressions to estimate the effect of OI practices on the probability of adopting Big Data technologies. Probit models have been widely used to quantitatively assess the role of open innovation in firms (Spithoven et al., 2013; Triguero and Fernandez, 2016) and the link between Big Data and innovation (Niebel et al., 2018).

Results. In general, we expect that OI practices will lead to an increased propension of adopting Big Data technologies in SMEs. However, taking into account the different OI practices, we also expect that the magnitude and the path that leads to this enhancing adoption could be different. In particular, we anticipate that the degree of breadth of the OI is more important than the degree of depth in SMEs' Big Data technologies adoption.

Research limitations. Although this extended abstract may contribute to our understanding of OI practices affecting SMEs' propension to adopt Big Data technologies, several limitations must be taken into account. First, the

OI practices on which we base our study were identified through the work written by Spithoven et al. (2013). However, we are aware that other studies recognize other OI practices that we do not consider in our questionnaire. For instance, Gassmann et al. (2010) take a 'process perspective' by discussing these practices in terms of inbound, outbound and coupled OI processes. Future studies may replicate our approach by also considering alternative OI practices.

Second, we have examined the effects of OI practices on the adoption of Big Data technologies in a very specific context: Italian SMEs that are registered at the Italian website "registroimprese". We recognize that the generalizability of our results is limited to this type of organization operating in this specific country. Future studies could investigate what are the effects of OI practices in SMEs operating in other countries. Likewise, this study focuses on SMEs. Future research may examine the impact of OI practices in other types of firms, such as older firms, large firms, or start-ups.

Third, in this study we do not analyze the characteristics of the potential partners and collaboration in the OI practices. Future studies may investigate if these characteristics moderate the effects of OI practices on SMEs' adoption of Big Data technologies.

Fourth, OI practices may affect every type of I4.0 technology (Messeni Petruzzelli et al., 2022). In this study, we have focused our attention on Big Data. It might be interesting to study whether the impact of OI practices on Industry 4.0 technologies differ by considering the technological features that epitomize a specific technology. For instance, future studies may explore whether OI practices impact differently on Industry 4.0 base technologies and front-end technologies (Frank et al. 2019).

Last but not least, in this study we will analyze what OI practices affect SMEs' propensity to adopt Big Data technologies. However, we will not investigate whether the adoption of these technologies can be reflected in SME's innovation performance. Future studies may conduct econometric analysis that can assess the mediation effects of OI practices on the relationship between the adoption of Big Data technologies and SMEs' innovation performance.

Managerial implications. *Our research has implications for practitioners such as SMEs owners-managers. More specifically, we emphasize that a more cooperative and collaborative relationship between SMEs and other organizations may facilitate their propensity to adopt Big Data technologies, which is fundamental for those companies that are facing organizational and business challenges that contain their future growth. In general, we expect that OI practices may allow SMEs towards an increased propensity of adopting Big Data technologies. More specifically, we highlight that the magnitude and the path that leads to this enhancing adoption could be different, depending on the type of OI practices. As a matter of fact, this study suggests that the degree of breadth of the OI is more important than the degree of depth in SMEs' Big Data technologies adoption.*

Moreover, our expected findings may point out that OI practices may allow SMEs' managers to make up for the lack of financial resources and knowledge that can be accessed by forming open and collaborative relationships with external partners. On this basis, SMEs' CEOs must overcome the well-known "not invented here" syndrome and dedicate their resources to the relationship with external partners in order to develop big data technologies.

Our study may also be considered useful for policy makers. More specifically, in this study we will show that policy makers should support interactions between firms to facilitate the exchange of knowledge that is necessary to develop breakthrough technologies such as Big Data technologies.

Originality of the paper. *The main originality of the paper relies on its focus on the underestimated relationship between the setting (i.e., SMEs) and the particular Industry 4.0 technology (i.e., Big Data) analysed, covering a research gap in the literature that should be studied for both theoretical and practical reasons. Theoretically speaking, moving away from the view that considers (only) the SMEs' limitations in adopting I4.0 technologies, our study could suggest important and peculiar factors that SMEs could implement for the adoption of Big Data technologies (compared to their larger counterpart). Practically speaking, our study can be used not only by SMEs' owner-managers, but also by policymakers in order to promote policies in favor of more cooperative and collaborative behavior in the SMEs' ecosystem.*

Keywords: *Big Data; Open Innovation; SME; Industry 4.0*

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Innovative SMEs, Board Gender Diversity and Firm Performance: An empirical analysis in Italy

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Framing of the research. *With the aim of supporting technological progress and economic growth, the Italian government introduced in 2015 (DL 3/2015, article 4) the Innovative Small and Medium Businesses (SMEs) commercial category, representing an essential nucleus of enterprises that contribute to the development of the country. The legislation was proposed in the aftermath of the regulation pertaining to innovative startups since Innovative SMEs constitute the subsequent evolving stage meaning that the startup is mature and prepared for the phase of consolidated growth stages. Hence, the difference with the startup definition is that Innovative SMEs can operate for longer than five years along with additional distinctions concerning law and legal activities. In particular, according to the legislation, the legal form of corporation is demanded and some requirements (i.e., being based in Italy, have completed the certification of the financial statements, not traded on a regulated exchange, not listed in the innovative startup area) should be satisfied in order to gain access to this business classification. Furthermore, in order to be considered an Innovative SMEs, the company should meet at least two of the following three criteria: (i) investing in R&D and innovation at least the 3% of the greater value between turnover and production cost; (ii) employing skilled individuals with high level of education (at least one fifth with a doctorate, a doctoral student or researcher, and one third with master's degrees); (iii) having at least one patent or registered software, either as the owner, custodian, or licensee (MISE, 2015).*

In the Italian context, small enterprises (those with ten to forty-nine employees) are quite numerous (200.000), with 3.6 million employees constituting a large portion of the country production system (ISTAT, 2021). Among them, 12.2% are innovative enterprises with a percentage of 22% operating in the high and medium high-tech manufacturing sectors (Chemicals, pharmaceuticals, electronics, machinery, electrical appliances, transportation) and in ICT services (ISTAT, 2021). The presence of innovative enterprises is higher in the Centre-North (12.7%) than in the South (10.3%), probably because are considerably more likely to operate on the national or worldwide market. On the other hand, a substantially larger incidence of small innovative firms is noted in the South, despite the region's overall lower rates, when considering just enterprises with a focus on the regional market (ISTAT, 2021).

As reported by MISE (2022), the total number of Italian innovative startups and SMEs stands at 14.621 companies in the second quarter of 2022 increased by 1,8% compared to the previous quarter with free and simplified access to the Italian Guarantee Fund for SMEs, involving 1,424 businesses that received 5.542 granting of credit, approximately 350 more than the first quarter of 2022.

Purpose of the paper. *In the past decade, government legislations, media and stakeholder influence have encouraged corporations to support more diverse boards. Accordingly, a number of initiatives have been implemented to promote gender diversity on the board of directors including the adoption of the European Commission Directive (2016) with the goal of increasing the number of women who participate in the company boardrooms (European Commission, 2016). Therefore, gender equality and diversity in the workplace have recently been recognized as crucial aspects of corporate governance, as well as sustainability and growth (Farag and Mallin, 2016). According to the findings of the most recent research on women's entrepreneurship published by the Global Entrepreneurship Monitor (GEM), at international level, women constitute almost one third of high growth enterprises and one third of innovators who target both local and overseas markets. In terms of global market, women in countries with upper-middle incomes are on par with men in terms of the most innovative and rapidly expanding business owners in the world. Over the two-year pandemic period, women's overall company exit rates increased from 2.9% to 3.6%, however men's rates rose from 3.5% to 4.4%. In comparison to men (34%), women in upper-middle-income nations experienced a 74% growth in business exits between 2019 and 2021. More than half of the women entrepreneurs globally are employed in the wholesale and retail industry, but the government and social services sector employs one out of every five (18.5% women compared to 10.1% males). Nevertheless, 2.7% of female entrepreneurs found their businesses in the information, computers, and technology (ICT) industry that attracts the preponderance of venture capital funding, whereas 4.7% of male entrepreneurs do so. The GEM report also analysed the contribution of women to the growth and*

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development of the regions. Compared to other part of the world, results demonstrated that Europe has the lowest rates of entrepreneurial ambitions and participation for women, but greater rates of gender parity overall. Women in the high-income nations that are prominently represented in Europe and North America are highly engaged in startup activities with great potential. Nonetheless, these regions have some of the most substantial gender variations in entrepreneurial perceptions. Despite the fact that women in these locations are among the most influential and privileged female entrepreneurs in the world, they continue to face major obstacles to success in the perspective of gender equality.

Previous literature has investigated the relationship between female board composition and the companies' financial performance, however the findings appear to be unclear. Numerous studies contend that gender diversity positively affects both the performance and competitive advantage of a company (Cox and Blake, 1991; Elsbach, 2003; Smith, Smith, and Verner, 2006; Campbell and Minguez-Vera, 2008; Adams and Ferreira, 2009; Westphal and Zajac, 2013). Likewise, previous works showed that the presence of women on boards of directors (BoD) has been associated with increased asset returns and improved financial advantages (Singh, Vinnicombe, and Johnson, 2001; Campbell and Minguez-Vera, 2008). According to Arvanitis et al. (2022), the favorable relationship between gender diversity on boards and the performance of companies is in line with agency theory and resource dependence theory and this positive influence on board operations (i.e., enhanced legitimacy, monitoring and evaluation, improved evaluation, and greater accessibility to scarce external resources), can lead to higher financial performance. In addition, they demonstrated that in Greek listed firms, once the percentage of female directors reaches the key point of 33% percent, the positive effect on performance of the agency and resource dependence theories, changes into a negative effect, in line with the social identity theory. Some research, however, reveals that the presence of more women on a board has no meaningful impact on a company's profitability, as seen by declining accounting returns (Adams and Ferreira, 2009; Darmadi, 2011; Minguez-Vera and Martin, 2011; Fernández-Temprano and Tejerina-Gaite, 2020). In the study on the relationship of board members and financial outcomes of Indonesian firms, Darmadi (2011) considered three demographic features of board members: gender, ethnicity, and age founding that financial performance and market success are negatively associated with gender diversity.

In the Italian context, Bacchin and D'Agostino (2022) using a sample of 3,257 innovative start-ups found that gender-related factors have a positive correlation with performance levels. In particular, the presence of a diverse gender in the boardroom is associated with higher return on assets (ROA), whilst the percentage of women is associated with higher return on equity (ROE). Accordingly, Mari and Poggesi (2020) in their research on the effect of gender on the performance of Italian Innovative SMEs, by using as performance measures "Growth in Revenues" and "Growth in number of Employees", found that female-owned businesses are more likely to be successful, in contrast to their male counterparts.

In light of this studies, our goal is to explore whether gender diversity in the boardrooms of Italian innovative SMEs has a measurable impact on firms' performance. This work-in-progress intends to contribute with new evidences to the ongoing discussion on the topic. First, Italian Innovative SMEs were identified based on data collected from the AIDA dataset; second, gender comparison evaluations were performed in terms of financial outcomes.

Methodology. Our study develops a quantitative analysis based on data collated through the AIDA database of Bureau van Dijk. The analysis focuses on Italian Innovative Small and Medium firms (SMEs).

The sample includes 3.264 Italian Innovative SMEs, operating in non-financial sectors, with a total of 12.188 observations. An unbalanced panel covering a period from 2016 to 2021. We perform the firm-fixed effects analysis to eliminate unobservable heterogeneity with robust standard errors.

The dependent variable is Return on Asset (ROA), a well-established firm performance measure (Adams and Ferreira, 2009; Easterwood et al., 2012; Zona et al., 2015) calculated as the ratio between EBIT and total assets, that allows to obtain information on the operating profitability in the core business. Our main explanatory variable is Female Board, considering the percentage of women in the board (ratio of female in the board scaled by the total number of board components). We provide as control measures of Board characteristics as Age Board, calculated as the natural logarithm of the age of the board components.

As control we also added in the model some measures related the degree of R&D effort to appreciate the companies' ability to invest in innovation; in particular, the variables R&D expenses, Patent expenses and Licensing expenses are included.

Traditional control variables are included in the model. Tangibility is measured by the ratio of tangible assets to total assets, and it represents the firm tangible assets. It may increase firms' financial capacity since they are used as collateral. Cash Holding, amount of liquidity held by the company, and the Long-Term Debt of a business are included in our analysis as financial capital variables (Campbell and Minguez-Vera, 2008). This group of financial variables can give a general idea of the firm's financial resources that could be invested in strategic projects, such as those related to innovation. We control, also, for firm Size (natural logarithm of total assets) and firm Age (natural logarithm of number of years since the firm foundation plus one), as proxy for the reputation and track record a company gains over the years (Campbell and Minguez-Vera, 2008; Low et al., 2015). Dummy Listing is a dummy equal to 1 if the company is listed in a stock exchange, 0 otherwise. Dummy DeListing is a dummy equal to 1 in case of delisting, and 0 otherwise. Dummy South is a dummy that is equals 1 if the firm is located in the southern of Italy and 0 otherwise, for considering differences between the northern and southern of our country. Year dummies and industry dummies are included in our model.

Results. First of all, some descriptives are reported to provide a general overview of the sample. Tables 1 and 2 show the composition of the sample of Italian Innovative SMEs according to the presence of women in the board.

Tab. 1: Female and male presence in the board

Female presence	Freq.	%	Cum.	Male presence	Freq.	%	Cum.
0	7,261	59.57	59.57	0	626	5.14	5.14
1	2,653	21.77	81.34	1	3,574	29.32	34.46
2	1,29	10.58	91.93	2	1,618	13.28	47.74
3	576	4.73	96.65	3	1,433	11.76	59.49
4	218	1.79	98.44	4	1,247	10.23	69.72
5	104	0.85	99.29	5	872	7.15	76.88
6	42	0.34	99.64	6	716	5.87	82.75
7	11	0.09	99.73	7	449	3.68	86.44
8	11	0.09	99.82	8	363	2.98	89.42
9	4	0.03	99.85	9	319	2.62	92.03
10+	18	0.15	100.00	10+	971	5.79	100.00
Total obs.	12,188	100.00		Total obs	12,188	100.00	

Tab. 2: Female presence in the board and ROA (by region)

Regione	Freq.	% Female (mean)	ROA (mean)
Abruzzo	178	9,556	3,527
Basilicata	85	7,705	6,519
Calabria	225	8,600	5,413
Campania	855	7,355	5,450
Emilia-Romagna	1159	12,944	1,219
Friuli-Venezia Giulia	198	11,861	-3,443
Lazio	1360	10,572	1,978
Liguria	252	12,698	-0,048
Lombardia	3618	12,010	-6,788
Marche	436	8,786	7,455
Molise	21	0,000	4,469
Piemonte	785	10,460	0,426
Puglia	628	10,720	2,755
Sardegna	106	11,999	-3,178
Sicilia	422	6,605	4,742
Toscana	696	8,252	3,674
Trentino-Alto Adige	228	6,326	-3,273
Umbria	144	9,610	2,942
Valle d'Aosta	48	0,000	-0,764
Veneto	744	9,493	3,806
Total	12.188	10,455	-0,1632

Source: our elaboration from AIDA data

As shown in Table 1, in 40.43% of Italian innovative SMEs sample there is at least one woman present in the board. Table 2 suggests that the highest percentages of female presence in the board are recorded in the Northern Italian regions (more than 10%).

The descriptive statistics of the sample analyzed are shown in Table 3. The values relating to the mean, median, standard deviation, quartiles, minimum and maximum values of the variables considered in the analysis are shown in the following table.

Tab. 3: Descriptive statistics of the full sample

	Mean	Median	SD	Min	1° quartile	3° quartile	Max
1 ROA	0.316	2.870	21.132	-93.570	-3.180	9.340	49.030
2 Female Board	0.105	0.000	0.171	0.000	0.000	0.182	0.800
3 Age Board (log)	3.928	3.938	0.171	3.219	3.833	4.043	4.500
4 R&D expenses	0.028	0.000	0.094	0.000	0.000	0.000	0.910
5 Patent expenses	0.014	0.000	0.063	0.000	0.000	0.000	0.976
6 Licensing expenses	0.005	0.000	0.035	0.000	0.000	0.000	0.889
7 Tangibility	0.085	0.026	0.138	0.000	0.007	0.096	0.999
8 Cash Holding	0.179	0.111	0.191	0.000	0.029	0.272	1.000
9 Size	6.961	6.951	1.628	0.472	5.851	8.107	12.541
10 Long Term Debt	0.246	0.180	0.259	0.000	0.000	0.430	1.000
11 Age (log)	2.087	2.079	0.785	0.000	1.609	2.639	4.394
12 Dummy Listing	0.032	0.000	0.175	0.000	0.000	0.000	1.000
13 Dummy DeListing	0.001	0.000	0.030	0.000	0.000	0.000	1.000
14 d_South	0.207	0.000	0.405	0.000	0.000	0.000	1.000

Source: our elaboration from AIDA data

Table 4 reports the correlation matrix of the variables. Additionally, we tested possible multicollinearity among the independent variables by using variance inflation factors (VIFs). The maximum VIF in the model is 1.56 (mean of 1.13), which is far below the generally accepted cut-off of 10 (or, more prudently, 5) for regression models (Kutner et al., 2004), suggesting that multicollinearity is not a problem in this study.

Tab. 4: Correlation matrix

		1	2	4	5	6	7	8	9	10	11	12	13	14	15	VIF
1	ROA_	1.00														
2	Female Board	-0.02	1.00													1.04
3	Age Board (log)	0.06	0.06	1.00												1.12
4	R&D expenses	-0.07	-0.01	-0.01	1.00											1.03
5	Patent expenses	-0.05	0.03	0.04	0.07	1.00										1.03
6	Licensing expenses	-0.04	0.01	-0.01	0.04	0.05	1.00									1.01
7	Tangibility	0.03	0.06	0.07	-0.07	-0.06	-0.02	1.00								1.12
8	Cash Holding	0.02	0.02	-0.13	-0.11	-0.06	-0.03	-0.19	1.00							1.09
9	Size	0.08	0.16	0.22	0.02	0.07	0.07	0.14	-0.14	1.00						1.56
10	Long Term Debt	-0.09	0.02	0.03	0.07	0.05	0.06	0.18	-0.11	0.17	1.00					1.07
11	Age (log)	0.14	0.10	0.30	-0.02	0.01	0.01	0.14	-0.12	0.50	0.06	1.00				1.46
12	Dummy Listing	-0.00	0.08	0.05	-0.00	0.06	0.04	-0.02	-0.03	0.22	0.01	0.04	1.00			1.11
13	Dummy DeListing	-0.03	0.03	-0.00	-0.01	-0.00	0.03	0.00	-0.02	0.05	0.01	0.00	0.17	1.00		1.03
14	Dummy South	0.08	-0.06	-0.03	0.04	-0.02	-0.01	0.11	-0.02	-0.03	0.03	0.04	-0.07	-0.02	1.00	1.03

Source: our elaboration from AIDA data

The Table 5 presents the main results of our study. In column (1) it is reported the main model results, based on firm-fixed effect. In columns from (2) to (7) are reported the cross-sectional results in each year of analysis.

Tab. 5: Results concerning the relationship between percentage of female in the board on firm performance

	(1) firm-FE with year and industry dummies	(2) 2021 Cross-section analysis	(3) 2020 Cross-section analysis	(4) 2019 Cross-section analysis	(5) 2018 Cross-section analysis	(6) 2017 Cross-section Analysis	(7) 2016 Cross-section analysis
Female Board	-52.748*** (15.063)	-11.612*** (4.191)	-6.762** (2.987)	-7.634*** (2.859)	-1.034 (2.919)	-6.486* (3.680)	-1.704 (3.341)
Age Board (log)	-37.611*** (12.219)	2.916 (4.421)	2.408 (2.970)	4.352 (4.403)	4.628 (4.415)	1.110 (4.345)	-2.113 (3.969)
R&D expenses	-7.048** (3.549)	-21.362*** (6.690)	-13.359*** (4.662)	-12.744** (4.945)	-21.477*** (5.842)	-20.985*** (6.777)	-15.186*** (5.660)
Patent expenses	-14.403*** (4.714)	-11.754** (5.715)	-10.849* (6.023)	-25.902*** (8.609)	-31.055** (12.717)	-21.470** (8.676)	-26.529** (12.294)
Licensing expenses	-5.391 (22.451)	-57.957 (40.191)	0.403 (7.321)	-22.615 (14.305)	-17.094 (16.752)	8.143 (13.583)	6.422 (16.637)
Tangibility	-22.919*** (7.524)	7.023** (3.500)	5.970** (3.021)	6.746** (2.781)	-10.977 (14.441)	9.548*** (3.291)	-1.275 (3.858)
Cash Holding	1.493 (2.808)	10.535** (4.121)	10.222*** (2.776)	6.215 (3.948)	-2.374 (4.852)	0.756 (4.295)	1.876 (3.418)
Size	7.837*** (1.217)	1.786* (0.965)	1.211** (0.482)	1.375 (1.110)	0.961 (1.144)	1.122* (0.658)	0.094 (0.554)
Long Term Debt	-7.976*** (1.266)	-9.114*** (2.503)	-8.788*** (1.933)	-6.509*** (2.130)	-5.762** (2.341)	-12.294*** (2.502)	-12.505*** (2.532)
Age (log)	-7.539*** (1.628)	3.907** (1.546)	3.959** (0.814)	3.954** (0.822)	4.594*** (0.976)	3.376*** (0.712)	4.604*** (0.729)
Dummy Listing	12.518 (7.858)	-10.717 (11.859)	1.573 (1.684)	0.860 (2.805)	0.010 (3.282)	3.019 (1.885)	2.058 (2.579)
Dummy DeListing	-70.989*** (11.353)	-24.898** (10.219)	-22.960 (17.627)	-32.355* (18.591)	-35.337** (17.212)	-22.886* (12.648)	-21.838 (15.438)
D_South	49.504*** (8.344)	5.711*** (1.056)	5.377*** (1.012)	5.994*** (1.168)	5.376*** (1.516)	2.596** (1.244)	5.595*** (1.197)
Constant	79.092 (55.385)	-40.715** (17.814)	-34.873*** (12.594)	-39.910* (23.575)	-40.340* (23.542)	-14.457 (15.060)	4.030 (14.931)
R ²	0.570	0.089	0.091	0.058	0.075	0.066	0.072
Observations	12188	2022	2116	2099	2067	1998	1886

Notes: ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level

Source: our elaboration from AIDA data

In column 1, the negative and statistically significant coefficient of the variable *Female Board* reveals that the presence of women on board decreases SMEs performance (ROA). Thus, board gender diversity has a relevant negative impact on firm performance. This result is in contrast with many previous studies (Brahma et al., 2020; Arvanitis et al., 2022), while it is in line with some other empirical studies (Adams and Ferreira, 2009; Fernández-Temprano and Tejerina-Gaite, 2020). The other columns show a similar negative effect considering cross-sectional regressions in each of the year included in the analysis.

Research limitations. This work-in-progress regards a sample of Italian innovative SMEs operating in non-financial sectors. In our future research we want to complete this analysis examining how the impact of gender diversity on firms' performance differs by sector and also considering the role of moderating variables on the relationship studied. In this regard, more advanced econometric techniques could be useful to better understand the impact of board gender diversity on corporate performance. A limitation is that the analysis involves just the Italian context, considered a civil-law country, thus the results could be unique to this environment and could not be generalized to different institutional context (common law countries).

Managerial implications. Our preliminary findings suggest that the costs of board gender diversity could outweigh its potential benefits. Thus, it seems that board gender diversity could harm decision-making process and firms' performance. Greater monitoring related to the presence of women on board, different viewpoints, and opinions, could lead to concerns about miscommunication, conflicts, and disagreements. The present results raise questions about the reasons of this negative effect of female presence in the board of innovative SMEs.

From a managerial point of view, this research underlines the need to investigate the causes of the conflicts within the board. Perhaps, the lower risk propensity of women could represent a "constraint" for innovative SMEs considering their specific characteristics of innovation. Thus, trying to trigger actions for improving decision-making processes and results, by developing synergies, leveraging the positives aspects related to board gender diversity, and strengthening them.

Originality of the paper. Our paper adds new insights to the literature by presenting a broader understanding on Innovative Italian SMEs. We extend previous works through a focus on board gender diversity of Innovative Italian SMEs investigating specifically the presence of women in their boardroom and exploring their impact on firm performance. The analysis is developed using variables and performance measure in line with the literature of the board gender diversity which represent a novelty for the research stream on Innovative SMEs.

Keywords: Italian innovative SMEs; board gender diversity; firms' performance.

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A Four Steps Approach to Achieve Digital Innovation in Family Enterprises: Evidence from Multigenerational Italian Firms

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Abstract

Research in family businesses digital and technological innovation is developing significantly and is growing in new directions. Previous research has pointed their attention in identifying drivers and outcomes of family firm innovation and differences between family and non-family counterparts. However, we lack an understanding on the innovation process and how family firms innovate. Our study is intended to cover this gap by unpacking the innovation process of multigenerational family firms. By using an abductive approach, we theoretically, empirically and practically contribute to the digital innovation literature in family firms. In addition, we contribute by advancing knowledge on how family firms leverage the unique characteristics and resources to innovate. In so doing, based on a qualitative analysis of 12 family businesses, we combine primary and secondary data sources to identify four interconnected steps - perception step, assessment step, application step and evaluation step - that family firms follow to achieve digital innovation. Then, we offer avenues for future research.

Framing of the research. Digital technologies are every day increasing their presence in organizations and are unsurprisingly affecting every firm in their activities (Nambisan et al., 2019), including family firms. Research interest in family businesses digital and technological innovation has grown considerably in the last decade (Calabrò et al., 2019; De Massis et al., 2013), focusing on drivers and outcomes of family firm innovation and their differences with non-family counterparts. In the debate, a recent stream of research has emerged, focusing on the interplay of digitalization and family business. In the new context of digital transformation and fourth industrial revolution, prior studies point the attention on the impact that technologies have in shaping family firm's behavior (Soluk et al., 2021), while providing evidence that family firms can successfully innovate even in conditions of limited resources (De Massis et al., 2018). However, there is an existing gap in explaining the processes of family firm innovation. A finer grained comprehension of the family business innovation and digitalization process could advance both family business and innovation literature in regards to the resources leveraged in innovation processes.

Purpose of the paper. We aim to unpack the digital innovation process in multigenerational family firms. To answer our research question and achieve the objective of the study, we are following an abductive approach and we are investigating 12 manufacturing Italian family firms who have implemented digitalization and Industry 4.0 technologies, such as artificial intelligence, cloud computing, cloud manufacturing, internet of things and big data analytics (Culot et al., 2020). In our study we combine interview data with field observations and secondary data sources. We relate to the resource-based theory (Barney, 1991) to empirically unpack the digital innovation process in multigenerational family firms, identifying innovation process' interactive steps and mechanisms, to empirically and theoretically explain how family firms innovate while leveraging on their unique characteristics to their advantage (Habbershon and Williams, 1999; Rondi et al., 2019). We aim to contribute to the family business literature by showing how family firms can engage in innovation activities, providing evidence of the whole process and steps that family business owners and members could follow to achieve digital innovation. Second, we aim to contribute to the innovation literature, providing empirical detailed evidence, along with theoretical and managerial implications on the process of innovation.

Methodology. To understand how the innovation process unfolds in family firms, we are conducting an analysis of large Italian manufacturing firms who have engaged in innovation activities and are actively using innovative

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technologies in their business processes. We are adopting an abductive qualitative research philosophy (Timmermans and Tavory, 2012), which is useful to generate new knowledge and understand phenomena (Behfar and Okhuysen, 2018; Folger and Stein, 2017). We purposefully selected the companies from the Orbis database based on two main criteria. The first criterion regards the type of firm investigated. The companies had to be family-owned companies. We investigated whether they were family firms in two steps. First, we observed through secondary data (e.g., website, social media accounts, newspaper articles) whether they presented themselves as family businesses and/or whether we could find evidence that they were family businesses. Second, we further validated the information that we gathered through secondary data, by asking directly to family business members through email exchange, telephone and during interviews whether the company is a family business. We follow the main family business definition according to Chua et al. (1999): “The family business is a business governed and/or managed with the intention to shape and pursue the vision of the business held by a dominant coalition controlled by members of the same family or a small number of families in a manner that is potentially sustainable across generations of the family or families” (Chua et al., 1999, p. 25). The second criterion to select the cases regards digital innovation. Family firms had to show a digital innovation attitude, with a clear strategy in progress. We were able to identify these criteria either through a public list of firms that were known to engage in innovative activities, or through secondary data (the family firms’ website and media outlets). As per the first criterion, we also validated the second criterion with family members and non-family managers of the sampled firms through email exchanges, telephone and interviews that the family businesses were engaging in digital activities and were pursuing an innovation strategy. Hence, the final sample consists of 12 family firms which account for 30 interviews with family members and non-family members conducted in 2022. In addition, we did 12 field observations and analyzed a vast variety of secondary data, such as books, videos, websites, newspaper/press articles, company available database information and documents, to triangulate with primary data (Butcher, 2021). We aimed to capture distinctive inter-generational family dynamics, therefore, we made sure to include in our sample companies representing multigenerational family enterprises. This means that the sampled firms had to be in line with the criteria and scope of our research. To include multigenerational family enterprises, firms needed to have multiple generations simultaneously involved in the ownership and/or management, and in their day to day activities. This differentiates from family firms that are owned and managed by the founder, wherein intergenerational dynamics and the inheritance of values, traditions, and distinctive family features are less evident or non-existing at all. According to our sample, the family business generational number varies from second generation to the fifteenth generation, which ensure aspects of family firm heterogeneity (Daspit et al., 2021; Daspit et al., 2018) to capture their relation with digital innovation (Li and Daspit, 2016).

Data analysis follows the general grounded theory approach (Glaser and Strauss, 1967), comparing emerging pattern in the multiple cases (Yin, 2013). Each case was summarized and quotes from the interviews are used as first-order concepts through an open coding process. Cases are compared and first-orders are aggregated into theoretical second-order categories and overarching dimensions (Gioia et al., 2013). The interpretative process allows us to develop and make sense of qualitative data (Suddaby, 2006), and to identify overarching mechanisms of multigenerational family firms’ digital innovation processes. In analyzing the data, we go back and forth from our primary and secondary data, the emerging codes and theory (Eisenhardt, 1989).

Results. We build our findings by relating first order codes - exemplary quotes coming from the participants- to second order themes and overarching mechanisms, which serve to evidence the steps followed by multigenerational family enterprises to achieve digital innovation. Our findings identify four steps of digital innovation: perception step, assessment step, application step and evaluation step. In the perception step, the opportunity is identified, where a digital innovative solution is discovered and screened. The input can come from diverse sources. It can be individual, derived from the entrepreneurial attitude and vision, wherein the family business actor, in this first step, recognizes that there is an opportunity; familial, wherein innovative attitudes may be inherited by previous family generations that faced prior industrial revolutions or brought by the next generation who is daily in touch with digital technologies; team-oriented, from the R&D department and/or specific teams who come up with innovative solutions; organizational, stemming from cluster and other activities of the entrepreneurial family or driven by employees and business members; external, wherein ideas and suggestions come from competitors, suppliers, customers and partners. Once the opportunity to innovate is identified, the owning family, sometimes along with the support of designated teams, compare the opportunity with the status quo in order to understand whether the opportunity is needed and worth pursuing for the family business.

In case the opportunity is deemed to be followed, the focus shifts to the second step: the assessment step. In this step, the decision makers assess what they require and how they can get what they need. Partnerships and tight relationships with the local community, suppliers and customers help family businesses to achieve human (e.g., specific team creation) and financial (e.g., monetary incentives) resources. Once the resources are identified and actions that need to be taken are clear, it is crucial to actuate division of roles and responsibilities among family and non-family business members, with the aim to keep up with the fast-changing environment and technologies, to be pioneers and to stay at the top front of the market. Family firms have a competitive advantage of quick decisions-making given that oftentimes they discuss within the family in informal environments rather than in formal board meetings.

The third step is the application step. Once the family business has established what they require and what they have to do, they take action and implement the changes shaping the business. While some elements of the organizations, such as old employees, are resistant to change, to integrate innovation in the business and make it the backbone of the organization help to overcome the challenges of making everyone understand the need to change. Digital innovation

requires technologies and people to work together. As mentioned by one of the family business CEOs interviewed: “Digital innovation changes the business, but not the family”. This allows to change the business culture step by step and with the help of the family, to make the digital technologies the backbone of the company, as done with past innovations, while working with people leveraging on the trust that employees have in the family. This is a crucial step. Indeed, the firm should motivate and engage with old employees favoring training courses and hiring younger employees who have the knowledge and are prone to engage with advanced technologies.

The fourth step is the evaluation step. After the new digital technologies are applied, family members and technicians start to analyze data to assess whether they actually gained benefits by introducing the technology. At the same time, new digital technologies allow family business members to appraise big data from their production processes and customers services, to evaluate new valuable solutions for their clients. In a recursive cycle, this rises new opportunities that can be recognized and/or taken by actors involved in the business, which make the digital innovation process to the first step. In this way, family businesses can continuously improve their technological systems and processes, providing constant benefits to their organization and their customers.

Our study reveals the processes and steps of digital innovation in family enterprises. We identify four different yet interconnected steps for family firms to acquire digital innovation. An important discovery is the importance of leveraging both human and financial resources at different levels to achieve digital transformation. A second discovery is that the processes of digital innovation follow clear interrelated steps. In addition, our findings highlight that the digital innovation process, for multigenerational family businesses keen to engage in innovation activities, follows recursive cycles that allow technicians and decision makers to continuously improve their choices and change the business step-by-step. The optimal situation in the first step is the combination of external pulls (e.g., customer driven) and internal pushes (family entrepreneurial vision). If the customers are looking for something new in their product that requires digital innovation or other stakeholders propose innovative technologies to advance the production processes, but the business members do not see the opportunity or necessity, the chance is not pursued and the opportunity is lost. Family firms have the competitive advantage to generationally transfer the entrepreneurial mindset of previous generations to younger generations throughout the years, wherein next generation members can learn from senior generations, which keeps the family business at the forefront of future technological revolutions. These provide evidence of individual and familial capabilities as key resources that can be inherited and strategically orchestrated in achieving innovation in an entrepreneurial setting (Alvarez and Busenitz, 2001). In the second step, family firms can clearly divide roles among family members or reliable people that are within the company for years and have the expertise, knowledge and trust of the family. Also, in time of digital innovation, being fast is crucial. Indeed, family firms have the advantage to take quickly decisions and invest in innovation without going through formal meetings. In the third step, old employees may be resistant to change. Family businesses can change the business backbone into the digital technology, while leveraging the trust that employees have toward to family to make them understand the need to achieve digital transformation while recognizing their key role in the process. Furthermore, family businesses do need people that know the latest technology. Specialized training programs and planning a generational change also within employees, i.e., they can balance and combine old employees that knows the company and newly hired employees with technological skills. In the fourth step, family business members evaluate the technologies and their processes which can highlight the efficiency of the new technology and/or can rise new opportunities to engage in new innovations, which brings back the cycle to step one of the digital innovation processes for further development.

Research limitations. The study is not without limitations. First, we are focusing on family owned and run businesses. Additional studies on other types of businesses and ownership may lead to contrasting results and different processes. Second, despite providing evidence of heterogenous aspects within our family business sample, we purposefully focus only on multigenerational family firms, to investigate how history, family values and traditions interplay with digital innovation and to comprehend the intra- and inter-generational dynamics in relation to digital innovation and resources allocation (of family and non-family members). Studies that investigate digital innovation that are family businesses at the first generation, or where there is only one generation of the family involved (Li and Daspit, 2016), may discover different findings than ours. We also encourage future studies to investigate the digital innovation processes in other types of firms. The third limitation regards innovation. We decided to focus our effort to comprehend family business innovation processes in the digital context, to understand how family businesses characteristics affects the innovation processes. Moreover, we are trying to identify how the digital innovation process unfolds, which includes interconnectivity between departments and exchange between human capital (old and new employees, non-family managers and technicians, senior generations, and new generations) and technologies. Future studies could point their attention to unpack other types of innovation processes that are not strictly related to digital technologies. Fourth, our sample comprehend only Italian family firms. Cultural and contextual aspects may play a role in interpersonal and family dynamics as well as in digital innovation activities (Fletcher et al., 2012). Future studies could replicate our study focusing on family businesses from other regions (Aguinis et al., 2020; Samara, 2021), such as North and Latin America, Africa and Asia, wherein family relations, values, intergenerational power dynamics and organizational environments may differ. Simultaneously, different environmental contexts such as incentives from the government and the possibility to acquire (human and financial) resources may play a role and would be worth investigating (Guan and Yam, 2015).

Managerial implications. By using an abductive approach to in-depth study twelve Italian family firms, we develop theory on the digital innovation processes in multigenerational family businesses. In so doing, we identify four distinct, yet interconnected steps that family firms pursue to achieve digital transformation and incorporate modern

technologies in their processes and products. The study practically contributes by advancing the understanding of how family firms innovate, while leveraging on their unique characteristics, such as family history, inherited entrepreneurial mindset and attitude, and organizational members' trust.

Innovation is required to remain competitive in the market, but many companies fail to do so. We analyze cases of multinational family enterprises that were able to achieve digital innovation. Our empirical findings highlight key steps and processes that can be used by family owners, family managers, non-family managers, technicians, advisors and mediators to handle and manage digital innovation within the family business context. Through our findings and the identified steps, family and non-family managers can follow the steps to achieve digital innovation and successfully implement the newest technologies in their businesses.

Originality of the paper. Despite a lot of interest has been given to innovation and digitalization in family firms, we lack an understanding of the process of digital innovation. Therefore, we contribute to the family business and innovation fields by unpacking the digital innovation process. We follow the perspective of Alvarez and Busenitz (2001) and we contribute to the theory of resource-based view by showing how individual, family and firm resources, along with acquired and inherited capabilities can be leveraged on the firm's advantage. The identified steps to attain digital innovation and the analytical themes offer theoretical and managerial implications.

Keywords: Family business; process; innovation; digitalization; qualitative methodology

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Organizational adaptability and digital innovation in the agri-food start-ups: An emerging perspective on the mediating role of digital learning orientation

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Framing of the research.

Introduction

After 50 years from Moore's law, we are living in the "golden age of digital innovation" (Zheng and Finchman, 2014). The phenomenon has obtained an increasing interest in the academic and in the enterprises' field, and it is possible to define it as a "product, method, or business model that is regarded as new, needs some important changes by adopters, and is incorporated in, or aided by, IT" (p. 330). A significant disruption to global business has resulted from the formerly distinct functions of various digital technologies merging and integrating as a result of this digital convergence (Giudice and Scuotto, 2022). People's way of living, thinking, working and learning is changing as a result of digital transformation (Lanzolla, Pesce, and Tucci, 2020; Correani, and Natalicchio, 2020; Frew, 2017). This has taken advantage of novel economic prospects and newly developed digital business models, which depend on the adaptability, ambidexterity, and agility of organizations (Grass, Backmann, and Hoegl, 2020).

In this evolving scenario, enterprises are scouting Industry 4.0 enablers - such as smart sensors, the Internet of Things, cyber-physical systems, Big Data, automation, robotics, and artificial intelligence - to retain and improve their strategic and organizational capabilities (Bogoviz, 2020; Popkova and Sergi, 2020). Particularly, enterprises in the agricultural sector, like those in other sectors, have recognized the possibility to be productive, sustainable (Secundo et al. 2022), and market competitive through the integration of digital technologies into the supply chains, systems, and production processes, while meeting what Shepherd et al. defined as "the megatrends that challenge the status quo: a hungrier world, a bumpier ride, a wealthier world, choosier customers, and transformative technologies" (Shepherd et al., 2018).

Some scholars have introduced the "self-tuning model" into the innovation management literature. This model consists of three main organizations features: Organizational agility, organizational adaptability, and organizational ambidexterity (Reeves, Zeng, and Venjara, 2015, Russo and Vurro, 2010). According to Pisano and Borioli (2017), this model allows organizations to quickly cope and acclimatise to customer needs through systems, and large tech corporations like Alibaba, Google, and Amazon, have incorporated it since the commencement of their business journeys. SMEs have adopted this strategy somewhat later than the aforementioned businesses as a result of resource shortages (Scuotto and Mueller, 2017). To deal with lack of resources and adapt their strategies and operations to market developments, SMEs must, according to Papa and Tarba (2021), exploit and explore new information and technologies. With the current 4.0 economy, adopting new technologies could be vital but this greatly relies on the orientation of the enterprises (Giudice and Scuotto, 2022). Digital learning orientation (DLO) within SMEs emerges as a key factor (Benzidia et al., 2021).

The concept of learning orientation regards the entire organization, because it is related to the collection and adoption of data and information about customers' needs, market features, and competitors' strategies (Hurley and Hult, 1998). In this manner it is possible to create new products or services and obtain a competitive advantage (Zhao and Calantone, 2002). According to Wang (2008), learning orientation is an organizational value that is linked to the tendency of the organization to use knowledge. It focuses on gaining an understanding that is likely to be helpful to the organization through the provision and dissemination of information as a mechanism for learning (Wang, 2008). Moreover, learning orientation is a corporate orientation that incorporates the ideas of looking for and trying to use learning (Fernandez-Mesa and Alegre, 2015).

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Organizational learning and innovation are typically combined concepts. Innovation is a wide concept, defined in different ways depending on schools of thought: According to Thompson (1965), it is the creation, acceptance, and application of novel concepts, procedures, ideas, goods, or services. Citing Amabile et al. (1996), Hurley and Hult (1998), innovation is the successful application of original ideas within a company. The innovation process encompasses the collection, diffusion, and utilization of new knowledge (Damanpour, 1991). Deepening research, organizational learning is linked to the creation of new knowledge, which is essential for business performance and innovation capabilities (Hurley and Hult, 1998). An organization committed to learning is likely to possess state-of-the-art technology (Gatignon and Xuereb, 1997), which leads to greater innovation capability in both products and processes.

According to Freeman and Engel (2007), one explanation for why a window of opportunity arises and grants innovators like start-ups a transitory advantage is the conflict among large corporations. Consequently, Herterich and Mikusz (2016) emphasize that digital innovation extends beyond traditional product functioning of the physical artifact and traditional methods in the literature of innovation. Therefore, start-ups going after digital innovation in contrast with other categories of innovation constitute a crucial analytical component that serves as the focus of this study.

From the above discussions, it is evident that there is a relationship between organizational adaptability, digital learning orientation, and digital innovation that has not been studied in the literature. Accordingly, in order to contribute to filling this gap, we aim to investigate how organizational adaptability could influence digital innovation through the digital learning orientation of start-ups in the agri-food sector, by providing empirical evidence.

The remaining sections of this ongoing research are as follows: Section two focuses on the theoretical framework and hypotheses development. Section three explains the research methodology that we will adopt for this study. In the fourth section, the results of the study are presented. The fifth section focuses on research limitations, managerial implications, and the originality of the paper.

The digital transformation of the Italian agri-food sector and the rise of start-ups

Entrepreneurship has gained notable interest in recent years in both the policy-making and scientific spheres, since it can help job creation and economic development (Di Paola et al. 2018; Audretsch 2002; Clarysse and Heirman 2004). In line with this point of view, national and/or regional policies have been implemented on a global scale to assist the development of new businesses (Rocha, Mamédo, and Quandt 2019; Matricano 2020).

Regarding Italy, the national government took action by providing the Decreto Crescita 2.0 (Law Decree N. 179/2012), in order to support the development and expansion of innovative start-ups. Innovative start-ups are defined by Italian law as new enterprises, or recently formed, having a high-tech value. Three requirements highlight the innovative nature that these start-ups must possess; a specific percentage of investments in R&D assets, a specific number of highly skilled people (e.g., Ph.D.s, researchers, or collaborators hired as research staff), and a patent. Innovative start-ups in Italy are required by the legislator to meet at least one of the requirements listed above.

Food has played a significant role in this context, with the agri-food sector setting the pace for national innovation. Universities, research institutes, and start-up businesses have all engaged in technical innovation and research with the aim of enhancing existing processes and products or creating new ones (Sartoni and Guidi, 2020). Results from "Osservatori.net digital innovation" show that the Italian "Agriculture 4.0" (a term that refers to the impact of sensors, satellites, digital technology, and robotics on management tasks on farms and off-farms; Rose and Chilvers, 2018) accounted for 540 million euro in 2020 (4% of the global market), a 20% increase from the previous year. Additionally, in 2021, with 60% of the Italian farmers converting to Agriculture 4.0, the total revenues of these production models were 1.6 billion euros (+23% from 2020), notwithstanding the undesirable effects of the Covid-19 pandemic. Blockchain is the most widely deployed technology, especially for marketing and communication activities (54% of respondents), supply chain management (47%), and raising the level of production chain sustainability (27%) (osservatorio.net). Data analytics and the Internet of Things are further technology that farmers might use; the findings reveal.

Indeed, the openness of the Italian agri-food sector to innovation is all but uniform. The Italian agri-food SMEs have generally shown to be resilient to changes in the external environment and have demonstrated a high level of adaptation to new challenges (either the "megatrends" or the effects of climate change), despite the high level of fragmentation and the small size of the enterprises (Del Baldo, 2022). However, new technologies are challenging to integrate into established agribusinesses, due to innovation knowledge and competence gap (techeconomy2030). Instead, forward-thinking start-ups are promising to bring the tech industry's renowned disruptive innovation, gaining ground. In recent years, industries and organizations already well placed on the market have thus intensified exchanges with start-ups looking for fresh concepts and innovations. As seen by the founding of two significant international accelerators, Start-upBootCamp FoodTech in Rome and the FoodTech Acceleration Platform by Deloitte in Milan, this has led to increased awareness and growth potential for Italian start-ups (Sartoni and Guidi, 2020). They are the subject of the analysis in this study as a result.

Theoretical framework

The determinants of innovation can be evaluated using the framework provided by Crossan and Apaydin (2010). They divide these determinants into three macro-categories: environment, organization, and individuals and groups. At the environmental level, one main factor is industry, its main features, and the level of competition among enterprises (Cohen and Levin, 1989). At the organizational level, the driving factors of innovations are conversely related to size (Damanpour, 1991, 1996), resources, and learning capability of managers and the workforce. These factors can influence the ability of enterprises to react to the external environment's stimulus.

The learning curve of an enterprise affects organizational adaptability, as a result of changes in the enterprise model which arises as the result the convey of high-tech capabilities (Lall, 1992; Bell and Pavitt, 1995). Organizational adaptability results in growing requirement for IT capacities and investments (Fjermestad, Kudyba, and Davenport., 2020).

Neirotti and Paolucci (2011) claim that researchers have concentrated on opening the black box, which is motivated by worries about how IT adoption affects SMEs' innovative performance. Additionally, SMEs are acknowledged as being extremely innovative and having agile, flexible structures (Gopalakrishnan, Pérez-Luo, Saporito, 2016; Laforet, 2013), despite appearing to be both independent (Hayek, 1945) and synergetic (Barnard, 1938) in the utilization of external events. They also tend to adapt more to the current knowledge-intensive economy (Kock and Gemünden, 2016; Hessels and Parker, 2013).

Utilizing a collaborative strategy, organizational adaptability aids businesses in enhancing their innovation learning curve over time (Kelly, 2009). According to organizational learning theory, the ability of an individuals to exploit innovations and to build novel knowledge is reliant on their cognizance of the situation, the capacity to explore, and the aim to exploit (Nambisan, Agarwal, & Tanniru, 1999). Kohli and Melville (2018) describes learning a key organizational lens through which the internal organizational environment of digital innovation has been studied. For instance, learning can be seen as a link between innovation and routine work, which is stagnant and resistant to change (disruptive but usually important; Huang, Makoju, Newell, & Galliers, 2003). In accordance with Chan et al. (2019), adaptability fosters disruptive digital innovation in SMEs by reducing any rigidity in their business models, maintaining their innovative capacities, and achieving organizational ambidexterity while balancing the tension. Organizational adaptability, according to Grover, Sambamurthy, and Bharadwaj (2003), can also be viewed as a co-evolutionary adaptation. They defined it as an organization's capacity to "learn over time and through experience as they develop digital options and agility and launch a variety of competitive actions" (p. 253).

Therefore, we propose that there is a link between digital learning orientation, organizational adaptability, and digital innovation through a conceptual framework depicted in Figure 1. Furthermore, we propose that the positive influence of organizational adaptability on digital innovation is enhanced through the mediating role of digital learning orientation. The work by Scuotto and Tarba (2021) confirmed that organizational adaptability and ambidexterity of smart manufacturing SMEs have a positive influence on digital learning but the influence of digital learning orientation on digital innovation is under-studied.

Purpose of the paper. *Following the findings from the literature, we seek to effectively determine the effect of organizational adaptability on digital learning orientation and digital innovation among start-ups in the agri-food sector. Additionally, we want to assess the effect of digital learning orientation on digital innovation, and particularly, we want to investigate the influence of digital learning orientation on the relationship between organizational adaptability and digital innovation among start-ups in the agri-food sector.*

Accordingly, we formulate the following hypotheses:

H1: Digital learning orientation of agri-food start-ups has a positive effect on the digital innovation

H2: Organizational adaptability of agri-food start-ups has a positive effect on digital innovation.

H3: Organizational adaptability of agri-food start-ups has a positive effect on the digital learning orientation.

H4: Digital learning orientation mediates the relationship between organizational adaptability and digital innovation.

At the same time, we aim to add to the body of research on digital innovation in agri-food start-ups, by arguing that digital learning orientation has a beneficial impact on digital innovation, based on empirical data. We will in fact evaluate digital innovation from a digital learning orientation standpoint, in contrast to the majority of past studies.

Methodology.

Sampling strategy

We will collect data adopting a purposive sampling strategy from the data source Bureau van Dijk database AIDA (Mara Del Baldo, Onest et al., 2022), which describes the economic and financial situation of Italian enterprises. We will use the following criteria to define the final sample:

- 1. Industry, according to the ATECO code: enterprises that belong to "agricultural cultivation and production of animal products, hunting, and connected services"; "forestry and use of forest areas"; "fishing and aquaculture", "food industry" and "beverage industry".*
- 2. Type of enterprises: innovative start-ups.*
- 3. Time period: last year available, 2021.*

According to AIDA, the number of innovative start-ups in 2021 in the agri-food sector was 223. The leading region is Lombardia (23%), followed by Emilia-Romagna (12%), Lazio (11%), Campania (8%), and Puglia (7%). In most cases, they are micro companies, with less than nine employees (97%), while only seven enterprises are small (more than nine employees), and 79% of them have total revenues under the average.

Research design

The nature of the research objective is quantitatively inclined, hence the adoption of a quantitative research approach with a descriptive survey design. The research methodology will make use of a questionnaire to be sent, by email, to start-uppers in the agri-food sector in the Italian context (database obtained from AIDA). Questionnaires will

be used to obtain information about the three main constructs under analysis, according to the research design: organizational adaptability, digital learning orientation, and finally digital innovation.

To avoid errors and bias in the questionnaire completion, and to verify the clarity of the items, we will subject the survey to a review by three to five experts, belonging to the academic world and to the start-up entrepreneurial environment. Moreover, we will perform a pilot test with the assistance of ten or twenty entrepreneurs from local start-ups.

The survey will be first designed in the Italian Language (Brislin, 1970 and Del Giudice et al., 2021), and sent by email; then it will be translated into the English Language by a bilingual professional (Keskin, 2006).

The primary data will be merged with secondary data sourced by AIDA, to prepare the dataset to perform the analysis and test the hypotheses.

Variables and measures

The survey will be divided into four parts: the first one will consist of three items to evaluate organizational adaptability (adaptation from Del Giudice, 2021), using a seven-point Likert scale. This is an attitude that needs to pervade the organization, starting from the leader (Boylan and Turner, 2017), and regards the readiness of an organization to react to planned or unplanned changes (Del Giudice et al., 2021, Birkinshaw and Gibson, 2004). It is also defined as a multidimensional construct that includes several cognitive skills and behaviors, and it is necessary to include new ideas in the organization routine and transform the culture (Boylan and Turner, 2017). It permits the creation of innovative digital instruments or outcomes, increases the level of agility to market changesets, and provides new market opportunities (Davenport, 2000; Hayek, 1945).

The second part of the survey will be dedicated to the evaluation of digital learning orientation, and it will consist of seventeen items, four to measure commitment to learning, four to evaluate the shared vision and four to measure open-mindedness, and five to measure intra-organizational knowledge sharing (Sinkula, 1997, Calantone et al, 2002). All these items will present a five-point Likert scale, from “strongly disagree” to “strongly agree”. This variable is usually tested at the educational level (the unit of analysis being students) (Bullen, Morgan, and Qayyum, 2011, Aboobaker and Zakkariya, 2021), while only a few researchers analyze this concept at the organizational level. One of the most appreciated solutions is the adoption of a three measures evaluation (Sinkula, 1997, Calantone et al. 2002). According to this view, the organizational learning of a company depends on the organization’s commitment to learning, shared vision, and open-mindedness, as well as intra-organizational knowledge. These measures are adapted considering the digital inclusion in the learning process of a firm in recent years.

The third part will comprise three items, with a seven-point Likert scale, to assess the adoption of digital innovation technologies (Del Giudice et al, 2021). It is a widely analyzed concept, which can be assessed using several measures. According to Ciriello et al. (2018), innovation in the digital context includes the creation of products, processes, or business models with the contribution of digital technology platforms as means or final output. The main features of digital innovation are convergence (union of separate components using technology), and generativity (digital technologies are “dynamic, extensible and malleable”) (Yoo et al. 2012). We associate this concept with the introduction of Agriculture 4.0 technologies such as Big Data, the Internet of Things, and automation (Damanpour and Arandiv, 2012) by the interviewees.

The last part of the questionnaire will be composed of demographic measures, used to obtain information about control variables:

- A. Number of employees: it is an indicator of an enterprise’s size (Rothaermel and Deeds, 2004; Wei, Yi and Guo, 2014).
- B. Region dummies: a variable equal to one if the enterprise belongs to a specific Italian region and zero otherwise (Minus one to avoid the dummy variable trap) (Onesti, Monaco and Palumbo, 2022).
- C. Sub-sector: it is useful to evaluate the competition level of each sub-sector in the agri-food industry. (Thomas et al., 2017).
- D. Total Revenues: it is an indicator of performance of an enterprise. (Onesti, Monaco and Palumbo, 2022, Calantone et al., 2002).
- E. Age: natural logarithm of the difference between the current year and the year of foundation (Wei, Yum and Guo, 2014; Sinkula, 1997 and Calantone et al. 2002).

Data analysis

We will test the relationships defined by the model representation (Figure 1 in the Appendix) using structural equation modeling (SEM) (Rhee et al. 2010; Del Giudice et al., 2021; Calantone et al., 2002). This model enables the distinction between observed variables and latent variables (also known as factors), with two or more indicators. Factors are commonly represented in the graphical analysis using circles while indicators are represented by rectangles (Ullman and Bentler, 2013). Factors are divided into exogenous variables (independent) and one endogenous variable (dependent variable).

In this case, all the three variables will be factors, because they cannot be directly measured but require measures to define them.

This technique allows several advantages in contrast with other methods (multiple linear regression), since it eliminates the effect of measurement errors and further, offers the possibility to test complex and multidimensional relationships. Finally, this type of model permits to verify the “construct-level hypotheses at a construct level” (Ullman and Bentler, 2013).

The data in structural equation modeling are the variance and covariance in the sample covariance matrix. For this reason, descriptive statistics would be provided to obtain preliminary information about the main characteristics of the data sample, and to evaluate the correlation between the variables and the values of variance and covariance. To test the predictive power of the model, it would be necessary the analysis of R^2 and t -test.

Results. Provided the main features of innovative start-ups (Unioncamere, Del Baldo, 2022), we expect to obtain the confirmation of all the hypotheses described above.

Indeed, these enterprises are very small (according to the number of employees and revenues), the average age of entrepreneurs and employees is not quite high, people have a good educational background, and they are flexible but at the same time resilient to external changes.

In particular, we expect to obtain a positive relationship between digital learning orientation and digital innovation (Keskin, 2006; Lestari et al., 2018; Rhee, 2010; Aboobaker and Zakkaryia, 2021; Calantone et al., 2002), because the higher propensity to increase the level of digital knowledge, added to the shared vision through the organization, the open-mindedness and the sharing of knowledge in the organization, are all factors which should create the ideal background for the implementation and the satisfactory adoption of digital innovation in this context.

The second group of results should confirm the positive relationship between organizational adaptability and digital innovation (Del Giudice et al., 2020) for the reasons explained above, especially because of the good level of flexibility of the realities analyzed.

The third group of results should verify the positive and significant relationship between digital learning orientation (Sinkula, 1997; Liu, 2002) and organizational adaptability (Del Giudice et al., 2022), although this has not been tested in literature before. In this manner, it should be possible to understand if and to what extent the ability of an enterprise to adapt in a fast way to planned and unplanned changes is an accepted base to improve the orientation of managers and employees to digital learning.

Finally, the last part of the results should test the mediation role of digital learning orientation (Meekaewkunchorn et al., 2021; Rhee, 2010) between organizational adaptability and digital innovation adoption. We suggest that, without a solid learning orientation, it is difficult or likely impossible to guarantee the right level of innovativeness in relation to the digital changes in the external environment.

In conclusion, these expected results should confirm the relevant role of the determinant aspects of digital innovation (Crossan and Marina Apaydin, 2010; Rhee et al., 2010) in this specific context of small and innovative enterprises (innovative start-ups) in the agri-food industry, as one of the main drivers of the Italian tech economy.

Research limitations. Similar to other studies, there are some limitations to ours, and some recommendations for further research might be made.

For instance, it would be interesting to replicate the study to check the generalizability of our findings, and there are numerous ways to do it.

First, our analysis will investigate how organizational adaptability could influence digital innovation through the digital learning orientation of Italian start-ups in the agri-food sector. Exploring the same relationship, and particularly the mediating effect of digital learning orientation, in other countries where the agri-food industry has been experimenting with the same transition towards Agriculture 4.0, driven by innovative start-ups, would thus be interesting.

Further, instead of focusing simply on innovative start-ups, agri-food SMEs might be the unit of analysis in the following studies, which would allow us to evaluate the potential range of effects of the control variables.

Finally, we may expand this study to other sectors (such as manufacturing, energy, or healthcare) where digital transformation has had significant or comparable effects. This would allow us to assess whether and how much the model we suggest might alter as a result of industry effects.

Managerial implications. We expect that the findings of our analysis could contribute to the evolution of innovative start-ups in the Italian agri-food industry into established and more competitive enterprises. Indeed, the outcomes should attest to the beneficial influence of digital learning orientation and organizational adaptability on digital innovation, confirming the significance of workforce and organizational characteristics in developing the ideal responses to external changes. This suggests that it is possible to be competitive in this complex industry without sacrificing the economic purpose of the enterprise, leveraging on the human resources function of these enterprises. Accordingly, the selection of employees must be focused on the educational background and behavioral characteristics to provide a satisfactory and innovative development, because digital learning orientation is a multifaceted notion influenced by various factors, such as open-mindedness and commitment to learning.

A second implication is related to the value of investing in digital learning to establish the ideal environment for the adoption of digital innovation. Although the government has designated funds and incentives for these businesses, innovative start-ups are typically micro-firms with a small number of employees. As a result, it is crucial to make the best use of the resources available to raise the level of digital education and increase the likelihood that the introduction of digital technologies will be successful.

The third implication is broader and refers to the need for the organization to keep a good level of adaptability. The level of competition among enterprises in the agri-food sectors is currently quite high, and the contribution of digital innovation is a potential source of competitive advantage. For this reason, it is essential to choose and train employees to be responsive and adaptive to all changes that occur in the market and possibly anticipate these changes.

Originality of the paper. Our study aims to develop a conceptual framework linking digital learning orientation, organizational adaptability, and digital innovation. The role of digital learning orientation in this relationship is novel,

especially in the emerging digital innovation market. We contribute to the digital innovation literature by proposing a positive effect of digital learning orientation on digital innovation. Unlike most earlier studies, this study assesses digital innovation from a digital learning orientation perspective. Additionally, this study proposes a positive effect of organizational adaptability on digital learning orientation which has not been tested in the literature.

Accordingly, it is expected that start-up businesses with a high level of learning orientation will help them to accept developing know-hows and advance novel skills and design state-of-the-art products.

Our study is very relevant at this time when innovative start-ups have gained prominence in the agri-food sector as major drivers behind innovation, sustainability, and a focus on food safety orientation.

Finally, we will contribute to empirical evidence on digital innovation in the context of start-ups in the agri-food sector.

Keywords: digital innovation; organizational adaptability; digital learning orientation; agri-food start-ups; Agriculture 4.0

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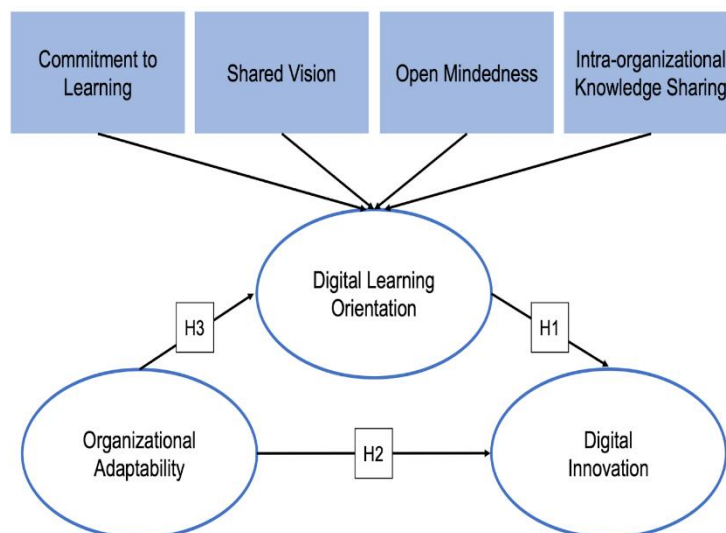
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Appendix

Fig. 1: Framework of the study



Exploring the interplay between digital implementation and SMEs' performance: an empirical study

LUDOVICA ANTENZIO* DANIELA DI BERARDINO*

Framing of the research. *Smart technologies implementation has gained a key role within companies, influencing both strategic and organizational levels (Isensee et al., 2020), especially by revolutionizing internal organization through operational processes, communication and corporate governance (Matarazzo et al., 2021), as well as external relationship with customer, suppliers and industrial partners (Matarazzo et al., 2021).*

Digitalization is changing small and medium enterprises' business model and customers' value creation process (Matarazzo et al., 2021) with the aim to gain competitive advantages in intense and dynamic market competition (Ghosh et al., 2022) and to improve their business performance (Roffia, 2020). Digitalization, digital transformation and digital innovation have been central issues in economic and academic debates, assuming a key role in the development of small and medium enterprises (SMEs) (Eller et al., 2020; X. Zhang et al., 2022). Defining digital implementation (DI) as the integration of digital technology into all areas of business, fundamentally changing how you operate and deliver value to customers (Kraus et al., 2022; Verhoef et al., 2021). DI contributes as an input and as an outcome, while also affecting the performance and efficiency of companies (Corvello et al., 2023; Gaglio et al., 2022; Verhoef et al., 2021). The prominent impacts of smart technologies in society, such as Artificial Intelligence, Big Data, Internet of Things, and cloud computing, have revolutionized internal operational process (Isensee et al., 2020), innovation strategies (Ghasemaghaei and Calic, 2019), and decision-making (Goes, 2014; Merendino et al., 2018), as well as the environment or context in which these process are conducted (Corvello et al., 2023), leading firms to adopt malleable organizational design that digitally transform their business models (X. Zhang et al., 2022).

Purpose of the paper. *This study aims to contribute to strategic management studies by examining the existent relationship between the DI of SMEs and their performance.*

Researches have paid many attention to the pervasive adoption of digital innovations in big companies by focusing on new products or services as an outcomes and how their new products and services are commercialized (Ancillai et al., 2023; Sabatini et al., 2020). SMEs have an important position within the economy of the European Union as they make up 99% of EU businesses in 27 countries and they cannot avoid being influenced by the environment's changing¹. Due to the importance of SMEs, they cannot be excluded and must adapt to the changes that are taking place over the years.

Digital innovation and implementation assume a crucial role in the development of SMEs, because they influence not only internal strategies linked thus to operational development but also external relationships and thus user choices (Eller et al., 2020; Kotarba, 2018; Skare et al., 2023). Specifically, digital innovation is presented as a key factor in improving the efficiency and effectiveness of business operations, developing new products and services, reaching new markets and improving customer relations. Thus, digital technologies (DT) are the stars of this transformation, which become a priceless source of future competitiveness for contemporary SMEs (Ancillai et al., 2023).

The rising of DTs are reaching across SMEs innovative industries as well as traditional industries, which are typically not characterized by high levels of technological investment (Teece, 2010). DTs have been significantly adopted by companies, shaping industrial systems, operations, business processes, and the way companies create and capture value across a broad range of fields (Ancillai et al., 2023; Müller et al., 2018).

DI significantly impacts SMEs' business activities (Matarazzo et al., 2021; Skare et al., 2023) and improves their competitiveness (Matarazzo et al., 2021; Skare et al., 2023) and radically altered organizations (Ardito et al., 2021) and environmental conditions (Corvello et al., 2023; Ghosh et al., 2022; Isensee et al., 2020). In this view, new DTs enables SMEs to pursue new opportunities and supply value when companies unfreeze their full business potential (Ancillai et al., 2023) and, therefore, are empowered to exploit these technologies (Verhoef et al., 2021).

DI goes over the business changes of individual processes, products, or repeated tasks performed by employees that impact entire business (Verhoef et al., 2021). Kotarba highlighted that DI leverages technologies to have an important impact on three levels: external by driving to increase the customer experience and thus boosting the value proposition; internal by moving to shift organizational structures and processes (Kotarba, 2018). The last level is more holistic by

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¹ https://single-market-economy.ec.europa.eu/smes_en

going to completely disrupt the entire business model leading it to become innovative as well (Verhoef et al., 2021). However, the three levels do not operate individually but are all focused on improving and enhancing the performance of small and medium-sized companies (Eller et al., 2020; Gaglio et al., 2022).

Internally, DI can offer several benefits, such as improving operational efficiency by automating some business processes (Ghosh et al., 2022), enhancing information and data management, reducing turnaround time as well as improving management of inventory and supply chain (Ardito et al., 2021; Cassetta et al., 2020). In the same way, there are some productivity benefits through the adoption of several and specific technological tools such as IoT, Artificial Intelligence, etc., which enable small and medium-sized businesses to work efficiently, reduce some costs and minimize human effort (Hansen & Bøgh, 2021). The deployment of selected digital tools also enables rapid adaptation to changes within the external environment thereby increasing the competitiveness of small and medium-sized enterprises that can branch out into new and international markets through the use of e-commerce and online payments, as well as by scaling up their value proposition with new products and services (Li et al., 2023). SMEs' own use of a website and social media can also generate increased performance and consumer interest, which in turn helps increase a company's return (Gaglio et al., 2022). As a result, SMEs in almost all industries have undergone or are currently undergoing DI (X. Zhang et al., 2022; Z. Zhang et al., 2023).

However, due to the limited funds, resources and capabilities (X. Zhang et al., 2022; Z. Zhang et al., 2023), SMEs are lagging when it comes to digitalization (Eller et al., 2020) which has a negative impact on performance. SMEs face high barriers, and it is more difficult to successfully implement digitalization (X. Zhang et al., 2022). Not always they are able to deploy in their business the technology drivers most fitting to their requirements. In some cases, when they switch to new technology, the expected results are not always achieved and consequently, small and medium-sized enterprises fight to attain the projected outcomes driven by the fact that the empowered transformations currently fail to generate benefits that leaders have been expecting by lagging behind (despite having introduced a DI) in major decision-making that then leads to business differentiation and ultimate goal achievement (Kohtamäki et al., 2020; Tortora et al., 2021).

A large stream of literature has focused on the interaction between DI and SMEs. Maroufkhani (2022) focuses on success factors and the influencing mechanism of DI in SMEs, showing the technological and environmental factors positively impact organization capabilities and promote the success of DI in SMEs (Maroufkhani et al., 2022). The existent literature has been large explored the implementation of DI in large firms (X. Zhang et al., 2022) or in innovative firms such as start-up, spin-off or high technology firms (Ghezzi and Cavallo, 2020) by analyzed individual case studies. However, specific studies on SMEs that operate in both traditional and innovative sector are relatively scarce. While recent studies have focused on the integration of new technologies in the internal process, especially in Industry 4.0 (Ancillai et al., 2023; Müller et al., 2018). They studied how this incorporation change business model (Gaglio et al., 2022) or change value creation (Matarazzo et al., 2021). Due to the lack of defined index to evaluate DI within the SMEs, scholars have focused on how adopting individual technologies can offer a positive impact on business performance (Ardito et al., 2021; Skare et al., 2023).

These studies neglect the different impacts played by the implementation of different digital technologies. The extent to which SMEs need to undergo DI and the impact of different technologies on performance remain unclear. While studies have provided valuable insights, there is also a high degree of fragmentation on the topic that inhibits a comprehensive understanding of the issue and represents an obstacle to the advancement of academic research.

Building this state of art and in line with the academic debate, this research aims to explore the relationship between different digital technologies and SME's performance.

The study focuses on the Italian context and SMEs. The Italian context is a relevant test case with strong evidence of SMEs as these companies are an important and representative component of the country's business structure (Cassetta et al., 2020) and are located throughout the country. According to the European Commission, small and medium-sized enterprises in Italy represent the basis of the economic territory and are key to economic and territorial development.

Italy's SMEs-based entrepreneurial fabric makes digitalization critical for its economy. However, implementing DTs in SMEs is complex due to territorial, sectoral, cultural, and organizational factors. Italian firms have comparatively slower adoption rates of DTs rather than European countries, attributed to limited knowledge, financial resources, cultural challenges, and regional differences (Ancillai et al., 2023; Matarazzo et al., 2021; Roffia, 2020). Northern SMEs are more innovative and export-oriented, showing greater openness towards DTs. SME digitalization studies in Italy should consider these unique features to maximize opportunities and overcome challenges (Maroufkhani et al., 2022).

Methodology. To evaluate the relationship between SME's performance and DI, we use the generalized methods of moments (GMM), considering the DI and SMEs' performance estimate based on a pool of indicators. We consider a sample of 500 SMEs, innovative and non-innovative, over an 8-year period to emphasize the actual relationship between the adoption of DI and the increasing of the performance. This research is based on a combination of methods and empirical models that permit us to explore the existent relationship between the adoption of different digital innovations tools and the impact of the SMEs' performance.

In developing this research, we constructed and considered several variables to investigate the adoption of DI, combining a series of databases and sources.

Data for selected variables related to SMEs' performance were collected using AIDA Bureau van Dijk's database, which is a comprehensive platform used to research, analyze and process economic, financial, and commercial

information of all public limited companies operating in Italy. This database is increasingly validated and widely used in the literature (Civera and Meoli, 2023; Roffia, 2020).

Data used to construct variable *DI* come up from different database and sources including Digital Economy and Society Index (DESI, 2022), firm's website, and variables widely used by academic researchers (Skare et al., 2023). To structure the variables regarding *DI*, an index is proposed based on a set of indicators, which includes variables such as the use of e-commerce, social media, big data, cloud, Artificial Intelligence, e-commerce turnover, SMEs selling online, selling online cross-border, ICT specialists, number of international clients.

Firm's website information is collected by "Wayback Machine of the Internet Archive", which captures and stores website daily and track their history and their evolution over time. To measure the SMEs' performance, we propose using a series of accounting indicators recognized by academic community and comparable like ROI, ROE, ROA, ROS, return R&D investment, number of registered patents (Liu et al., 2022). A series of control variables are included in this research like firms' size, measured as the total number of employees, firms' age measured as the total number of years since a firm's establishment and firm ownership (Liu et al., 2022).

Our sample comprises 500 innovative and non-innovative Italian SMEs, collected over an 8-year period (2013-2021) from AIDA and the Italian register of start-up and innovative SMEs. The reason why to choose this sample is prompted by a several reasons. The first concerns the heterogeneity of the sample, which well represents the reference context characterized by small and medium-sized companies distributed throughout Italy with small and large regions, more and less developed according to territorial identity in Italian NUTS 2 and European Cohesion Policy. Secondly, the Italian context is a relevant test case being SMEs the main industrial system of the country. Thirdly, the sample of 500 SMEs turns out to be very significant in terms of its contribution to the academic debate in which recent studies offered insight into a smaller number of companies in developed countries.

SMEs were identified following the definition established by the European Commission (2003) and in compliance with European Union guidelines. Due to configuration and as also reflected in many academic studies, the Italian territory has a clear division at the level of enterprises in the various sectors that populate the nation. Data provided by the European Commission in the plan for the "Cohesion Policy 2021-2027" project evaluating European structural and investment funds for regional and urban development in the EU, also assessing the digital transition in companies, shows that Italy is divided into less developed regions, transition regions and more developed regions. As Italy is the EU's third-largest economy, its progress in *DI* over the next few years will be crucial for the entire EU to meet the Digital Decade 2030 goals.

The 500 firms from the Italian SMEs were selected on an equal basis within the territory concerned so that the sample could be considered highly heterogeneous. First, the homogeneity of the variables used to construct our model has been considered uniform to ensure the model approach. Second, the heterogeneity of the sample, representing the reference context, is characterized by enterprises located in medium-sized and large regions and less and well-developed according to the territorial identity considered in NUTS 2 of European Union policies (EU) and localized in different region with differences in terms of population, GDP. To make our re-partition consistent with the real information we take into consideration data regarding innovation, R&D investment, and ICT development analyzed by ISTAT. Finally, we applied probability-proportional-to-size-sampling in each stratum of less and well-development to ensure the robustness of our sample (Levy and Lemeshow, 2008). Firms located in an area with a larger number of total firms, population, GDP and R&D investment, with higher innovation and ICT development in each stratum are more likely to be selected (Levy and Lemeshow, 2008). This means that this subdivision is distributed proportionally throughout the country according to the parameters taken into consideration.

The sample of 500 small and medium-sized enterprises is highly significant in terms of contributing to the academic debate (Ardito et al., 2021; Müller et al., 2018; Zoppelletto et al., 2023).

Due to the characteristics of the data, we use GMM method with a wide cross-section and a relatively short time period (8-Years), it is a suitable for estimation in dynamic panel data models and allow us to reduce the effect of possible unobserved heterogeneity and endogeneity issues into the model (Lee and Yu, 2014). The adoption of the GMM method allows us to predict the extent of the strength of the effects of the independent variables on the dependent variable over the years.

Results. This research examines the links between digitalization and SMEs performance. Specifically, these findings support the current academic debate on SMEs, which emphasized the importance of implementing managerial software, supply chain management systems, and administrative automation tools that can improve SMEs efficiency by reducing costs, time, and required resources. While this relationship is evident, we are going to investigate the role that digitization plays in increasing the competitiveness of small and medium-sized enterprises and how digitization affects the performance levels of SMEs.

Preliminary results show that SMEs performance have a direct relationship with *DI*, with a distinction made between innovative and non-innovative SMEs. The analysis revealed that innovative SMEs showed a higher level of digitalization compared to non-innovative SMEs. In detail, innovative SMEs were more likely to have a greater *DI* using tools such as artificial intelligence, big data, and cloud computing. Moreover, the adoption of these technologies positively affected the financial and innovative performance of innovative SMEs. On the other hand, non-innovative SMEs showed a lower level of digitalization, with the adoption of cloud computing that limits their capacity of collect and organizing a large quantitative of data, IoT that if unused leads to have a higher operative costs and lower operational efficiency. This had a limited impact on their performance. These findings suggest that specific digital technologies may improve the SMEs' performance more than others.

Research limitations. Due to the quantitative nature of the analysis, and the complexity of the phenomenon of DI this research presents intrinsic limitation related to the sample and variables used in the analysis, which open up opportunities for future investigations. The first limitation in conducting the research is the sample for analysis. Although it represents the development in the Italian and European contexts in terms of characteristics and structure, we focus on a single country.

Future research could extend this sample to other countries with different policies, development plans, and social cultures to evaluate the impact of these results in various directions.

Another possible limitation arises from the potential weaknesses in using the performance measures linked to accounting ratios. These ratios suffer the earnings manipulation risk and don't evaluate innovation or the strategic efficacy. Similarly, we measure digital innovation using the macro-variable of DI: this choice is driven by the need to capture the evolution of these practices in SMEs over the years. Although SMEs differ by sector, this approach enables us to capture the development of digitalization and the relationship between the SMEs' internal development DI practices.

Managerial implications. This study holds significant and important managerial implications for SMEs. The study provides useful insights to guide SMEs to carefully plan their digitalization strategy, especially since not all digital tools adopted by SMEs necessarily lead to performance improvement. Thus, it emphasizes the importance of developing a comprehensive digitalization strategy to guide the implementation of digital practices. SMEs need to carefully evaluate the appropriateness of DTs before implementing them and ensure that they align with their overall business strategy. Therefore, it is crucial to implement the digitalization of operational processes and internal management systems to increase efficiency and productivity. Furthermore, caution is necessary when implementing external digital practices, such as customer-facing activities, as results may not always meet expectations.

Research findings provide useful insights that may contribute to future public funding decision, for digitalization, providing a comprehensive picture of Italian SMEs.

Originality of the paper. The originality of this paper lies in its investigation of the relationship between DI practices and the development of SMEs. While previous research has explored the adoption of digitalization on SMEs, this study adopts a comprehensive approach to digitalization by examining the impact of different digital technologies on SME performance. This study provides insights into the complexities of digitalization in SMEs and highlights the need for SMEs to adopt a strategic approach to digitalization in order to fully leverage its potential benefits. Furthermore, the study's approach constructing variable of DI provides a novel way to measure the DI achieved by SMEs and its relationship to performance. Finally, the study's focus on a specific country provides valuable insights into the development of SMEs in that context and highlights the potential for further research in other countries with different policies, plans, and cultures.

Keywords: digitalization; digital implementation; SMEs; performance; smart technologies; strategic management

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The internationalization of luxury SMEs: untangling the liability of localness

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Framing of the research. *This paper investigates luxury SMEs and the features of their internationalization process, focusing on the liabilities that may emerge in the process. The luxury industry has always attracted scholars' attention, dealing with several topics (Kapferer, 2014; Cristini et al., 2017; Ko et al., 2019). Among these topics is the interplay between internationalization and luxury companies. Thinking of luxury companies as international companies may seem almost obvious to many. Several luxury fashion brands perfectly represent the globalization that has characterized the past decades. These brands are often the expression of large companies and part of global groups, and they have been the object of international business and international marketing studies (Moore et al., 2010, Armitage and Roberts, 2021). There is a strong bond between luxury and internationalization. It is possible to outline some of the main motives that lead luxury companies to face internationalization processes, often since their establishment (Runfola et al., 2022). The size of the demand is a first motive: luxury fashion companies may find insufficient demand in the country of origin to guarantee their development, especially for niche or elitist products, and this can push luxury fashion companies to turn to foreign markets to find broader demand. Additionally, a global image and, therefore, a global reputation of luxury brands are essential for obtaining legitimacy and orienting customers' preferences (Philippe et al., 2022). This aspect relates even more to global recognition, which has long been indicated among the elements that characterize the brand strategy of companies in the luxury industry. Another factor that pushes the internationalization of luxury fashion companies is represented by the characteristics of the customers of luxury products, namely their cosmopolitan character, attention to the international scenario, and frequent trips to various destinations for business and leisure reasons. Lastly, the evolution and management of distribution and communication channels, including the physical and the digital ones, have pushed luxury companies to open retail stores in areas such as large metropolises and the main cities or shopping centers in many foreign countries (Guercini and Runfola, 2016; Guercini and Milanese, 2017). The management of distribution and communication channels is related to different types of advantages: the economy of scope (distribution formats and merchandising models can be replicated on a large scale and for different brands), the economy of scale in the purchase or rental of physical spaces and advertising spaces (both in the traditional and digital media).*

Thus, luxury and internationalization seem to be two faces of the same coin. However, research on the internationalization of luxury companies has not yet reached a level of maturity and depth. Most contributions have focused on some relevant aspects, such as the internationalization of management of know-how (Moore and Burt, 2007), the sourcing of products from foreign markets and supply chain management (Caniato et al., 2011), the operation of retail stores by fashion retailers within foreign markets, and the use of e-commerce (Guercini et al., 2020). Many contributions have focused on large luxury companies. This focus is because large companies tend to have the necessary resources to establish themselves on an international scale. However, this also happens frequently for smaller companies, making the topic worthy of further attention. On this point, the international business and entrepreneurship literature offers instead a contribution, which has been growing since at least the nineties, as evidenced by the emphasis on born global companies (Knight and Cavusgil, 2004; Coviello, 2015) and international entrepreneurship (McDougall and Oviatt, 2003). Thus, we argue that there is a need to consider the internationalization of luxury companies from the perspective of small and medium-sized enterprises (SMEs). These companies are as international as large multinationals and often have roots in manufacturing. Moreover, internationalization frequently occurs since the foundation of the company. Despite this, both the theoretical debate and the world of practitioners seem to have paid much attention to the internationalization of large luxury companies, leaving luxury SMEs out of the debate. Moreover, the international business literature underlines that internationalizing companies may suffer from liabilities (Ong et al., 2022), especially the liability of foreignness and the liability of outsidership (Johansson and Vahlne, 2009), namely difficulties faced by companies in their internationalization process, and only in part concern the digital context but, above all, they manifest in the

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internationalization of companies both through the opening of subsidiaries and in the opening of stores in foreign markets. The liabilities faced by luxury SMEs and how these can be overcome represent fertile ground for in-depth investigation.

Purpose of the paper. Some research gaps seem to emerge. The first concerns the internationalization of luxury companies that is taken for granted in the literature, or it seems to be understood that operating in the luxury industry implies being international. However, this can not be taken for granted, and further research seems necessary to analyze the features of the internationalization of luxury companies. A second gap concerns the study of SMEs. In fact, a large part of the literature on the internationalization of luxury companies takes into consideration the global brands of large companies. At the same time, the Italian panorama - and not only - sees SMEs operating steadily in the global luxury industry. Finally, research on liabilities in internationalization focuses on categories such as foreignness and outsidership. However, the peculiarities of SMEs and the luxury industry that could bring out new liabilities are worthy of attention.

Starting from this background, this study addresses the internationalization of luxury SMEs, intending to outline its features and the liabilities that may emerge during the internationalization process. Thus, the research questions addressed by this study are the following:

- How do luxury fashion SMEs set the internationalization process?
- How do liabilities in internationalization intervene in this process?

To this end, the paper examines four cases of Italian companies operating in the luxury fashion sector. In fact, Italy is not only a context rich in SMEs but is also at the forefront of the global luxury fashion industry, presenting a context in which both large global companies and manufacturing SMEs coexist, with the latter well-positioned in global luxury niches.

Methodology. To address the research gap, we adopted a qualitative research methodology. In particular, we present the results of a multiple-case study (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) of four Italian luxury SMEs in the fashion industry. The companies were purposively selected as cases of international luxury SMEs. Moreover, the authors of this paper had the possibility to follow the companies or get in touch with entrepreneurs of the companies in previous research. The primary sources of information were in-depth interviews with entrepreneurs and managers of the companies conducted within three years (2019-2022). Interviews were supplemented with findings from secondary materials (such as balance sheets, company documents, and news in magazines). Moreover, it was possible for some of the companies to organize company visits. The empirical material collected was then analyzed through a within-case and cross-case analysis. We first developed single case studies and then confronted the results through cross-case analysis. We identified some common themes that characterize the international development of luxury SMEs in the fashion industry. The company selected for the research were the following. Alpha is a family business that produces luxury leather items, in particular bags, and is also a supplier of major luxury fashion brands. For Alpha, foreign markets account for roughly 90% of the turnover. Beta is an artisan luxury company that produces handmade men's shoes. The company personalizes luxury shoes in its laboratory according to customer requirements. International markets quite exclusively generate company turnover. Delta is a women's clothing and accessories brand in the luxury segment, focusing on cashmere knitwear. 80% of its turnover is from foreign sales. Gamma operates in women's clothing, offering a total look proposal in the accessible luxury segment. Foreign markets account for around 70% of turnover.

Results. Findings from the cross-case analysis highlight some features of the internationalization of SMEs in the luxury fashion industry. In particular, we found a strong international orientation of each entrepreneur in any company. The internationalization of each company starts from the foundation and the brand's launch. The international mindset of entrepreneurs is then crucial. Beta, for example, launched a brand of men's shoes to target international markets directly. Delta entrepreneurs explained how internationalization has been within the company's DNA since its foundation. Moreover, to feed the international expansion, the four SMEs investigated propose a concept of luxury quality that relies on local craftsmanship but is not ostentatious. It means that the value proposition is strictly connected to the quality of the product that stresses the root with some specializations of each specific localization. In the case of Delta, for example, this means relying on quality, craftsmanship, and sustainable issues connected to the legacy of the region where it is located. This issue emphasizes how manufacturing competencies are crucial for international expansion in the four cases investigated. Similarly, in the case of Alpha, the territory's heritage lets the company produce luxury items and partner with important luxury players. Similarly, Delta and Gamma rely on the competencies of local suppliers. Interestingly, the fact that the SMEs investigated are run by families or single entrepreneurs points out another feature. Customer relationships are primarily managed at a personal level, with the direct involvement of the entrepreneurs. Beta is an emblematic case in this perspective, as entrepreneurs always travel to meet its customer directly. While this aspect is peculiar, the companies investigated adopted some of the most common strategies in retailing, with the management of retail stores abroad and online channels, with e-commerce through their own website. Delta is interesting as the company has invested significantly in retail stores supplemented by an e-commerce presence. However, the wholesale channel remains the main channel in most cases analyzed. For example, Beta directly manages the relationships with wholesalers. Additionally, Alpha and Gamma have significant relationships with a network of agents that let them export abroad. It is interesting to point out that foreign expansion is always a process that relies on careful consideration of costs in any company. In other words, entrepreneurs clearly understand the economic and financial implications of any strategy implemented due to the small size dimension. Gamma is emblematic in this respect. Gamma, for example, paid extreme attention to this aspect when it started a retail

project. To summarize, the empirical investigation shows how luxury SMEs in fashion present a genetic internationalization. We define international genetics as a characteristic of luxury SMEs that lies in considering the global market as the target market since the company's foundation. National and international markets are not separate but a sort of a whole. In this sense, as in the case of large fashion companies, SMEs in luxury fashion aim at obtaining global notoriety and prestige, although on a smaller scale. However, we found that each SME has global recognition. In foreign development, luxury SMEs found difficulties and suffered from liabilities related to their small dimension. Moreover, they encountered challenges competing with large dominant players in the global luxury markets. However, our cross-case analysis shows how luxury SMEs do not abandon international expansion; instead, they realize that only through being international they can be successful. Hence, we may argue that for luxury SMEs, not being international can be a liability. Results from our empirical investigation can let us advance the concept of liability of localness. Localness involves a lack of international genetics. In other words, if the SME does not have an international dimension, it can not be competitive in the luxury market. In our interpretation, the liability of localness implies low performance if luxury SMEs are not international. Each company in our empirical investigation clearly shows how the international character supports the competitive advantage in the luxury market.

Research limitations. The first limitation of the study concerns the focus on the fashion industry. Although the fashion industry is full of cases of luxury companies that represent leading global players, this prevents us from generalizing our results to luxury in the broad sense, although we believe that what emerges can be extended to more areas of luxury. A study beyond the fashion industry considering more areas of luxury, such as yachting, wine, or supercars, could help obtain transversal and more generalizable results. Furthermore, this study focuses on the Italian context, which undoubtedly represents a peculiarity, especially as regards SMEs. A cross-country analysis could bring out new insights, for example, by comparing Italy with other countries of origin of many luxury brands, such as France or the United States. Moreover, the attention on SMEs is justified by underdeveloped literature concerning the study of these companies in the luxury sector and by empirical evidence that places luxury SMEs as relevant players at a global level. However, comparing SMEs and large companies could widen the discussion on internationalization liabilities, allowing to unpack the liability of localness further. The latter represents a new concept that undoubtedly requires further empirical study.

Managerial implications. It is clear from our study that luxury calls for internationalization. Luxury SMEs should leverage a global demand and image, target defined profiles of consumers of luxury goods in international markets, and benefit from supranational management of distribution and communication channels. To do this, entrepreneurs and managers should immediately consider internationalization not as an option or a strategy to be pursued later but as a part of the DNA of the company's essence. In other words, they should remember that internationalization is more a must than a choice, although it can be pursued differently. Instead, staying in the domestic market means running into difficulties that can undermine the company's performance, including suffering from the liability of localness. However, this must not make entrepreneurs and managers eager to go abroad at all costs or make risky investments. Especially for SMEs, the focus must be on the solidity, also on an economic and financial level, of the company. The approach to internationalization must always be careful, reasoned, and calculated to balance growth in foreign markets with the company's economic and financial sustainability. In other words, entrepreneurs and managers must consider an "incremental" approach to internationalization. The incremental nature of internationalization is not so much about the choice of markets, which can also be very distant geographically and/or culturally, nor does it concern the entry mode, which can also be complex and require investments, such as the opening of stores. The incremental approach must concern constant attention to the company's economic and financial solidity to pursue balanced dimensional and qualitative growth. In this regard, international development may not always be linked to the dimensional growth of companies, which may remain small in size but still be relevant players in global luxury markets. The growth to be pursued can also be qualitative, related to relationships and capabilities. Therefore, the action of the liability of localness leads to a lower performance for luxury SMEs that are not international compared to those that are. The theoretical debate has highlighted a series of liabilities for SMEs, including smallness, foreignness, and outsidership, linked explicitly to internationalization processes. This study adds another, the liability of localness, which requires the company to design its business components considering the international dimension. In other words, the company was born with international characteristics to avoid difficulties due to the liability of localness.

Originality of the paper. The paper addresses the internationalization of luxury SMEs, a category of companies at the forefront of the global luxury industry, but it is under-investigated in the international business and international marketing literature. The fact that when we think of luxury, we usually remember large companies with globally known brands does not mean that luxury cannot offer other players. The foregoing analysis has highlighted the existence of a variety of companies and has proposed themes with both theoretical and managerial implications, which may be the subject of further academic and empirical research. Moreover, this study highlighted the genetic internationalization of luxury SMEs that can be considered "born global ante litteram" companies. In our interpretation, genetic internationalization is a different concept concerning that of born global. Our findings show how SMEs are born international. They do not become international within a time period or because they reach a threshold level of turnover abroad. Instead, they started by considering the international markets as a whole, and since the company started, they wanted to propose a brand with a global appeal to international clients. Hence, the national market cannot be a specific target, as found in our empirical investigation. Luxury SMEs, of course, develop in foreign markets incrementally. So, we do not want to affirm that SMEs have operated in any international market. Nevertheless, we want to stress that international genetics means that companies already consider the global market as their target at the

time of their foundation and the launch of their brand. This perspective is novel compared to existing literature, taking into consideration the internationalization of SMEs and luxury firms. Finally, the paper has introduced and discussed the concept of liability of localness. The understanding of what liabilities companies may suffer from when internationalizing has received attention. We propose an original contribution in this sense. Hence we believe that not being international in luxury represents a source of liability. Luxury is characterized by a series of features linked to the consumer profile, the need for a global image, the dimension of demand, and the management of communication and distribution channels. The two concepts of genetic internationalization and liability of localness are interconnected. Localness involves a lack of international genetics and, therefore, the failure to achieve an international dimension that allows effective and efficient competition in the luxury market. Although internationalization is challenging, not taking this path from the start puts luxury SMEs in an unfavorable competitive position. Our study emphasizing how SMEs in luxury have an international dimension is original because we believe that internationalization for these types of SMEs is not a strategy to implement. Instead, it is a feature to have to compete. To conclude, this paper has the merit of untangling the liability of localness as a novel liability from an international standpoint.

Keywords: SMEs; internationalization; luxury; liability of localness; case study; fashion.

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Digital Platforms Business Models. A Systematic Literature Review[♦]

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Objectives. Research on digital platforms has increasingly grown over recent years (McIntyre et al., 2021) due to the pervasiveness of digital transformation, becoming relevant for scholars and managers (Abbate et al., 2022). Platforms are marketplaces, technology-mediated, that radically change how digital business ecosystems (Baumann, 2022) create, deliver, and appropriate value (Hein et al., 2019), by matching the supply side of the complementors, third-party collaborations and applications developers with the demand side of the end-users and customer groups contributions.

Literature has analyzed platforms in a quite fragmented way as separated research fields (Bonina et al., 2021) that consider different perspectives, mainly, the digital-technical view (Tiwana et al., 2010) and the economic-managerial ones.

While the technical perspective focuses on the digital technological components (Chae, 2019; den Hartigh et al., 2016), that enables platform transaction (Parker et al., 2016) for the matchmaking process, the economic-managerial view examines platforms regarding the interactions with users that disrupts traditional economic markets with a focus on the business model that enables new interactions (de Reuver et al., 2020) that lead to costs reduction for platform' offerings (Deilen & Wiesche, 2021) in the ecosystems (Halckenhäusser et al., 2020)

This fragmentation poses risks for misunderstanding the complex interactions and interdependencies that determine the platform dynamics performance with relevant limitations. Moreover, literature fragmentation calls for a more focused research effort to better understand a comprehensive view of the digital platforms' business model.

By systematically analyzing the previous literature, our paper aims at providing a more comprehensive understanding of the digital platform phenomenon by collecting evidence from the literature, which is sparse in the various related research fields. Based on a systematic literature review, the paper aims to systematize the scientific knowledge of the phenomenon and set directions for research. Our approach differs from previous conducted literature reviews which focus solely on one topic at the interface between digitalization and business model platforms. Our research questions are the following:

RQ1. To what extent do digital platforms business models find consideration in current literature and how is it characterized?

RQ2. What are the main research directions suggested by the analysis of the literature?

Methodology. We approach our research through the systematic literature review method. We apply our research under the PRISMA approach (Moher et al., 2015), an evidence-based checklist composed of the four following steps: Identification, Screening, Eligibility and, Inclusion. (Fig. 1).

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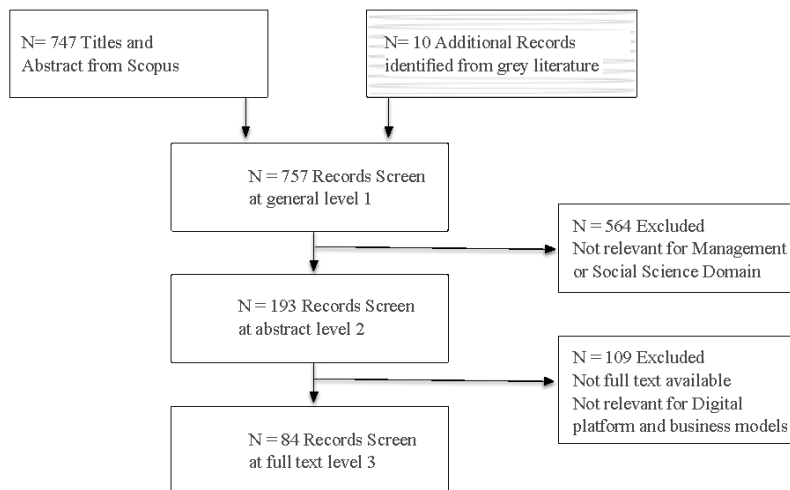
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Fig. 1: PRISMA Steps for literature review



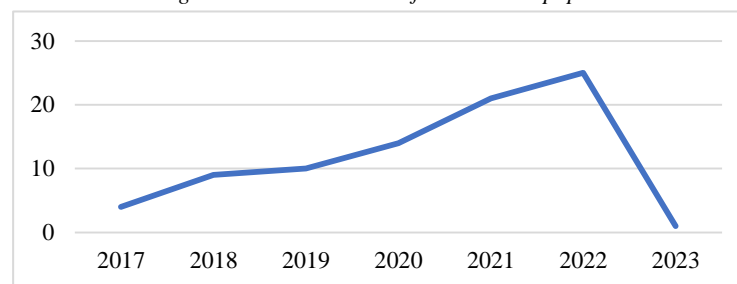
Identification

The first step of data search is literature identification to locate the relevant topics by targeting prominent literature. The Scopus search engine which is widely acknowledged as a world-leading source in the research field (Paschou et al., 2020) was chosen to identify papers from relevant journals according to our purpose. We use two sets of keywords related to the concepts of the digital aspects of the platform and platform business model. The first set of keywords was related to the digital platforms: (“Digital Platform*” or “open platform” or “Multi-side Platform*” or “Transaction Platform*” or “Innovation platform*”). The second set of keywords was based on the business model perspective by using the general keywords “Business models” or “Business Model”. The dataset was enriched also by grey literature. Initially, a total of 757 studies were identified from the database.

Screening

Next, we used the screening criteria by including in the sample the most appropriate journals for the topic by selecting only published papers in the area of business and social sciences, written in the English language only. At this stage we selected 193 records. Not all the papers were available as full text. 115 papers were selected for the next steps (78) as not all the papers were available. The review covered studies conducted from 2017 to 2023 (Fig. 2).

Fig. 2: Time distribution of the selected papers



Eligibility and Inclusion

The abstracts of the articles were checked deeply to ensure quality and only digital platforms relevant publications were included in the review process. In this process, we excluded 31 papers as they were irrelevant. After removing the publications that did not meet the inclusion-exclusion criteria and quality assessment, a total of 84 remained for the “digital platform” business model literature review analysis. The data was then exported to an Excel sheet to perform the qualitative review analysis.

Findings. In this stage, a careful evaluation of each full journal article was carried out for the 84 finalized articles to ensure we captured only the digital platform. All 84 journal articles were identified as relevant to analyze, synthesize and present the interpretations on the paper topic. The papers selected are descriptively analyzed in this section concerning the year of publication, journal, and impact factor according to the Scopus database.

Figure 2 depicts the time distribution of the papers analyzed, all published between 2017 and 2023. More specifically, 60 articles (i.e., 71% of the 84 scrutinized papers) were published between 2020 and 2023, pointing to an increased scholarly interest in the digital platforms’ business model analysis. The growing interest in the digital platform business model phenomenon has been testified by recent literature reviews on the subject (Mishra, S. &

Tripathi, A. R., 2020; Mukhopadhyay, S. & Bouwman, H.; 2019; Trabucchi, D. & Buganza, T.; 2021). The journals were also classified according to the Scopus database subject area (Table 1).

Eight papers focus on the ICT sector, while fourteen are on strategy and management. It is worth mentioning that a journal may belong to more than one subject area. Moreover, several other subject areas were represented by fewer papers (such as decision science and social sciences). This trend confirms a rather fragmented picture, typical of a research area that is multidisciplinary and at an early stage of maturity. Additionally, the fragmentation of journals demonstrates that researchers studying this phenomenon have different perspectives and that the subject does not yet have established publishing outlets. and the industrial sector with the aim to identify trends within this body of literature. The journals are ranked by the number of published papers and their impact factor. The journal impact factor (IF) was retrieved from the Journals Website. The 84 articles in our database appeared in a total of 59 journals. Only 16 of these journals published two papers or more, showing a high degree of fragmentation of the literature. As an exception, two journals (the Journal of Business Research and Technological Forecasting and Social Change) published four articles each.

Tab. 1: Journals, Articles' focus and Impact factor

Journal	Focus	No. Articles	%	Impact Factor
Journal of Business Research	Business	4	4,76%	10.96
Technological Forecasting and Social Change	Technology	4	4,76%	10.88
Research in Transportation Business and Management	Policy	3	3,57%	4.23
Research Policy	Policy	3	3,57%	9.47
Electronic Markets	Marketing	3	3,57%	6.02
Journal of Service Management	Service	3	3,57%	11.77
Technology Analysis and Strategic Management	Technology	2	2,38%	3.75
Strategic Management Journal	Strategy	2	2,38%	7.82
Journal of Cleaner Production	Environment	2	2,38%	11.07
Technology in Society	Technology	2	2,38%	6.87
Creativity and Innovation Management	Innovation	2	2,38%	3.64
Others	-	54	64,29%	-
Total		84	1	

Evidence 1. The increasing interest in digital platforms and platform business models is recent but shows a fast-growing trend, with the knowledge stocks fragmented among different journals, such as innovation, strategy, business, policy, marketing and environment.

3 Methodological approach analysis

The papers were classified according to the methodological approach as either 'theoretical' or 'empirical'. The theoretical papers were further divided into three subcategories: a) literature reviews, b) taxonomy papers, and c) conceptual papers. Papers in the first category present a review of the studies of a given topic; papers in the second category develop taxonomies about the research topics; the articles published in the third category develop interpretative models about the digital platform business models. We also used three sub-categories to further classify the empirical papers: a) qualitative, which employ empirical research methods such as case studies, focus groups, or the Delphi method; b) quantitative, which employ surveys, simulations, or other model-based analyses, and c) mixed-method papers, which combine the above-mentioned methods. As indicated in Table 2, 63.1% of the studies were classified as empirical. Qualitative empirical research is the most prevalent (36 papers, 42.86%). As expected in such an emerging field of studies, this subset mostly relies on analyses of exploratory case studies (83%) (Paschou et al., 2020). Case studies (single or multiple) dominate the sample. Moreover, in general, emerging fields of research are predominantly conceptual and qualitative as researchers at this phase try to establish a common vocabulary, define concepts, and explore the phenomenon.

Focus groups and GT studies are the less frequent methods adopted. Quantitative and model-driven research accounts for only eight articles (16.47%), with mixed-method studies recording the lowest ranking (three articles, 3.57%). Conversely, there are 31 theoretical papers, which account for 36,90% of the sample, divided among literature reviews (twelve articles, 14.29%), taxonomy (three articles, 3.57%), and conceptual papers (sixteenth articles, 19.05%).

Tab. 2: Methodological approach

Paper Type	Method	Total	Percentage %
Theoretical	Literature review	12	14,29%
	Taxonomy	3	3,57%
	Conceptual paper	16	19,05%
	Total	31	36,90%
Empirical	Qualitative	36	42,86%
	Quantitative	14	16,67%
	Mixed	3	3,57%
	Total	53	63,10%
Overall Total		84	100,00%

Evidence 2. *The reviewed literature addresses the digital platform business model, mainly through empirical and qualitative methods, but quantitative and conceptual studies are also represented. In particular, most of the work was based on case studies, thus confirming the early stage of this research stream, wherein confirmatory and normative papers are almost non-existent.*

The platform sectors

The papers were classified according to the sector and industry analyzed. According to the idea that the business platform fits with digital service and servitization, the service sector contains about 75% of the papers, further divided into mobility and energy (38%), healthcare and payment (25%) and tourism and retail (12,5%). The resting 25% of the papers (4 in total) analyze the automotive and fashion industries.

Evidence 3. *The service industry is most addressed by empirical studies as it constitutes one of the most promising domains for exploring and/or exploiting the benefits of digital platforms. The energy and mobility sector has attracted significant attention from researchers. The rest of the literature is quite sparse on the different industrial sectors.*

Tab. 3: Platforms and sector analyzed

Sector	Industry	Total	Percentage%
Service	Mobility	3	18,75%
	Energy	3	18,75%
	Healthcare	2	12,50%
	Payment	2	12,50%
	Tourism	1	6,25%
	Retail	1	6,25%
Manufacturing	Automotive	3	18,75%
	Fashion	1	6,25%
	Overall Total	16	100,00%

3. Thematic analysis

The thematic analysis of the selected articles concerned three main areas. These include the challenges, the processes and the output of the digital platform business models.

1. *The digital platform challenges. An important streamline related to the digital platform business model is the digital transformation process of the platform (Andrade et al., 2021). It requires promotion and sensitization, suitable platform architecture and strategic judgment of platform providers as well as a start-up culture. But it also presents implementation barriers perceived by both customers and service providers for building a critical mass of producers and consumers (Hazée et al., 2020). In particular, an important challenge is related to the digital experience of the platform and the monetization opportunities, the exploitation of the synergy of digital and physical assets, and the innovation beyond the digital experience. Finally, an important challenge for the platformization is the avoidance of the fatal weakness of disintermediation of buyers and sellers on which they find each other on the platform and then bypass that platforms and its commission to complete their transaction directly, off of the platform.*

2. *The evolution of the digital platform business model. The idea of the business model transition from a linear business model towards a platform business model is quite pronounced in literature. This category groups studies that show how digital business models evolve when organizations move to digital platforms (Chen et al., 2022) and manage the complexities and the interplay of regulative, normative and cognitive challenges (Dell’Era et al. 2021), on platform competition (Parmentier et al., 2017). Longitudinal case study (dos Santos et al., 2022), theory of change (Mukhopadhyay et al., 2022), and process models are used for understanding the emergence of dominant platforms (Michelini et al., 2020), and explaining the ways in which innovation, sensing and integrative capabilities impact on value creation and capture dimensions (Khanagha et al., 2022).*

3. *Digital platform output: the service experience. This category groups the study related to the understanding of service experience toward retailers’ digital platforms (Lian et al., 2021; Nahr et al., 2022) and the relationships between platforms and customers (Cao et al., 2022), included the impacts on the servitization pathways (Tian et al., 2022) on platform value proposition and revenue model. (Holland et al., 2018). Service experience is also determined by critical antecedents both, from the entrepreneurial point of view, including entertainment, tangibility, reliability, and empathy and from the customer’s point of view, including entertainment, interactivity, tangibility, and empathy. Meanwhile, also platform consequences of service experience directly affect both use intention and satisfaction (Lian, 2021). Clients’ evaluation of the platform represents an important aspect (Cao, L., et al., 2022).*

Evidence 4. *It is important to understand how these platforms are extended and how customers evaluate them. Several themes have been associated with the digital platform concept (e.g., new business models, value creation and capture, change and digital transformation); however, a fragmented view of them prevails. Given the sparseness of the research on the topic in the literature and the absence of a common definition of the phenomenon, the extant research tends to focus on one or a few of the themes only. Although a detailed investigation of the single concepts can increase the knowledge of digital platforms, we suggest that future research should adopt a holistic and interconnected approach to the digital platformization phenomenon.*

Research limits. *Our work-in-progress review presents some limitations. The first limitation of our review is in the exclusion criteria: we are aware that including papers only in the English language and excluding publications (such as conference papers) might have circumscribed our main findings and implications. This limitation is particularly related to the procedure we follow for analyzing the papers that provide different mandatory exclusion criteria. We are also aware that due to the journal type selected and the keyword-based selection method for refining the sample analyzed, some papers that are related to the research focus but contain different keywords or have been published in other Journals could be excluded. Finally, related to the previous limitations, our findings are consistent due to the reliability of the systematic literature review approach, despite they are basically depending on the authors' background and the interpretivist approach for analyzing the papers' content.*

Practical implications. *Practitioners may find our review particularly useful as we summarized the state of the research on the digital platform business model. Particularly, the challenges of Digital Platforms are useful for practitioners who want the platformization of their business model as it indicates the trends such a topic is dealing with. The digital transformation process, the platform digital architecture and the start-up culture are important pillars for overcoming the implementation barriers of the digital platform business model. In addition, the summary of the relationships between platforms and customers, including the impacts on service experience as well as on the critical mass of producers and consumers as critical antecedents of platform business models are important insights that practitioners should pay attention to.*

Originality of the study. *This systematic literature review provides new elements for analyzing digital platform business models in an integrative perspective focused both on the digital platforms issues as well as on the business model perspective. Despite previous literature having been focused more on the specific streamline of the digital aspects of the platforms or on the business model perspective, by highlighting respectively the technological challenges or the economic perspectives, we provide a more comprehensive approach that considers how digital platforms business models find consideration in current literature and how is it characterized, including the main research directions suggested by the systematic review of the literature.*

Key words: *Digital platform; Business model; Digital Transformation; Service Experience; Systematic literature review.*

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Social organizations towards a digital mindset: an exploratory analysis of third sector organizations and their digital needs

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Framing of the research. *Social organizations represent a pivotal element in the global socioeconomic landscape, equipped with the capability to confront the myriad challenges of our contemporary era (George et al., 2016). Despite their integral role in combating issues such as climate change, socioeconomic disparities, poverty, and unemployment, these entities often find themselves deficient in the necessary resources to attain their goals (Bacq and Eddleston, 2018), especially in the context of an increasingly digitized economic and social sector (Kim and Raggo, 2023). The advent of the COVID-19 pandemic has underscored the urgency for the adoption of digital tools and innovative technologies (Priyono et al., 2020; Hartshorne et al., 2020; Belitski et al., 2021; Berger et al., 2021; Masiero & Bailur, 2021). In this critical period, social organizations are necessitated to augment their digitization capabilities Punziano et al., 2023) and reconfigure their organizational and collaboration procedures (Corvo et al. 2022) to innovate their operational models. However, the digitization process presents a distinctively intricate challenge for third-sector organizations (Kraus et al., 2018). This complexity stems from the requirement for not only technological tool acquisition, but also organizational process reformulation, specialized personnel training, and the development of novel business models (Mos, 2021). Additionally, the process of digitalization could potentially aggravate disparities within third-sector organizations, as entities with superior financial resources and technical competencies may be positioned to adopt digital technologies more swiftly and effectively, while others with fewer resources may risk falling behind. Through an exploratory methodology, this study aims to elucidate the digital needs of social organizations. Additionally, it intends to provide recommendations for third-sector actors to optimally embrace and leverage digital transformation.*

Purpose of the paper. *The goal of this study is to conduct an exploratory analysis of the main categories of digital needs expressed in response to the health emergency caused by COVID-19 and to evaluate the different solutions identified within the proposed projects for the various categories of social organizations, also based on their main characteristics (e.g., years of activity, size). Indeed, many social organizations found themselves playing catch-up in terms of digital skills when compared to their diverse stakeholders (Pavesi et al. 2021). The pandemic exposed a pressing need for these organizations, their volunteers, and beneficiaries to boost their digital literacy in order to adapt to the new challenges imposed. However, a wide gap in digital competencies both within these organizations and in the wider society can potentially limit the effectiveness of proposed solutions and hinder the achievement of goals related to social inclusion and reducing inequality. Furthermore, it's crucial to acknowledge that many of the solutions introduced by these organizations during the pandemic might be temporary and may prove challenging to sustain in the long term without a more substantial integration of digital technologies into their operational processes. In this sense, the purpose of this paper is to examine the following research question: how have social organizations incorporated the use of digital technology as a component of their organizational transformation processes in response to the COVID-19 crisis?*

Methodology. *In order to answer this question, we focus on a qualitative research survey carried out between March and May of 2020 on a representative sample of Italian social organizations. To be more specific, 481 applications were received for the call for proposal "Impatto Sociale Reloaded – 1st Edition" that was initiated by a group of primary Italian Foundations. The purpose of this call was to "facilitate the identification of organizational transformation processes initiated to overcome the COVID-19 crisis that can be transferred or duplicated as good practices in the Italian third sector" (Grant Proposal Text, Archival Data 2020), with the end goal of satisfying the digital requirements of Italian social organizations. The authors possess the requisite authorization to utilize the data. One of the authors assumed responsibility for the design and initiation of the grant, additionally serving as a member of the jury panel and presently overseeing the implementation progress of the recipients.*

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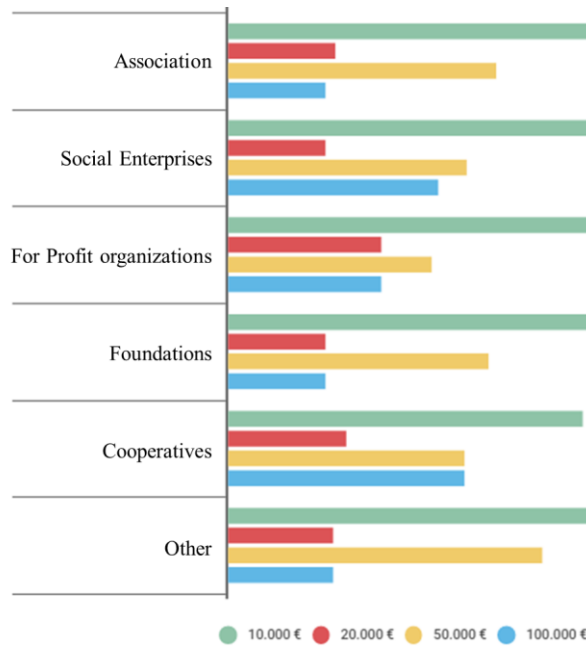
From a methodological point of view, the research was divided into four phases:

1. Phase 1 involved a manual restructuring of the dataset containing information about proposing organizations (n. 481) and their project proposals. This involved reorganizing the data in the dataset, including the restructuring of cells and the quantitative-qualitative contents, with the aim of enabling subsequent analysis through statistical software. This phase was essential in ensuring that the dataset was organized and structured in a way that allowed for efficient and effective analysis.
2. In Phase 2, a quantitative analysis of the descriptive variables related to proposing organizations contained in the dataset was conducted. This involved analyzing the numerical and categorical data related to the proposing organizations, such as the number of employees, the sector they operate in, and the geographical location of the organization. This phase provided a comprehensive overview of the characteristics of the proposed organizations in the dataset.
3. Phase 3 involved a qualitative analysis of the open fields in the dataset that contained information related to project proposals. This phase aimed to extract relevant information from the open fields in the dataset, which contained unstructured data. This involved analyzing the textual data in the dataset, such as project descriptions, to identify any common themes or patterns that emerged.
4. In Phase 4, a cluster analysis was conducted using the meta-features of the keyword network. The aim of this phase was to identify any similarities or patterns in the data that could be used to group the project proposals into distinct categories. This involved analyzing the co-occurrence of keywords in the project proposals and identifying any clusters of keywords that appeared together frequently.

In the phase of keyword identification, a rigorous process was undertaken to extract pivotal information from the database fields. The scrutinized fields encompassed the organizational description, the emergent digital problem, and the requisition for resources and competencies crucial for project development. During this phase, a meticulous removal of “stop words” was executed, signifying commonplace and less semantically significant words. This meticulous culling ensured a focused set of keywords, accentuating relevance and representing the database content optimally. By expunging stop words, the subsequent analysis was fortified and streamlined, allowing for a more accurate exploration. Consequently, the derived keywords constituted the foundation for subsequent analytical stages, namely open coding, axial coding, and cluster analysis. During the second phase, open coding was applied, entailing an in-depth examination of data through the encoding of pertinent information emanating from the unstructured fields within the dataset. This systematic process engendered a comprehensive overview of the diverse presented projects, ultimately culminating in the identification of primary categories of needs. Subsequently, in the third phase, the axial coding technique was adopted. This phase centered on discerning interrelationships among the previously identified categories of needs. Through an examination of co-occurrences among the variable tags in the dataset (analysis carried out with the aid of the MaxQda text analysis software), an associative model was constructed, elucidating the connections between the diverse needs categories. In the subsequent phase, commonly referred to as a cluster analysis was conducted to identify the meta-characteristics of the network. This rigorous analysis facilitated the grouping of the needs categories into four macro categories. Subsequent empirical validation of these macro-categories was executed by comparing the winning projects against the entire dataset, thereby ensuring the robustness and credibility of the identified characteristics. The resulting clusters allowed us to identify underlying themes and patterns in the data. It's important to note that the cluster solutions were then interpreted and labeled based on our knowledge and understanding of the dataset's context. The success of the cluster analysis significantly relies on careful data preprocessing, choice of the suitable clustering algorithm, and thoughtful interpretation of the results. For each qualitative category, the identification of keyword meso-categories was employed to quantify the closeness and co-occurrence of the keywords. In addition, separate analyses were conducted for each of the qualitative categories; after that, differences and similarities were examined in order to build a synthetic cluster analysis. The methodological approach employed throughout this study facilitated a comprehensive understanding of the presented projects and the articulated needs of the participating organizations. These insights were vital for discerning emergent trends and potential areas of intervention, thus fostering innovation and societal progress.

Results. The 481 proposing organizations (more than 2 out of 5 associations and social enterprises, of which 3 out of 5 operating in Northern Italy) are larger in terms of human capital than the national data on non-profit institutions (Istat, 2018), and they are characterized by operations that are medium-to-long term in nature (7 out of 10 have been active for more than 5 years). In comparison to the highest sum that could be paid out in the call, which was €100,000, the average request was €38,000, and virtually one out of every two groups asked for amounts that were less than €10,000. The highest request for funding, more than 50,000 Euros, was sought by newly formed companies and organizations.

Fig. 1: Economic request by type of organization



Source: elaboration by the authors on the Reloaded Social Impact dataset.

Within the findings, we classified ten primary digital needs expressed by the organizations participating in the call. These needs are presented in Table 1 below:

Tab. 1: Categories of needs expressed by proposing organizations

CATEGORIES	
1	A reinterpretation of the idea of “proximity/mobility” in the context of the connection between users and companies operating in the third sector
2	A rethinking of the idea of “social distancing” in relation to the social needs that are often met by the third sector generally constitutes an intervention.
3	Any “digital” requirements, new or old, that have never been satisfied before
4	Marketing and fundraising tools and strategies
5	Resources and Competencies for organizational design
6	Resources for entrepreneurial opportunities and business development
7	Internal organizational transformation processes
8	Acquisition of specific skills – functional or transversal
9	Increased external effectiveness (networks, connections or open governance models)
10	Implementation of social impact assessment systems

Source: elaboration by the authors on the Reloaded Social Impact dataset.

Within the scope of the call, social organizations submitting their proposals exhibited diverse requirements and potential solutions and strategies to address their needs. Amidst the variety of responses and approaches put forth, several recurring elements emerged as noteworthy. Firstly, a prevalent solution proposed by organizations was the utilization of Human Resources (HR) and People Management practices to analyze and reconfigure the skills of their staff, employees, and volunteers. This strategy was particularly favored by consortia and foundations, with 38% of consortia and 27% of foundations employing this approach, respectively.

Secondly, the adoption of various tools facilitating digital communication emerged as another popular method. Social organizations widely embraced this strategy, with 29% of associations and 18% of social enterprises utilizing digital communication tools to enhance their interactions with service consumers.

Thirdly, a significant number of organizations demonstrated an inclination toward the use of online platforms to streamline service delivery by facilitating the matching and management of supply and demand between beneficiaries and service providers. Notably, this strategy found substantial traction among profit-oriented businesses, accounting for 23% of all for-profit entities employing such platforms.

The identification of these solutions and tactics by the presenting organizations underscores the importance of comprehending the demands and preferences of consumers within the Third Sector. By discerning the specific requirements of the communities, they serve, organizations can enhance the quality and accessibility of the services they provide. This necessitates the development of tailored solutions and strategies to effectively address these needs.

Tab. 2: Types of solutions and strategies to respond to the identified needs

Solutions associated to financing requests	Percentage
HR & People Management for analysis and reorganization of the skills of operators, employees and volunteers	28%
Tools to promote digital communication (peer to peer & one to many, remote assistance, remote monitoring, distribution of training/educational content)	21%
2-sided platforms to manage match between supply and demand (beneficiaries and service providers)	16%
Digital content creation tools	8%
Business Intelligence management for marketing & Fundraising (customer acquisition, donor management, performance analysis of fundraising campaigns, crowdfunding)	7%
Distance Learning tools (repository, content management and learner review tools)	6%
Management platform for monitoring services for users/consortium members/partners	4%
E-commerce software for selling products or services online	3%
Data Storage Tools (Cloud solutions)	3%
Supply chain management + IOT	1%

Source: elaboration by the authors on the Reloaded Social Impact dataset.

After the elaboration of all the different classes of requirements and the keywords associated with them, the study proceeded to dive further into the specific requirements of each proposal according to the related organizational form. Our findings show that each organizational form faces specific challenges and is in need of a one-of-a-kind solution to satisfy its requirements and keep its operations running smoothly. The findings derived from this study reveal that organizations across different sectors encounter distinct challenges, necessitating customized solutions to effectively address their respective needs. By gaining a deep understanding of the specific difficulties faced by organizations, they can continue providing essential services to their users, beneficiaries, and communities. This awareness of challenges enables organizations to develop tailored solutions that are attuned to their unique circumstances (Zandonai & Venturi, 2019; Peredo & Chrisman, 2006). Understanding the specific needs of the social sector is of utmost importance in driving effective digitalization initiatives. The social sector operates within a distinct context, where beneficiaries play a pivotal role in shaping the direction and success of digital interventions. By comprehending the unique requirements and preferences of beneficiaries, organizations can design digital solutions that align with their needs and aspirations.

Furthermore, the relationship between organizations and the local communities they serve holds significant influence over the digitalization process. Recognizing the dynamics of this relationship enables organizations to develop contextually relevant strategies that resonate with the local community. The engagement and participation of beneficiaries in the digital transformation efforts foster a sense of ownership, inclusivity, and sustainability, ultimately leading to more impactful outcomes. Therefore, in order to drive meaningful digitalization within the social sector, it is imperative to not only understand the specific needs of beneficiaries but also establish collaborative relationships with the local community, ensuring that digital solutions are contextually appropriate, responsive, and beneficial to all stakeholders involved.

Associations, as exemplified, employ a range of resources, such as online platforms, volunteer labor, and financial contributions, to sustain their operations. Their primary focus lies in establishing effective communication and engagement channels with their users and beneficiaries, allowing them to continue delivering services while fostering a meaningful relationship with these individuals (Tricarico, 2018). To achieve this, associations must enhance their marketing and information technology capabilities, enabling them to effectively navigate the challenges posed by physical distance.

Social enterprises face the challenge of ensuring the continuity of service delivery despite physical barriers. In this regard, deploying digital monitoring and remote assistance systems becomes crucial, especially in the field of social health. These measures are essential for ensuring the availability and accessibility of their services, even when direct physical contact is limited or restricted. By leveraging digital technologies, social enterprises can adapt their operations to overcome spatial constraints and ensure uninterrupted service provision.

Furthermore, there is a pressing need for organizations to establish e-commerce channels that effectively handle direct payments and attract new clients. This necessitates proficiency in information technology, marketing, and leadership, along with the adoption of scalable business models that generate employment opportunities. For-profit businesses, in particular, place a primary emphasis on acquiring new clients, users, and beneficiaries who contribute to the success of their business models. They are keen on developing artificial intelligence applications and systems, while also seeking marketing expertise to promote their services and products. Additionally, they need to focus on the long-term viability of their business models and explore novel approaches to developing efficient logistics systems.

Foundations, often engaged in financing initiatives, require effective project management and the cultivation of new partnerships to sustain operations and expand their income streams. They also require monitoring and remote assistance methods to conduct interventions in the social-health domain, especially in response to limitations imposed by public health emergencies. Coalitions of social cooperatives, faced with the challenges posed by the current public health crisis, need to leverage digital technologies. To ensure the continuity of their business models, they place emphasis on internal organizational aspects, such as human resources and digital technologies (Ibáñez et al., 2021). Improving their knowledge of information technology and management is essential for effectively overseeing their operations and navigating the evolving digital landscape.

Research limitations. *As the current research is an initial investigation of the digital weaknesses of third-sector organizations, it has several drawbacks that impact its generalizability (Maxwell and Chmiel, 2014). To begin, the study was only carried out in Italy; therefore, it might be interesting to repeat the research in other European or non-EU countries in order to investigate differences not only of cultural nature but also of specific organizational models of third sector that are developed in other parts of the world (Levitt, 2021). In addition, it is important to keep in mind that the classification of the Italian third sector is impacted by a particular legal and regulatory infrastructure, which may be very different from the infrastructure in other countries (Iannello, 2020). For this reason, it is essential that future research study the ways in which various rules and regulations impact the growth patterns of the third sector and its digital transformation. One further limitation is the connection that exists between organizations operating in the third sector and the public administration, as this study has not focused on how the connection with the public administration might impact this digital transformation (Corvo et al., 2022). In addition, the connection between organizations in the third sector and citizens or volunteers who participate in the operations of such organizations was not investigated, despite the fact that it may be an essential component in the process of encouraging digital transformation and innovation. As a result, it may be interesting to focus future research on these issues in order to give a more thorough knowledge of how organizations in the third sector may solve digital difficulties and increase their performance in the digital era.*

Managerial implications. *The findings of this research underscore the critical importance of addressing digital challenges in the Third Sector, a void that has been highlighted by the widespread impact of the COVID-19 pandemic. In response to the crisis, many organizations have swiftly adapted by incorporating new technologies for remote work, transitioning events to online platforms, and placing greater emphasis on online fundraising. However, addressing digital issues in the Third Sector goes beyond mere communication and funding considerations. It encompasses a broader and more comprehensive transformation that must be addressed in order to avoid falling behind in an increasingly digital world (Venturi and Zandonai, 2022). The COVID-19 pandemic has demonstrated that nonprofit organizations in the Third Sector with a pre-existing digital mindset were better equipped to navigate the crisis and continue delivering vital services to their communities (Biancuzzi et al., 2021). Conversely, organizations that lacked digital capabilities found it exceedingly challenging to adapt to the new circumstances imposed by the pandemic, and some may have been forced to cease operations altogether. Developing a digital mindset involves not only adopting digital tools for communication and fundraising but also integrating advanced technologies such as artificial intelligence, blockchain, and augmented reality to enhance the effectiveness and efficiency of Third Sector operations. Achieving these goals necessitates financial investment, as well as a strong culture of innovation and adaptability to change. Those responsible for managing the Third Sector and formulating policies must consider ecosystem models capable of providing solutions and infrastructures that meet the complex requirements of the social sector (Bernardoni, 2020). This requires significant investment in training and developing digital skills within Third Sector organizations. Furthermore, coordination across the public, commercial, and social sectors is essential to establish synergies and exchange information effectively. In summary, cultivating a digital mindset is vital for the success of the Third Sector. This requires a dedicated focus on education and the development of digital skills, along with the integration of cutting-edge technology and a culture of creativity that embraces change. The ability of Third Sector organizations to continue delivering important services to their communities hinges on their ability to adapt and leverage digital competences effectively (Tricarico and De Vidovich, 2021). By embedding digital competences and embracing digital transformation, these organizations can navigate the challenges of the COVID-19 crisis and chart a sustainable path forward, positioning themselves for resilience, growth, and continued positive impact on society.*

Originality of the paper. *The process of digital transformation significantly impacts how social organizations conceptualize their provision of services and goods. It opens up new possibilities for these organizations to address social issues in scalable and effectively monitored ways (Tricarico and Venturi, 2020). Leveraging digital tools and platforms, such as social media, online fundraising platforms, and mobile applications, can enable social organizations to expand their reach and engage stakeholders more productively. For instance, the establishment of online communities of practice through digital platforms facilitates collaboration among users to collectively address social issues and share expertise, resources, and best practices. Our study aligns with prior research (Ghatak et al., 2020; Gordon, 2016) highlighting the pivotal role of social organizations in advancing social objectives and benefiting diverse stakeholders. However, our research emphasizes that these organizations must consider a broader spectrum of stakeholders beyond just direct beneficiaries of their products or services. To effectively promote social impact while harnessing the advantages of digital transformation and its associated tools, third-sector organizations must adopt an ecosystem perspective that encompasses multiple actors, moving beyond a mere supplier-user relationship. Moreover, digital transformation offers the potential for streamlining the assessment of social outcomes. Social organizations can gather and analyze data on program and service results and impacts, leveraging data analytics tools and platforms to enhance effectiveness and efficiency. Additionally, digital technology can assist social organizations in developing more transparent and accountable reporting systems, thereby bolstering credibility and stakeholder confidence. However, it is crucial for social organizations to be mindful of the challenges and risks that accompany digital transformation (Venturi and Zandonai, 2022). These encompass concerns related to privacy, data security, data protection, digital exclusion, and the exacerbation of social inequalities. Hence, social organizations need to adopt a comprehensive strategy that considers both the benefits and challenges of digital transformation, while fostering collaborative and inclusive connections with stakeholders.*

In summary, the process of digital transformation presents social organizations with novel opportunities to address social issues at scale and in a more accountable manner. By embracing digital tools and platforms, engaging stakeholders collaboratively, and adopting an ecosystem perspective, social organizations can drive positive social impact. However, they must also navigate potential risks and challenges, ensuring privacy, security, and inclusion. A holistic approach that integrates the benefits and challenges of digital transformation is key for social organizations to effectively leverage this transformative process and forge impactful connections with stakeholders.

Key words: social organizations; digital transformation; digital innovation.

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Feminist perspective in management.

A bibliometric analysis and literature review

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Framing of the research. In 1989 Marta Calas and Linda Smircich published a paper in the *Academy of Management Proceedings* titled “Using the F Word: Feminist Theories and the Social Consequences of Organizational Research”. The paper highlighted the importance of considering the social consequences of organizational and management research and practice and proposed the feminist perspective as a way of addressing the issue.

More than 30 years later, feminist theories and methodologies have spread to all fields of science. Despite the broad range of feminist approaches, it is generally accepted that a person can be considered feminist if she recognizes that there are disparities in modern society that unfairly harm women compared to men, and she works towards eliminating these disparities¹. Although all feminists strive for gender equality, there are various ways to address this issue. Three different approaches can be discerned: gender-reform, gender-resistant, and gender-revolution feminism (Lorber, 2001).

Gender-reform feminism includes liberal, Marxist, social, and development feminism, which focus on achieving equality for women through various means such as advocating for equal rights under the law, providing full-time employment opportunities for women, and addressing economic exploitation and cultural practices that oppress women. Gender-resistant feminism despite emphasizing gender differences, argues that these distinctions should not be eradicated, but instead, acknowledged and appreciated. This viewpoint underscores the significance of in-depth examination and theorization of women’s circumstances and experiences, maintaining that women have distinct experiences and concerns that are fundamentally distinct from those of most men, especially regarding how these experiences are shaped and expressed within the current patriarchal system. Belong to such a perspective radical feminism, standpoint feminism and psychoanalytical feminism. Gender-revolution feminism rather than focusing on the female advantage and how women can contribute to the existing system, challenges the gender order directly by multiplying the categories and examining the disadvantages of more numerous marginalized groups. This perspective includes post-structuralist/post-modern feminism and intersectional feminism. The former challenges fixed gender categories and explores the fluid nature of gender and sexuality, and critiques the ideological discourses embedded in cultural representations such as art, literature, and the media. The latter contests the notion that the experiences of primarily Western, middle-class, white women represent the entire spectrum of women’s oppression. Intersectional feminists argue that gender, race, sexual orientation, gender identity, and other social categories are not mutually exclusive but are deeply interconnected and can result in varying degrees of oppression. This type of feminism offers insight that not all women experience oppression in the same way. For instance, the wage gap shows that women of color and men of color are penalized relative to the earnings of white men.

The integration of feminist perspective into management was initially influenced by liberal feminism and the Women in Management (WIM) research, much of it conducted by those associated with the Women in Management division of the Academy of Management (now retitled *Gender and Diversity in Organizations*) (Calas and Smircich, 2014). Nevertheless, feminist writers and theorists from other domains have diverged from the discourse of sex differences, becoming more general critics of a male-dominated society. Despite the initial expectation that WIM research might follow this path, in essence it never deviated from conventional organizational literature. Hence, so many years after Calas and Smircich (1989), feminist theories and methodologies remain marginal and overlooked in mainstream management studies (Bell et al., 2020; Pierazzini et al., 2021). In the same vein, the only literature review written on feminism in management - i.e. Nienaber and Moraka (2016) – confirms the idea that feminist approaches are lacking, limited, or have a minimal impact in the field. That said, one might be tempted to assume that feminist perspective is of little relevance outside the narrow circle of management scholars dealing with equality and gender issues and even of little use in advancing the knowledge of those in general management. In our view, this interpretation would be

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¹ In the present day, feminist perspectives go beyond issues of equality and include inquiries into the methodology, epistemology, and ontology of scientific research. Feminists have challenged traditional methodologies and proposed alternative approaches that align with feminist objectives.

incorrect. Rather, we still think that feminist theories could be fruitful in advancing management research, while at the same time providing answers to the growing demand for studies on ethical and social issues.

Purpose of the paper. Based on these premises, this paper aims to understand the development of feminist perspective in management, taking stock and moving forward in producing new knowledge. Accordingly, we performed a mixed-method literature review aimed at answering the following research questions:

RQ1: What are the major research topics addressed by the feminist approach in management?

RQ2: What are the main feminist theories applied?

Methodology. To provide a comprehensive view of the feminist perspective in management research, we used a mixed-method approach by combining bibliometric and qualitative analyses. We decided to precede the qualitative analysis with a bibliometric one for several reasons. First, bibliometric analysis is highly suitable when the analyzed topic is fragmented between different literature streams (Boyack and Klavans, 2010). Second, since it is a quantitative methodology, it “introduce a systematic, transparent, and reproducible review process and thus improve the quality of a review” (Zupic and Čater, 2015, p. 430). Third, among the available techniques, it allows to handle large volumes of scientific data (Donthu et al. 2021). Following the latest methodological recommendations (Caputo et al., 2021; Donthu et al. 2021), we divided the analysis into four steps: i.e., (1) data collection and sample identification, (2) sample description, (3) bibliographic coupling analysis, and (4) qualitative analysis and interpretation.

(1) Data collection and sample identification. Data were extracted from the Social Sciences Citation Index and the Emerging Sources Citation Index databases of Web of Science of Clarivate Analytics®, by searching for documents whose title, abstract, or keywords contained the following keywords: “feminist perspective*”; “feminist theor*”; “feminist approach*”². The search generated 6,539 documents, which were then filtered in order to limit the analysis only to articles and reviews (excluding book chapters, editorial comments, and conference proceedings), published in English in journals listed in the following research categories: Management; Business; and Business Finance. This process resulted in a set of 285 articles. Subsequently the title and abstract of each article were read by all the authors in order to remove those which focused on aspects considered irrelevant to the research. This final selection made it possible to identify an ultimate sample of 215 articles published between 1990 and 2023.

(2) Sample description. A preliminary analysis was carried out on bibliographic records. It allowed to identify the most cited papers among those considered, and several descriptive elements, such as the source of publication, their temporal evolution, and the keywords co-occurrences network. This analysis was implemented by means of the R-Package Bibliometrix (Aria and Cuccurullo, 2017).

(3) Bibliographic coupling analysis. Bibliographic coupling allows to draw a map in which all documents enclosed in the sample have been assembled and placed depending on the references they have in common. More specifically, this methodology pairs a couple of documents when there is an overlay in their references. The higher is the score achieved by the coupling, the higher is the possibility that both papers relate to the same topic and are included in the same cluster. Hence, to investigate the connections among all the papers considered in our analysis, the clustering algorithm estimated the level of the association strength, finally separating them in clusters. We performed the analysis by using VOSviewer 1.6.20 (Van Eck and Waltman, 2010).

(4) Qualitative analysis and interpretation. To achieve a more rigorous evaluation and get further elements on the bibliometric findings we conducted a qualitative analysis. We selected the most representative articles based on the bibliometric results and analyzed the full texts. The analysis allowed a richer understanding of the theoretical roots and topics within the field.

Results. Table 1 describe some data about the selected sample. On average, the 215 articles received an average citation count of 40.4 each. They appeared in 78 different journals and were written by 411 authors, counting a mean of 0.523 articles per author.

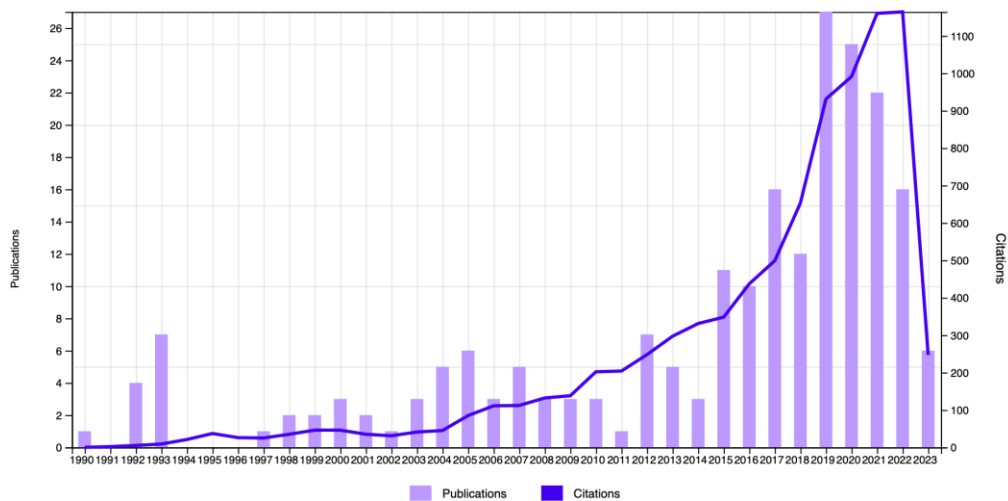
Tab. 1: Data Description

Description	Results
Timespan	1990:2023
Journals	78
Documents	215
Avg citations per documents	40,44
DOCUMENT CONTENTS	
Keywords Plus (ID)	563
Author's Keywords (DE)	684
AUTHORS	
Authors	411
Author Appearances	473
Authors of single-authored documents	62
Authors of multi-authored documents	349
AUTHORS COLLABORATION	
Single-authored documents	65
Documents per Author	0,523
Authors per Document	1,91
Co-Authors per Documents	2,2
Collaboration Index	2,33

² The asterisk is a symbol that allows heterogeneous endings of the adopted keywords to be searched for (e.g., perspective or perspectives).

As shown in Figure 2, the annual scientific production is constantly growing with an annual growth rate of 6.94%, confirming a growing interest among scholars. Moreover, starting from 2015, the attention of the scholars grew exponentially, reaching a peak in 2019. Citations have also grown in recent years, and in particular from 2015 onward (see Figure 2).

Fig. 2: Annual scientific production and citations



A subsequent analysis of the articles revealed some interesting elements (Table 2). The first 10 journals out of 78 published the 46.0% of the articles and received 43.5% of the total citations.

Tab. 2: The first 10 journals ordered by number of articles

Journals	Articles	% of total	Citations	% of total
<i>Gender Work and Organization</i>	27	12.6%	964	11.1%
<i>International Journal of Gender and Entrepreneurship</i>	16	7.4%	259	3.0%
<i>Organization</i>	15	7.0%	1,045	12.0%
<i>Journal of Business Ethics</i>	10	4.7%	384	4.4%
<i>Gender in Management</i>	9	4.2%	46	0.5%
<i>Equality Diversity and Inclusion</i>	6	2.8%	67	0.8%
<i>Journal of Organizational Change Management</i>	6	2.8%	108	1.2%
<i>International Journal of Human Resource Management</i>	5	2.3%	59	0.7%
<i>Journal of Business Venturing</i>	5	2.3%	845	9.7%
Total	99	46.0%	3,777	43.5%

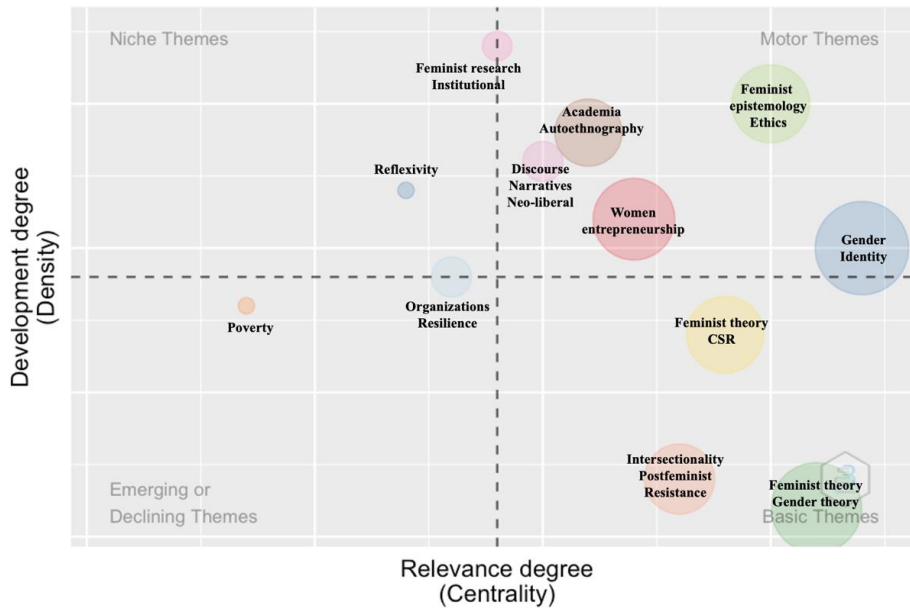
To explore the underlying ideas and the most frequent topics of feminist literature in management, we utilized a method called thematic analysis, using the free R-Package Bibliometrix (Aria and Cuccurullo, 2017)³. This allowed to identify the co-occurrence of keywords within the documents and create a network of closely related terms. The software then grouped these terms into subgroups based on their strong connections, each representing a specific research topic within the analyzed literature. By using Callon centrality and Callon density (Aria et al., 2020), it was possible to determine the significance and level of development of each topic. These results were then plotted in a thematic diagram, which provided an overview of the major themes and areas of focus within the collection of literature (Figure 3). The visual representation makes it possible to identify four different categories of topics based on the quadrant in which they appear:

- Themes located in the upper-right quadrant are referred to as “motor themes” i.e., feminist epistemology, ethics, women entrepreneurship, academia, discourse and narratives, and gender identity. These topics have high centrality and density, indicating that they are both significant and well-developed within the research field.
- Themes in the lower-right quadrant are referred to as “basic and transversal themes”, i.e., feminist theory, gender theory, CSR, intersectionality, post-feminist, and resistance. These topics have high centrality but low density, indicating that they are essential for a particular area of study and cover topics that are relevant across various research fields.
- Themes located in the lower-left quadrant are considered “emerging or declining themes”, i.e., i.e., poverty, organizations’ resilience. These topics have low centrality and density, suggesting that they are underdeveloped and occupy a marginal position in the field.

³ “The Bibliometrix R-package (<http://www.bibliometrix.org>) provides a set of tools for quantitative research in bibliometrics and scientometrics”. (Aria and Cuccurullo, 2017: 963).

- Themes in the upper-left quadrant are categorized as “highly developed and isolated themes”, i.e. reflexivity and institutional feminist research. These topics have high internal density but low external centrality, indicating that they have limited importance within the field.

Fig. 3: Strategic diagram of feminist research in management



To identify the main themes within feminist research in management we implemented a bibliographic coupling analysis (Kessler 1963) in two steps. In the first step we explored the connections among all 215 papers considered in our sample, and divided them in 3 clusters, based on the level of their total association strength identified by the clustering algorithm, with a resolution of 1.00 and named them accordingly (Table 3):

- Cluster 1 - Feminism in Organization Studies
- Cluster 2 - Feminism in Entrepreneurship
- Cluster 3 - Feminism in Business & Marketing

Tab. 3 - Main clusters description

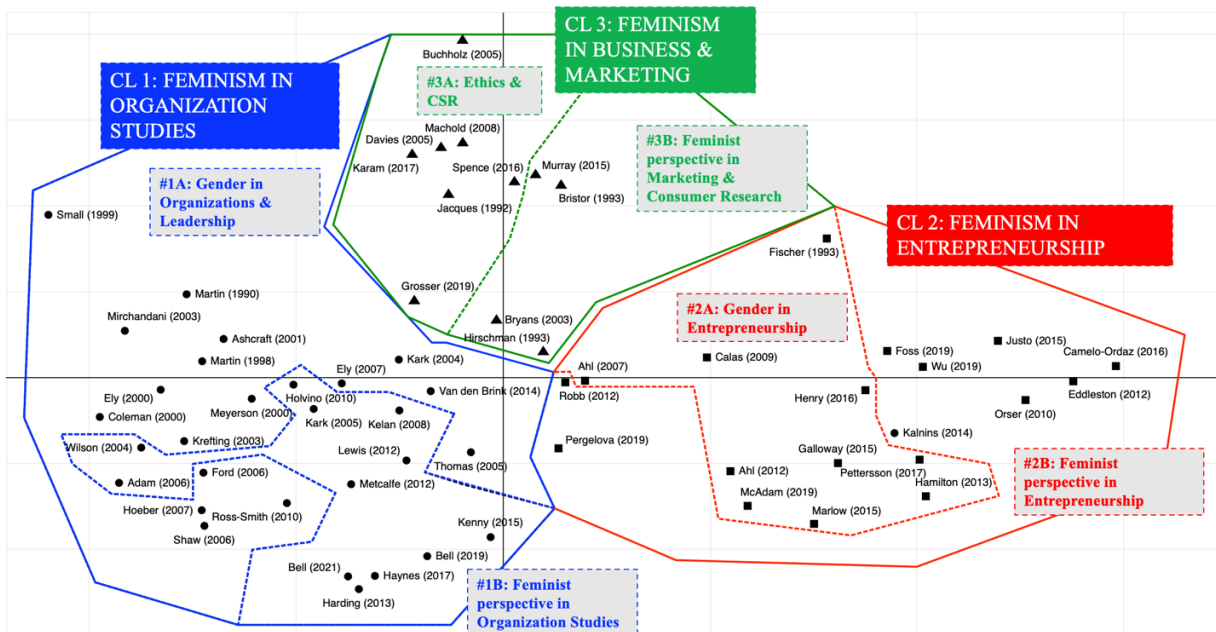
	Cluster 1 <i>Feminism in Organization Studies</i>	Cluster 2 <i>Feminism in Entrepreneurship</i>	Cluster 3 <i>Feminism in Business & Marketing</i>
Color	Blue	Red	Green
N. of articles	107	62	43
Total number. of citations	4,140	3,104	1,380
Average citations per article	38.7	50.1	32.1
Time span	1990 – 2023	1993 – 2023	1992 – 2023
Average year of publication	2014	2018	2012
Median year of publication	2018	2018	2018
Variation of year of publication ^a	33	30	31
Main Journals	Gender Work & Organization (23); Organization (14);	International Journal of Gender & Entrepreneurship (14); Journal of Small Business Management (5);	Journal of Business Ethics (7); Journal of Marketing Management (4);
Homogeneity index of journals ^b	0.40	0.45	0.65
Top cited articles (n. of citations in brackets)	Holvino, 2010 (398) Martin, 1990 (345)	Fischer <i>et al.</i> , 1993 (438) Calas <i>et al.</i> , 2009 (359)	Bristor & Fischer, 1993 (171) Murray, 2015 (133)
Most frequent words within title:	- Feminist theory - Gender equality - Organization studies	- Women's Entrepreneurship - Gender	- CSR - Feminist ethics - Consumer research
Main theories/approaches applied	- Post-structural feminist theory - Intersectional approach	- Post-structural feminist theory - Liberal feminist theory	- Post-structural feminist theory - Ethics of care

^a Variation in the year of publication is the difference between the most recent article and the oldest one among those belonging to the cluster.

^b Homogeneity index of journals is the ratio between the number of journals and the total number of papers within the cluster. Smaller values indicate the highest homogeneity between sources.

In the second step we run the analysis again, but with a resolution of 1.30. This step allowed to divide the 3 main clusters, identified in the previous step, in 2 sub-groups each. Finally, we draw a map representing together the 3 main clusters and each of the 6 sub-groups, by showing only the most cited articles (more than 40 citations), in order to make it more comprehensible (Figure 4). A qualitative analysis and interpretation of the 6 sub-groups of papers allowed a richer understanding of topics and related theoretical roots, as reported below.

Fig. 4: Map of feminist research in Business & Management



Cluster 1 – Feminism in Organization Studies (Blue). This broad research stream represents the largest proportion of the sample. The most frequent outlet is *Organization*. Within it, we have identified two sub-groups of papers.

Cluster 1A - Gender in Organizations & Leadership: This research stream is specifically oriented toward the study of gender issues related to organizations and leadership. Papers in this cluster mainly focus on gender differences and the ways to eradicate them. All authors, within this group, criticize the liberal feminist approach which proposes a rebalancing of the presence of women in power and apex positions in organizations. Instead, the main perspective adopted is the post-structural feminist approach, according to which gender identities are social constructed within the organizations and language and discourses are the way organizations perpetuate power relations that determine gender inequality (Ely and Padavic, 2007). The main idea is that gendering processes occur not through formal policies, but through work practices, predominant narratives and interactions. It is the latter that need to be identified and changed. Researchers should enter into organizations and identify those informal practices and routines in order to promote change from the inside. In this vein, several authors propose a process - based on critique, narrative revision, and experimentation - that helps to identify those informal practices and lead to changing them (Meyerson & Kolb, 2000; Shaw and Frisby, 2006). Some examples include self-organizing team, change management projects, or critical analyses which help to recognize gendering language and practices to be changed.

Cluster 1B - Feminist perspective in Organization studies: This sub-group deals with research approaches and methodologies in organization studies based on a feminist perspective. Almost all papers are literature reviews which analyze past research on gender in organizations and propose a more contemporary intersectional feminist approach. This approach extends the feminist perspective and considers how gender intersects with race and ethnicity as well as social class to generate discrimination.

Cluster 2 – Feminism in Entrepreneurship (Red). Papers in this research stream are oriented toward the application of feminist approaches to entrepreneurship research. The most frequent outlet is *Journal of Business Venturing*. Within it, two subgroups of papers can be distinguished.

Cluster 2A - Gender in Entrepreneurship: This research stream focuses on examining the differences in entrepreneurial characteristics and performance between males and females. The results of empirical studies in this area are varied and sometimes contradictory. While some studies suggest that there are few differences between male and female entrepreneurs in terms of their experiences and needs (Kalnins and Williams, 2014; Pergelova et al., 2019), other research indicates that there are significant gender biases in entrepreneurship (Ahl and Marlow, 2012), as well as differences in resource accessibility (Fischer et al., 1993), entrepreneurial intention (Camelo-Ordaz et al., 2016), performance (Justo et al., 2015), and export propensity experiences (Orser et al., 2016; Robb and Watson, 2012).

Cluster 2B - Feminist perspective in Entrepreneurship: This group of papers call for the application of the feminist perspective in entrepreneurship studies. Several papers claim that a feminist perspective would give to entrepreneurship research fresh and positive theoretical frameworks, methods, and results (e.g., Calas et al., 2009;

Hamilton, 2013). Others propose new concept as gender capital, which could help to explain the role networks play in entrepreneurial ecosystems (e.g., Mcadam et al., 2019).

Cluster 3 – Feminism in Business & Marketing (Green). This research stream, is the least homogeneous compared to the others and contains two sub-groups of papers.

Cluster 3A - Ethics & CSR: Papers in this group utilize feminist ethics in the context of business ethics. The most frequent outlet is *Journal of Business Ethics*. They focus on the feminist ethic of care and how it can be applied to various aspects of business, such as stakeholder theory, corporate governance, sustainable business practices, and corporate social responsibility. Some examples of papers in this category include Machold et al. (2008), Spence (2016), Buchholz and Rosenthal (2005), and Grosser and Moon (2019). One article in this group presents a critical view of feminist theory, questioning its conceptual and empirical validity in relation to economics and stakeholder theory (Buchholz and Rosenthal, 2005).

Cluster 3B - Feminist perspective in Marketing & Consumer research: this set of papers report on the application of feminist approaches to marketing and consumer research. The most frequent outlet is *Journal of Consumer Research*. The argument being made is that a feminist reassessment and revision of consumer research would be advantageous (Bristor and Fischer, 1993; Hirschman, 1993).

To identify the different feminist theoretical approaches used in the articles reviewed, each full text has been read and analyzed to identify the theories and models that the articles contributed to. More than 30% of the articles does not take any specific approach, but refers, in a generic way, to feminist theories and perspective. The 40% of the papers take a gender-revolution approach, particularly the post-structuralist and intersectional perspectives. The 20% of the articles adopts a gender-reform approach, mostly the liberal feminist and the social feminist perspectives. Finally, those papers dealing with ethics, adopt the feminist approach to ethics, namely ethics of care.

Important insights have emerged from the analysis of papers with a feminist perspective published in management. Firstly, research on feminism in management remain at the margin of the mainstream literature and is used as a conceptual framework applied to a specific subject such as business ethics, entrepreneurship, or leadership (e.g., Machold et al., 2008; Robb and Watson, 2012; Ford, 2006). This tendency relegates the feminist approach to particular issues, preventing it from establishing itself and spreading to mainstream management debate such as strategy. Secondly, feminism is used as an organizing practice in specific organizations (i.e., academia). This places feminism in a subordinate role within the broader field, limiting its relevance to conventional organizations. Finally, feminism is proposed as a theoretical framework or a methodological tool. This emphasis on methodology determines the use of the feminist approach as an alternative perspective with the purpose of critiquing established frameworks and theories (e.g., Bristor and Fischer, 1993; Calas et al., 2009; Hirschman, 1993; Holvino, 2010).

Regarding empirical research articles, there is a preference for qualitative methods, particularly ethnography and participant observation, along with deconstruction. The primary focus of all articles is on women's experiences, with no explicit analysis of masculinity or men present, except for implicit references. Furthermore, most articles do not contain policy implications.

Although the results of the analysis confirm the marginality of the feminist approach in mainstream management, we still believe that feminist theories can significantly contribute to the development of the field by providing a critical evaluation of the prevailing frameworks and by proposing alternative conceptualizations.

Future research should focus more on firms' strategies and decision-making processes from a feminist perspective.

Research limitations. The study has some limitations related to the research design, the database used, and the analysis of results. Concerning the research design, the choice of the articles is based on keywords, which does reduce the scope of the study. However, although increasing the number of keywords may improve the sample's scope, it also tends to add noise (irrelevant articles) and makes the sample increasingly challenging from a practical perspective. The main limitation related to the database is the exclusion of books, book chapters, and conference papers. Relatively to the third limitation, since we provided a qualitative interpretation of the results achieved through bibliometric analysis, we admit that our considerations are somehow accountable of our subjective vision and interpretation.

Managerial implications. Our research could be relevant in terms of practical implications for managers and policymakers. For the former, the study can direct managers' attention to the impact that diversity management at large and the consideration of all types of discrimination, not only gender issues, can have in both operational and strategic decision-making processes. For the latter interested in reducing discrimination, the feminist approach can be a unique perspective on which to build policies, laws, rules, or more effective Gender Equality and Non-Discrimination Indicators (GEND).

Originality of the paper. The study offers an up-to-date and comprehensive investigation of the feminist approach in management research. According to our findings, it can be concluded that feminist approaches can offer fresh perspectives on crucial questions in management, leading to an improvement of the field.

Keywords: feminist perspective; gender in management; literature review; bibliometric analysis

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⁴ Articles in the literature review sample are marked with an asterisk.

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Nurse Clinical Leadership and Psychological Empowerment in Healthcare. The Role of Holistic Competence and Emotional Agility

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Framing of the research. Nurses can have an influence on patients' experiences and outcomes if they develop clinical leadership (Stanley et al., 2022). Persistence and improvement in healthcare are driven by empowerment and leadership (Cook & Leathard, 2004; Mrayyan et al., 2023). To foster a healthy work environment, it is crucial to develop a culture that psychologically empowers employees and enables them to realize their potential (Ashworth, 2022).

In fact, it is recognized that leadership is essential to providing direction and aligning professional teams within an organization (Ashour et al., 2022; Jones, 2023).

For this reason, there is a strong endorsement of nurse clinical leadership as a catalyst for interprofessional collaboration worldwide (Hofmann & Vermunt, 2021). Leadership in clinical care should also involve modifying the care process by fostering new competencies for several professional roles, directing patient care and controlling conflicting interests (Nieuwboer et al., 2019). Several studies have shown that leadership leads to enhanced user satisfaction, reduced user mortality, and less errors in hospitals (Thiagarajan & McKimm, 2019; Hitch et al., 2020).

Consequently, the scope of this study is to deepen the understanding of nurse clinical leadership. In order to reach this goal, the paper will test the mediating role of holistic nursing competence and the moderating role of emotional agility between nurse clinical leadership and psychological empowerment.

To assess this connection, the data were gathered from nurses. The data were collected by scales and examined with the use of SPSS program.

Purpose of the paper. The present research will shed the lights on four main items: (i) first of all, it will highlight the existence of a positive relation between nurse clinical leadership and psychological empowerment; (ii) secondly, it presents the existence of the mediating role of holistic nursing competence between nurse clinical leadership and psychological empowerment; (iii) thirdly, it shows that emotional agility exerts a mediator role between nurse clinical leadership and holistic nursing competence; (iv) finally, it is ascertained that emotional agility has a mediator role between holistic nursing competence and psychological empowerment.

This paper has the following structure. A brief review of related literature is presented, as well as hypotheses regarding nurse clinical leadership, psychological empowerment, holistic nursing competence and emotional agility. Next, we describe the method. Afterwards, a large-scale field survey is described to test the research hypotheses, followed by discussions, managerial implications, theoretical contributions, conclusions, limitations and potential research directions.

Throughout the following sections, the nexuses between the selected concepts are described and the research hypotheses are showed in a conceptual model (see Figure 1).

Nurse clinical leadership and psychological empowerment

The role of clinical leadership is vital to guaranteeing efficient and effective health improvement, and it entails creating conditions for success and achieving organizational objectives (Hitch et al., 2020). Nurse clinical leadership is important for creating a culture of safety at work, providing quality care, and ensuring optimal healthcare performance, as evidenced by theoretical and empirical studies: it is one of the key factors in organizational change, quality care provision, and ensuring optimal outcomes (Mrayyan et al., 2023). Depending on the position and setting, nurses can take on clinical leadership formally or informally (Cook & Leathard, 2004). There is circumscribed research on informal nurse clinical leadership, and on how it may positively affect psychological empowerment,

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practice, and finally, patient care, despite the fact that nurse leadership influence is recognized among practitioners who achieved high professional roles (Thiagarajan & McKimm, 2019). In fact, in most healthcare organizations, clinical services are the primary focus, and providers have power and strength to influence user care value. It is in this context that the link between psychological empowerment and nurse clinical leadership has developed in the world of nursing. Thus, the paper suggests that:

H1: Nurse clinical leadership impacts psychological empowerment in healthcare organizations.

Nurse clinical leadership and holistic nursing competence

Effective nurse clinical leadership needs to be developed thanks to a huge variety of functions and competence (Takase & Teraoka, 2011). A holistic approach to nursing competence is the basis for hospital care, as it can boost the system performance, accomplishment of goals, suitable care supply, efficacy, and efficiency (Aydin & Hiçdurmaz, 2019). Indeed, having holistic nursing competency is crucial, since hospitals are complex structures that differ in size and complexity depending on the functions they offer within the huge health care system (Aydin et al., 2022).

Services supplied by hospitals are defined by competences of all human resource. However, health care organizations, regardless of their differences, rely on key central functions, as it is at this level that users primarily interact with the overall system (Takase & Teraoka, 2011). The nurses at this point must be able to develop both clinical leadership and holistic competence, as they are involved and able to observe how the system works, assessing the system's strengths and inefficiencies, and experiencing conflict and collegiality between and among different groups of healthcare professionals (Aydin & Hiçdurmaz, 2019). In line with these considerations, this paper stated that:

H2: Nurse clinical leadership impacts holistic nursing competence in healthcare organizations.

Holistic nursing competence and psychological empowerment

The advancement of holistic nursing competence has become gradually more valuable in the past 20 years (Erickson et al., 2013). Improvements in healthcare digital technology have enabled the therapy for patients with complex medical problems. Furthermore, the reduced duration of hospital stays due to cost-control tactics has led to an escalating amount of users who expect intensive nursing treatments. Besides, users' expectations of the value of nursing care have been rising. Nowadays, users are under pressure as they have to be able to offer services totally inspired by holistic nursing competence to a wide public. Thus, the public need for quality care has pushed them not only to try to attain this essential competence, but also to feel, at the same time a huge sense of empowerment (Wagner et al., 2010). This phenomenon is observed especially among expert nurses, who are in the field by years. The chief reason for this is that these nurses had many opportunities to apply their knowledge in clinical practice (Knol & Van Linge, 2009). To promote holistic nursing competence, psychological empowerment can be the key. Therefore, this paper highlights that:

H3: Holistic nursing competence relates with psychological empowerment in healthcare organizations.

The mediating role of holistic nursing competence

Nurses offer continuous care to individuals with a holistic viewpoint and accept professional duties to help daily routines (Wagner et al., 2010). Thus, it is essential for nurses to expand their specialistic competencies and employ them in practices. Holistic nursing competencies are based on experience, feelings, and abilities gained through knowledge and practice. Getting a holistic viewpoint is the core capability of nurses, in fact, it can be described as involving in care the results which determine higher level of satisfaction and enhanced user outcomes while valuing the totality of patients' wellbeing. Transferring holistic competencies to the clinical setting is strictly linked with the nurse clinical leadership and psychological empowerment of the individual that starts this virtuous circle (Mrayyan et al., 2023). A result of this positive perspective is the establishment of job engagement, as engaged nurses devote themselves to their duties, while boosting their level of leadership and feeling more empowered (Knol & Van Linge, 2009). Thus, the paper suggests that:

H4: Holistic nursing competence has a mediating role between nurse clinical leadership and psychological empowerment in healthcare organizations.

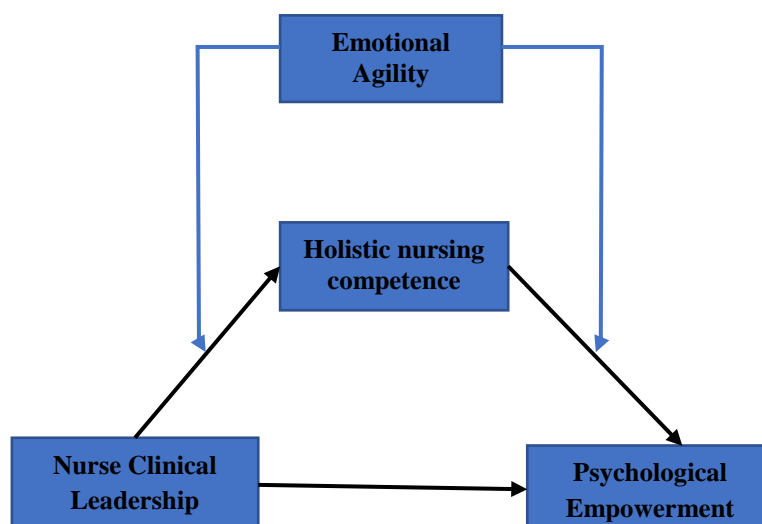
The moderating roles of emotional agility

The topic of emotional agility is an original concept that needs to be better explored with theoretical and practical research to enhance its understanding among scholars and managers (Cox, 2018). In the existing literature, a circumscribed number of reviews is offered by the promoters of the concept of emotional agility. In particular, authors that created the topic, decide to analyse it thanks to case studies and qualitative methods (David & Congleton, 2013). In this paper, it is stated that this new concept can be considered as:

H5: Emotional agility has a moderator role between nurse clinical leadership and holistic nursing competence in healthcare organizations.

H6: Emotional agility has a moderator role between holistic nursing competence and psychological empowerment in healthcare organizations.

Fig. 1: Research Model



Methodology. The research model was based on Model 58 by Hayes (2017), and it was formulated as below.

Research Model Statistical Diagram

Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W) (b_{1i} + b_{3i}W)$

Direct effect of X on Y = c'

X= Nurse Clinical Leadership; Y= Psychological Empowerment; M= Holistic nursing competence; W= Emotional Agility

Population and Sample

Data were collected from 296 nurses of Turkish healthcare organizations by five different scales. The questionnaire had 4 sections: the first section was regarding sample characteristics of the participants, such as gender, age, level of education, etc. The second scale was about nurse clinical leadership developed by Patrick et al. (2011). It consists of 15 items. The third section is about holistic nursing competence by Aydin & Hiçdurmaz (2019). It has 36 items. The fourth scale is about psychological empowerment scale developed by Spreitzer (1995). It consisted of 12 items. The last scale is emotional agility developed by authors. It consisted of 10 statements. The tool for collecting data was chosen to be a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Characteristics of participants are as follows:

The mean of age is 32.6; 54.2% of the respondents were above 32 years, while 45.8% were below than 32 years.

72.2% of respondents was female while 28.2% was male.

66.9% of the respondents had bachelor's degrees, 16.1% had high school degree while 17.0% had a master's degree.

58.6% participants were married while 41.4% were single.

Tab. 1: Cronbach's Alpha Coefficient for Study variables

Construct	Cronbach's Alpha
Nurse Clinical Leadership	0.789
Psychological Empowerment	0.876
Holistic Nursing Competence	0.992
Emotional Agility	0.774

Statistical Analysis

The analysis was executed using structural equation modelling with the SPSS 26 program. Before testing Hypotheses, we checked data normal distribution and reliability analysis. Cronbach Alpha (α) coefficient was used to measure and verify internal consistency for reliability and the Skewness and Kurtosis were used to check the data normality distribution. Table 1 displays acceptable levels of reliability for all four scales, with the reliability coefficient ranging from (0.77-0.92) and all constructs being above (0.7) This indicates that the design and scale of the questionnaires were able to assess the research variables and dimensions, and that the questions in the questionnaire were able to reflect each variable of the study (Hair et al., 2010).

The Skewness and Kurtosis values should be between +2 and -2 that presents data has normal distribution (George, 2011). Table 2 presents the skewness and kurtosis has normal distribution. Thus, we applied parametric analysis methods such as regression, ANOVA and correlation in current research.

Tab. 2: Normal Distribution Analysis (N=296)

Test of Normality				
Descriptive Statistics				
Variable	Skewness		Kurtosis	
	Statistics	SE	Statistics	SE
Nurse Clinical Leadership	,053	-,258	,104	-,778
Holistic Nursing Competence	,049	-,316	,104	-,555
Psychological Empowerment	,048	-,533	,104	-,371
Emotional Agility	,047	-,190	,104	-,497
Valid N (listwise)	296			

Results. As recommended by, there are three categories of the mean values of variables that recommended in literature (Sekaran & Bougie, 2016). low, less than or equal to 2.99, medium from 3 to 3.99 and high where mean score is greater than 4.00. Mean values of all the variables in the current study range of 3.02 and 3.78 so all variables come in the category of medium. In this study, emotional agility has the highest mean score ($M=3.77$). Psychological empowerment has the lowest mean score 3.02. Table.3 present the mean and standard deviations scores of all variables of the study.

Tab 3. Descriptive Statistics

Descriptive Statistics					
Variable	N	Minimum	Maximum	Mean	Std. Deviation
Nurse Clinical Leadership	296	1.00	5.00	3.167	1.261
Holistic Nursing Competence	296	1.00	5.00	3.201	1.175
Psychological Empowerment	296	1.00	5.00	3.023	1.128
Emotional Agility	296	1.00	5.00	3.777	1.152
Valid N (listwise)	296				

Tab. 4. The link between Nurse Clinical Leadership and Psychological Empowerment(H1)

Model	R	R Square	Std. Error of the Estimate	t value	F value	df1	Sig.
1	,802 ^a	0,643	0,72	7,061	529,155	1	,000 ^b

Dependent Variable: PE

Predictors: (Constant), NCL

R value showing the positive and significant relationship Nurse Clinical Leadership and Psychological Empowerment is 0.802. It can be stated that 64% (R^2) of Psychological Empowerment depends on Nurse Clinical Leadership behaviours. (Table 4). Thus, Hypothesis 1 is supported ($p<0.001$) (H_1 : Nurse clinical leadership impacts Psychological Empowerment in healthcare organizations).

R value showing the positive and significant relationship Nurse Clinical Leadership and holistic nursing competence is 0.805. It can be stated that 65% (R^2) of holistic nursing competence depends on Nurse Clinical Leadership behaviours. (Table 5). Thus, Hypothesis 2 is supported ($p<0.001$) (H_2 : Nurse clinical leadership impacts holistic nursing competence in healthcare organizations).

Tab. 5: The link between Nurse Clinical Leadership and holistic nursing competence (H2)

Model	R	R Square	Std. Error of the Estimate	t value	F value	df1	Sig.
1	,805 ^a	,648	,69	9,061	541,002	1	,000 ^b

Dependent Variable: HNC

Predictors: (Constant), NCL

R value showing the positive and significant relationship holistic nursing competence and Psychological Empowerment is 0.87. It can be stated that 76% (R^2) of Psychological Empowerment depends on holistic nursing competences. (Table 6). Thus, Hypothesis 3 is supported ($p<0.001$) (H_3 : holistic nursing competence impacts Psychological Empowerment in healthcare organizations).

Tab. 6: The link between holistic nursing competence and Psychological Empowerment (H3)

Model	R	R Square	Std. Error of the Estimate	t value	F value	df1	Sig.
1	,871 ^a	,758	,58	2,074	921,277	1	,000 ^b

Dependent Variable:PE

Predictors: (Constant), HNC

Mediating Analysis of Holistic Nursing Competence

We tested the mediating role of holistic nursing competence between nurse clinical leadership and psychological empowerment in healthcare organizations. Nurse clinical leadership has direct positive impact on psychological empowerment (Table 4). When we added holistic nursing competence into model as the mediator role the effect of nurse clinical leadership on psychological empowerment decreased and the relationship became insignificant ($p > 0.05$). Table 7 presents the mediating role of holistic nursing competence.

Tab. 7: The mediating role of holistic nursing competence (H4)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,338	,157		8,524	,000
	NCL	,624	,044	,517	14,195	,000
	HNC	,067	,040	,061	1,687	,092

a. Dependent Variable: PE

Moderation Analysis of Emotional agility

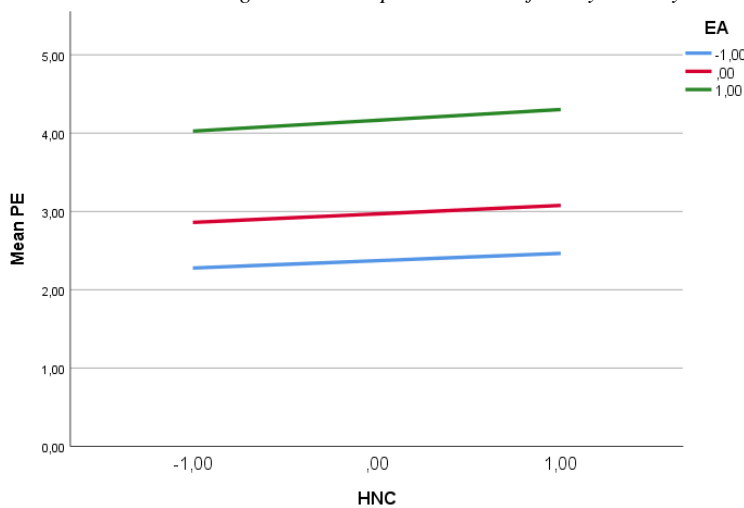
This study has investigated the role of emotional agility as a moderator between nurse clinical leadership and holistic nursing competence. Data analysis has concluded that emotional agility significantly strengthens the relationship between the nurse clinical leadership and holistic nursing competence ($\beta = 0.44$, $P < 0.05$). So, the moderating role of emotional agility is confirmed. Results have been presented in below Table 8.

Tab. 8: Moderating role of emotional agility between nurse clinical leadership and holistic nursing competence.

Hypotheses	B	S. E	T-values	P	LLCI	ULCI
nurse clinical leadership *emotional agility > holistic nursing competence	0,4396	0,0361	12,1616	,0000	0,3686	0,5106

Based on the data analysis, this study has also presented the graphical results of moderator-emotional agility. The graphical analysis shows that in the presence of higher emotional agility, nurse clinical leadership amplifies its impact on holistic nursing competence of healthcare organizations (Fig. 2).

Fig. 2: The multiple line mean of PE by HNC by EA



This study has investigated the role of emotional agility as a moderator between holistic nursing competence and psychological empowerment. Data analysis has concluded that emotional agility significantly strengthens the relationship between holistic nursing competence and psychological empowerment ($\beta = 0.74$, $P < 0.05$). So, the moderating role of emotional agility is confirmed. Results have been presented in below Table 9.

Tab. 9: Moderating role of emotional agility between holistic nursing competence and psychological empowerment.

Hypotheses	B	S. E	T-values	P	LLCI	ULCI
holistic nursing competence*emotional agility > psychological empowerment	,7372	,0506	14,5764	,0002	,6377	,8367

Based on the data analysis, this study has also presented the graphical results of moderator emotional agility. The graphical analysis shows that in the presence of higher emotional agility, holistic nursing competence amplifies its impact on psychological empowerment of healthcare organizations.

Research limitations. The conceptual model needs to be tested in different sectors and in other countries in order to enhance generalizability of the achieved findings.

Managerial implications. The aim of this study was to determine the relationship between nurse clinical leadership, holistic nursing competence, emotional agility and psychological empowerment in health care employees. The moderating role of agility and the mediating role of holistic nursing competence between nurse clinical leadership and psychological empowerment of health care employees in Turkey was the focus of study in this research. Thus, we tested basically six hypotheses.

Nurse clinical leadership impacts psychological empowerment in healthcare organizations (H1).

Nurses has clinical leadership are active and empowered participants in making decisions about their patients' plan of care. They have an active voice and presence in organisational decision making their this empower is increased their psychological empowerment and the degree quality of patient care. In our study, it was found that nurse clinical leadership affects psychological empowerment. Previous studies (Oducado, 2019; Armstrong & Laschinger, 2006) and this paper supports Kanter's (1993) theoretical propositions that when leaders are effective in using empowering behaviors, nurses feel empowered to take on the tasks. Contrary to our results, Connolly et al. found that the clinical leadership characteristics of emergency nurses were not sufficient and this situation negatively affected their psychological empowerment (Connolly et al., 2018).

Nurse clinical leadership impacts holistic nursing competence in healthcare organizations (H2).

According to ICN the goal of health care is to provide high-quality care and safe, and this places nurses' competence in focus (ICN, 2019). Clinical competence is the ability to perform a task and achieve a desirable outcome under certain circumstances (Benner, 2001). In last decade, studies of clinical competence has been investigated in association with variables such as nurse's ethical relationship with patients and peers, educators' and managers' assessments of competence and occupational commitment, practice environment and nursing competence (Numminen et al., 2015). In our study, we also investigated the effect of nurse clinical leadership on holistic nursing proficiency and found that it did. We obtained similar results to that achieved by Willman et al. (2020) and Numminen et al. (2016).

Holistic nursing competence relates with psychological empowerment in healthcare organizations (H3)

Psychological empowerment has been determined as a means of improving employee performance (Dust et al., 2014). There are few studies, in the nursing, that have investigated psychological empowerment (Shapira-Lishchinsky & Benoliel, 2019; Oyeleye et al., 2013).

In these studies, the relationship between nurses' perception of leadership, stress, burnout levels, intention to leave, job satisfaction and psychological empowerment was determined. Competence in holistic nursing relates among the nurses about their proficiency, personal characteristics, attitudes, values, skill and knowledge, along with their professional roles and responsibilities (Aydın & Hiçdurmaz, 2019; Fukada, 2018). In our study, a relationship was found between holistic nursing proficiency and psychological empowerment, and it is similar to the literature.

Holistic nursing competence has a mediating role between nurse clinical leadership and psychological empowerment in healthcare organizations (H4).

However, in our study, we found that holistic nursing competence has a mediating role between nurse clinical leadership and psychological empowerment in health institutions. In previous studies, it was determined that there was a significant relationship between the mediating role of psychological empowerment between job satisfaction and organizational commitment (Saif & Saleh, 2013), psychological empowerment has a mediating role between empowering leadership and job performance (Kundu et al., 2019) and it is similar to our research result.

Emotional agility has a moderator role between nurse clinical leadership and holistic nursing competence beside it has a moderator role between holistic nursing competence and psychological empowerment in healthcare organizations (H5-H6).

Emotional agility, having emotional awareness, perspective, and emotional regulation skills, is associated with increased ability to cope with stressful situations and greater self-esteem (Wilson, 2021; David, 2016). Nurses are exposed to many situational factors that can complicate their work in the hospitals, including psychosocial factors. They struggle with all these difficulties with their emotional agility. Holistic nursing competence and leadership perceptions enhances the quality of care (Soto-Rubio et al., 2020). In our study, we determined that emotional agility has a mediating role between nurse clinical leadership and holistic nursing competence in health institutions.

Originality of the paper. Our findings push hospital management to pay attention to nurses, considering them as pillars able to build a positive work environment. Moreover, the paper also suggests several policies that can support and develop nurses' clinical leadership in the hospital context, as it enhances nurses' ability to solve practical problems cooperatively while maintaining a sense of emotional agility, holistic competency, and psychological empowerment.

Consequently, managers in the healthcare while boosting leadership, are able to enhance the value of care, enhance nurse satisfaction, and retention, and develop effective intervention methods.

This means that to develop nurses' clinical leadership behaviours, the development of holistic nursing competence, empowering emotional agility and psychological empowerment are all important items which can benefit healthcare organizations' performance.

Keywords: *Emotional Agility; Holistic Nursing Competence; Nurse Clinical Leadership; Psychological Empowerment.*

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Cyber resilience in Supply Chain Management: an empirical investigation in Italian firms[♦]

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Framing of the research. *Supply chains (SCs) are more vulnerable than ever due to the complexity of today's business environment. Accordingly, SC resilience (SCRES) has attracted the attention of academic scholars, and the interest in it increases whenever major disruptions - such as natural disasters - hit SCs, leading to severe business interruptions (Blome and Schoenherr, 2011; Jüttner and Maklan, 2011; Wieland and Wallenburg, 2013; Heckmann et al., 2015). Several studies focus on supply chain risk management (SCRM), investigating how to assess and mitigate supply chain risks to protect the value creation and competitiveness of the firms (Christopher and Peck, 2004; Gaudenzi and Borghesi, 2006; Fan and Stevenson, 2018). However, even though the SCRES and SCRM literature have grown significantly in recent years, there are only few studies dealing with SCRES for specific emergent risks (Tukamuhabwa et al., 2015), such as cyber risks (Colicchia et al., 2019; Melnyk et al., 2022).*

In time of digital transformation, cyber risk represents an increasing threat for organizations, supply chains and societies. Eling and Schnell (2016, p. 483) describe cyber risk as "any risk raising from the usage of information technology (IT) that trade-off the confidentiality, availability, or integrity of services or data". Several reports highlighted that cyber risk is growing in severity and frequency, being listed among the top 10 risks for firms and a primary source of business interruptions (Protiviti, 2022; World Economic Forum, 2022).

Cyber risks can have detrimental effects on SCs and has been recognized in the literature as a key theme that is still under-investigated (Gaudenzi and Siciliano, 2018; Gadge et al., 2019; Melnyk et al., 2022). For this reason, this paper aims to fill this research gap, exploring perceptions and managerial approaches adopted by Italian firms to create cyber resilience. As highlighted by previous studies, the first challenge for supply chain decision-makers should be investing in cyber risks' awareness (Davis, 2015; Eling and Wirfs, 2019). The next challenge is adopting a multi-functional portfolio of strategies to assure cyber resilience. Besides more traditional reactive approaches to cyber risk, based on the adoption of IT tools to cope with recent legal requirements (Stallings, 2018), decision-makers should proactively evaluate cyber risk and its potential impacts along all the key processes, defining the most appropriate mitigation strategies for the firm and the entire supply chain, thus contributing to building cyber resilience (Bartol, 2014; Wieland, 2021).

Purpose of the paper. *The research purpose is to investigate how firms: 1) perceive the exposure of their SCs towards cyber risk and related consequences; 2) manage cyber risk using different cyber resilience strategies; and 3) perceive an effective protect their SC after the adoption of cyber resilience strategies.*

The empirical research is conducted on a sample of Italian firms. The conceptual model, and the related hypotheses, is depicted in Figure 1.

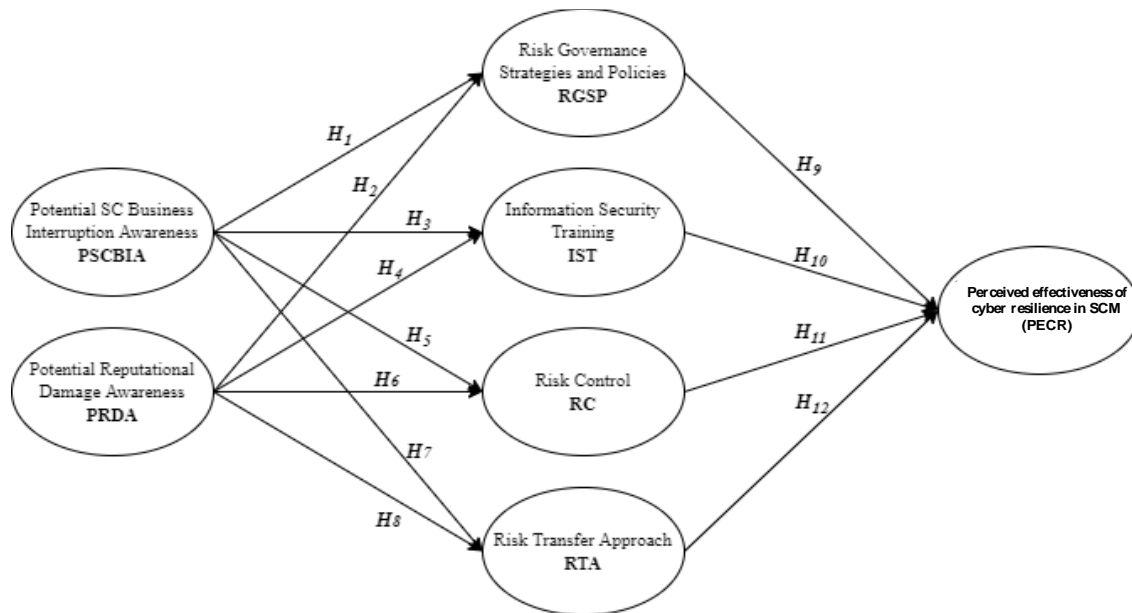
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Fig. 1: Conceptual model



The perceived detrimental consequences of cyber risks along SCs have been categorized, behind the solely economic losses, into the two main categories of reputation damage and business interruption (de Gusmao et al., 2018, 2016; Arcuri et al., 2020; Diesch et al., 2020), shedding light on the importance to build a cyber resilience strategy for firms and their SCs (Franke and Wernberg, 2020; Perera et al., 2022; Allianz, 2022). The academic literature recognized two professional frameworks that offer governance strategies and policies to cope with cyber risk, the ISO 28000 and the ISO/IEC 27001 (Zimon and Madzík, 2019). The first one proposes the key steps for evaluating cyber risk and protecting the SCs, while the second framework proposes the Information Security principles to determine, manage and enhance information security along business processes (Culot et al., 2021). To build an effective cyber resilience in SCs, there is a need to coordinate strategies, managerial behaviors, and human resources from different functions and processes (Creazza et al., 2021, Bartol, 2014). Thus, we formulate the following hypotheses:

H1: When managers perceive a risk of supply chain disruption due to a cyber risk, there is a commitment to adopt cyber resilience governance and policies for the firm and the SC.

H2: When managers perceive a risk of reputational damage due to a cyber risk, there is a commitment to adopt cyber resilience governance and policies for the firm and the SC.

The training programs for the employees in the focal firm and along the entire supply chain are crucial for identifying and managing the multifaceted cyber risk that can be related to digitalized SC processes. In fact, cyber-attacks can stem in different ways from internal personnel or external actors (Gaudenzi and Siciliano, 2018). Training programs are essential to up-skill the organization's employees to identify, avoid, and respond to cyber risks in the supply chains (Bulurcu et al., 2010; Flores et al., 2014; Singh et al., 2014; Windelberg, 2016; Williams, 2017; Gadge et al., 2019). Thus, we state the following hypotheses:

H3: When managers perceive a risk of supply chain disruption due to a cyber risk, there is a commitment to implement cyber training programs for the employees and partners (supply chain key actors).

H4: When managers perceive a risk of reputational damage due to a cyber risk, there is a commitment to implement cyber training programs for the employees and partners (supply chain key actors).

Among effective and efficient cyber resilience strategies to successfully deal with cyber risk, a key role is represented by the so-called risk control strategies, typically divided into preventive tools (such as vulnerability assessment tools) or detective tools (such as security audits), that are typically managed by IT managers in close coordination with supply chain managers (Mazzoccoli and Naldi, 2020; Secci and Murugesan, 2014). In fact, all these tools focus on guaranteeing continuity to the IT functions and to the ERP systems throughout the supply chain. These strategies spin around SCs' networks, addressing supply chain strengths and weaknesses (Tao et al., 2016). Based on these studies, we state the following hypotheses:

H5: When managers perceive a risk of supply chain disruption due to a cyber risk, there is a commitment to adopting cyber risk control strategies.

H6: When managers perceive a risk of reputational damage due to a cyber risk, there is a commitment to adopting cyber risk control strategies.

The cyber insurance sector can offer a significant impact in the management of cyber resilience, by contributing to the recovery of risk consequences and also by offering incentives to invest more in cyber resilience strategies (Eling and Schnell, 2016; Meland et al., 2015). Cyber insurance can protect cash flows of those firms that are experiencing severe consequences of a cyber risk (Romanosky et al., 2019; Camillo, 2017). However, several studies underline how insurance investments are still lacking for cyber risks, shedding light on the importance to investigate the commitment to invest in these specific tools (Marotta et al., 2017). Based on that, we state the following hypotheses:

H7: When managers perceive a risk of supply chain disruption due to a cyber risk, there is a commitment to use cyber insurance.

H8: When managers perceive a risk of reputational damage due to a cyber risk, there is a commitment to use cyber insurance.

The adoption of the above-mentioned cyber resilience strategies allows firms and their SCs to assess, avoid and mitigate cyber risk and to reduce the negative consequences of these serious events when they happen (Bartol, 2014; Safa et al., 2016). A critical aspect to consider is the fact that the 'real' effectiveness and the benefits of these cyber resilience strategies can't be measured only when the negative events occur. Contrarily, a good cyber resilience is based on a continuous improvement and the investments that should be linked to the capability to address the effectiveness of the cyber resilience management process in place (Collier et al., 2014). Thus, we built the following hypotheses:

H9: The adoption of cyber resilience governance and policies is positively related to the perceived effectiveness of the cyber resilience in SCM.

H10: The implementation of cyber training programs for the employees (supply chain key actors) is positively related to the perceived effectiveness of cyber resilience in SCM.

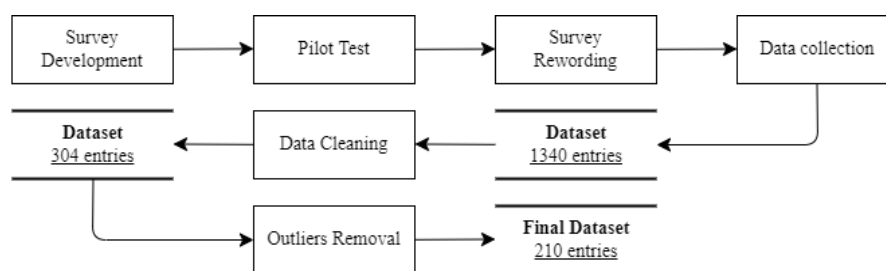
H11: The adoption of cyber risk control strategies is positively related to the perceived effectiveness of cyber resilience in SCM.

H12: The adoption of cyber insurance is positively related to the perceived effectiveness of cyber resilience in SCM.

Methodology. Through an empirical investigation on a sample of 210 Italian firms, we tested the conceptual model by using a structural equation modelling (SEM) technique, IBM SPSS Amos 26 software (Arbuckle, 2019). The SEM analysis provides a way to test the set of specified relationships between observed and latent variables as a whole and allows to conduct theoretical tests (De Carvalho and Chima, 2014).

We collected data from executive-level managers, supply chain managers, chief information officers and risk managers, from different sectors, i.e., industrial sectors (53%), finance companies (29%) and services organizations linked to SCM (18%), in the period of 2021-2022. A pilot survey was preliminarily conducted within a convenience sample of 5 managers from medium-sized and large enterprises in order to validate the questionnaire in terms of comprehensibility and adequacy. As indicated in Figure 2, the final questionnaire was submitted to 1341 participants using the web-based survey provider Qualtrics. The collected data were analyzed, and 1037 responses removed relying on the three exclusion criteria (Abbey et al., 2017), as follows: (i) answers for which respondents failed the attention checks, (ii) responses for which the total questionnaire length was less than or equal to 5 minutes, and (iii) answers for which the respondents did not fall within the scope of the research. Furthermore, all the questionnaires collected were manually analyzed in order to verify the completeness and consistency of the responses. The data cleaning process resulted in 304 valid responses. Before starting the analysis, a Mahalanobis distance inspection was conducted to identify possible outliers (Hawkins, 1980; De Maesschalck et al., 2000). A total of 94 outliers were detected and then removed from the final dataset. The analysis was structured in two stages, as recommended by Hair et al. (2014). In the first step the measurement model was estimated by using the confirmatory factor analysis (CFA) to determine convergent and discriminant validity. The second phase compared the theoretical model with the measurement model. Based on the test results, the structural model was used to compute the path coefficients to test the hypotheses. Additional fit measures were estimated, such as the RMSEA, CFI, NFI, and TLI, as suggested in Gerbing and Anderson (1992) and Mueller and Hancock (2019).

Fig. 2: Phases of the survey development



The analysis and evaluation of the measurement model, through the CFA, allowed to check for reliability and validity of the specific relationships between the observed variables and the theoretical model (Pittino et al., 2018). The internal reliability of the individual items was found to be valid since the factor loadings of all items related to the relevant construct were greater than 0.5 (Hair et al., 2014, p. 605). The internal consistency of the constructs was evaluated through the calculation of the composite reliability (CR), which was greater than or equal to 0.6 (0.681-0.913) for each construct, ensuring adequate convergence and internal consistency for exploratory research (Hair et al. 2014, p. 605). In order to examine convergent validity, we relied on the AVE measure, which value is recommended to be greater than 0.50 (Hair et al., 2014; Pittino et al., 2018). The results show that all constructs meet the standards (see Table 1).

Tab. 1: Model analysis

Construct	Item	Loading	CR	AVE
PSCBIA	PSCBIA1	0,711	0,681	0,516
	PSCBIA2	0,727		
PRDA	PRDA1	0,91	0,757	0,617
	PRDA2	0,637		
RGSP	RGSP1	0,911	0,913	0,778
	RGSP2	0,859		
	RGSP3	0,876		
IST	IST1	0,837	0,883	0,791
	IST2	0,939		
RC	RC1	0,72	0,762	0,617
	RC2	0,846		
RTA	RTA1	0,806	0,845	0,733
	RTA2	0,903		
PICR	PICR1	0,777		
	PICR2	0,861		

Model-fit indicators were computed by using the IBM Amos 6.0 tool (Anderson and Gerbing, 1988). The chi-square test of the measurement model was found to be significant (Hair et al. 2014). The fit characteristics of the measurement model indicated a good fit according to Mueller and Hancock (2019). The Normed Fit Index (NFI) and Tucker-Lewis Index (TLI) were 0.932 and 0.944, respectively. The Comparative Fit Index (CFI) was 0.963. The mean square error of approximation (RMSEA) was 0.072, which is below the desired 0.10 cut-off. Finally, the goodness of fit index (GFI) was 0.922, the root-mean-square residual 0.05 and CMIN/DF < 3, which indicated an acceptable fit between the conceptual model and the data sample (Schumacker and Lomax, 2016). All the results are listed in Table 2. Since the evaluation of the measurement model produced satisfactory results, we moved on to the second phase of the evaluation of the structural model.

Tab. 2: Fit index

Index of fit	Value
CMIN/DF	2,091
RMSEA	0,072
CFI	0,963
NFI	0,932
TLI	0,944
GFI	0,922
RMR	0,05

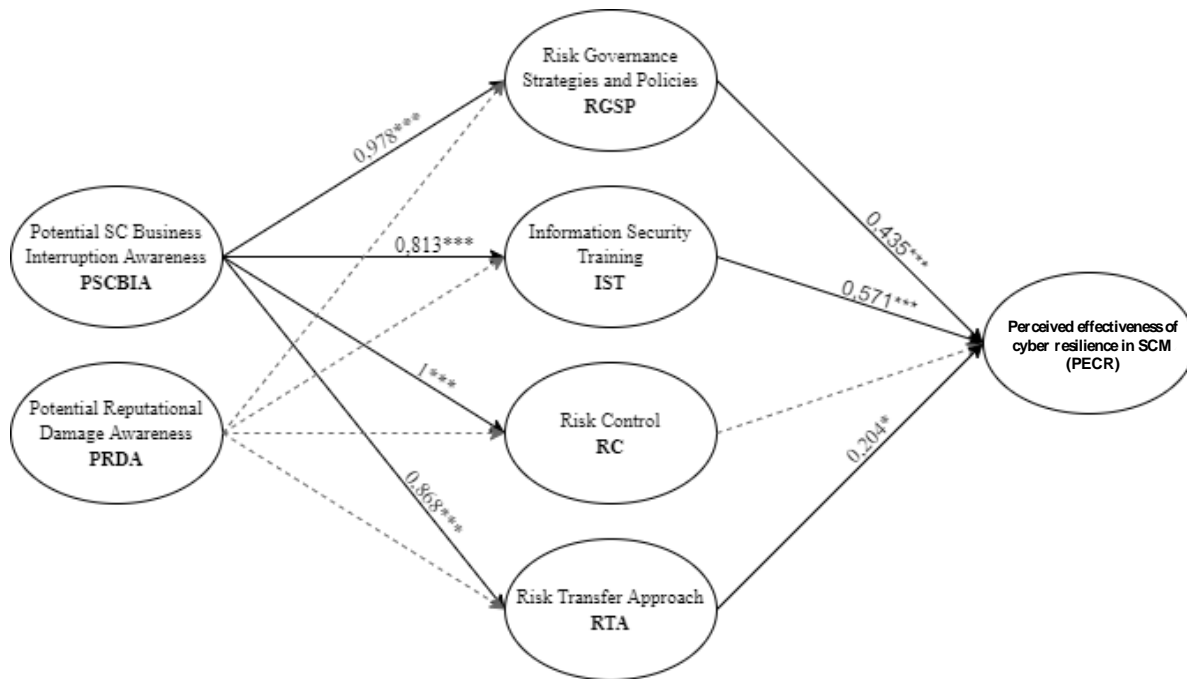
The structural model testing yielded the following SEM indices to demonstrate the adequacy of the model. First, as recommended by Gerbing and Anderson (1992) and Hult et al. (2006), the RMSEA was analyzed, which resulted of 0.083 indicating a satisfactory fit of the model. In addition, the CFI, NFI, and TLI resulted in good fit measures slightly below 0.95 (Schumacker and Lomax, 2016).

Tab. 3: Indexes results

Indices	Value
CMIN/DF	2,455
RMSEA	0,083
CFI	0,945
NFI	0,911
TLI	0,925
GFI	0,899
RMR	0,064

Results. The key evidences resulted from the analysis are depicted in Figure 3, where just the statistically significant relations are reported and highlighted.

Fig. 3: Results



The test of the hypotheses and the path coefficient values between latent constructs, *p*-values, and *t*-values are summarized in Table 4. On one hand, the findings indicate that all the relationships between Potential SC Business Interruption Awareness (PSCBIA) and constructs related to cyber resilience strategies are statistically significant ($p < 0.001$), thus positively supporting H_1 , H_3 , H_5 , and H_7 . On the other hand, the driver related to the awareness of the impact of a cyber risk on organizational reputation (PRDA) does not affect the cyber resilience strategies adopted by managers, as none of the relationships between the associated constructs are statistically significant. Therefore, the hypotheses H_2 , H_4 , H_6 , and H_8 are not supported ($p > 0.05$). The analysis also reveals that the cyber resilience strategies leading to cyber resilience effectiveness are the adoption of risk governance strategies and policy (RGSP) practices and the adoption of employee information security training programs (IST). In fact, both the RGSP and IST constructs positively contribute to the perceived effectiveness of cyber resilience, according to which the hypothesis H_9 and H_{10} are supported ($p < 0.001$). By contrast, surprisingly, controlling cyber risk through the physical defense and protection tools was found to be not perceived as an effective strategy, so the H_{11} is not supported ($p > 0.05$). Finally, as far as the adoption of cyber insurance policies (RTA) is concerned, the model shows a weak positive relationship ($p < 0.05$) with the dependent variable PICR, thus the H_{12} is only partially supported.

Tab. 4: Model results

			Path coefficient	<i>t</i> -value	Result	
H_1 :	PSCBIA	→	RGSP	0,978***	8,009	Supported
H_2 :	PRDA	→	RGSP			Not supported
H_3 :	PSCBIA	→	IST	0,813***	6,966	Supported
H_4 :	PRDA	→	IST			Not supported
H_5 :	PSCBIA	→	RC	1***	7,722	Supported
H_6 :	PRDA	→	RC			Not supported
H_7 :	PSCBIA	→	RTA	0,868***	6,906	Supported
H_8 :	PRDA	→	RTA			Not supported
H_9 :	RGSP	→	PECR	0,435***	3,666	Supported
H_{10} :	IST	→	PECR	0,571***	6,491	Supported
H_{11} :	RC	→	PECR			Not supported
H_{12} :	RTA	→	PECR	0,204*	2,3	Partially supported

Note: Significance levels * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed test); *t*-value = 1.96

Theoretical implications. The current research contributes to prior literature in several ways. Firstly, at the best of authors' knowledge, this research is one among few that investigates cyber risks and cyber resilience within the SCM context and from a SC perspective, demonstrating in particular the key role of managerial approaches, that appears more relevant than risk control and IT-based solutions in managing cyber resilience. In fact, cyber risks are supply

chains' threats that are emerging in recent years due to the increasingly digitalized and interconnected business environment. Furthermore, the study contributes to knowledge advancement in the SCM research field by creating a link between the SCRES and the SCRM literature. Additionally, this research builds on previous studies by establishing direct links between potential SC business interruption awareness and cyber resilience strategies, and between these latter and the perceived information security effectiveness. Furthermore, the study offers a comprehensive theoretical framework, which could be improved in future studies to further foster knowledge development.

Managerial implications. This research provides several implications for practitioners. First of all, the research approaches one of the major challenges that SCs are facing in times of digital transformation, i.e., cyber risk and the related business interruptions; thus, the study provides insights for managers about an actual concern for businesses. More in detail, the results highlight the crucial role played by potential SC business interruption awareness on justifying the commitment towards practices and strategies' adoption. Based on that, managers should invest in those practices that foster the awareness and knowledge development about potential cyber resilience. Moreover, our results show the key role of managerial approaches, rather than IT-based physical control solutions, in assuring cyber resilience, suggesting more investigations and investments in this direction. In particular, the study shed light on the effectiveness of the implementation and adoption of cyber resilience governance for SCs, cyber training programs for the managerial employees (thus highlighting the key role played by employees as supply chain key actors) and lastly cyber insurance practices.

Research limitations. Even though the study is strongly grounded in the literature and the analysis has been rigorously conducted, it is not without limitations. Firstly, the empirical evidences resulted from the analysis are based on a sample of Italian companies, hence the generalizability of results is limited. Furthermore, the survey data has been gathered in a limited timeframe. Thus, future research should consider different countries for the analysis and several time periods, for possible longitudinal analyses too. Moreover, the SEM analysis is just one among the available methodologies, thus future research should conduct the analysis by using different methods. Lastly, the study has been conducted by focusing on a specific supply chain risk, i.e., cyber risk. Future research could consider different sources of risks and the concurrence of several risks on the supply chain resilience strategies and insurance policies.

Keywords: Resilience; supply chain management; cyber risk; cyber resilience; structural equation modelling

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How to cope with emerging tensions in operational processes: the case of a SMA facing contemporary market challenges

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Framing of the research. *Marketing Agencies are a particular type of Professional Service Firms (PSFs) (Lone et al., 2021) that play an essential role in the development and diffusion of marketing-related innovations, acting as valuable knowledge providers for firms operating in a wide variety of sectors (Moorman and Day, 2016; Lynch, 2019). PSFs - and Marketing Agencies - are typically characterized by high knowledge intensity, low capital intensity, and professionalized workers (von Nordenflycht, 2010; Vafeas and Hughes, 2020). The main resources of this type of business are intangible and substantiated in human capital, namely knowledge, relational skills, and reputation (Kaiser and Loscher, 2015)*

Recent changes in the business context, such as increasing competition and emerging technologies, and dramatic events as the Covid-19 pandemic, are putting strong pressure on PSFs in terms of capabilities and organizational models (Empson, 2021; Kronblad and Pregmark, 2021), questioning established strategies and pushing towards the adoption new organizational structures and expansion of their offerings (Rubik, 2021). In such an evolving context, Marketing Agencies are called to be no more just technically competent, but also experts in digital and technical skills, data interpretation, customer engagement, and value-added processes (Cluley et al., 2019). Studies have started to show how market changes are reflecting into the emergence of paradoxical tensions within PSFs (Manzoni and Volker, 2017; Gaim, 2018). Operational processes of such firms are challenged by the need to respond to increasingly volatile market requests in a more flexible, quick, and effective way. On the organizational standpoint, this implies revising a series of diffused routines, mechanisms, and practices, inevitably leading to hard-to-solve tensions (Loch and Sommer, 2019). This is particularly evident for Small Marketing Agencies (SMAs), characterized by limited size and resources, seem to be especially hindered by the emerging tensions brought by new market dynamics. For instance, the increasing wish to adopt mobile work practices is raising tensions about the already limited context of human resources (Raguseo et al., 2015).

Notwithstanding the difficulties smaller companies face in the attempt to overcome organizational tensions, the topic seems to be still under-investigated. In particular, there is fragmented research on the typology of emerging organizational tensions faced by SMAs along their operational processes. Furthermore, even less attention has so far been paid to possible coping managerial practices that firms can implement to deal with such tensions.

Purpose of the paper. *In light of these considerations, this paper aims to investigate the emerging tensions along operational processes that SMAs are called to face in contemporary markets, with the intent to understand if and how coping practices are helpful in solving them. To do this, the following research questions are addressed: Which organizational tensions emerge when SMAs change their operational processes to face contemporary market needs? How can SMAs deal with such tensions?*

To achieve this goal, this paper discusses an explorative case study of a SMA located in central Italy, which has undergone organizational changes to sustain its growth in the market of marketing-related business services. The analysis relies on the Actors-Resources-Activities (ARA) framework (Håkansson and Snehota, 1995): for the three dimensions, emerging paradoxical tensions have been identified along with the organizational responses implemented to manage them.

Theoretical background: adopting a paradox framework to understand emerging organizational tensions. *Paradoxes are defined as contradictory yet interdependent elements that cannot be easily resolved (Poole and van de Ven, 1989;*

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Putnam et al., 2016). Paradoxes define contradictions, conflicting demands, opposing perspectives (Lewis, 2000), which are an intrinsic characteristic of organizations and a manifestation of complexity (Berti et al., 2021). Paradoxes describe the increasingly competing demands faced simultaneously (Gaim and Wählin, 2016) by firms which can derive from organizational tensions. Organizational tensions are, in turn, defined as “two phenomena in a dynamic relationship that involve both competition and complementarity” (Epstein et al., 2015: 37). The paradoxical nature of organizational tensions stems from the contradiction yet interrelation that characterizes these elements (Lewis, 2000; Gaim, 2018). Indeed, paradoxical tensions “result from the perception of opposing, conflicting, and interrelated characteristics of paradoxes and are reflected, cognitively and emotionally, when one attends to both demands simultaneously” (Gaim and Wählin, 2016: 35). Understanding organizational tensions as having a paradoxical nature implies that the organization will not attempt to get rid of the tension, but rather to sustain it as competing demands (Smith and Lewis, 2011) through the adoption of a “both/and” perspective (Smith et al., 2017).

The paradox perspective can be understood as a useful managerial lens to investigate firms’ organizational configurations and processes employed to manage the tensions they confront (Hargrave and van de Ven, 2017). What characterizes tensions is dynamicity, as they change over time, and tackling one of them can open other tensions (Berti et al., 2021).

Previous studies on creative PSFs (Manzoni and Volker, 2017) have shown how their nature as well as external factors, including increased competition, demanding clients, and technological changes lead to emerging competing paradoxical tensions, whose features and management practices still remain largely unexplored.

Methodology. This paper adopts a qualitative single case study methodology (Eisenhardt, 1989). The case study concerns a digital marketing agency, Alpha. Alpha is a marketing agency of 35 employees, located in the center of Italy and specialized in digital marketing services and web platform management. Alpha was established in 2009 during a period of strong growth in the market of innovative digital marketing services. Its goal is to enhance its clients’ e-commerce performance and the main market segment is represented by small and medium enterprises (SMEs). The surge in demand for Alpha services has been caused by the impact of the Covid-19 pandemic and by the financing opportunities linked to national and regional programs on SMEs’ digitalization.

Recently, Alpha has become part of a business group that brings together different marketing agencies with complementary specializations and aimed to increase the range of marketing-related services to be offered to a wider market in geographical terms, thus achieving an adequate company scale to become a full-range provider in marketing services.

Currently, one of the main challenges is represented by the alignment of assigned roles, interdependencies, and homogeneity of internal and customer-related organizational processes.

Data collection is ongoing and relies thus far on three semi-structured interviews (Kvale and Brinkmann, 2009), conducted with the Project Manager (PM), the Digital Advertising and Analyst Specialist, and the Digital Advertising Junior. Secondary data has been collected through corporate presentations and the website. Additionally, researchers took part in a public, two-hours seminar held by the Project Manager (PM) focused on illustrating the operational processes of Alpha and the main challenges related to their management.

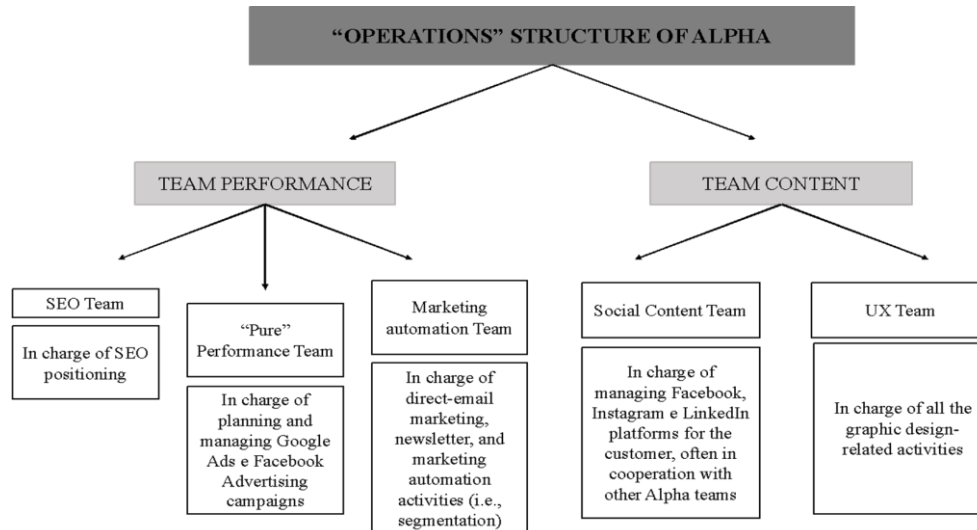
Primary and secondary data has been analyzed by adopting a systematic combining approach (Dubois and Gadde, 2002) to highlight the interplay between the research object, methodology and theory. The empirical analysis relies on the Business Network approach (Håkansson et al., 2009) to explore organizational dynamics at the inter and intraorganizational levels. Data were coded and interpreted based on the ARA framework (Håkansson and Snehota, 1995), which describes the content of business interaction in three interrelated layers: actors’ bonds, resource ties, and activity links. Emerging paradoxical tensions have been identified along these three dimensions, along with managerial practices in place or to be implemented to manage them.

Results.

1. Key actors: emerging organizational tensions and organizational responses

Alpha has an articulated organizational structure composed of highly interdependent positions and units/functions. A key role is played by the team of Account New Business, which manages the first contact with customers. Once the contract is signed, the Account Team takes charge of managing relationships with the customer under both the strategic and operational sides, along the project/campaign. Services and projects are implemented by the Alpha teams, which compose the “Operations” structure. Figure 1 shows the main areas in which Alpha teams are divided.

Fig. 1: The operations structure of Alpha



Source: Authors' elaboration

In addition to internal teams, the agency uses partnerships with freelance marketing professionals to carry out specific activities. Freelancers can have the full responsibility of managing relationships with assigned customers in a wide range of marketing activities or collaborate on ad hoc projects. Their involvement depends on the level of demand for customer-related services and on the need to gain the required expertise.

Recently, due to an increasing market demand, Alpha expanded its human resource base. In particular, to further support the various teams and each team member, new organizational positions have been introduced: Project Manager (PM), Service Developer, and Human Resource (HR) Manager. The PM position – which is not common in marketing agencies - has been introduced and integrated to facilitate the planning of activities and resources and coordinating them daily and weekly. The Service Developer has the aim to coordinate innovative processes concerning digital tools and procedures. Lastly, an internal HR Manager has been put in charge of supporting the PM in planning, managing HRs involved in internal teams or as freelance collaborators, and of HR administration, including HR selection and training. This expansion was aimed at improving internal coordination of activities and therefore allowing for greater flexibility and efficiency in answering customers' requests.

However, it has led to the emergence of a relevant organizational tension related to the increased involvement of team members in various activities and the fragmented supervision role played by managers in different positions – Account Manager, PM, Service Developer, and HR Manager. The diffusion of “control” tasks is generating a lack of clear hierarchical relationships in the perception of team members and frictions among managers while planning their own activities. Alpha is facing this by fostering horizontal communication among managers and vertical communication with team members, to promote further organizational alignment among the various activities played by teams and by single team members.

In such a context, a further change in the organizational routines of Alpha has been introduced: the opportunity to work remotely. This change witnesses a quick reaction of Alpha to two emerging market needs: on the one side, the Covid-19 Pandemic, which hampered physical interactions; on the other side, the growing expectations from employees to be supported by their employers in balancing work and personal commitment, as declared by 87% of interviewees in the Global Workplace Report (Gallup, 2022). Nevertheless, this change triggered an organizational tension about the need to maintain physical interaction to promote knowledge exchange and organizational alignment while implementing remote work. This challenge is being faced by experimenting with hybrid work solutions, strengthening team communication, and adopting digital tools for real-time coordination.

2. Key activities: emerging organizational tensions and organizational responses

The activities implemented in Alpha depend on the content of services provided – mainly e-commerce-related – and on their timing. The main distinction is between spot services, which are planned ad-hoc with a fixed starting and ending, and ongoing ones, implemented regularly for one year and renewable upon the customer's request. In recent times, an increase in the customer base, as well as in the technical skills required to deliver digital services, led to additional complexity in the management of service operations, also because of the interdependencies of the various services.

As a consequence, a new organizational tension has emerged: on the one hand, each team is highly specialized in one single activity, taking full responsibility for it, while, on the other hand, there is an increasing need to foster integration between activities, as they might be concerned with the same customer and have technical complementarities. The same challenge concerns free-lance professionals, who might be in charge of one specific activity or of providing full services for a single customer. This organizational tension is being coped with fostering stronger coordination in service operations, mainly thanks to the PM's effort in terms of “resource planning”. During

the pandemic, this has been combined with management activities related to hybrid work planning. Another adopted mechanism is the introduction of coordination procedures and tools, which, however, have not yet fully solved difficulties related to interaction among Alpha teams, particularly with the UX staff, whose professional culture and technical knowledge have a more creative nature and substantially differ from those of the other teams. In addition to the setup of new procedures, the internal staff uses a variety of digital tools to exchange knowledge and data to foster coordination among teams. Notably, an ERP is used to manage knowledge flows between Sales, Administration, and Project Management, while a planning tool is adopted for coordination of activities.

Finally, another emerging organizational tension is the simultaneous pursuit of customization and standardization of services. Indeed, if it is true that customers look for ad hoc solutions and co-created, tailor-made services, they also more and more require short delivery times and restrained costs. On the one hand, the company is trying to provide a customized service offering combined with flexible management of interactions with the customer. On the other hand, these activities should be implemented to guarantee efficiency in the use of time and resources. This organizational tension is faced by the company promoting stronger interaction among Sales and Account managers and among the Heads of Service Teams and the PM. Moreover, providing customers with tailor-made solutions becomes more and more complex over time. One way this complexity manifest itself is through the incremental adoption of digital technologies: indeed, frequently, customers adopt one type of digital solution at the time, adding new ones incrementally. While, on the one hand, this approach allows Alpha to continuously reinvest in the relationship with customers by reinforcing trust and providing additional value, on the other hand, it also challenges the management of operational processes. Alpha, indeed, is called to iteratively revise the number of activities dedicated to each customer, as well as the necessary competences and resources to sustain them. A Project Management style is of tremendous support in such a volatile and complex scenario.

3. Key resources: emerging organizational tensions and organizational responses

Over the years Alpha personnel has developed specialized expertise in e-commerce-related digital marketing, with SMEs as market targets about the management of digital projects with SMEs having a different degree of knowledge and experience in digital marketing. The variety in customer SMEs' profiles and capabilities required Alpha to develop adaptation and flexibility in the service offering and in the management of the interaction with customers. The growth in the size of the company and of the various operational teams has been possible also thanks to the involvement of young graduates from universities located in the region.

This pattern has led to one emerging organizational tension: the pursuit of incremental involvement of new hires in team activities during the onboarding phase and the need for each team member to guarantee autonomy and homogeneity in service provision. This organizational tension is being managed by the company thanks to the advanced digital marketing training for new hires – mainly through the close supervision by the Head of Service Team - and the active role played by the PM, whose main concern is to organize internal and external human resources to be involved in activities, also in a hybrid work setting. The PM is involved in frequent “alignment meetings” with every collaborator to discuss any relevant issue emerging from daily work practice, such as difficulties in implementing activities, training opportunities and personal problems affecting the workplace.

Providing innovative services in an efficient manner implies promoting innovation in terms of new procedures and digital tools. This implies that organizational tensions emerge in the pursuit of exploration of innovative solutions and exploitation of the existing knowledge base in the provision of the service offering. This organizational tension is being addressed by introducing the Service Development Manager and allowing each team member to devote time to developing new organizational procedures to guarantee higher efficiency and homogeneity within their team and to assess and learn new digital marketing technologies and tools. In addition, the company recently started launching a more structured internal data analysis related to the main organizational processes, to gain a more detailed picture of performance levels and to strengthen reporting activities.

Table I summarizes the main emerging organizational tensions and responses for each layer of the ARA framework.

Tab. 1: Summary of emerging organizational tensions and responses along the three dimensions of the ARA framework

Layer	Emerging organizational tensions	Organizational responses and impact on operational processes
Actors	Integrated vs diffused supervisory role	<ul style="list-style-type: none"> Promotion of organizational alignment through horizontal communication among managers and vertical communication with team members
	Fostering interaction among employees vs pursuing a hybrid work configuration	<ul style="list-style-type: none"> Introduction of hybrid work solutions Promotion of team communication Adoption of digital tools for real-time coordination
Activities	Pursuing separation vs stronger integration of service provision	<ul style="list-style-type: none"> Resource planning activities implemented by the PM Introduction of management activities for hybrid work planning Adoption and coordination of procedures/tools Use of an ERP to manage knowledge flows
	Customization vs standardization of service provision	<ul style="list-style-type: none"> Promotion of interaction among Sales and Account managers and between the Head of the service teams and the PM
Resources	Incremental involvement of newly hired employees vs HR's autonomy and homogeneity in service implementation	<ul style="list-style-type: none"> Advanced digital marketing training for the new hires Supervision and active role of the PM through alignment meetings
	Exploration vs exploitation of innovative solutions	<ul style="list-style-type: none"> Introduction of the Service Department Manager position Development of new organizational procedures from teams for efficiency and learning Adoption of structured internal data analysis related to the main organizational processes

Source: Authors' elaboration

Preliminary discussions, conclusions and limitations of the research. *This study explores changes in SMAs' organizational configurations and operational processes implemented to meet the evolving market challenges through the analysis of the explorative case study of Alpha and the use of the paradox perspective along the three dimensions of Actors, Resources, and Activities, based on the Business Network analytical framework (Håkansson and Snehota, 1995). Findings confirm that SMAs represent a typology of PSFs under strong pressure for changes in the market and technological contexts (Lynch, 2019), with various emerging organizational tensions and related organizational responses having an impact on operational processes. The preliminary empirical analysis provides key insights, filtered through the three dimensions of the ARA framework.*

With regard to the actor dimension, organizational tensions emerge due to the growing complexity of processes leading to the involvement of various actors in supervision and control. This pattern is further pushed by the need to balance physical interaction and remote working (Summerfield, 2022). These two organizational tensions have been addressed by fostering alignment and communication among key managerial positions and within operational teams and through more careful planning of hybrid work configurations (Whillans et al., 2021).

With regard to the activities dimension, organizational tensions concern the balance between separation and integration of activities performed by different teams and the pursuit of standardization and customization in the service provision (Bettiol et al., 2015; Kohtamäki et al., 2020). The complexity in managing activities is largely due to the higher levels of interdependence (Lynch, 2019), requiring specific and innovative organizational solutions. Alpha has been dealing with such tensions by strengthening the planning of activities through the PM and by introducing more effective coordination mechanisms through new procedures and digital tools.

Regarding the "assembly" and development of resources (Ciabuschi et al., 2012), two main organizational tensions emerge concerning the effective involvement and training of new hires in the service provision processes and the need to combine the pursuit of exploration and exploitation of solutions (Jensen et al., 2010; Hargrave and van de Ven, 2017). These tensions have been coped with strengthening key positions (Service Development Manager, PM), introducing specific procedures, and fostering knowledge transfer and exchange.

This preliminary research suggests that SMAs are currently facing various organizational tensions and adopting coping organizational mechanisms, which require rethinking and reconfiguring existing operational processes. This is a "game" thus far played mainly by large PSFs. The case of Alpha shows that also SMAs can undertake more structured organizational solutions, such as new positions and specific procedures allowing for the use of "time" as a resource to pursue more effective coordination and knowledge exchange. Future research could provide a more extensive view of the current organizational challenges and configuration of SMAs, which represent key actors in market-related innovation, considering the conflicting challenges of pursuing efficiency and innovation and the interrelated phenomena of human resources retention and activation of remote working configurations.

Managerial implications. *At the managerial level, the analysis of organizational tensions is helpful to support small companies struggling with the extreme dynamism of contemporary markets. Becoming aware of the potential organizational tensions is the first step for managers in understanding how to recognize them and promptly react when they occur. In general terms, key tools in the efficient management of operational processes seem to be a tight coordination of activities and priorities, implemented through a Project Management approach, a cooperative-based working style among teams, and the exploitation of digital tools to optimize information flows.*

Originality of the paper. *Though this research is still at its infancy, some preliminary contributions can be drawn based on the empirical findings. In terms of literature the study attempts at enriching knowledge on how the operational processes of SMAs are transforming due to the recent changes in contemporary markets, ranging from the great push toward digitalization to the challenges imposed by Covid-19. On the one side, the case of Alpha reinforces what suggested by Rubik (2021) or Kronblad and Pregmark (2021) about the increasing complexity to manage intricate operational processes faced by SMAs, especially in terms of generating additional value for customers within such processes (Cluley et al., 2019). On the other side, the adopted paradox theory lens (Smith and Lewis, 2011) allows to highlight a series of original tensions and coping strategies.*

Keywords: *small marketing agency, tensions, operations*

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Assessing the Impact of 4.0 Technologies on Product and Process Innovation: A Review of Existing Literature

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Objectives. *Over the last decade, the emergence of new digital technologies has shuttered the ways managers are running businesses. In particular, digital technologies caused the so called fourth industrial revolution (4IR). Among the most disruptive effects of this revolution, businesses started to update their processes to match the technological evolution pace (Bortoluzzi et al., 2020). Nowadays, managers have are aided by machines and tools in scheduling the production. Likewise, material processes changed due to new emerging way of producing product. The most relevant effects of this technological changes are anyway represented by the new available data at disposal of businesses. Data, whether suitable analyzed through artificial intelligence (AI), could provide a whole new detailed level of information to managers, which could increase process efficiency and strategic foresight (Giannini, 2019). Production processes have been consistently affected by these new technologies. As an example, 3D printing and advanced design interfaces are allowing businesses to develop innovative solutions at a faster pace. Then, emerging technologies allow the possibility to develop smart product (i.e., product embedded with a certain degree of connectivity thanks to Bluetooth applications or Internet of Things). Finally, more complex products may be developed as a consequence of the availability of new technologies.*

Literature has consistently started to explore the importance of these topics. Yet, extant literature has rarely been systematized and has rarely focused on the impact of these technologies on product and process innovation.

In such a regard, the objective of this research is to perform a bibliometric and a systematic literature review in respect of these topics.

Research Context. *Digital technologies are at the center of interest of current business literature. The fourth industrial revolution (4IR) is utterly changing the way in which companies operate, their organization, and the entrepreneurial decision-making processes.*

It's unfeasible to discuss about 4IR without introducing Artificial Intelligence (AI). The term AI was coined in 1956, and performed a waver evolutionary path during years. During the 80's it starts to be used also in manufacturing in solving complex problems related to machine programming. Yet, it was in the 00s that the diffusion of internet subverted the amount of data available (Wamba-Taguimdje et al., 2020). Hereby, in this technological era, AI embedded tools started to complement Big Data Analytics. AI thus started to deal with sources of Big Data thank to machine learning approaches and more powerful computers supporting the computing of Big Data. Data analytics is determining nowadays for the inspection and the monitoring of companies' performances. Data are thereby the principal support of decision-making processes od managers. As a results of the intersection between AI, Big Data and manufacturing tools Intelligent Manufacturing (IM) resulted. IM systems are nowadays used in design, scheduling, and production. IM provides the use of data analysis, AI, and Machine Learning in the production process to deal with the increasingly frequent need of customization, constant changes in customers' preferences and increasing production complexity (Chari et al., 2022).

The 4IR showed its full potential in thanks to the progressive emergence and integration in AI and Big Data of technologies such as 5G, IoT, and Cloud computing (Wang et al., 2022). The fact that the application of effective data mining procedure brings to satisfying economic results is not just a matter of theory, but something that can be demonstrated practically. Walmart, one of the world's largest companies by revenue, used software like "Apache Hadoop" and "NoSQL" to gather data to fully optimize the customer experience in the shop and to customize the shopping experience through the website. Walmart tracks and targets every consumer individually. Walmart has thorough customer data of about 145-millions of Consumers. The company acquired information on what customer's buy, what are their habits, what products they like. The big data team at Walmart Labs analyses every clickable action on Walmart.com, they pay close attention on what consumers buy in-store and online, what is trending on social media,

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scheduled local events (like Super Bowl or NBA finals), how local weather deviations affect the buying patterns and so on.

Still, digital technologies related to Industry 4.0 need a deep understanding before being applied in an industrial context, in term of consciousness toward the topic in general, but also speaking of benefits in economic, time-saving, and sustainable terms.

Noticeably, the US, China, UK, and EU-27 are among the biggest player in the I4.0 context and are continuously boosting the diffusion of 4IR technologies through national and supranational policies and incentives (Felsberger et al., 2022). The heterogeneity of the development level of different countries demonstrate that Europe has different levels of implementation of the most important technologies characterizing 4IR (like IoT, Robotics or Big Data analytics) with Scandinavian countries like Finland and Denmark that are leaders in this scenario, while the weakest players are Greece, Romania, Bulgaria, Hungary, and Latvia (Fatorachian and Kazemi, 2021).

In such a context, the differences between countries are explained according to greater availability of skilled workforces or diverse level of capabilities in businesses. Likewise, existent knowledge management mechanisms are important means by which companies can gain information about the usage of digital technologies. Both formal and informal collaborative approaches seemed to be something mandatory especially for SMEs with limited resources.

This work has the purpose of analyzing the current state of the literature about process and product innovation especially for those firms that are implementing digital Industry 4.0 technologies. A literature review to understand the potential of digital technologies is mandatory, in particular for the fact that authentic case studies are really limited in this area. Process Innovation and Product Innovation are both analyzed together for the strict relation that they have. In the past some works were made (Kraft, 1990 and Fritsch & Meschede, 2001) in trying to assess this relation between product and process innovation, but with scarce results, and during decades the necessity to prove this interaction has faded. Other works more recent focus on Green process innovation for green product innovation (Xie et al., 2019) and some exceptions but with few citations concentrate on the impact that process innovation with new digital technologies had empirically on products (Saleem et al., 2020). The reason why this relation between Process and product innovation wants to be proven is the strong belief that the introduction of new technologies (in particular supportive technologies for Industry 4.0) in the production process can lead to positive result in New Product Development, subsequently positively impacting the financial and economical return of companies.

This first literature review will be a first step for a wider project proposal for PhD, were this relationship between Product innovation and digital technologies will be proved also with the aid of quantitative methodologies.

To understand which are the benefits of 4IR technologies in diverse contexts, this work will attempt to analyze the current state of the literature about process and product innovation. A literature review to understand the potential of digital technologies has been deemed relevant, as most of literature is still fragmented and need further exploration.

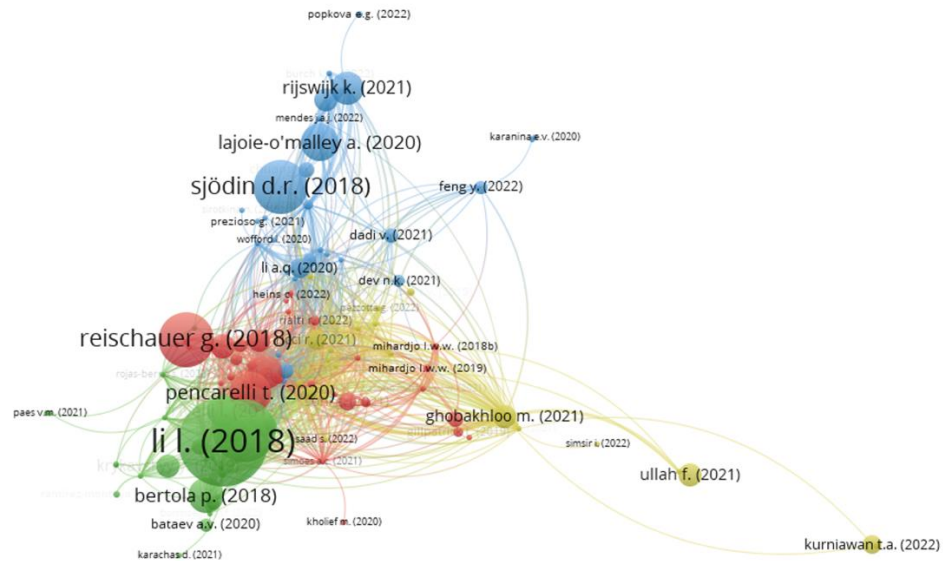
Methodology. In recent time, bibliometric analysis is a largely diffused methodology for the analysis of large volumes of data, especially to highlight the evolution of different fields and areas of certain literature streams (Donthu et al., 2021). In such a regard, bibliometric analysis allows to develop comprehensive structural maps of the knowledge characterizing a research topic. This has been deemed possible thanks to cluster maps emerging from the analysis. The idea of this work is to combine the bibliometric analysis with a systematic review of the literature, that could permit also to understand in depth the contents of the clusters by analyzing the research papers composing them (Aromataris, and Pearson, 2014). The literature review will be focused on both, Product and process innovation in companies that are familiar with Industry 4.0 technologies. The bibliometric component of the analysis was conducted first. The analysis is rooted specifically on the “visualization of similarities” (VOS) technique (Van Eck and Waltman, 2010).

For the systematic literature review, the procedure proposed by Tranfield et al. (2003) was followed. In practice, this research path started on Scopus, where after a research based on the following query “Digital Technolog*” OR “4.0” AND “Innovation*” AND “Product Innovation*” AND “Process Innovation*” was run. More than 200 papers were identified. After that, these results were filtering depending on some important features like: the publication year from 2018 to 2023 (particularly, this span of time was chosen cause in the past, as previously specified, some contributions about the relation between product innovation and process innovation were made, but with scarce result, hence the query here was focused more on the last five years were some work on the impact of digital technologies on product innovation were made, particularly in the year in which the implementation of digital technologies that we were interesting in was massive), the subject area (Agricultural and Biological Sciences, Environmental Science, Economics, Econometrics and Finance, Decision Science, Social Science, Business Management and Accounting), the Document Type (Article, Conference Paper, Book Chapter, Book and Editorial). Reaping the benefits of this filtering the article obtained were 153. A similar procedure was also run on HEBSCO and Web of Science (WOS) databases, results were substantially analogous and no other relevant paper was deemed excluded. Additionally, we checked for predatory journals and we excluded them from the analysis.

Most diffuse keywords emerging from this research were Industry 4.0 (138), Digital Technologies (92), Digital Transformation (53), Innovation (34), Digitalization (26), IOT (25), Artificial Intelligence (23), Industrial Revolutions (23), Big Data (17) and Sustainable Development (16)

Proceeding in this way now the resultant were four clusters that are clearly visible from the bibliometric map in below.

Fig. 1: Clusters' Emerging from the Bibliometric Analysis



Source: Author's Elaboration

Results. The bibliometric analysis generated 4 clusters. Building on this, the most cited papers belonging to each cluster have been reviewed.

The sensitization among digital Industry 4.0 technologies is a tough matter especially regarding those firms (principally SMEs), that need to be well-trained and informed about the potentiality of a digital transition rather than betting on the same old traditional production methodologies. This topic is at the foundation of what are the relevant themes treated in the first cluster (the red one). Basically, the agile approach seems to be the most suitable in order to stimulate people in technology development (Ivaldi et al., 2021). Case studies are helpful in this situation for checking the evolutionary level of a company that is implementing Industry 4.0 digital technologies, and in these cases, collaborations were subject matters of some researches. These studies help to see that collaborations play a real important role in the adoption of new technologies and also the mentoring role of firms could be promoted at a regional level with Industry 4.0 plans (Lepore et al., 2022). After analyzing the 4IR technologies development at a micro level (regional), there's the possibility for a broader scenario. Papers in this cluster indeed shows up the situation in respect of 4.0 technology adoption in the European Union. In particular, it is showing up how regulators are really pushing into the adoption of new technologies for waste-reduction and sustainable ways of production, a diversified scenario is unavoidable, with Scandinavian countries more in an advanced position while other countries are not so updated like Greece and Romania. Clearly the adoption of new digital technologies in a wealthy country is easier and barely replicable in smaller and less rich countries, so if the EU wants to maintain a leader status in the implementation of new innovative technologies, an individual process for country development is mandatory. This cluster thus show how technologies are adopted in many businesses and which are the main effects on sustainability. These effects are explained by the lens of process innovation caused by 4IR technologies (Dubey et al., 2022) In particular, it emerged how thanks to new technologies businesses are nowadays more capable to trace their production processes, reduce waste, and energy consumption. Also, the green transition is a fundamental theme when talking about process and product innovation, in particular also when talking about Smart Agriculture. Climate changes and also agriculture are crucial topics for the application of new 4.0 technologies (Ghobakhloo, 2020). As highlighted previously the awareness toward digital technologies in SMEs is pivotal to implement their adoption and this is also a real indicator when talking about the farmers knowledge regarding SA (Smart Agriculture) technologies.

The second cluster (the green one) is more focused toward manufacturing topics. Small companies are usually refractory to changes, in particular for their family structure that led to path dependence cases and also to few investments in R&D (Morelli, et al., 2022). Of course, we cannot overlook the fragmented scenario experiences by many SMEs, as some tend to adapt and develop the structures in a faster way than other ones. Important research was conducted in Taiwan on 321 businesses, showing that actually the awareness and perceived importance about 4.0 topics is quite high, but sometimes the inadequate information led to a lack of knowledge in important themes. So, as previous anticipated the main issue in the spread of digital technologies remains the distance between the possible benefits that these technologies could bring and the possibility for entrepreneurs (and in this case farmers) to properly understand it. Probably R&D institutes need to concentrate on the improvement to market access for established SA technologies (Chuang et al., 2020). In such a regard, this cluster concentrates on the role of knowledge management (i.e., internal absorptive capabilities) on the adoption of new technologies. Research stresses how SMEs may become competitive in the technological arenas whether they are capable to integrate insights coming from the environment and to integrate these within the system (Pencarelli, 2020). The openness of the system is then the principal key

underlying this cluster. In particular, the internal-side of system receptiveness in respect of innovation emerged as fundamental (Vu et al., 2023).

The third cluster (the blue one) explains how product innovation occur as a result the potential application of 4.0 technologies. In particular, tools such as 3D printers and others may influence the possibility for businesses to create new product. Likewise, it emerged how new smart products may be developed as a consequence of emerging technologies. These smart products may influence the level of satisfaction in businesses and the success of the company. Again, even in this cluster research show how new sustainable products may be developed as a consequence of new technologies (Fleming et al., 2021). These results emerged as it was observed how digital innovation cannot be a stand-alone process, there's the need of cooperation and collaboration, networking is fundamental and the adaptation capacity is the key (Lioutas and Charatsari, 2021). Digital technologies have an immense potential to shape the society in a proper way, but is mandatory to describe a trajectory that will drive the path in a social-responsible direction (Fleming, Jakku, et al., 2021).

Finally, the analysis of the last cluster (the yellow one) highlights some of the most important subject-matters when speaking about 4.0 technologies, that is reshaping of business models, decision-making process and changing in structure. A lot of studies were conducted about the consequences of digital technologies adoption regarding business models adaptations, and the resultant is that there isn't a "one-size-fits-all" approach when speaking about digital-driven business models (Ancillai et al., 2023). Moreover, the decision-making process for firms is deeply changed since the huge amount of data that nowadays is possible to gather for companies. The processing of data is crucial in data-driven decision making, and is also a big opportunity for companies in reducing costs, but carefulness is required when adopting multiple emerging digitalization technologies, otherwise bad results in terms of cost performance could be faced (Colombari et al. 2023). Henceforth, this cluster observes the main structural effects of 4.0 technologies. In particular, it was observed how technologies shape also internal structure of the organization, and how everyone in the business has to adapt to new ways of working and new procedures to reap the benefits of the technology.

Research Limitations. The research, as any other research employing similar methods, is limited by the a-priori selection of the query. In such a regard, the selection of a different query, even just in one term, may brought diverse findings. Likewise, even if other databases have been checked, the selection of different databases may generate other results. Additionally, the analysis may be further extended by developing authors' network maps.

Discussion and Practical Implications. Several implications for theory and practice emerged from the study. In respect of the first, the research represents a first attempt to systematize literature on 4.0 technologies and innovation. In particular, results show how process and product innovation are at the same time related and distant. Indeed, while part of the results show how it may be possible to achieve product innovation through process innovation, they are also separated. This phenomenon may be explained considering how authors with diverse background tend to scantily collaborate, thus exploring the topic diversely. Another important insight concerns the great attention paid to sustainable innovation thanks to 4.0 technologies. In such a regard, it may be assessed how literature is starting to consider 4IR and Green Revolution as related topics. Yet, this occurrence should not prevent future research to explore the effects of technology as self-relevant.

In term of practical ones, as stressed by the most of extant literature, it is possible to observe two main implications. First of all, the role of regulators and policy-makers is still fundamental in fostering business digital transformation. Incentives and training courses provided by national and local institution is fundamental as they may provide new knowledge to businesses wishing to digitally transform. The second implication pertains the need by managers to observe the importance of internal factors underlying the adoption of these technologies. In particular, whether the organization is not ready to accept a new technology, it won't be possible to change internal processes and deliver new outcomes.

Originality of the Study. The preliminary research contributes to the identification of the paths underlying process and product innovation deriving from emerging technological trends. In such a regard, part of the hype surrounding 4IR has been shed and systematized. Results also show the importance of regional differences for businesses wishing to become compliant in respect of digital transformation. This last topic necessitates to receive further attention from research.

Keywords: Industry 4.0, Digital Transformation, Product Innovation, Process Innovation, Bibliometric Analysis, Systematic Literature Review.

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Unlocking the Blockchain Potentials through Oracles: Empirical Evidence on Supply Chain Challenges and Performance

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Abstract

The first objective of the study is to investigate whether blockchain can be a technology capable of supporting companies in overcoming supply chain challenges and the possible benefits that it can have on business performance. The second objective of the study is to investigate the influence that oracles have on the relationship between blockchain, supply chain challenges, and business performance. In order to reach the paper objectives we collected the data through a structured survey. Our sample is composed of 156 companies. We have analyzed the data using a PLS-PM. The results demonstrate that Blockchain has a positive impact on supply chain challenges and that supply chain challenges have a positive impact on business performance. However, we do not identify any direct impact of blockchain on business performance, but we do identify a positive and indirect impact of blockchain on business performance through supply chain challenges. Outbound oracles and human oracles have no significant impact. Conversely, when hardware oracles and inbound oracles are used Blockchain has a higher positive impact on business performance. When hardware oracles, inbound oracles, or software oracles are employed, supply chain challenges have a higher positive impact on business performance and blockchain has a higher positive and indirect impact on business performance through supply chain challenges compared to the condition without oracles.

Framing of the research. Blockchain is a distributed ledger that records information in multiple copies in several different physical locations (Hastig and Sodhi, 2020). Because of its versatility and extensive impact on multiple aspects of business, it has been defined as a general-purpose technology (De Giovanni, 2020). The academic literature has investigated its applications in operations and supply chains. Pournader et al. (2020) in a literature review consider the application of blockchain to supply chain, transportation, and logistics. The authors identify four main clusters in the literature and develop a model called 4Ts: technology, trust, trade, traceability/transparency. Wang et al. (2019) study blockchain's potential to disrupt supply chains and the challenges to its deployment. The area where blockchain has the greatest impact is product visibility and traceability, disintermediation, digitization of trade, and information sharing. Similarly, Wang, Singgih, et al. (2019), use a sensemaking perspective to study how blockchain can transform supply chains. They identify seven areas in which blockchain has the greatest effects: visibility and traceability to stakeholders, simplification, digitalization and optimization, smart contracts, trust building, disintermediation, and crucial supply chains/industries. Hastig and Sodhi (2020), analyze blockchain for traceability in the supply chain and identify the business requirements from the perspective of focal companies and the critical success factors for blockchain implementation. Some authors have identified the supply chain challenges that blockchain can influence. The most cited are traceability, dispute resolution, cargo integrity and security, supply chain digitalization, compliance, trust, and data management (Azzi et al., 2019; Chang et al., 2020). However, while some explorative studies found the blockchain impact on supply chain challenges, quantitative studies that empirically demonstrate this relation are missing. Similarly, the impact of blockchain on performance is unclear. After the hype where blockchain looked like a panacea and its benefits were probably overestimated, recently its real impact on business performance has raised conflicting opinions (Cole et al., 2019). Some studies find a blockchain positive impact on supply chain performance (Nandi et al., 2020) and a positive impact on business performance depending on the market environment (Ji et al., 2022). Other papers identify a non-correlation between the use of blockchain and the current performance of companies that adopt it (Sharma et al., 2023) or a weak marginal influence (De Giovanni, 2022). For this reason, our first two research questions investigate the relationship between the concepts of blockchain, supply chain challenges, and business performance. RQ1: What is the blockchain impact on supply chain challenges and business performance? RQ2: What is the impact of supply chain challenges on business performance? The introduction of blockchain brings additional challenges both from a technological point of view, such as the slowness of some blockchains and from an operational

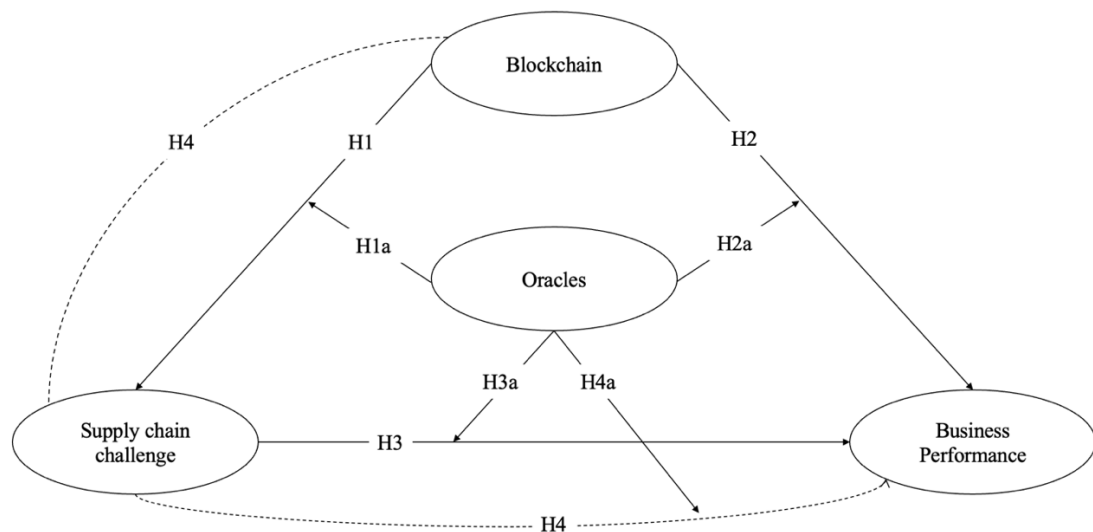
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point of view, such as the onboarding of all the members of complex supply chains on the blockchain (Wang et al., 2019; Singgih, et al., 2019). From the technological point of view, the connection between blockchain and the real world is one of the most relevant issues. Blockchain to be effective in business activities requires the so-called oracles that allow data exchange from the real world to blockchain and vice versa. Oracles can be of different types (De Giovanni, 2021) classifies them as inbound, outbound, software, hardware, and human. Without oracles, many blockchain applications would be limited or impossible. Consider for example the collectibles sector where recently blockchain has extensive use for the creation of digital collectibles or the certification of the physical collectibles' authenticity. Among the cases of successful applications, there are Collectable.com, Fantastec Swap, and Genuino (Ruzza et al., 2022). Genuino takes care of the certification on the blockchain of the football players' match-worn Jerseys to limit the counterfeiting rate which reaches peaks of 90% in this sector. To make this solution possible, a chip is attached to the jerseys which act as a hardware oracle and records on the blockchain all the information related to the jersey. Given the oracle's pivotal role, our third research question is RQ3: What are the oracles' effects on the relations among blockchain, supply chain challenge, and business performance?

Fig. 1: Conceptual model



Purpose of the paper. The first objective of the study is to investigate whether blockchain can be a technology capable of supporting companies in overcoming supply chain challenges and the possible benefits that it can have on business performance. The second objective of the study is to investigate the influence that oracles have on the relationship between blockchain, supply chain challenges, and business performance.

Methodology. To test our research hypotheses, we created a comprehensive survey that gathered crucial information on various aspects, including the industry and company type of the respondents, the level of investment in blockchain technology, the implementation of reverse omnichannel strategies, the effectiveness of the CLSC network, and business performance. In total, we received 156 usable observations, after removing any invalid responses. To achieve the objectives of our study, we employed Partial Least Squares Path Modeling (PLS-PM). PLS-PM is an estimation algorithm that utilizes components to predict the relationships between constructs and provide their scores at the original scale. The present investigation aims to model firms' traits related to their business by means of reflective scales. To achieve this goal, we followed the procedure outlined in De Giovanni and Cariola (2020) to assess the internal consistency, convergent, and discriminant validity of the reflective measurement models. The first construct examined is Blockchain (B), which explores the practices that managers use to adopt this technology. Specifically, B includes the collaboration with developers (B1) to implement blockchain, the analysis of new exchanging platforms (B4) resulting from the collaboration between the supply chain partners, and the integration and combination with existing digital technologies (B7) for the full exploitation of its potential. In addition, the use of smart contracts (B2) allows for new and innovative ways to manage agreements and transactions, while ensuring compliance with existing regulations (B6), such as data protection and privacy rules. However, two variables, namely the development of tokens (B3) and the establishment of ad hoc training programs (B5), were excluded from the construct based on our analysis. The second construct examined is Business Performance (BP), which includes items related to market share (BP1), profits (BP2), and return on investment (BP3). These measures provide insights into the firm's performance compared to competitors, the firm's capacity to generate economic value, and the firm's capacity to recover investments through economic outcomes, respectively. Notably, cost savings, cost of energy, and cost of environmental impact were excluded from the analysis based on exploratory factor analysis.

Finally, the construct Supply chain challenges (SCC) can arise from a range of factors that impact the efficiency, reliability, and transparency of the global supply chain network. One key challenge is the high transaction costs (SCC1) as well as the costs for managing (SCC4) the complex and geographically dispersed network of suppliers and

customers: this can lead to delays, errors, and other inefficiencies that can impact product quality and customer satisfaction. Another challenge is ensuring product traceability (SCC2) and transparency (SCC3) throughout the supply chain, particularly in industries such as food and pharmaceuticals where safety and quality are critical. Furthermore, delivery risks (SCC5), such as theft, damage, or delays, can also pose significant challenges for supply chain management. The SCC construct also includes the verification of suppliers and third parties (SCC6), which is particularly difficult in industries where there is a high risk of fraud or counterfeiting. The latter also reflects in the reputation and the trust of customers and stakeholders (SCC7), especially regarding the implementation of transparent and ethical business practices, as well as effective communication and engagement strategies.

Results. Looking at the first objective, our results demonstrate that blockchain has a direct and positive impact on supply chain challenge H1. This result empirically demonstrates the relationship previously theorized in exploratory studies based on multiple case studies and literature reviews (Chang et al., 2020; Azzi et al., 2019). Therefore, we can state that blockchain offers the ability to overcome some of the most important supply chain challenges thanks to the increase in transparency, efficiency, reliability of the supply chain, and the reduction of risks. We find no direct impact of blockchain on business performance H2. This result is aligned with De Giovanni, (2022) and Sharma et al., (2023), while denying the results of other studies that identified a positive impact of blockchain on business performance (Ji et al., 2022; Nandi et al., 2020). However, we find an indirect impact of Blockchain on business performance through supply chain challenge H4. Therefore, companies that introduce blockchain should expect an indirect impact of blockchain on business performance once that blockchain has made it possible to overcome supply chain challenges. This statement is confirmed by the H3 result which demonstrates that the ability to overcome supply chain challenges has a positive impact on business performance. We complement and elevate the findings of previous studies that had demonstrated a positive effect on performance due to overcoming the challenges of "inventory management" (Han et al., 2013), "development of supporting technologies", "development of effective governance policies", "transparency", "privacy", and "security" (Ghode et al., 2023). We broaden the supply chain challenge concept by including and demonstrating the positive effect on cost reduction, traceability, transparency, reduction of the risk of disruptions, reputation, and trust.

Looking at the second objective of the paper, oracles play a pivotal role in the blockchain's effectiveness for business purposes as they allow the exchange of information between the blockchain and the external world. For this reason, we have verified the effect of the oracles on the previously identified relationships. When hardware oracles are used in H1b, 2b,3b, 4b the impact of supply chain challenges on business performance, and the indirect and direct impact of blockchain on business performance are higher than the condition without oracles. Hardware oracles enable businesses to gain a competitive advantage through improved supply chain performance, cost reduction, and improved customer relationships. Similarly, when inbound oracles are used H1c, 2c, 3c, 4c the impact of supply chain challenges on business performance, and the indirect and direct impact of blockchain on business performance are higher than the condition without oracles. These results are justified by the information coming from multiple sources that can be on the blockchain thanks to inbound oracles. When software oracles are used H1a, 2a, 3a, 4a the impact of supply chain challenges on business performance and the indirect impact of blockchain on business performance are higher than the condition without oracles. Oracle software is an important tool due to its speed and ease of use. However, compared to inbound oracles and hardware oracles they have no direct influence on business performance. This is because the information that is collected by software oracles is often not as reliable as the blockchain and could compromise the integrity of the data in the system. Human oracles H1e, 2e,3e, 4e and outbound oracles H1d, 2db,3d, 4d have no influence on the identified relationships. The outbound oracles result can be justified by the lack of protocols and standards that make it possible to make the data extracted from the blockchain usable. Instead, human oracles, although they allow information that cannot be captured by machines to be recorded, they do not provide the required level of automation and optimization. Furthermore, a human oracle may be more prone to errors and needs trust in the human component.

Research limitations. This search is not without limitations that we present here to inspire future research. Blockchain technology is analyzed without taking into account other technologies while very often it is applied alongside other technologies that enhance its potential such as, for example, IOT or artificial intelligence. Future studies could investigate the effect of combining other technologies with blockchains. Furthermore, the technologies used as hardware oracles could represent an avenue for future studies as they are constantly improved using innovative technologies. The supply chain challenges considered refer to the major supply chain challenges identified in the literature. Future studies could take into consideration the challenges that are emerging due to disruptive events such as the covid-19 pandemic, sustainability, and the current geopolitical condition. Among these, for example, we can mention the challenges associated with the phenomena of reshoring or raw materials shortage. Finally, future studies could investigate the cost-benefit link of oracles, an aspect that was not considered in this study, but which could influence the practical usability of oracles.

Managerial implications. Blockchain technology has the potential to revolutionize supply chains, by addressing several challenges and issues that have traditionally hampered their efficiency and effectiveness. By using blockchain technology, businesses can gain greater visibility and control over their supply chain operations, reducing the risk of fraud, errors, and delays. Even though, the adoption of blockchain technology in supply chains is not without its issues, which preclude its current exploitation to fully solve the supply chain challenges:

Adoption, Complexity, Scalability, Interoperability, Lack of standards, Security concerns, Cost, Limited use cases, Competition, Lack of regulation, Trust, Network effects, Innovation, Value proposition, User experience, Education, Resources, Demand, Flexibility, Transparency, Compatibility, Data privacy, Governance.

We discover that none of the oracles useful to unlock the blockchain can help to directly solve the supply chain challenges. Therefore, the current state of blockchain technology is not helpful to find optimal resolutions to supply chain issues. In the future, blockchain developers should work on the previous limitations to develop new blockchain platforms that can suit supply chains in a global context. However, the marginal SC improvements obtainable from the blockchain can give significant economic benefits. This turns out to be specifically verified when complementing the blockchain with software, hardware, and inbound oracles. At the same time, supply chain managers should look forward to implementing the blockchain by adopting the following practices:

1. *Conduct a thorough analysis of the supply chain network to identify areas that can benefit from blockchain implementation.*
2. *Collaborate with other supply chain partners to develop a shared blockchain platform that can provide transparency and traceability.*
3. *Explore the use of smart contracts to automate supply chain transactions, which can reduce verification costs and improve speed.*
4. *Implement appropriate security measures to ensure the integrity of blockchain data and protect against potential cyber threats.*
5. *Invest in appropriate training and education to ensure employees are equipped to use blockchain technology effectively.*
6. *Explore the use of oracles to integrate external data sources with blockchain data to provide additional validation and verification.*
7. *Develop clear governance and decision-making processes for managing the shared blockchain platform.*
8. *Utilize data analytics tools to analyze supply chain data and identify areas for optimization.*
9. *Foster a culture of innovation and continuous improvement to ensure the blockchain platform is constantly evolving to meet the needs of the supply chain network.*
10. *Regularly evaluate the effectiveness of the blockchain platform in addressing supply chain challenges and make adjustments as necessary to improve performance. The joint work that blockchain developers and supply chain managers will jointly make together will surely allow them to exploit the full potential of blockchain and unlock its power through the oracles.*

Originality of the paper. *In our knowledge this paper is the first to empirically investigate whether blockchain can be a technology capable of supporting companies in overcoming supply chain challenges and the possible benefits that it can have on business performance. It is the first to investigate the influence that oracles have on the relationship between blockchain, supply chain challenges, and business performance.*

Keywords: *Blockchain, Oracles, Supply Chain Challenges, Performance, Empirical analysis*

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Structured to be agile! A theoretical framework on the contribution of supply base structure on agility

EMANUELA DELBUFOLO*

Framing of the research. *In modern economies, supply chain agility (SCA) is widely considered as a driver of firms' success and one of the fundamental capabilities for survival in turbulent and competitive environments (Gligor et al., 2013). Firms with agile supply chains react and respond better to unforeseen changes in the business environment (Delbufalo, 2022; Dubey et al., 2018; Humdan et al., 2020). SCA allows firms to switch quickly from forecast-driven to demand-driven strategies or to adjust tactics and operations when the market conditions swiftly change or when disruption happens, thus providing a higher degree of responsiveness and flexibility to the entire supply chain (Eckstein et al., 2015). The literature universally recognizes the suppliers' role in fostering or comprising the focal firm's SCA (Fayez et al., 2017). In fact, just-in-time purchasing and time-based management strategies are possible only if the suppliers react quickly and effectively to the firms' requests (Choi and Krause, 2006). In addition, SCA implies that the focal firm acts as an "orchestrator" of the supply network, the membership of which - and thus its arrangement - will change according to the firm's requirements (Christopher et al., 2004).*

Purpose of the paper. *The characteristics of a supply base determine its degree of complexity (Choi and Krause, 2006). Literature classifies complexity drivers into two categories: structural (or static) and dynamic drivers (Akin Ateş et al., 2021). Structural drivers refer to the number and variety of elements defining the supply base, while dynamic drivers refer to interactions between the actors (Bode and Wagner, 2015). Most of SCA literature focuses on the dynamic drivers - such as, for example, the degree of collaboration and communication among the suppliers - and neglected the structural ones. So far, relatively little is known about the link between the structural characteristics of the supply base and the focal firm's SCA. This article aims to fill this gap by investigating how the supply base structural characteristics influence SCA. Specifically, we focus on three structural drivers of supply base complexity in order to evaluate their overall implications on SCA: 1) the number of suppliers, 2) the number of tiers, and 3) the suppliers' geographical dispersion. These three elements reflect the decisions made by the focal firm to orchestrate external resources and suppliers' competences to increase SCA. They are also the levers for accessing supply chain wide data and making operational and strategic changes when needed. Furthermore, we use a dual perspective based on two theories - Normal Accident Theory (NAT) and Portfolio Theory (PT) - in order to account for both the benefits and threats of a complex supply base for SCA (Choi and Krause, 2006).*

Methodology. *The empirical context is the Italian footwear industry. This industry is appropriate to study SCA for three main reasons. Firstly, footwear manufacturers are strongly dependent on their suppliers, which are often involved in product design and industrialization stages; thus, they leverage the suppliers' knowledge and resources to anticipate and react to unpredictable demand changes and fashion trends (Cerruti et al., 2016). Secondly, despite the efforts to depict a concept of SCA that can be used for cross-industry comparison, the meaning of SCA still needs to be interpreted in different ways for different industries; for example, being agile in the footwear industry means addressing challenges - such as short-life cycles, high impulse purchasing and a shorter forecasting horizon - which may not be equally present in other contexts. Thus, every time the concept is translated into specific contexts, it takes a meaning that is relevant only for the firms that share the same language and environment. Consequently, to measure SCA in cross-industry contexts, rather than increasing the generalizability of the results, may reduce the consistency of the definition with negative implications for both the external and internal validity (Gligor et al., 2013). We propose a single-industry research design in order to address the validity problem and to provide results in which the constructs employed have the same interpretation and meaning for all the participants. However, - and here is our third argument - the results emanating from the footwear industry can be extended to those industries in which SCA is market sensitive and linked to process integration and coordination between suppliers and manufacturers (such as, for example, the automotive industry). They also represent a good proxy of the functioning of the entire fashion industry, which is one of the largest and more challenging industries in Western economies (Delbufalo, 2022). We collected data by using a panel of 12 footwear manufacturers and their suppliers. We contacted the manufacturers by email from a list of 482 firms provided by the Italian Buyers' National Association. The research sample was selected by using three criteria: a) willingness to participate; b) firms' international orientation (measured by the internationalization of both supply and customer bases); c) presence of extensive and longitudinal records of supply base characteristics. All the manufacturers were medium-large enterprises (average number of employees: 128; average turnover: €108m). [Insert Figure 2 here]*

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Data were collected between January 2021 and June 2022 using a face-to-face survey based on a standardized questionnaire. Face-to-face survey is useful to reduce misunderstandings about specific questions and ensure that questionnaires were filled out by expected respondents (Cheng and Krumwiede, 2018). The manufacturers' archives yielded detailed information about the firms' characteristics and their supply base over the investigation period. We considered a twelve-year investigation period: January 2010 to January 2022. We visited each company and asked them to provide data for each year considered in the study. Two informants from each firm were involved (Pagell and Krause, 2005): the Chief Procurement/Supply Chain Officer and a boundary-spanning manager with at least 15 years' seniority. We selected these key respondents because we deemed them the most knowledgeable about SCM processes and our related subjects of interest. In order to address the common method variance, this study employed a two-respondent design to separate independent variables from dependent variables (Chang et al., 2010; Craighead et al., 2011). The first respondent (Chief Procurement/Supply Chain Officer) was asked to provide information for the independent variables, while the second respondent was asked to provide information about SCA measures. Both of them compiled the control variables' information in a dedicated face-to-face data collecting session. We used established scales from the literature as much as possible. The data were elaborated by using a set of panel regressions. A panel of 144 observations (12 firms over 12 years) was used.

Results. Our results support all our hypotheses with the only exception for the influence of horizontal complexity on SCA. Here, only the prediction of PT perspective is supported: i.e., the numerousness of 1st tier suppliers is positively related to SCA. These results agree with the studies recognizing that a greater number of suppliers potentially foster the focal firm's responsiveness and flexibility (Christopher et al., 2004). In the footwear industry, most of the manufacturers build their supply base by combining single and multi-sourcing strategies (Cerruti et al., 2016). Single sourcing strategy assures continuity and quality for a wide range of standard components, while multi-sourcing provides flexibility for those components that are highly influenced by fashion trends (e.g., shoe accessories). Redundancy - when the supply base numerousness increases - becomes an opportunity for the manufacturers; a larger portfolio helps the manufacturer in assuring both volume and mix flexibility (Delbufalo, 2022). Besides, a large number of suppliers allows flexible arrangements and order splitting among suppliers to manage different product categories without increasing the manufacturer's inventory costs (Christopher et al., 2004). With regard to vertical complexity, our results support both NAT and PT prediction since SCA is expected to increase, reaching a maximum and then decreasing as the number of tiers increases. In our setting, the number of tiers - and the related level of supplier specialization - allows the focal firm to leverage and combine diverse competences to address frequent volume and product changes. However, consistently with knowledge-based theory, specialization is beneficial until coordination is possible and efficient (Gao et al., 2015; Amit and Will, 2022). Coordination is critical when SCA is pursued by common practices such as suppliers' early involvement (i.e., when strategic suppliers participate to the new product development process, thus contributing to the product and process design). This practice needs an upstream supply chain that is highly interconnected; this means that - when the focal firm experiences loss of visibility and control over the supply base - decisions and activities slow down with detrimental consequences on SCA (Dowlatshahi, 1998; McIvor and Humphreys, 2004). Our results confirm the arguments provided by both PT and NAT for spatial complexity and SCA. They specifically show that the (transaction) costs associated with the geographical dispersion of suppliers outweigh the benefits at high levels. However, they also show that a moderate degree of spatial diversification of the supply base fosters SCA due to the possibility of combining diverse knowledge and benefit from lower sourcing costs (Lu and Shang, 2017). These results are consistent with a large body of research suggesting how difficult it can be to synchronize activities and processes in highly dispersed (or global) supply chains (Brandon-Jones et al., 2014; Vachon and Klassen, 2002). However, the non-linear path between spatial complexity and SCA is somewhat new in SCM literature. It suggests that a geographically dispersed supply base can be a double-edged sword; up to a point - corresponding to the span of control of the focal firm - it is beneficial (by granting the focal firm with complementary resources), but past that point, the coordination costs tend to outweigh the benefits and the risks of accident increase, thus harming the cognitive area of SCA (Gligor et al., 2019). Finally, our results confirm that product complexity negatively moderates the linkage between the three main supply base complexity features on SCA. This means that the increase in product complexity harms SCA because it requires the focal firm to increase integration, supply base specialization and coordination (Sivadasan et al., 2002). However, the moderating results do not change the nature of the path discussed above, thus confirming the existence of two substantial trade-offs between local vs. global and low vs. high depth of the supply base. The point where the direction of the relationships changes (from positive to negative for SCA) is the critical question for SCM literature; it depends on many different contingences (Delbufalo, 2022) and it is highly firm specific, being strongly linked to the managerial attributes and decision-making process (Collin and Lorenzin, 2006). What we know - by analyzing our results - is that this point is symmetrical for both vertical and geographical complexity; this means that the span of control - and the related stress points - needed for the focal firm to manage these two trade-off is very similar.

Research limitations. This study has some limitations, which also suggest possible directions for future research. Firstly, this study focuses exclusively on the structural dimensions of supply base complexity. Considering that the complexity of the supply base is also a function of the relationships among the nodes - i.e., the flows of information, input and knowledge among the suppliers (Choi and Krause, 2006) - this choice is a limitation that opens up future development areas for research. Secondly, this study does not consider the variety of the supply base, i.e., how much the suppliers are different in technical capabilities and R&D directions (Akin Ateş et al., 2021). Previous studies suggest that supply base variety impacts on supply chain flexibility and SCA (Choi et al., 2002; Fayezi et al., 2017). Future

studies should incorporate this variable into our theoretical model to offer a more comprehensive view of the phenomenon. Similar arguments can be developed for the suppliers' size that might influence both the complexity of the supply chain and the development of SCA (Gao et al., 2015). Future studies should include control variables measuring the diversity in size and expertise of the suppliers to increase the external validity of the results. Finally, we empirically test our hypotheses with a longitudinal research design and a 12-year panel database. Endogeneity has been tested, but the time frame adopted is too short to fully analyze it. Future research could run the same analysis using a larger panel to test the robustness of the statistical interpretations. Future research may generalize the estimation method to multilevel models to better disentangle the effect of firms' heterogeneity and possible endogeneity in the data.

Managerial implications. Our results suggest managerial implications. Firstly, they suggest that supply base complexity is not a monolithic construct. In fact, each facet of supply base complexity affects differently SCA, with both linear and not linear path. Decision makers should not treat horizontal, vertical and spatial complexity equally (since they have their own implications) but they have to consider them in parallel when decision on SCA are made. Secondly, firms should be aware of both positive and negative consequences of vertical and spatial complexity for SCA; equally, they should consider the linear path that numerosness has on SCA and try to benefit from some degree of redundancy for increasing it. Furthermore, managers should consider that, *ceteri paribus*, the turning points (and thus the span of control of the focal firms) are symmetrical for vertical and spatial supply base complexity. This means that the decisions on the typology of suppliers (i.e., their specialization) and on their geographical location should be made in parallel as they show similar paths with regard to SCA. Finally, firms should consider the implications of increasing the product complexity while pursuing SCA. We demonstrate that product complexity makes it harder to reach a high level of SCA, but it does not change the paths of the main relationships for all the complexity dimensions. This suggests reconsidering the way in which the products are designed and industrialized - for example by reducing the number of phases and components - in order to reduce the need for coordination and integration within the supply chain. On this matter, product and process modularity have already been proved to positively contribute to SCA (Vickery et al., 2016).

Originality of the paper. This study offers three main contributions. First, it investigates the trade-offs linked to SCA and widely discussed in most of the SCM literature: localized vs. dispersed; low vs. high numerosness; and low vs. high depth of the supply base (see, for instance, Bode and Wagner, 2015; Choi and Krause, 2006). Second, the study is grounded into a specific industry in order to make a first step in the universalization of the SCA concept (Humdan et al., 2020). This process necessarily passes through the clarification of what SCA really means for a specific category of manufacturers in order to understand how those firms capture the topic of agility in their supply chain. Because the meaning of SCA changes considerably from one sector to another (Christopher et al., 2004), we propose a deep investigation into one of the industries whose commercial success or failure is largely determined by SCA (Cerruti et al., 2016; Delbufalo, 2022), i.e., the footwear industry. The longitudinal approach also accounts for the dynamics of SCA and its time-dependent nature (Collin and Lorenzin, 2006). Third, we consider an industry-specific moderator, i.e., product complexity, to keep the framework useful for future cross-industry development and benchmarking. In doing so, we account for the operational uncertainty and complexity that both the focal firm and its suppliers face when they design, produce and deliver a specific product (Sivadasan et al., 2002).

Keywords: supply chain agility; complexity; portfolio theory; normal accident theory; panel regression model

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Flexibility and saturation of production capacity during the COVID-19: evidence from the field

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Framing of the research. *Following the recent tensions, to which companies have been subjected during the period of the COVID-19 pandemic and in particular in the 2020 lockdown, many industrial companies have been able to convert their production lines promptly and efficiently to produce items such as gowns, disinfectant gels, surgical masks or health devices. These choices of temporary industrial conversion have certainly represented a response to the emergency moment, during which many companies have felt the moral duty to support the communities of reference and to guarantee the maintenance of employment in their plants. These experiences reveal the existence of specific intrinsic operating conditions of production systems that enable quick industrial conversion, allowing companies to start new productions that, at least in some cases, have been maintained even after the lockdown. This ability to quickly convert the industrial production seems to be a crucial factor to respond to exogenous shocks, for example to overcome the drop in demand caused by the pandemic.*

Purpose of the paper. *This contribution aims to explore the determinants of production systems which allow manufacturing companies to pursue production diversification strategies, with the goal of reaching plant saturation (at least in the short period) of the production capacity in situations of decrease of demand in the markets traditionally served by the company. The empirical analysis, aimed at exploring these relationships, is conducted through the administration of a questionnaire conveyed by the sections of Confindustria of Bergamo and Trento. The preliminary results, which are based on data provided by 39 companies, show that during the 2020 lockdown, due to the COVID-19 pandemic, companies characterized by greater production flexibility were able to launch new products (such as disinfectant gels, masks, gowns or sanitary devices), whose production was allowed by current legislation, managing to contain the reduction in the degree of saturation of the production lines and to guarantee the maintenance employment more effectively than other less flexible firms.*

The aim of the study is to understand the role of production flexibility as determinant and the ability to modify volumes and products in a "proactive" way, i.e. by turning the stresses/opportunities of the external context to its advantage. This allows to tactically saturate production capacity and to maintain the employment levels by introducing new productions, on their own or on behalf of third parties. This capability, in this paper, is called Proactive Flexibility. In fact, this ability can in fact be considered enabling conditions for other relevant performances of production systems, connected for example to delivery times and methods, product innovation, customization and productivity (Camison and Lopez, 2010).

Productive Flexibility which is the ability to respond to adaptation needs induced by the changes in internal and external conditions of the production system (Pérez Pérez et al., 2016; Slack, 2005; Zhang et al., 2003; D'Souza and Williams, 2000; Beamon, 1999; Slack, 1987), is based on several determinants (Belvedere, 2015):

- 1. volume flexibility, which consists in the ability to modify the overall output of the system and, therefore, to guarantee high timeliness, punctuality and completeness of delivery, even in the face of fluctuating and unpredictable demand;*
- 2. delivery flexibility, referring in particular to the possibility of accepting changes in delivery dates requested by the customer and accepting new urgent orders;*
- 3. mix flexibility, i.e. the number of different items (within the existing range) that can be produced in a given time interval, compatible with an efficient use of production resources;*
- 4. product flexibility, understood as the ability to start the production of a new article, which allows to reconcile the need for a timely response to the market in relation to new needs expressed by demand with the need to guarantee adequate efficiency standards.*

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As can be seen from the brief descriptions just explained, the different forms of production flexibility refer to the ability to meet the needs and the demand of the sector in which the company operates.

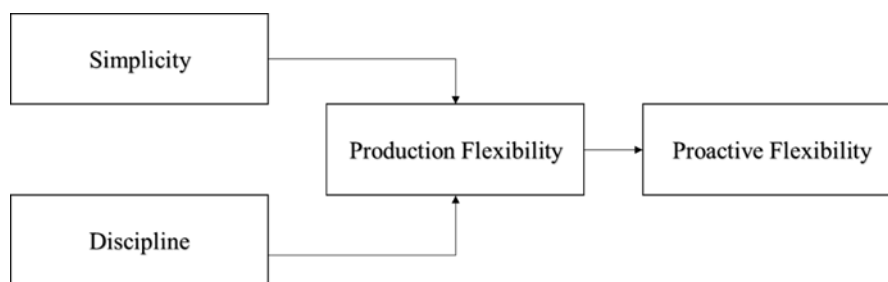
On the other hand, we argue that there is an additional form of flexibility that can be defined as *Proactive Flexibility*, that is, the ability to use different forms of flexibility to develop and introduce new products. Such *Proactive Flexibility* results from the combination effect of *Productive Flexibility* under certain levels of the two determinants of the rigid flexibility according to (Collins et al., 1998; Collins and Schmenner, 1993), according to which the various forms of productive flexibility are to be found in the constructs of *Simplicity* and *Discipline* (model of Rigid Flexibility). The first is the ability to simplify business processes by eliminating major inefficiencies, for example through lean practices. The second concerns the reliability and continuity of processes, to be sought through training initiatives, the adoption of best practices in a variety of industrial processes such as quality management and best practices in maintenance management.

Therefore, we argue that *Proactive Flexibility* grounds on two different pillars: the ability to promptly and efficiently adapt the production to reach plant saturation, which is a typical determinant of *Production Flexibility* (D'Souza and Williams, 2000; Beamon, 1999; Slack, 1987), and the ability to introduce new products within the production system, which is the novel feature of the *Proactive Flexibility* compared to *Productive Flexibility*.

The interpretative framework used for the purposes of this study is based on the rigid flexibility model (Collins et al., 1998; Collins and Schmenner, 1993), according to which the determinants of the various forms of *Productive Flexibility* are defined by the construct of *Simplicity* and *Discipline*. The first is the ability to simplify business processes by eliminating major inefficiencies, for example through lean practices. The second concerns the reliability and continuity of processes, to be pursued through training initiatives, the adoption of best practices in a variety of industrial processes such as quality management and best practices in maintenance management.

The hypothesis of this study is that the various forms of *Production Flexibility*, which can arise from *Simplicity* and *Discipline*, are determinants of *Proactive Flexibility*. The theoretical reference model is represented in Figure 1.

Fig. 1: Theoretical Model



Methodology. In order to test the theoretical model, we conducted a quantitative study based on survey data collected through a questionnaire (Forza, 2002). The questionnaire developed for this purpose represents a replication of the measuring instrument used by Da Silveira (2006), which quantifies *Simplicity*, *Discipline* and *Production Flexibility* through a series of questions with answers on perceptual scales. In particular, the constructs *Simplicity* and *Discipline* are evaluated respectively through 7 and 5 statements, for which a response is required on a scale of Likert from 1 (no adoption) to 5 (high degree of adoption). The construct *Production Flexibility*, on the other hand, is measured through 4 statements, referring to four of the main forms of flexibility identified in the literature on the subject, with respect to which a response is required on a Likert scale from 1 (much worsened in the last 3 years) to 5 (much improved in the last 3 years).

Proactive Flexibility, in line with the aims of the study, was measured through questions developed ad hoc and aimed at verifying: i) what was the impact of the 2020 lockdown on the degree of saturation of the plants, in relative terms compared to previous levels (*Proactive Flexibility 1*); ii) how many new product codes were created during the 2020 lockdown, whose production was linked to the pandemic emergency (*Proactive Flexibility 2*).

The questionnaire also includes a personal data section, in which the respondent is asked to indicate the reference sector of the company, the possible membership of a multinational, the number of employees, their role in the company and the length of service. The collection of questionnaires was conducted with the support of the Confindustria sections of the provinces of Bergamo and Trento. The questionnaires currently collected and useful for the analysis are 39.

Results. Table 1 shows the average values for the constructs of the model described in Figure 1 and the two variables used to quantify *Proactive Flexibility*. From the available data, a good overall level of *Production Flexibility* emerges, whose average value stands at 3.58. The average for *Disciplina*, equal to 3.31, also appears significant as it is above the threshold of 3, above which are the values associated with an improvement of this size. On the contrary, the average of *Simplicity*, equal to 2.98, suggests a lower attention to this aspect.

The analysis of the two variables that describe the phenomenon defined here as *Proactive Flexibility*, it can be observed that the decrease in the degree of saturation of the plants due to the 2020 lockdown (*Proactive Flexibility 1*) was on average equal to 19.6 percentage points. At the same time, the average number of new products launched in the same period (disinfectant gels, masks, sanitary devices, etc.), evidently different from the usual productions carried out

by the sampled companies, was 56.1 stock keeping units - SKUs (Proactive Flexibility 2). Considering that the average pre-Covid range breadth of these companies was 2,513 items, the percentage incidence of new SKUs was 2.2%.

For what concerns Simplicity, Discipline and Production Flexibility, the Cronbach Alpha has been calculated, which in all cases records values above 0.8, largely in line with the reference values used to evaluate the degree of reliability of a measurement (Nunnally, 1978). Moreover, to evaluate the adequacy of the statements used for the description of the three constructs in question, a confirmatory factor analysis was conducted, which confirmed the validity of the measurement scale employed, providing among other things evidence of the fact that for each construct emerges a single factor with Eigenvalue greater than 1 (Hair et al., 2006).

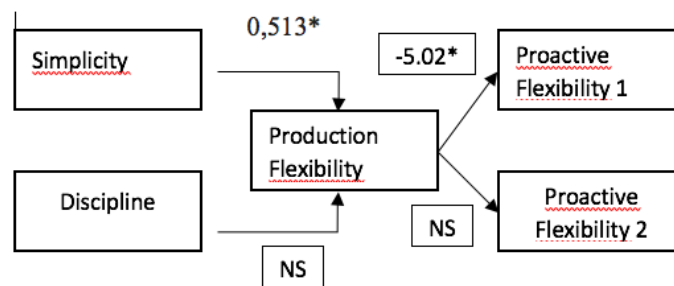
Tab. 1: Descriptive statistics of variables

Construts and variable	Mean	Cronbach's Alpha
Simplicity	2,98 (1-5)	0,806
Discipline	3,31 (1-5)	0,873
Production Flexibility	3,58 (1-5)	0,829
Proactive Flexibility 1: delta saturation	-19,6%	/
Proactive Flexibility 2: no. new products launched	56,1	/

(*) computed as the difference between the percentage of saturation of the plants during the 2020 lockdown and the saturation percentage before the 2020 lockdown.

To test the validity of the proposed model, a linear regression was conducted in which the dependent variable is Production Flexibility and the independent variables are Discipline and Simplicity. The result is described in Figure 2.

Fig. 2: OLS results - *, ** and *** stand for $p < .10$, $p < .05$ and $p < .01$ respectively



The values shown in Figure 2 show that the rigid flexibility model, overall, explains the 0.399 of Production Flexibility, with a high degree of statistical significance. It can also be observed that Simplicity has a regression coefficient of 0.513 which is also statistically significant (p -value <0.1).

As subsequent step to test our model we have conducted a second regression, to explore the link between Production Flexibility and Proactive Flexibility 1, and the results show that the link between the two variables, while generating a very low R^2 , is still characterized by statistical significance. The negative sign of the non-standardized regression coefficient, which is also significant, indicates that as flexibility increases, the saturation differential between the pre-pandemic period and the lockdown decreases.

The linear regression between Production Flexibility and Proactive Flexibility 2 (new products launched during the lockdown) did not provide significant results. However, to further explore this link, we have compared the mean between two subgroups through a t -test, in which the two reference subgroups are related to companies that launched at least 1 new product during the lockdown and those that did not. The data are shown in Table 2.

Tab. 2: New products launched during lockdown: T-test

Subset	Mean of Production Flexibility	Number of observations
At least 1 new product launched during lockdown	4	19
None new product launched during lockdown	3,175	20

As can be seen from Table 2, the companies in the first subgroup are characterized by a higher level of Production Flexibility, equal to 4 against 3,175 of the second subgroup. The t -test conducted on these values confirms the statistical significance of this difference, with a p -value of 0.0005.

Finally, companies were asked if they intended to continue producing the items launched during the lockdown even after the pandemic emergency. The answer had to be provided on a Likert scale from 1 (absolutely not) to 5 (absolutely yes). The linear regression between this last response used dependent variable and the degree of Production Flexibility shows that R^2 assumes an appreciable value of 0.287 (p -value <0.01). In addition, the positive regression coefficient (p -

value<0.01) indicates a more marked interest in strategies for diversifying production capacity by companies characterized by greater flexibility in operations.

Research limitations. The study is not exempt from limitations that however offer interesting insights for future research. First, the data focuses on Italian context, while other future studies may explore what happens in other countries. Second, our analysis measure proactive flexibility through two different variables, while other studies could explore different composite indexes. Moreover, the dataset does not allow to have temporal information on the moment of introduction of new products: future research could fill this gap. Finally, our study does not account for the industrial sector, while future studies could include this control variables as well as other additional control variables. We encourage future studies to address these issues, as we believe that the joint effect of managers and academics can be crucial to addressing the great challenges of our time.

Managerial implications. In addition to contributing to a better scientific knowledge of the phenomenon, our study also offers managerial contributions. First, production flexibility is an enabling condition for "proactive flexibility", i.e. the possibility of operating in a wider variety of markets, even if only temporarily and in order to saturate capacity and maintain employment in the territory. Second, the ability to simplify business processes by eliminating the main inefficiencies, for example through lean practices is the main driver of production flexibility and can benefit the companies' performance especially in uncertain market context and unpredictable demand, ensuring continuity to the production.

Originality of the paper. The preliminary evidence of this study offers a contribution to the studies on production flexibility, highlighting its nature as an enabling condition for "proactive flexibility", i.e. the possibility of operating in a wider variety of markets, even if only temporarily and in order to saturate capacity and maintain employment in the territory. From a managerial perspective, the results of this study highlight, on the one hand, the need to adopt plans to improve flexibility due to the significant beneficial effects that it can produce. On the other hand, companies need to identify the factors and actions that can make temporary operations in new markets more effective and lasting, such as the ability to enter production networks, an agile approach to the development process of new products, performance measurement systems capable of quantifying the economic contribution generated by new productions. Further empirical investigations need to be carried out on these last aspects.

Keywords: operations management; flexibility; production diversification; survey

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Internal and external drivers of corporate social responsibility

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Framing of the research. *In recent years concerns about sustainability have increased, and more and more firms are pursuing corporate social responsibility (CSR) practices (Govindan et al., 2021). Several internal and external drivers influence CSR practices and performance. By adopting the social role theory, the stakeholder theory, the agency theory, and the resource based theory, this paper investigates how internal and external drivers simultaneously affect CSR performance.*

Internal drivers of CSR

Previous studies have identified several internal drivers of CSR practices and performance including corporate governance (El-Bassiouny and Letmathe, 2018) and board of directors (BoD) composition and structure (e.g., Amran et al., 2014; Govindan et al., 2021; Velte, 2016), top management commitment (Ng et al., 2022; Yin, 2017), multinational status (Cordeiro et al., 2018; Luxmore et al., 2018), state ownership (Cordeiro et al., 2018; Li and Zhang, 2010), family ownership and control (Cordeiro et al., 2018; Ortas et al., 2018), cross-listing (Del Bosco and Misani, 2016), innovation spending (Jain and Krishnapriya, 2020), organizational support (Lee et al., 2016).

The main internal driver of CSR refers to the BoD: the BoD promotes firm non-financial goals (Liao et al., 2015), negotiates among different stakeholders' interests and demands (Burke et al., 2019; Liao et al., 2015), and contributes in improving CSR performance (Hussain et al., 2018). According to most studies, BoD composition and structure strongly determine firm decisions related to CSR (e.g., Ben-Amar et al., 2017; Cucari et al., 2018; Jarboui et al., 2022; Post et al., 2011). Specifically, the presence of women directors, the presence of independent directors, and the presence of a CSR committee have been identified as important drivers of CSR. To explain their effect on CSR performance, social role theory is used in relation to women directors, stakeholder theory and agency theory in relation to independent directors, and the resource based theory in relation to CSR committee.

Based on social role theory, women directors bring different perspectives and stakeholder-related values to the BoD (Erhardt et al., 2003; Shaukat et al., 2016). This in turn has several positive consequences in relation to CSR: the BoD can take better decisions, effectively address CSR issues (Bear et al., 2010) and stakeholder management (Ben-Amar et al., 2017), and act in an environmentally responsible way (Setó-Pamies, 2015). Empirical studies confirm the positive effect of women directors on CSR. The presence of women directors promotes the adoption of CSR practices (Ben-Amar et al., 2017; Hussain et al., 2018; Post et al., 2011; Setó-Pamies, 2015), the formulation of a comprehensive CSR strategy (Orazalin and Baydauletov, 2020) and higher CSR performance (Govindan et al., 2021; Shaukat et al., 2016; Uyar et al., 2020; Velte, 2016; Wu et al., 2022).

Based on stakeholder theory and agency theory, the presence of independent directors leads to higher CSR performance given that external directors are less subjected to the pressure and control of firm managers and shareholders (Hussain et al., 2018). Thanks to this, independent directors and, more generally, the BoD can better interact with external stakeholders and better consider their interests (Amran et al., 2014; Michelon and Parbonetti, 2012). Previous studies have found inconsistent results about the effect of the presence of independent directors on CSR performance. According to Govindan et al. (2021), their presence has a weak association with only the governance component of CSR performance. Instead, according to other authors, the presence of independent directors has a positive and significant effect on CSR performance (Jarboui et al., 2022; Shahbaz et al., 2020; Shaukat et al., 2015).

Finally, CSR committees are established to formulate and implement CSR practices (Amran et al., 2014) and improve the relationship with stakeholders (Michelon and Parbonetti, 2012). Based on the resource based theory, the knowledge and expertise of these committees are valuable in managing the interactions with stakeholders and improving CSR performance (Michelon and Parbonetti, 2012). Several studies confirm the positive effect of the

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presence of a CSR committee on CSR performance (Cucari et al., 2018; Godos-Díez et al., 2018; Govindan et al., 2021; Hussain et al., 2018; Jarboui et al., 2022; Orazalin, 2019; Shahbaz et al., 2020; Uyar et al., 2020; Velte, 2016).

Endrikat et al. (2021) have examined the joint effect of the presence of women directors, the presence of independent directors, and the presence of a CSR committee, finding that the presence of women and independent directors are interrelated and jointly influence CSR performance both directly and indirectly via the presence of a CSR committee.

External drivers of CSR

The institutional context in which the firm operates affects its CSR practices and performance and acts as a moderator in the relationship between internal drivers of CSR and CSR performance (Endrikat et al., 2021). Several characteristics of the institutional context have been investigated as a potential driver of CSR, including the quality of the institutional context (e.g., Bandeira Pinheiro et al., 2021), legislation (e.g., El-Bassiouny and Letmathe, 2018; Ng et al., 2022), community's and suppliers' influence (Nejati et al., 2014), pressure from competitors, society and stakeholders (e.g., Berg et al., 2018; Ng et al., 2022), cost pressure (Wu, 2013), globalization pressure (Yin, 2017) and regional economic development (Li and Zhang, 2010).

A favourable institutional context in terms of governance quality, low corruption, transparency, access to credit by countries, quality of the education system and labor relations induces firms to engage in CSR (Bandeira Pinheiro et al., 2021; Orazalin and Baydauletov, 2020). Corruption also affects CSR performance: it reduces CSR performance as it implies a lack of transparency and an inefficient use or misallocation of firm resources and it promotes CSR irresponsibility (Bryant and Javalgi, 2015; Wu, 2013). Higher CSR performance is obtained by firms located in countries with lower democracy and political stability (Mooneepen et al., 2022) as well as in countries with developed credit and equity markets and enhanced generalized trust (Ortas et al., 2018). In these contexts, firms engage in CSR to gain legitimacy (Mooneepen et al., 2022).

Legislation has an ambiguous impact on CSR practices: according to Ng et al. (2022) legislation induces firms to engage in CSR practices, while according to El-Bassiouny and Letmathe (2018) legal regulations do not affect CSR practices. Finally, according to Del Bosco and Misani (2016), the stringency of investor protection regimes negatively affects CSR performance: stronger regimes are associated with poorer CSR performance.

Several external pressures play a role in promoting CSR practices and performance. Peer imitation pressure and normative social pressure promote firm's involvement in CSR practices and increase CSR performance (Ng et al., 2022; Yin, 2017). Instead, the impact of stakeholder pressures on CSR is not clear. According to Berg et al. (2018), stakeholder pressures induce firms to adopt CSR practices: for example, banks can apply lower capital constraints to firms engaging in CSR practices, employees prefer to work in firms sensitive to CSR issues, customers may prefer products with socially responsible and environmental friendly characteristics. Lee et al. (2016) confirms that stakeholder pressure is an important antecedent for CSR practices. On the contrary, according to El-Bassiouny and Letmathe (2018), stakeholder pressure is insignificant in relation to CSR.

Finally, regional economic development has a negative impact on CSR practices for state-owned firms because of the lower political interference in more advanced areas (Li and Zhang, 2010).

Purpose of the paper. Previous studies have generally examined the influence of internal and external drivers of CSR separately and in this way offer a limited view of the drivers of CSR practices and performance. This study aims to fill this gap. Specifically, by adopting the social role theory, the stakeholder theory, the agency theory, and the resource based theory, this paper investigates the role of internal and external drivers simultaneously and aims to answer the following research question: How do internal and external drivers of CSR interact to foster CSR performance?

Three internal drivers referring to BoD composition and structure are considered in this analysis: the presence of women directors, the presence of independent directors, and the presence of a CSR committee. Instead, to investigate the moderating role of the institutional context, all the previously exposed external drivers are considered with only one measure of the quality of the institutional context.

The impact on CSR performance is analysed in general and in the three components (i.e., environmental, social, and governance).

Methodology.

Data and sample

Data used in the analysis are derived from two sources.

Data on firm CSR performance indicators, the presence of women directors, the presence of independent directors, the presence of a CSR committee, firm financial data, firm industry and firm country are obtained from the Thomson Reuters Asset4 database.

Data about the quality of the institutional context are retrieved from the World Bank. Specifically, the Worldwide Governance Indicators (WGI) are used. These indicators refer to six dimensions: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. Indicators range from -2.5 to +2.5, where -2.5 indicates a weak governance performance and +2.5 a strong governance performance. For the analysis, values are rescaled from 0 to 5.

10,183 firms are considered in the analysis: all firms operating in the top 50 countries by GDP and for which CSR data were available are included.

All data refer to 2021.

Models: Several regression analyses were performed to investigate the influence of internal and external drivers on CSR performance. In Model 1, the impact of the presence of women directors, the presence of independent directors, the presence of a CSR committee, and the quality of the institutional context on CSR performance has been evaluated separately. In Model 2, the interaction between the internal drivers (i.e., the presence of women directors, the presence of independent directors, and the presence of a CSR committee) and the external drivers (i.e., the quality of the institutional context) is evaluated. Formally, the models are defined as follows:

Model 1:

CSR performance = f (Women directors; Independent directors; CSR committee;
Quality of the institutional context; Control variables)

Model 2:

CSR performance = f (Women directors; Independent directors; CSR committee;
Quality of the institutional context;
Women directors \times Quality of the institutional context;
Independent directors \times Quality of the institutional context;
CSR committee \times Quality of the institutional context;
Control variables)

where:

- Women directors measures the number of women directors;
- Independent directors measures the number of independent directors;
- CSR committee is a dummy variable equal to 1 if the firm has a CSR committee, and 0 otherwise;
- Quality of the institutional context measures the quality of the institutional context by averaging the six Worldwide Governance Indicators (i.e., voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, control of corruption). Values range from 0 to 5;
- Control variables include Board size (measured as the number of directors), Firm age (measured as the number of years since firm foundation), Firm dimension (measured with total assets), Leverage, ROA, ROE, Industry, and Country.

As a robustness check, the impact of internal and external drivers on CSR performance has been evaluated by focusing on the three components of CSR (i.e., social, environmental, and governance performance).

Results. The regression results are shown in Tab. 1.

Tab. 1: Regression results

	Model 1 CSR performance	Model 2 CSR performance
Women directors	3.0106 *** (0.1378)	-2.8168 *** (0.6378)
Women directors \times Quality of the institutional context		1.7783 *** (0.1895)
Independent directors	2.4621 *** (0.0904)	3.4969 *** (0.4488)
Independent directors \times Quality of the institutional context		-0.3164 ** (0.1240)
CSR committee	19.2025 *** (0.3239)	23.3750 *** (1.5980)
CSR committee \times Quality of the institutional context		-1.3249 *** (0.4701)
Quality of the institutional context	33.0133 (31.1511)	22.8003 (31.1057)
Board size	-0.6050 *** (0.0789)	-0.6708 *** (0.0796)
Firm age	0.0552 *** (0.0057)	0.0547 *** (0.0057)
Firm dimension	0.0000 *** (0.0000)	0.0000 *** (0.0000)
Leverage	0.0094 (0.0096)	0.0103 (0.0096)
ROA	7.6020 *** (1.4710)	7.8452 *** (1.4648)
ROE	0.4332 ** (0.2126)	0.4363 ** (0.2117)
(Intercept)	-51.8558 (69.9308)	-27.6251 (69.8230)
Industry	Yes	Yes
Country	Yes	Yes
Observations	10,183	10,183
R ² / R ² adjusted	0.535 / 0.531	0.539 / 0.535

Standard errors in parenthesis.

Significance levels * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

In Model 1, Women directors, Independent directors, and CSR committee all have a positive and significant coefficient, meaning that as the number of women directors or independent directors increases, so does the CSR performance and that the presence of a CSR committee increases CSR performance. Quality of the institutional context has a positive but not significant coefficient.

In Model 2, Women directors has a negative and significant coefficient, Quality of the institutional context has a positive but not significant coefficient, while Women directors \times Quality of the institutional context has a positive and

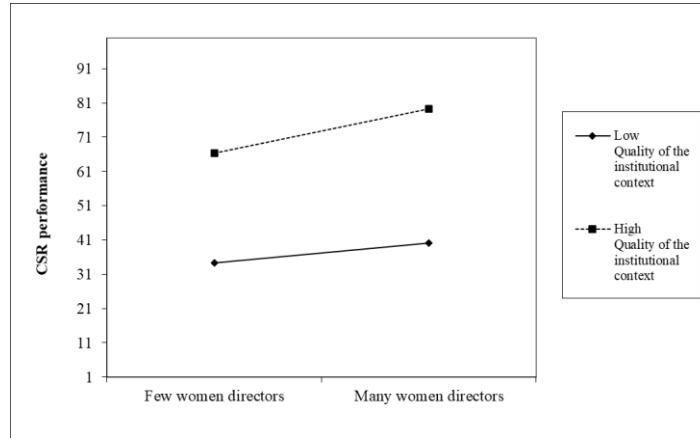
significant coefficient. On the complex, in better institutional contexts, the positive effect of women directors on CSR performance is amplified. Figure 1 Panel A shows the interaction effect.

Independent directors has a positive and significant coefficient, Quality of the institutional context has a positive but not significant coefficient, while Independent directors \times Quality of the institutional context has a negative and significant coefficient. On the complex, in better institutional contexts, the positive effect of independent directors on CSR performance is higher. Figure 1 Panel B shows the interaction effect.

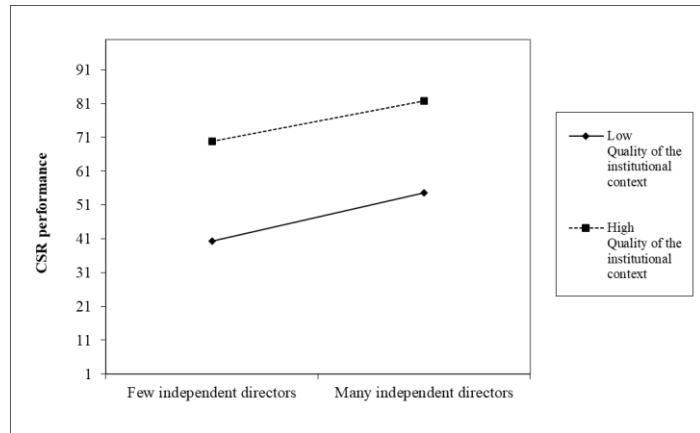
Finally, CSR committee has a positive and significant coefficient, Quality of the institutional context has a positive but not significant coefficient, while CSR committee \times Quality of the institutional context has a negative and significant coefficient. On the complex, in better institutional contexts, the positive effect of independent directors on CSR performance is higher. Figure 1 Panel c shows the interaction effect.

Fig 1. Interaction effects

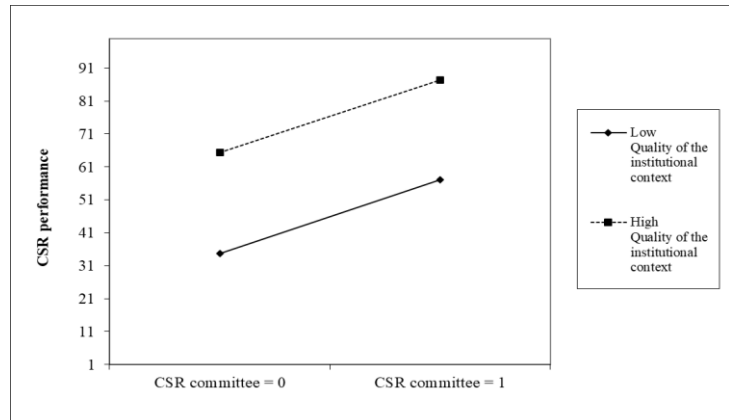
Panel A: Interaction effect Women directors \times Quality of the institutional context



Panel B: Interaction effect Independent directors \times Quality of the institutional context



Panel C: Interaction effect CSR committee \times Quality of the institutional context



Control variables also yield interesting results. Board size has a negative and significant coefficient, meaning that larger BoDs reduce CSR performance. Firm age have a positive and significant coefficient, meaning that older firms have a higher CSR performance. Firm dimension has a null and significant coefficient. The impact of leverage is not statistically significant. ROA and ROE have a positive and significant coefficient, meaning that higher ROA and ROE increase CSR performance.

Regressions performed as a robustness check examine the impact of internal and external drivers on the three components of CSR (i.e., social, environmental, and governance performance). These analyses, which are available upon request, confirm previous results regarding the impact of the presence of women directors, the presence of independent directors, the presence of a CSR committee and the moderating role of the quality in the institutional context.

Research limitations. This analysis has some limitations, which can guide future research. First, three dimensions of BoD composition and structure (i.e., the presence of women directors, the presence of independent directors, and the presence of a CSR committee) are considered in the analysis. Future research could focus on how other internal drivers of CSR (e.g., top management commitment, multinational status, state or family ownership) are moderated by external drivers in affecting CSR performance. Moreover, in the present study, only the BoD gender composition has been considered, whereas it might be interesting to analyse other dimensions of diversity such as age and ethnicity. Second, the various external CSR drivers were considered with one overall indicator given by the average of the Worldwide Governance Indicators. Despite in robustness check the moderating role of each indicator has been examined, and a more in-depth analysis of the individual aspects measured by the indicators is desirable. Third, the impact of internal and external drivers of CSR performance has been analysed by using a quantitative method and standard indicators measuring CSR performance. Although this analysis provides useful and interesting evidence, it should be accompanied by qualitative analyses that look more deeply into the mechanisms that allow internal drivers to impact CSR performance and external drivers to play a moderating role in the relationship. Furthermore, a qualitative analysis would allow for a better and more in-depth assessment of the CSR performance achieved.

Managerial implications. This study's results indicate the critical internal drivers of CSR performance and how the quality in the institutional context affects the relationship. Based on our results, firms aiming at increasing CSR performance should promote the presence of women directors, the presence of independent directors, and the presence of a CSR committee, especially if these firms operate in low-quality institutional contexts. Instead, firms operating in high-quality institutional contexts could still act on the highlighted internal drivers of CSR and obtain an even higher CSR performance.

Originality of the paper. Existing studies have generally examined the influence of internal and external drivers of CSR separately. This paper's originality lies in considering how these drivers affect CSR performance. In this way, the limited analyses of previous studies are advanced, offering a complete view of the issue.

Keywords: Corporate social responsibility; internal drivers; external drivers

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An analysis of cooperation, trust, risk attitudes and inclusiveness in nonprofessional male and female football players as drivers of social responsibility and sustainability

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Motivation and related literature. *Social responsibility (Ewald, 1997) is not only an imperative for companies, either for reasons of moral adhesion or due to pressure from other stakeholders (Bradish and Cronin, 2009) but could also be an opportunity to increase revenues, improve the image of a brand, and facilitate fund raising (Katz-Be' nichou, 2004; Tribou and Auge', 2006). The reputation of a company includes the implementation of politically correct behaviors that could, in fact, be highly appealing for marketing purposes with beneficial consequences related to increased demand and revenues in any kind of economic activity and define the mission of a company and its identity in the market.*

The literature discusses and categorizes different levels of responsibility consistent with the concept of CSR (Carroll, 1979, 2004; Carroll and Buchholtz, 2006) and considers the survival objective to be in any case profitable. This could be applied to the business of sports, such as male football, in which human capital constitutes the core unit of the company (García et al., 2021) and not only determines its basic performance but also can lead to impressive economic results (Blumrod et al., 2013).

Examples of initiatives leading to a greater involvement in corporate social responsibility in European football (Geoff and Tacon, 2011) are those implemented by the German Bundesliga in terms of social initiatives through foundations and school projects (Reiche,2014), by English football (Rosca,2011 and Hovemann et al., 2011), also from their different cultural background point of view (Jager and Fifka, 2020), and by US leagues intended to "engender mass feeling..., invoking...family values,suburban comfort, national sentimentality, soft masculinity", ..."reducing racial marginalization" (Benson,2017).

Football is also the most popular entertainment sport activity, especially in Europe (SportbMarkt, 2007; Sportfive, 2007). However, recent events (such as Qatargate and other scandals) have raised questions about the ethical aspect of a sport which creates strong attachments and, at the same time, important added value: the image of this sport is suffering under the shadow of corruption (CSA, 2002, 2007). Sponsors may withdraw themselves because of financial of doping scandals of their teams (Chantelat,2001).This has a negative impact both on follower loyalty (see Liu et al., 2018, for the impact on fan patronage intentions of CSR in Chinese football), and on the community, which does not benefit from the educative role of fair play (Fernandez-Villarino,2021) and by the proximity of their social activities to their community stakeholders (Kulczycki and Koenigstorfer, 2016).

Trust, inclusiveness, equity concerns, respect and reciprocity are at ground of social role of sports, especially of those highly appreciated both by followers and sponsors. We believe that these could increase in turn not only reputation but also the market evaluation of the firm and its financial appeal, inducing a virtuous circle of social engagement and profits (Delhez and Robert,2014 for an analysis of Belgium).

The relevance of those aspects raises the question: increasing the weight and the visibility in football of female teams and of their championships, that appear to be more characterized by social and inclusion of diversity issues, which remain still far from male football in many ways (Pfister, G., 2010) could promote actual and perceived corporate social responsibility in football business?

Female players seem to adopt, regardless of their physical performances, different behaviors that reveal different scales of values in terms of both play and commitment. This different approach to play is not only explained by the relative contributions of nature and nurture which naturally characterize the gender but more crucially, by the different way of seeing individual and team effort and results. A greater presence and participation of the female component in football could then lead to a different development of expertise and team building (Hawkins et al., 2016). This greater heterogeneity of approaches to football could eventually lead to a revised concept of this sport that better fills the gap between ethics and profitability and between voluntary contribution to group public good and individual spectacularism (Solow and Kirkwood, 2002; Andersen et al., 2008).

We believe that gender differences could be meaningful for increasing overall social welfare, and especially in sports, where they should be better investigated and employed to improve wealth, in terms of image and social and

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economic success and can be utilized to nudge (Thaler and Sunstein, 2008) the process. This concept will dismantle and/or de-dramatize gender differences that become assets to be exploited in sports giving birth to a “new gender order” that includes and benefits from diversities. Instead, focusing on the consideration of dual gender hypothesis in sports, it would be more valuable to allow their expression and take advantage of their different characteristics (Cunningham, 2008).

Female football could add to the football game some aspects of ethical and entertainment values broadly perceived and appreciated both by followers and communities. Indeed, from its origins in England female football has been highly appreciated by families and considered a surer and more educative fair play environment for children. The fact that in UK female football dates back to the First World War when it substituted the traditional role of soccer as entertainment played by men who were employed in the war effort, is indirect evidence of such hypothesis. The evidence of the different diffusion in the world of female football could be also considered an indirect proof of such main differences: female football is more widespread in the United States than Europe, and more popular in developed countries, such as North European countries, compared to Latin America and other developing countries where male soccer is more popular, since it is perceived to strongly improve not only individual, social and economic conditions, but also visibility: success in male football in those areas is seen as a way to escape poverty and is related also to the wide gender salary gap that corresponds to the success achieved by male players. On the contrary, the playing of football among females in Iran represents a way to defend rights and escape segregation and unfair prejudices (Steel and Richer-Devroe, 2003).

To give greater relevance to female football will benefit also male football inducing a less profit and more cooperative oriented environment whereas the former will become capable better identify its points of strength and building up its own approach to the game as expression of its own capabilities (Pfister et al., 2010) and benefitting from them (Hawkins and Bishop, 2016) without mimicking males' football.

This make relevant also to assess how both followers and potential investors perceive the social commitment of sports clubs to corporate social responsibility (CSR). This responsibility might be observed at various levels, including social and diversity inclusion, environmental issues, legal aspects, and other relevant business concerns (Bourg and Gouguet, 2007).

The final objective of this research is to understand if introducing female football teams in large well-established clubs could be considered as a corporate social responsibility (CSR) action leading to an improvement of the overall brand image. If this is the case, investing in an activity that currently is not able to generate income flows equivalent to the male sector assumes a crucial role of complementarity that benefits the overall profitability of a club.

However, to prove that the strategy of investing in female football teams constitutes a profitable direction for the more prestigious football clubs, we should previously demonstrate that they are able to generate appreciation and approval beyond those traditionally generated by male football and if these constitute added value for clubs and society.

Therefore, our main research question is: “Do specific elements exist in female football player behaviors that are more related to CSR than in male behaviors?”

Such hypothesis is in line with most of the behavioral literature emphasizing gender differences in choices, decision-making and strategizing in interactive tasks. There exists an extensive experimental literature that show women to be less risk prone in many situations (Choudhury, 2014; Eckel and Grossman, 2008), exhibiting a higher propensity to cooperate in groups (Charness and Rustichini, 2011), and to contribute to joint projects and fair division (Andreoni and Vesterlund, 2001). Moreover, the literature on gender-based differences highlights the agentic characteristics (assertiveness, competitiveness, self-confidence, aggressivity and ambition) typical of men compared to communal characteristics (concern about the others, sympathy, kindness, nurturing and contribution to problem solving situation) of women (Eagly, 2003).

The alternative hypothesis is that the differences that still exist between the genders in football teams are not structural and natural, but stem from the gap in development still existing between male and female football. In the last case the two management models would eventually converge towards the masculine target.

To answer these questions, the analysis presented in this work aims to evaluate whether gender differences exist in the way in which football is perceived by female and male players and in the priorities of play and performance assigned by different gender players.

We report here the results of a preliminary investigation aimed at discovering any difference developed by female and male teams in terms of cohesion of the group, attachment to the club, respect for opponents and attitude to sacrifice. This could be attributed not only to individual characteristics and perceptions but also to the motivations underlying the participation in a game and the involvement in making group activities. Moreover, we are interested in investigating whether women perceive football more as a team sport (emphasizing cooperation and trust aspects) than a business (aimed to enhance individual capacity and personal gains).

In the second step of the analysis, we will try to understand to what extent followers, managers, social groups and mass media perceive these differences as a signal of good practice and an expression of communication of ethical values to be transmitted and preserved. Sports clubs are increasingly observed by the media and the public regarding financial, ecological and social impact related to human rights, working conditions, sustainable consumption (Anagnostopoulos et al., 2013; Vitolla, 2019)

If both these hypotheses stand, an advantageous policy move for football clubs would be to invest in female football to increase their reputation for social commitment and the number of followers attached to the brand increasing through this the appeal and spectacularism of matches and long run potential profits.

Therefore, investing in female football could become a key issue for stabilizing the financial attractiveness of a club that could benefit from the inclusive characteristics of female football. In this respect, we might think of the two gender branches of the same club as two different parts of the same business reinforcing each other through rather different goals and strategies.

Methodology

2.1- The sample

To understand if the reinforcement of the implementation of a women's soccer team could be a happy choice in order to increase football teams' engagement in corporate social responsibility on the basis of their different approach to the game, we collected data from amateur women's and men's football players. To this aim we wanted first to assess how female and male football players perceive their sport through a purpose-built questionnaire which allows to enlighten differences that could explain not only the persistence of a different approach and perception in popularity but also a different economic evaluation in the two gender ways to play the same game. In order to avoid introducing in gender motivations, evaluations linked to actual salary gaps (even if income perspectives could remain very different for the two teams on gender basis) the sample utilized for this analysis consists of the members of two non-professional football teams.

We compared data stemming from two 11-a-side football teams where the players are aged between 18 and 22 and show a similar balanced training (2 training sessions per week, plus match, 23 players in each team). The two teams analyzed are: LUISS futsal (University championship) for males' players and Lupa Frascati soccer 11 (Series D) for females.

We compare male and female footballers focusing on mental attitudes and game components related to players' team feelings and characteristics, their mental approach to sport both in terms of group and individual performance, by gender.

2.1.1 - Main observed variables: Mental attitudes and Gaming components

We insert in our investigation the following mental and interactive aspects:

- 1) Cooperation (mental attitude and game component)
- 2) Confidence (individual mental attitude)
- 3) Risk attitude (individual and game component)
- 4) Inclusivity (mental attitude)

1) Cooperation represents the most important component of the game analysis, since football is a team game, and it is therefore crucial to investigate whether the gender component makes it more prone to individualism or not. From the analysis of our data, women seem more willing to collaborate both in terms of mental attitude and in terms of the style of play than males.

2) Confidence (mental attitude) Confidence is probably something that goes beyond football and, despite having repercussions on football, it represents more than a mental attitude of the members of a group and a team. From the results of our questionnaire, women seem much more confident towards their teammates and towards the coach.

3) Taking Risk is the variable (individual attitude and game component) that perhaps most of all distinguishes the interpretation of football in the two genders. Unlike women, men put risk assessment in the foreground import and believe that, together with the physical attributes, the existent gap represent the most difficult mental characteristic to bridge between the two genders.

4) Inclusiveness (game component and mental attitude) has been analyzed in terms of recognition of a person in a group and in a society, but also at a psychological level of how much a person feels part and included in a group (embedded). Both genders declared a high level of perceived inclusiveness not statistically different in our sample. However, we find that women seem to recognize themselves better in the group intended as teammates 'cooperation, while men consider mostly teammates as a mean to express themselves individually and to achieve victory.

2.1.2 The questionnaire

The questionnaire handed is divided into three main parts:

- in the first part, subjects declare their basic demographics (sex, geographical origin, age, education, occupation). Questions 1-4;
- in the second part, they answer questions related to their activity as football players (time devoted to the activity, effort devoted, psychological relevance attributed to their tasks) and their perceptions and opinions about the characteristics of physical and technical performance and spectacularism of the two gender activities and about the social versus professional actual and expected role of football activity. Questions 5-11;
- in the third part, they answer multiple questions aimed at evaluating their individual capability to trust (Berg et al.,1995), to cooperate (Prisoner dilemma game, Axelrod,1984) (Questions 12-14) and (18-19), to take risk and ambiguity in decision-making (Holt and Laury, MPL method, 2002, and Ellsberg urn, Ellsberg,1961), Question (20)

and take the Cognitive Reflection Test (Friedrick, 2005), Questions (15-17) and the Big Five Personality Test (Gerber et al., 2011), Questions (21-25).

Main Results. The overall picture from the answers collected offers an interesting and different approach to football in terms of gender. Women seem to be more cooperative and more willing to contribute to the welfare of their group rather than to personal affirmation. Moreover, they demonstrate that they are more prudent than male players and more trusting and trustworthy. Aware of the existing physical differences affecting performance and spectacularism, female football players strongly believe in their ability to equally entertain and attract followers.

Results show that both males and females see football activity as a sport (none of them views it job) and they devote, on average, less than six hours per week to training. This avoids income effects on their answers but give raise to the need to control for it with professional players.

Considering the extent to which physical characteristics account for playing football, males interviewed consider them crucial in this sport whereas female players believe that they do not constitute a fundamental characteristic for playing football. Instead, they almost all (males and females) perceive the same level of importance of mental capabilities and strategizing in football playing (attention and cooperation are more frequently indicated respectively by males and females).

As regards the relationship between spectacularism and gender in football, 80% of male players think that gender matters a lot, whereas 90% of female players answered that gender does not affect the spectacularism of football.

Considering football as a means of social inclusion, 70% of males answered, "I do not know" and 30% are equally divided between Yes and No; on the other hand, all female players agreed that football represents a powerful instrument of inclusion.

Trust indicators show that female players trust their team mates more than males (75% and 60% respectively) regardless of their individual level of general trust, but that both sexes show the same level of trust towards their coaches.

Cognitive Reflection Test answers (proxies of impulsive versus reflexive mental attitudes) are not on average different by gender showing that impulsive and rational thinking is not differently distributed in our sample by sex; as far as ambiguity aversion is concerned, surprisingly, women demonstrate themselves to be less ambiguity averse than men; for perception of inclusiveness in their own team, female players declared on average more frequently (6) compared to males declaring (3), this means that they perceived themselves to be more embedded in the team than the corresponding players of the other sex; for Personality Traits, female players seem to be more open to challenge both in terms of opportunities and social activities (people to meet and places to visit) both prefer physical activities in open spaces.

Conclusions. Corporate Social Responsibility is nowadays an imperative both for popularity and corporate economic strategies: at present most professional football teams are implementing social balance sheets and company policies addressing this main goal. We believe that a way to introduce a mentality more open to social aspects in terms of inclusivity, collaboration and trust is to give more importance to female football that is characterized by behaviors and approaches that seem less prone to individualism and personal profit.

The results of our survey confirm the validity of this path: female non-professional players seem to be: equally motivated, more attached to their teammates, more trustworthy and perceiving themselves more embedded in their own team than their corresponding male players.

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Modello di misurazione del posizionamento sostenibile aziendale basato sugli SDGs

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Inquadramento della ricerca. Negli ultimi decenni le crescenti pressioni e l'accresciuta concorrenza hanno reso più complesso l'ambiente istituzionale (Hoffman, 1999; Testa et al., 2018). Le aziende devono gestire diverse pressioni istituzionali (Meyer e Rowan, 1977; Zucker, 1977; DiMaggio e Powell, 1983; Baldarelli et al., 2014), come la crescente preoccupazione per il consumo eccessivo di risorse, il degrado ambientale, la disuguaglianza sociale, le sfide della transizione ecologica (Wang et al., 2022), della rigenerazione del capitale naturale (Tost et al., 2018), della trasformazione digitale (Camodeca e Almici, 2021) e del benessere organizzativo (Miller, 2016). Queste pressioni istituzionali richiedono alle aziende di trasformare i propri modelli di business verso modelli di produzione più resilienti, socialmente responsabili e sostenibili (Adams et al., 2016). Le pressioni istituzionali spingono le imprese a concentrarsi su temi sostenibili (Iarossi et al., 2011) come quelli delineati dall'Agenda 2030 per lo Sviluppo Sostenibile, che promuove i 17 obiettivi sostenibili globali (SDGs) (Annesi et al., 2021). L'Agenda 2030 è un programma d'azione per le persone, il pianeta e la prosperità firmato nel settembre 2015 dai governi dei 193 paesi membri delle Nazioni Unite (UN, 2015). I contenuti dell'Agenda 2030 sono innovativi per il coinvolgimento diretto del settore privato (Sachs, 2012), perché i governi non possono attuare da soli gli SDGs (UN, 2015). L'Agenda 2030 rappresenta un impegno per le tre componenti della sostenibilità (Cumming et al., 2017; Desa, 2016; Kumar et al., 2016). Una caratteristica vitale dell'Agenda 2030 è la concezione dello sviluppo sociale ed economico in funzione dell'ambiente (Boto-Álvarez e García-Fernández, 2020). L'Agenda 2030 ha descritto cinque sfere di azione abbinate ai 17 SDGs: Persone, Pianeta, Prosperità, Pace e Partnership (le 5 P) (Mpabanga e Sesa, 2020; UN, 2015). Pertanto, l'enfasi e l'attenzione devono essere poste sulle cinque P, che devono essere basate su inclusività, intraprendenza, innovazione e benessere per tutti, nonché sulla riuscita attuazione degli SDGs (Khajuria et al., 2022; Carlsen e Bruggemann, 2021; Mpabanga e Sesa, 2020; UN, 2015).

I governi non possono attuare gli SDGs da soli (ONU, 2015), quindi sono necessari partenariati strategici tra governo, società del settore privato e civile, mondo accademico, media e partner per lo sviluppo (Mpabanga e Sesa, 2020). Le imprese sono chiamate a dare il loro contributo per raggiungere tali obiettivi (Mpabanga e Sesa, 2020) e sono incoraggiate a trovare i mezzi per raggiungere una crescita economica sostenibile. In questo scenario il ruolo dell'innovazione è cruciale nel raggiungimento di questi obiettivi (Adams et al., 2016). Le aziende devono sforzarsi di raggiungere gli SDGs ed incorporarli nella loro strategia (Santos e Bastos, 2020; Calabrese et al., 2021; van Zanten e van Tulder, 2021). Le aziende non devono solo massimizzare i propri benefici (Garrido-Ruso et al., 2022) ma devono farlo in modo sostenibile (van Zanten e van Tulder, 2021; Liu et al., 2021) contribuendo al raggiungimento degli obiettivi dell'Agenda 2030. Secondo la letteratura, le organizzazioni che perseguono gli SDGs sono in grado di affrontare le sfide globali attivando soluzioni innovative e (ri)generando il proprio modello di business (Boons e Lüdeke-Freund, 2013).

Obiettivo del paper. Le imprese devono far fronte ad una moltitudine di pressioni istituzionali (Meyer e Rowan, 1977; Zucker, 1977; DiMaggio e Powell, 1983; Baldarelli et al., 2014) e l'obiettivo della ricerca è introdurre un modello in grado di aiutarle a gestire queste pressioni, misurando il loro livello di sostenibilità e identificando idonee strategie adottabili. Gli SDGs sono ampiamente utilizzati per misurare le prestazioni di sostenibilità (ad esempio Schipper et al., 2021; Calabrese et al., 2021; Di Vaio e Varriale, 2020) ed hanno un alto potenziale; tuttavia, sono pochi gli studi che mostrano come utilizzarli allo scopo di supportare le organizzazioni nell'individuazione di strategie adottabili. Attraverso questa ricerca vogliamo colmare questa lacuna della letteratura creando un modello, basato sui 17 SDGs, che descriva l'attuale posizionamento sostenibile aziendale e identifichi le possibili azioni che le imprese possono implementare per migliorare le loro performance sostenibili e gestire le pressioni istituzionali. Gli SDGs incorporano elementi di innovazione e di sostenibilità, e possono essere utilizzati come base per sviluppare uno strumento utile alle aziende, per misurare le loro prestazioni rispetto alla complessità di questi problemi. L'obiettivo

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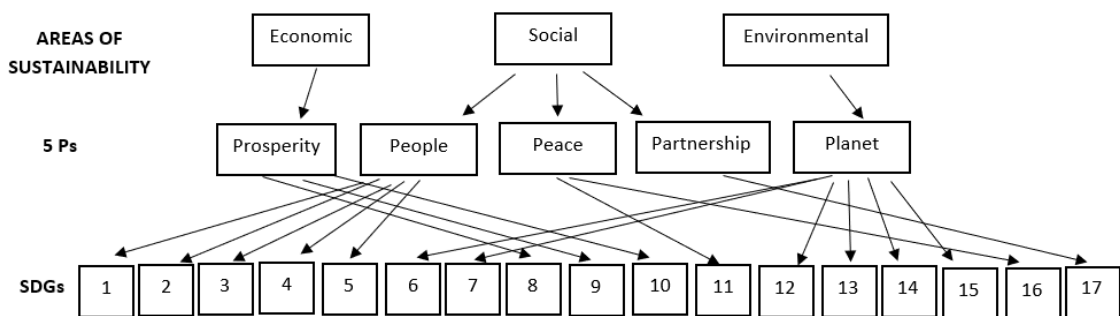
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finale del modello è quello supportare l'impresa nella identificazione delle azioni implementabili per integrare gli obiettivi di sostenibilità legati alla transizione ecologica, la rigenerazione del capitale naturale, la trasformazione digitale ed il benessere organizzativo. Attraverso i risultati ottenuti dal modello è possibile stabilire una strategia innovativa grazie alla quale le imprese possono raggiungere contemporaneamente sia obiettivi di competitività che di sostenibilità (Yusuf e Lytras, 2023). La ricerca mira, quindi, a verificare se gli SDGs possono essere utilizzati per misurare l'efficacia delle iniziative adottate (in termini di contributo agli SDGs), nonché a definire il posizionamento sostenibile dell'azienda ed a supportare il management nella definizione delle strategie di sostenibilità più appropriate. Sulla base di una dettagliata ricerca della letteratura esistente, abbiamo creato un modello di autovalutazione, basato sui 17 SDGs raggruppati attraverso le cinque P: Persone, Pianeta, Pace, Partnership e Prosperità (Mpabanga e Sesa, 2020; UN, 2015), considerando la misurazione della sostenibilità sia dal punto di vista gestionale che prestazionale.

Metodologia. Attraverso l'analisi della letteratura, partendo dalle aree della sostenibilità (economico, sociale e ambientale) abbiamo identificato le cinque aree tematiche descritte dall'Agenda 2030 e per ogni P abbiamo identificato i diversi SDGs connessi. Molte organizzazioni, autori e paesi differiscono nel modo in cui classificano gli SDGs nelle cinque P perché i temi trattati sono trasversali e possono essere letti da diverse prospettive. Le figure seguenti descrivono in che modo abbiamo realizzato questa fase della ricerca.

Fig. 1: Schema di scomposizione delle dimensioni della sostenibilità, 5 P e 17 SDGs



Fonte: Elaborazione degli autori

Fig. 2: Raggruppamento degli SDGs nelle 5 P



Fonte: Elaborazione degli autori

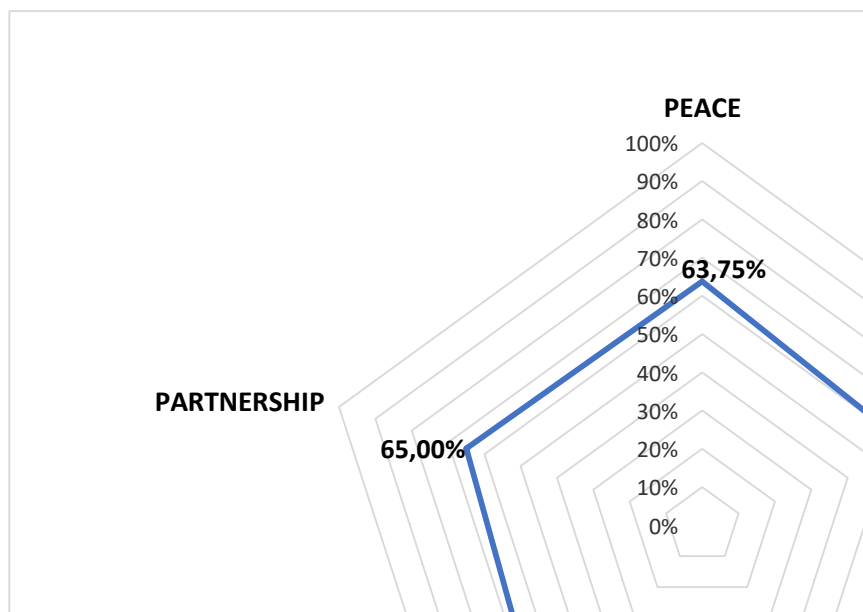
Dalle aree della sostenibilità definiamo le cinque P: Prosperità deriva dall'area economica; Persone, Pace e Partnership derivano dall'area sociale; infine, Pianeta deriva dall'area ambientale. All'interno di ogni P abbiamo raggruppato diversi SDGs. L'area "Persone" è composta dagli SDGs che riguardano il benessere delle persone. Questi SDGs mirano a porre fine alla povertà (SDG 1), alla fame (SDG 2), alla buona salute e al benessere (SDG 3), all'istruzione di qualità (SDG 4) e alla parità di genere (SDG 5) (ONU, 2015). L'area "Pace" è costituita dagli SDGs che hanno come obiettivi pace, giustizia e istituzioni forti (SDG 16) e città e comunità sostenibili (SDG 11). L'area "Partnership" è formata dall'SDG 17 che ha l'obiettivo di partenariato per gli obiettivi, perché come sottolineato dalle Nazioni Unite (2015) il successo nel raggiungimento degli obiettivi di sviluppo della sostenibilità si avvale di

partenariati tra governi, società civile e settore privato. L'area "Pianeta" descrive gli SDGs che hanno un impatto sull'ambiente e sul pianeta. Gli SDGs descrivono acqua pulita e servizi igienico-sanitari (SDG 6), energia pulita e accessibile (SDG 7), consumo responsabile e produzione (SDG 12), azione per il clima (SDG 13), vita sott'acqua (SDG 14) e vita sulla terraferma (SDG 15). L'area "Prosperità" comprende gli SDGs che incidono sui risultati economici dell'impresa, legati anche alla sostenibilità, quindi industria, innovazione e infrastrutture (SDG 9), riduzione delle disuguaglianze (SDG 10) e lavoro dignitoso e crescita economica (SDG 8).

Dopo aver raggruppato i diversi SDGs abbiamo deciso di unire gli SDGs 1 e 2 perché gli argomenti si basano sulla stessa logica. Abbiamo scelto 10 domande per ogni SDG, di tipo gestionale e prestazionale, analizzando la letteratura. Abbiamo considerato la logica gestionale perché il cambiamento sarà una costante nel prossimo millennio e adottare corrette modalità di gestione risulta utile per comprendere le esigenze e per dimostrare idee creative e soluzioni efficaci al problema in questione (Thierauf, 1999). La gestione aziendale caratterizza la struttura organizzativa ed è costituita dalle attività di pianificazione, le pratiche e le risorse per lo sviluppo (Fresner, 1998). Inoltre, abbiamo considerato il tema prestazionale perché è importante capire quale sia il posizionamento dell'organizzazione in termini di risultati ottenuti, nonché come le modalità gestionali adottate influenzano le prestazioni (Nawrocka e Parker, 2009) e perché l'implementazione delle pratiche di gestione è associata a prestazioni aziendali migliori (Joiner, 2007). Le prestazioni sono i risultati misurabili della gestione da parte di un'organizzazione (International Organization for Standardization, 2013) ed è importante capire come misurarli (Endrikat et al., 2014; Horváthová, 2010). Le performance rappresentano un'informazione "concreta" o verificabile (Clarkson et al., 2011) indispensabile per misurare e verificare gli obiettivi di sostenibilità raggiunti. Considerando queste due dimensioni, gestione e performance, abbiamo creato il nostro modello di autovalutazione. Il modello è composto da un totale di 160 domande. Ogni domanda ha 5 possibili risposte. In base al livello di sostenibilità della risposta diamo un punteggio da 1 a 5 (con il valore 3 corrispondente ad una situazione di gestione non formalizzata ma presente in azienda, o una prestazione di mera conformità alle norme o a standard prestazionali di base). Alla fine, calcoliamo le medie dei risultati per ogni SDG e per ogni P e otteniamo due rappresentazioni grafiche che descrivono il posizionamento sostenibile dell'organizzazione, a livello di singola P e a livello di singolo SDG.

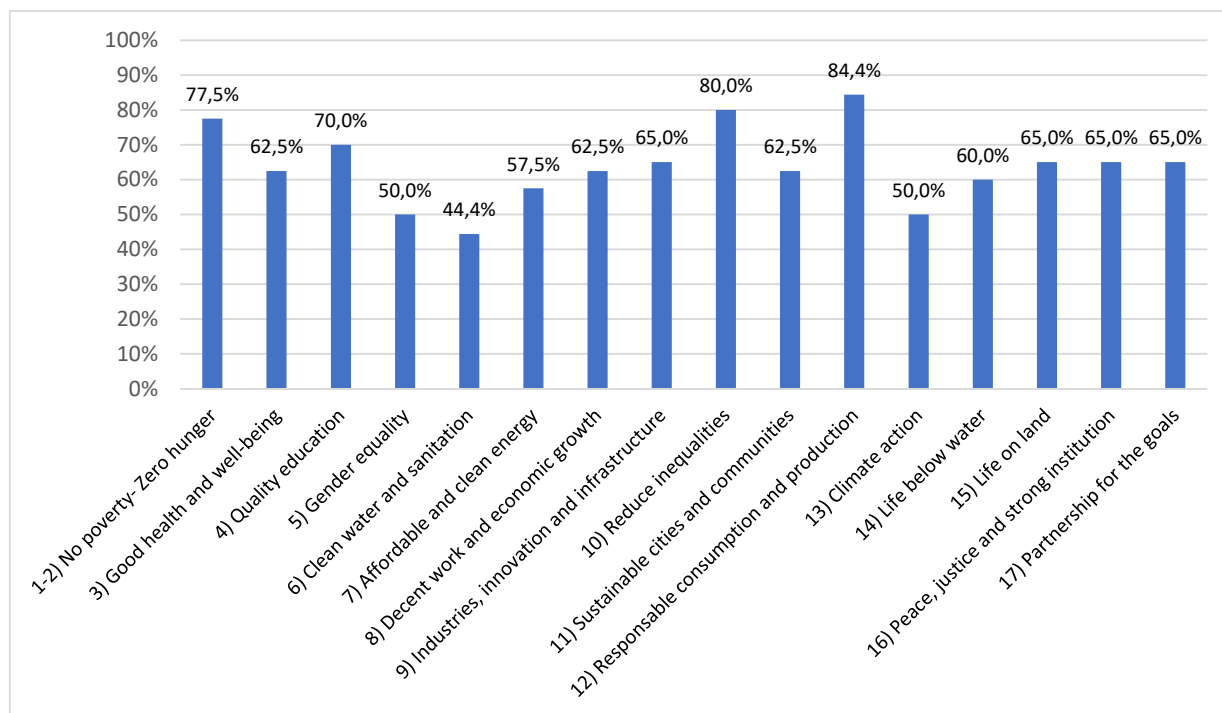
Risultati. Nella nostra ricerca abbiamo considerato una grande impresa italiana del settore commerciale. Abbiamo scaricato l'ultimo report di sostenibilità disponibile dal sito web. Abbiamo analizzato il report di sostenibilità e abbiamo inserito le risposte alle domande del modello con le informazioni disponibili. Successivamente abbiamo contattato l'azienda per fissare i colloqui con i responsabili aziendali. Attraverso le interviste abbiamo chiesto le informazioni necessarie per rispondere alle domande del modello e abbiamo verificato la correttezza delle risposte inserite leggendo il bilancio di sostenibilità. Dopo aver analizzato le risposte ottenute dalle interviste abbiamo assegnato a ciascuna risposta un punteggio in base al livello di sostenibilità della risposta ricevuta. Dopo aver risposto a tutte le 160 domande del modello abbiamo ottenuto i due grafici riassuntivi. Il grafico a radar mostra l'attuale posizionamento sostenibile dell'azienda rispetto alle cinque P (in ogni P abbiamo raggruppato diversi SDGs). Il grafico a barre, invece, mostra il posizionamento dell'azienda rispetto a ciascun SDG. Attraverso l'analisi dei risultati del modello, possiamo individuare le modalità con cui tradurre punti di forza e di debolezza in strategie innovative ed identificare le azioni strategiche mirate che l'azienda può mettere in atto per rispondere alle pressioni esterne, raggiungere gli obiettivi sostenibili, e contribuire, così, al raggiungimento degli obiettivi globali dell'Agenda 2030, aumentando la propria competitività (Yusuf e Lytras, 2023) sul mercato con innovazioni sostenibili e strategiche. I seguenti grafici mostrano i risultati ottenuti dal modello.

Fig. 3: Grafico a radar sul posizionamento sostenibile dell'azienda commerciale considerando le 5 P



Fonte: Elaborazione degli autori

Figura 4. Grafico a barre sul posizionamento sostenibile dell'impresa commerciale considerando i 17 SDGs



Fonte: Elaborazione degli autori

Complessivamente, considerando le cinque P, l'azienda commerciale è sostenibile al 64,52%. Ha un posizionamento sostenibile medio-alto ma ci sono aree che potrebbero essere migliorate. Vediamo nel dettaglio le azioni che l'impresa potrebbe realizzare per aumentare il livello di sostenibilità. L'impresa ha ottenuto una percentuale del 69,17% sul tema Prosperity. L'impresa ha avuto un trend delle vendite in peggioramento negli ultimi anni. Per aumentare il proprio livello di sostenibilità rispetto a questo tema, potrebbe realizzare una pianificazione annuale e un controllo sui risultati in termini di efficacia degli investimenti in ricerca e sviluppo e aumentare gli investimenti dedicati alle attività sociali. Inoltre, potrebbe introdurre una percentuale di retribuzione dei senior manager legata anche a obiettivi di CSR/Sostenibilità con quote prestabilite. L'azienda ha ottenuto il 65% sul tema People. L'azienda per migliorare questo tema potrebbe introdurre più opportunità lavorative per i gruppi svantaggiati, cercare di ridurre il numero di infortuni sul lavoro, attraverso la sensibilizzazione dei lavoratori, aumentando le ore di formazione ai dipendenti sulla salute e la sicurezza. L'azienda, inoltre, potrebbe aumentare le opportunità lavorative delle donne dotandosi di politiche interne e procedimenti ad hoc, perché attualmente ci sono poche donne che ricoprono posizioni apicali e potrebbe aumentare le iniziative di benessere organizzativo a vantaggio delle donne, ad esempio, dotandosi di asili, o permettendo orari flessibili o smart working alle donne. L'azienda ha ottenuto il 65% anche sul tema Partnership. L'azienda per aumentare la sostenibilità su questo tema potrebbe aderire ad iniziative di carattere internazionale sul tema della sostenibilità (es. Global Compact, Rainforest Alliance, ecc.). Inoltre, l'azienda potrebbe aumentare le attività di promozione alla sostenibilità a livello locale, nazionale ed internazionale. L'azienda ha ottenuto il 63,75% sul tema Pace. L'azienda per migliorare dovrebbe integrare la tutela della biodiversità nel business anche in chiave strategica, potrebbe realizzare iniziative di incentivazione del personale nella mobilità casa-lavoro e promuovere politiche orientate alla sicurezza stradale per i propri lavoratori. Inoltre, l'azienda potrebbe inserire nella formazione ai dipendenti anche i temi della tutela dei diritti umani e potrebbe inserire informazioni riguardanti il tema trasparenza e anticorruzione all'interno del proprio report di sostenibilità che ad oggi non è presente. L'azienda ha ottenuto la percentuale più bassa sul tema Planet (59,69%). Per migliorare questo tema dovrebbe monitorare il consumo delle risorse idriche nella propria value chain e realizzare investimenti per rendere più efficiente l'uso delle risorse idriche, anche attraverso il riuso o il riciclo di acqua. L'azienda, inoltre, potrebbe ridurre il consumo di combustibili fossili nell'ambito delle proprie strutture, e realizzare formazione al personale sul tema energetico e delle emissioni. L'azienda non effettua le misurazioni sulle emissioni in termini di carbon footprint e potrebbe realizzarle in futuro per identificare le azioni correttive per cercare di ridurre le emissioni non solo dirette ma anche indirette, monitorando le emissioni sulla catena di fornitura. Infine, potrebbe aumentare il riutilizzo dei rifiuti prodotti.

In conclusione, l'azienda ha un posizionamento sostenibile medio-alto. Grazie a questa analisi abbiamo identificato alcune possibili azioni che l'impresa può attuare per risolvere le tensioni esterne, modificando il proprio modello di business verso modelli di produzione più resilienti, socialmente responsabili e sostenibili (Adams et al., 2016). Attraverso la descrizione dell'attuale posizionamento sostenibile aziendale abbiamo identificato i temi sostenibili che l'azienda considera maggiormente e quelli che, al momento, vengono considerati meno, e che potrebbero essere implementati nella strategia aziendale per aumentare il livello di sostenibilità. Le grandi aziende sono le più strutturate

e attente alla sostenibilità e alla comunicazione di azioni sostenibili ai loro stakeholder, ad esempio attraverso i rapporti sulla sostenibilità (Gray et al., 1995; Deegan e Gordon, 1996). Inoltre, possono influenzare e coinvolgere la catena di approvvigionamento per collaborare con loro e raggiungere obiettivi di sostenibilità (Dauvergne e Lister, 2012). Attraverso richieste sostenibili possono migliorare la produttività della catena di approvvigionamento (McKinsey, 2011). Le aziende realizzando queste azioni hanno la possibilità di gestire e risolvere le tensioni esterne e allo stesso tempo possono migliorare l'efficienza degli utili, aumentare le entrate, accedere a nuovi mercati e ottenere un vantaggio competitivo (Dauvergne e Lister, 2012). Per questi motivi, lo studio propone un modello per l'integrazione sistematica dei principi di sostenibilità come strumento di gestione delle tensioni di tipo istituzionale, in grado di supportare i manager nella definizione delle strategie di sostenibilità più appropriate definite in base agli obiettivi globali dell'Agenda 2030.

Limiti della ricerca. Come ogni ricerca, anche questa non è priva di limitazioni. Il modello è composto da una quantità considerevole di domande per avere un quadro completo e chiaro rispetto al livello di sostenibilità aziendale. Le domande sono state inserite sulla base dell'analisi della letteratura ma potrebbero essere inserite altre tipologie di domande o potrebbero essere più orientate agli aspetti di performance, piuttosto che agli aspetti gestionali. La metodologia è stata testata soltanto su una grande impresa italiana. La ricerca futura potrebbe testare il modello su diversi tipi di imprese e su un panorama internazionale di imprese per verificare il diverso posizionamento sostenibile delle imprese. Inoltre, sarebbe interessante fare interviste ai manager aziendali anche in un secondo momento per verificare come le aziende hanno implementato le azioni correttive e se hanno aumentato il loro livello di sostenibilità.

Tali limiti costituiscono gli obiettivi di miglioramento previsti per la ricerca degli autori.

Implicazioni manageriali. La ricerca fornisce un doppio contributo dal punto di vista manageriale. In primo luogo, il modello è uno strumento utile per le aziende che vogliono misurare il loro livello di sostenibilità rispetto agli obiettivi globali dell'Agenda 2030. Inoltre, l'analisi dei risultati supporta il processo di definizione delle strategie adottabili e l'introduzione di innovazioni che permettono di gestire gli aspetti critici e le pressioni istituzionali. Il modello supporta le strategie di business basate sulla sostenibilità identificando le aree critiche, i punti di forza e le opportunità commerciali e identifica le azioni da implementare per migliorare il livello di sostenibilità aziendale.

Il secondo contributo manageriale riguarda la diffusione di un modello utile per le aziende per identificare e misurare il posizionamento sostenibile in una visione completa basata sugli obiettivi globali dichiarati dall'Agenda 2030. Il modello considera aspetti ambientali, sociali ed economici e fa riferimento ai 17 SDGs e alle cinque P.

Originalità del paper. Il modello è originale perché fa riferimento ad un quadro istituzionale e abbraccia non solo la sostenibilità ma anche altri temi associati ad altre forme di innovazione, e perché cerca di identificare soluzioni atte a regolare le tensioni esterne con idonee strategie adottabili. Il modello considera gli obiettivi descritti dall'Agenda 2030 e può essere utilizzato come strumento di supporto per i manager aziendali per incorporare gli obiettivi sostenibili nella loro strategia aziendale (Santos e Bastos, 2020; Calabrese et al., 2021; van Zanten e van Tulder, 2021) per rispondere alle pressioni istituzionali. Esistono attualmente molti modelli basati su ESG ma questi sono strettamente correlati alla dimensione finanziaria. Il nostro modello, invece, ha una lettura più ampia, perché considera priorità di natura istituzionale e globale e va oltre i modelli ESG. Il valore aggiunto del nostro paper è l'introduzione di un modello di misurazione omogeneo per tutte le aziende basato sugli obiettivi descritti dall'Agenda 2030 con un'interpretazione basata anche sulle cinque P, a partire dalla 3 aree di sostenibilità definite dalla Triple Bottom Line, che aiuta le imprese a gestire le pressioni istituzionali.

Parole chiave: innovazioni orientate alla sostenibilità; Agenda 2030; SDG; 5 P; modello di misurazione del posizionamento sostenibile

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Perché “scomodare” l’etica: riflessioni su una apparente contrapposizione tra shareholderismo e stakeholderismo

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Inquadramento della ricerca. *Se dovessimo individuare un possibile colpevole dei “mali” che affliggono la moderna società contemporanea, dalle diseguaglianze di natura sociale alle catastrofi ambientali, questi sarebbe il capitalismo profit-oriented. Non ci sarebbe, infatti, altra spiegazione del “ripudio”, sempre più crescente, verso tale forma di capitalismo a favore di un capitalismo stakeholder-oriented, in cui le imprese non solo ottimizzano i profitti a breve termine per gli azionisti, ma cercano la creazione di valore a lungo termine, a favore di tutti i loro stakeholders e della società in generale (Schwab, 2021).*

Diversi sono però i dubbi in merito a questa contrapposizione di fondo, ovvero che il valore creato per gli azionisti vada automaticamente a scapito del valore per gli stakeholders, con la conseguente necessità, per il primo, di essere ridotto per alimentare il secondo.

Due gli ordini di fattori dai quali tale lavoro prende spunto: da un lato, il dibattito circa un unico obiettivo/interesse vs una pluralità di interessi perseguiti dall’impresa; dall’altro lato, la disputa, non solo in ambiente accademico, circa l’orizzonte temporale, a breve termine vs lungo termine, dei comportamenti imprenditoriali.

Il mainstream che più si è affermato negli anni, specie a partire dalla crisi finanziaria del 2007/08, è il seguente: la costante ricerca del profitto massimo pregiudica, nel breve termine, il ruolo sociale dell’impresa e, nel lungo termine, la capacità dell’impresa di perseguire la sua finalità generale, ossia la sopravvivenza nel tempo attraverso la creazione di “valore allargato”. Del resto, in quanto istituzioni sociali a finalità plurime, le organizzazioni imprenditoriali si pongono come obiettivo prioritario la creazione di valore allargato, quest’ultimo da intendersi come ricchezza (sia finanziaria, sia legata ad elementi intangibili, quali la soddisfazione psicologica dei dipendenti, l’attenzione alle istanze non economiche di natura interna o provenienti da entità esterne, ecc.) verso cui vantano un “diritto” non solo gli shareholder, ma tutti gli altri stakeholders che, con l’impresa stessa, intrattengono rapporti, diretti o indiretti, di varia natura.

Prendendo spunto da tali considerazioni, l’idea in base alla quale la massimizzazione meccanicistica e periodale del profitto si scontri con il ruolo sociale dell’impresa e sia, al contempo, foriera di un deperimento delle capacità di sopravvivenza nel medio/lungo termine, è sicuramente condivisibile. Meno condivisibile, invece, è la logica semplicista e superficiale che vede nella ricerca del profitto massimo il presupposto dello shareholder value e nella teoria finanziaria di stampo neoclassico l’antecedente teorico di tale presupposto.

Alla luce di ciò, la scienza economica e manageriale avverte da tempo l’esigenza di prendere in considerazione valutazioni di carattere morale in merito all’inadeguatezza del mercato - come sistema di allocazione efficiente delle risorse - e dell’individualismo - come norma comportamentale regolatrice dei rapporti d’impresa. A ciò si aggiunga che appare difficile distinguere comportamenti “etici” di breve e di lungo periodo, per cui non necessariamente comportamenti volti a soddisfare gli stakeholders sono etici e di lungo termine (Bebchuk et al., 2022).

Obiettivo del paper. *Il presente lavoro, di natura concettuale, intende riflettere, in maniera provocatoria, sull’apparente contrapposizione tra una visione a breve termine, a vantaggio degli azionisti, ed una visione a lungo termine, a vantaggio degli stakeholders. Partendo dai presupposti logici dello stakeholderismo, inteso come approccio strategico volto ad un purpose (scopo) che tenga insieme non solo l’aspetto economico, ma anche sociale, in senso ampio (Mayer, 2021), il lavoro intende chiedersi se un purpose di questo tipo implicherebbe un comportamento etico delle organizzazioni imprenditoriali e/o degli individui. La domanda a cui tale contributo, infatti, intende rispondere è: davvero è necessario scomodare l’etica d’impresa per identificare comportamenti virtuosi a vantaggio degli stakeholder aziendali? Tale quesito implica una seconda domanda, ovvero l’etica d’impresa è una scienza che si adatta*

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ad interpretare i comportamenti manageriali? Facendo ricorso ad alcuni dei più noti concetti di etica è facile ricordare che questa è la filosofia della pratica, ossia la riflessione sul comportamento dell'uomo e sui valori che orientano le sue scelte. Il termine fu introdotto nel linguaggio filosofico da Aristotele ed è stato generalmente usato come sinonimo di morale. Aristotele fondò l'etica sulla natura, ossia sulle facoltà e disposizioni che l'uomo possiede naturalmente. Poiché la più alta facoltà dell'essere umano è il pensiero, il massimo bene (e, quindi, la felicità) consiste nell'esercizio del pensiero. Sulla scia dell'etica come misura del comportamento orientato al bene o al male, anche Platone indicò l'etica per identificare i comportamenti conformi all'«idea del Bene». Guardando alle idee, l'uomo ragionevole può riconoscere il giusto e l'ingiusto e formulare sicuri giudizi morali. Il sommo bene per l'uomo è la pura contemplazione delle idee, senza ulteriori fini pratici. In estrema sintesi diverse sono state le definizioni ed i concetti sull'etica, non solo Platone ed Aristotele, ma anche Hobbes, Kant, Marx, Engels, Nietzsche; quest'ultimo in particolare ricondusse le principali nozioni dell'etica (giusto/ingiusto, buono/cattivo) a rapporti di forza, presenti non solo all'interno della società ma anche all'interno di ogni individuo. Senza entrare quindi in disquisizioni filosofiche che non attengono al background di chi scrive, è dato facilmente osservare che tali concetti appaiono poco inclini a individuare le finalità dell'impresa, in quanto orientati a delineare il comportamento dell'uomo tra bene e/o male; tra giusto ed ingiusto. Non sempre, infatti, con riferimento all'impresa è possibile parlare di comportamenti assolutamente giusti o sbagliati; tutto infatti è relativo in funzione delle finalità dell'impresa.

Sulla base di questi principi si ritiene inutile scomodare il termine etica per indicare ciò che attiene alle finalità dell'impresa, che dev'essere invece socialmente responsabile, in linea con i concetti emergenti di Corporate Social Responsibility (CSR), ovvero responsabile in ottica sistemica, con riferimento al governo ed al contesto sociale ed ambientale, con ciò introducendo il nuovo tritico dell'“Environmental, social and governance” (ESG); il tutto evidentemente non riferito al comportamento dell'uomo, che discerne tra il bene ed il male, bensì ai processi aziendali, alle scelte strategiche, nonché agli orientamenti degli azionisti (Esposito De Falco, 2022; Cucari e Iandolo, 2022). Non è, quindi, da escludere la possibilità di comportamenti sociali e sostenibili da parte dei soggetti chiamati a governare l'impresa; occorre piuttosto prestare attenzione, negli studi di management, all'adeguatezza terminologica, evitando di utilizzare impropriamente termini quali l'etica, per identificare le finalità dell'impresa. È evidente che possiamo parlare di comportamenti socialmente responsabili, ma chi scrive ritiene che non sia corretto confondere concettualmente l'etica con la responsabilità sociale. I comportamenti socialmente responsabili dipendono dai singoli valori degli individui/attori, i quali diventano una conditio sine qua non anche per la realizzazione del profitto. Ad esempio, lavori recenti hanno incorporato la teoria socio-cognitiva per esaminare un'ampia gamma di comportamenti legati all'ambiente (Zhao e Zhou, 2021). Molte delle questioni di cui oggi si discute (cambiamenti climatici, discriminazione sul lavoro, diversità e inclusione, anticorruzione, etc) sono già regolati dalla legge, e la stessa legge è un insieme di “valori dei governi in carica” e dei “vari gruppi di pressione e di interesse che i governi consultano” (OECD, 2001). Di conseguenza, seppur il dibattito non appaia certamente nuovo (Donaldson e Fafaliou, 2003), esso ha assunto una rinnovata attenzione, anche mediatica, che impone le assunzioni di fondo dell'agire imprenditoriale, con il rischio, altrimenti, di perdere di vista il fine ultimo, ovvero produrre ricchezza, dando massimo valore alle risorse scarse.

Metodologia. *Essendo un contributo concettuale, le argomentazioni si basano meno sui dati in senso tradizionale, ma implicano l'assimilazione e la combinazione di prove che provengono da una varietà di fonti. Seguendo le indicazioni di Whetten (1989), il presente abstract adotta un approccio incentrato sul problema e affronta la domanda di ricerca sulla possibile applicazione dei concetti sull'etica all'impresa, cercando di collegare teorie e discipline esistenti.*

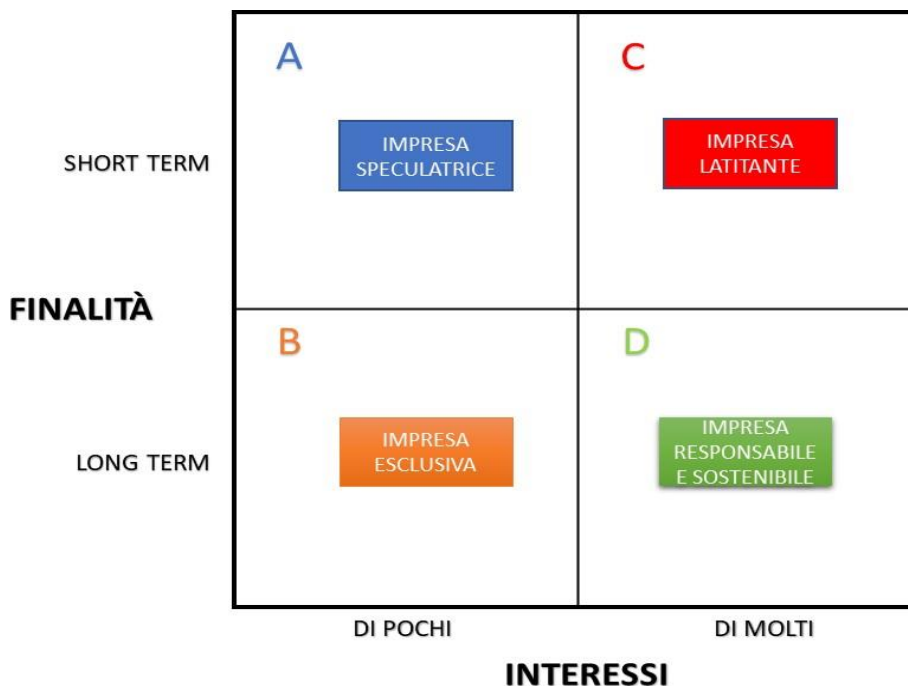
Risultati. *Il concetto di etica può essere declinato secondo diverse prospettive ed è difficilmente riassumibile in una singola definizione. Del resto, gli studi filosofici incentrati sull'etica nascono con la filosofia stessa e sono, pertanto, frutto di un'evoluzione del pensiero umano che trova le sue principali origini nell'antica Grecia. In questa sede sarebbe ridondante richiamare come, nel corso dei secoli, l'etica sia stata approfondita e concepita da scuole filosofiche eterogenee nello spazio e nel tempo. Ciò premesso, la domanda su cui fonda il presente lavoro necessita di qualificare un'interpretazione del concetto di etica che sia potenzialmente applicabile a logiche manageriali. Pertanto, se l'etica degli affari è definita come “un insieme di principi che guidano le pratiche commerciali per riflettere una preoccupazione per la società nel suo insieme mentre perseguono i profitti” (Nisberg, 1988, p. 43), appare evidente come essa sia un “metro di giudizio” rispetto alle decisioni aziendali. Nella realtà imprenditoriale odierna, infatti, i comportamenti imprenditoriali “non possono essere considerati il presupposto di scelte obbligate di responsabilità sociale volte a diffondere in modo equo, giusto e trasparente il valore economico tra gli stakeholders” (Genco, 2005, p. 82). Bartlett e Preston (2000) che hanno trattato il tema dell'impresa etica dal suo interno, sottolineano come i dipendenti siano i primi a mettere in dubbio l'esistenza di un'impresa etica e non sono propensi all'adozione di comportamenti etici, sia perché non riescono a vederne i benefici di lungo periodo, sia perché non si sentono parte dell'organizzazione aziendale. Ne risultano delle policy etiche aziendali che, non essendo supportate da un'adeguata comunicazione, costituiscono delle mere finzioni, alle quali non corrispondono concreti comportamenti etici. Al riguardo, limitiamoci a distinguere tra etica assoluta ed etica relativa: la prima persegue condotte comportamentali ottime e oggettive basate su un filone razionalista; la seconda opera, invece, una distinzione tra il bene e il male secondo un approccio empirista. Il modo più immediato per comprendere a quale delle due suddette forme di etica sia possibile associare le azioni manageriali è quello di porsi delle domande e verificare la possibilità di fornire risposte “assolute” sulla base di un ragionamento razionale. Al riguardo, proponiamo tre semplici domande: i) è etico licenziare un elevato numero di dipendenti per garantire la continuità aziendale? ii) è etico spostare la produzione*

verso Paesi low cost per aumentare la marginalità economica dell’impresa? iii) è etico investire per rispettare i cosiddetti parametri ESG anche nel caso di imprese strutturalmente inadeguate per tale tipo di investimenti?

Ciascuna delle domande proposte pone in evidenza una tipica questione oggetto di studio nelle scienze economiche e aziendali, ossia il problema dei costi opportunità: la risposta, in senso positivo o negativo, implica un beneficio cui si associa un danno. Licenziare dipendenti per assicurare la continuità aziendale significa creare le condizioni per continuare a generare benefici a favore di vari stakeholder, ma al contempo implica un evidente danno (sacrificio) per i soggetti sottoposti al licenziamento. La delocalizzazione produttiva viene giudicata, sul piano etico, in modo negativo nei Paesi economicamente più avanzati, in quanto tende a danneggiare posti di lavoro e valore economico prodotto nel Paese di origine; diversamente, il discorso si inverte nei Paesi ove si realizza il processo di delocalizzazione: il “giudizio etico” tende ad essere positivo, sia a livello governativo, sia nella prospettiva di coloro che ne beneficerebbero in termini di nuove opportunità lavorative. Riguardo agli “obiettivi ESG”, prescindendo dalle difficoltà di introdurre principi di misurazione oggettivi, questi possono essere interpretati come “strumenti etici” da organismi internazionali interessati al benessere del Pianeta, ma anche quali strumenti di distruzione di valore economico allargato per una moltitudine di PMI e dei loro stakeholder.

Si precisa che rispetto alle suddette tre domande la posizione degli autori è del tutto agnostica. Si tratta di banali esempi che servono ad escludere l’ipotesi di applicare l’etica assoluta al management aziendale. Inoltre, anche rispetto all’etica relativa, l’emergere di costi opportunità pone dubbi circa l’esistenza dell’etica d’impresa quale branca delle scienze manageriali. Il fatto che l’etica relativa si basi su evidenze empiriche non significa che un’azione manageriale che origina un “bene relativo” possa essere giudicata eticamente giusta, ove il “bene relativo” sia controbilanciato da “un male relativo”. Sul punto, si considerino anche le posizioni di coloro i quali ritengono che l’approccio politico sia sovraordinato a quello etico (Ciappei et al., 2021) e, di conseguenza, la responsabilità sociale d’impresa diventi un fatto politico e non certo etico di diretta responsabilità tanto degli azionisti quanto dei managers.

Al fine di rendere più espliciti i nostri concetti, si riporta una matrice che incrocia le finalità short e long term dell’impresa con i comportamenti imprenditoriali, finalizzati agli interessi di pochi o di molti.



Il quadrante **D (impresa responsabile e sostenibile)** è quello evocativo di un comportamento imprenditoriale socialmente responsabile e, quindi, orientato all’ESG ed alla CSR; il quadrante **A (impresa speculatrice)**, al contrario, riguarda i comportamenti imprenditoriali finalizzati a difendere l’interesse di pochi (coalizione di comando), con l’obiettivo di massimizzare il profitto nell’immediato. Il quadrante **B (impresa esclusiva)** riguarda quei comportamenti imprenditoriali orientati a conseguire un profitto per pochi (proprietari familiari, coalizione di comando), ma con un orizzonte strategico di lungo periodo, volto a salvaguardare la sopravvivenza nel tempo dell’impresa; è il modello di impresa familiare che tende al controllo ed all’accentramento di tutte le funzioni. Infine, il quadrante **C (impresa latitante)** riguarda quelle entità che non manifestano l’interesse dell’impresa, né esercitano alcune funzioni ma nascono con obiettivi funzionali al raggiungimento di altri scopi slegati dall’impresa stessa. Una volta raggiunto l’obiettivo l’impresa si scioglie. In questa matrice è evidente che l’impresa che adotta un comportamento sostenibile e responsabile è quella che tende alla tutela di più interessi nel lungo termine. Tra gli interessi vi è anche il profitto, che potrà raggiungersi con comportamenti equilibrati verso tutti gli stakeholder. È questo il modello di impresa che incarna la filosofia ESG.

Limiti della ricerca. Questo lavoro è di natura prettamente concettuale. Pertanto, il suo limite principale nasce proprio dal presentarsi come una provocazione puramente teorica. La sfida, quindi, è quella di stimolare futuri studi a

validare le concettualizzazioni teoriche proposte, ad esempio attraverso indagini statistiche condotte su un campione d'impresе oppure attraverso una metodologia dei casi o altro ancora.

Implicazioni manageriali. Occorrerebbe considerare gli aspetti e le influenze contestuali, ad esempio in termini di ordinamento giuridico specifico, tutela degli investitori e cultura nazionale (DasGupta e Roy, 2023; Licht et al., 2021). Sembrerebbe, invece, evidente la presenza di un elemento di discontinuità, influenzato dal proliferare di orientamenti non economici-finanziari, dettato dalla necessità di considerare altri interessi che potrebbero determinare l'emergere di una rinnovata scienza manageriale. Alla luce dei repentini cambiamenti della società contemporanea, infatti, c'è stato un crescente riconoscimento che le misure di redditività, di natura economica, non riescono da sole a catturare l'essenza delle performance di un'organizzazione imprenditoriale, sia come entità in cerca di profitto, sia come attore della società.

A tal proposito, riteniamo utile sfatare un equivoco legato alla teoria del valore di stampo finanziario. Se i manager seguissero le teorie finanziarie prevalenti in tema di shareholder value, verrebbe meno la dicotomia tra azioni massimizzanti i benefici per gli shareholder e azioni orientate alla soddisfazione di tutti gli stakeholder che interagiscono con l'impresa. La massimizzazione del ROE nelle teorie di stampo neoclassico è considerata come fattore di creazione del valore azionario solo quando consegue alla massimizzazione della redditività operativa, quindi alla qualità degli investimenti reali posti in essere dall'impresa, nonché, nell'attuale contesto socio-economico, alla percezione degli stessi in un'ottica di valore allargato e di responsabilità sociale. In altri termini, investimenti reali inefficienti sul piano economico e/o non rispondenti alle aspettative dei diversi stakeholder e del contesto sociale di riferimento, distruggono valore per l'azionista, anche in corrispondenza di un ROE crescente (in virtù, per esempio, di un forte sfruttamento della leva finanziaria). Al riguardo, è stato osservato come sussista una costante negli studi attinenti alla teoria finanziaria del valore, in base alla quale "il più elevato rischio che un investimento subisce in quanto finanziato con capitale di credito viene a gravare sull'azionista" (Fanni, 2000, p. 777). Ciò che spesso non viene colto da alcuni studiosi e manager (che confondono profittabilità per l'azionista con valore intrinseco del capitale azionario) risiede nel fatto che la massimizzazione meccanicistica e contabile del rendimento azionario, se non legata alla dimensione reale dell'impresa, non fa altro che aumentare il costo dell'equity e, quindi, distruggere il valore attuale del capitale di rischio in una prospettiva di medio/lungo termine.

Quindi, come teorizzato da più di settanta anni e dimostrato da innumerevoli evidenze empiriche, accrescere la redditività immediata per l'azionista non significa necessariamente massimizzare lo shareholder value.

In tale quadro, la ricchezza di coloro che detengono quote azionarie di una data impresa entra in contrasto con il ruolo sociale della stessa, solo nell'ipotesi di azionisti orientati a speculazioni di breve periodo. Nella prospettiva manageriale, tuttavia, piuttosto che "scomodare l'etica" sarebbe sufficiente rimodulare consolidate teorie economiche in funzione di attuali scale valoriali: il connubio tra valore azionario e sopravvivenza dell'impresa lega la ricchezza dell'azionista a processi di condivisione del valore e, specie nei Paesi economicamente più evoluti, al rispetto di regole morali emergenti. Peraltro, all'interno di uno Stato laico, regole morali largamente diffuse trovano spesso una codificazione di ordine giuridico. In ogni caso, dette regole (unitamente alle aspettative utilitaristiche dei diversi stakeholder) formano un sistema vincolare che inevitabilmente circoscrive il margine discrezionale del decisore aziendale, nel senso che il mancato rispetto di istanze morali particolarmente diffuse causa una distruzione di valore economico, sia in un'ottica ristretta (shareholder value), sia in un'ottica allargata (stakeholder value). Ciò non implica la qualificazione del "manager etico", ma più banalmente quella di manager dotato di capacità interpretative rispetto a "vincoli morali", mutevoli nello spazio e nel tempo, in alcuni casi codificati sul piano legislativo, in altri di natura informale.

Originalità del paper. L'idea che la finalità a cui l'impresa dovrebbe mirare è rappresentata dalla ricerca del "benessere sociale in una ritrovata coscienza sociale aperta ai problemi della collettività" (Fazzi, 1982) ha da sempre condizionato gli studi manageriali della nostra disciplina e, da più parti, è stato evidenziato il fatto che il tema della responsabilità sociale ha acquisito, nel tempo, sempre più rilievo nel quadro delle problematiche inerenti al governo delle imprese (Esposito De Falco, 2003). Pertanto, discutere della finalità di impresa, ampliabile fino a considerare le sorti del nostro pianeta, appare certamente intrigante, ma allo stesso modo ad nauseam, considerando la copiosa letteratura sul tema. Ciò che appare originale in tale contributo è che allo stato attuale degli studi in materia di etica applicata all'economia e alle imprese, lo studioso di management non dispone degli strumenti per delineare una cornice teorica, anche solo parziale e relativa, che definisca l'impresa etica. Il contributo dell'esperto di management può essere circoscritto a due ambiti di studi: 1) in presenza di costi opportunità, la contestualizzazione delle decisioni aziendali rispetto a ciò che gli stakeholders d'impresa ritengono giusto o sbagliato in uno o più contesti socio-economici; 2) l'implementazione, efficace ed efficiente, all'interno delle imprese, di un sistema crescente di vincoli (formali e/o sostanziali) legati ad obiettivi di sostenibilità. I suddetti ambiti di studio non sono sufficienti alla nascita della disciplina "etica d'impresa". Possono, tuttavia, essere prodromici a stimolare un dibattito scientifico non solo tra gli studiosi di management, ma anche ad avviare interrelazioni con studiosi di etica interessati ad inquadrare i fenomeni d'impresa attraverso nuove chiavi di lettura. Da tali interrelazioni potrebbe nascere la disciplina "etica d'impresa", così come si potrebbe giungere alla conclusione di inconciliabilità tra le scienze manageriali e la branca della filosofia focalizzata sull'etica.

Parole chiave: Etica; CSR; ESG; Purpose; Impresa; business

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Leadership responsabile e orientamento alla giustizia sociale: il ruolo della mindfulness

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Inquadramento della ricerca. *Alla luce delle persistenti disuguaglianze sociali che emergono dalle pratiche organizzative (Amis et al. 2020), ai leader aziendali viene chiesto sempre più spesso di adottare un orientamento alla giustizia sociale, per prendere decisioni informate ed essere consapevoli del loro impatto sulla società (George et al. 2016). Infatti, quando guidano con un orientamento alla giustizia sociale, i leader integrano nei loro team persone con stili e background culturalmente diversi, includono varie persone nel dialogo ed esaminano le questioni da prospettive differenti, il che gli consente di risolvere i conflitti di interesse con persone diverse e di prendere decisioni solide e sostenibili (Maak e Pless, 2006).*

Nell'ambito della letteratura sulla leadership responsabile, studi precedenti sullo sviluppo dell'orientamento alla giustizia sociale, oltre ai tratti della personalità, ai valori condivisi e ai dati demografici (Stahl e Sully de Luque 2014), sottolineano l'importanza di uno stato mentale caratterizzato da maggiore consapevolezza (Pless et al., 2021). In particolare, è stato sostenuto che la consapevolezza (mindfulness in inglese), derivante da una maggiore complessità cognitiva, consente ai leader di differenziare interessi, richieste e bisogni su diverse dimensioni e livelli (sé stesso, l'organizzazione e gli altri nel business e nella società) (Maak et al. 2016).

Lo sviluppo di questa capacità è ampiamente supportata dalla mindfulness, che è un'abilità cognitiva derivante da una "pratica che porta la persona ad una consapevolezza etica, intenzionalmente situata nel qui e ora" (Nilsson e Kazemi 2016, p. 190). Quando si è consapevoli, si è coscienti delle proprie azioni e dell'impatto che esse hanno sugli altri nella società. Le persone con un alto livello di mindfulness hanno meno pregiudizi cognitivi (Lueke e Gibson 2014), il che implica una minore propensione al pregiudizio e alla discriminazione (Berger et al. 2018). Inoltre, grazie all'attenzione per l'ambiente circostante, la mindfulness permette alle persone di acquisire una prospettiva sociale (Baer et al. 2004), che può facilitare una maggiore inclusione e diversità all'interno delle organizzazioni.

Finora, la ricerca sulla mindfulness nella letteratura sulla leadership si è concentrata principalmente sui risultati a livello individuale e organizzativo, come il benessere personale del leader, la produttività lavorativa, la crescita interiore e le relazioni all'interno del team (Urrila 2021). Mentre, la ricerca sull'impatto della mindfulness dei leader su orientamenti sociali più ampi, come la giustizia sociale, è quasi assente (Wamsler et al. 2018; Mielke 2021).

Inoltre, sebbene, al livello micro della ricerca sulla leadership responsabile, si sappia molto sulle qualità, le caratteristiche, le competenze e le abilità che i leader responsabili dovrebbero sviluppare, si sa poco su come queste qualità siano collegate ai vari orientamenti responsabili (Miska e Mendenhall 2018). È stato proposto che la mindfulness possa informare la leadership responsabile (D'Silva, 2019). Tuttavia, studi empirici che dimostrino che la mindfulness possa essere considerata uno strumento utile per sviluppare leader responsabili sono ancora modesti (Goldman-Schuyler et al. 2017; Eriksen e Cooper 2018).

Obiettivo del paper. *Tenendo conto delle suddette lacune nella ricerca, in questo studio ci proponiamo di capire se la mindfulness abbia una correlazione positiva con l'orientamento alla giustizia sociale dei leader. In particolare, ci proponiamo di rispondere alla seguente domanda di ricerca: "Qual è la relazione tra la mindfulness di un leader e l'orientamento alla giustizia sociale?" e testare le seguenti ipotesi:*

Ipotesi 1. La mindfulness avrà una relazione positiva con gli atteggiamenti di giustizia sociale.

Ipotesi 2. La mindfulness avrà una relazione positiva con gli atteggiamenti verso la responsabilità sociale delle imprese.

Ipotesi 3. La mindfulness avrà una relazione negativa con la percezione della giustizia distributiva.

Ipotesi 4. La mindfulness avrà una relazione positiva con il sostegno al movimento #Metoo.

Metodologia. *Nel nostro studio, ci siamo focalizzati sui dipendenti a tempo pieno che ricoprono ruoli senior, come i direttori di dipartimento e gli amministratori delegati. Abbiamo utilizzato un campionamento probabilistico, in cui i partecipanti sono stati selezionati casualmente dalla popolazione generale (Bell et al. 2018). In particolare, ci siamo*

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concentrati sui leader aziendali europei provenienti da paesi con punteggi elevati (superiori alla media) e bassi (inferiori alla media) nell'Indice di giustizia sociale (Bertelsmann Stiftung, 2011). Il nostro campione comprende leader provenienti dall'Italia, Spagna, Germania e paesi del Nord Europa. Inoltre, il nostro studio non si è concentrato su settori specifici, pertanto il nostro campione comprende risposte provenienti da diverse aree di business. Infine, per facilitare la raccolta dei dati, abbiamo utilizzato un software di terze parti chiamato Qualtrics. Un totale di 572 leader hanno partecipato al sondaggio. Abbiamo testato l'ipotesi 1 utilizzando il campione 2, mentre le ipotesi 2, 3 e 4 sono state testate utilizzando il campione 1. L'indagine 2 include nel questionario una scala aggiuntiva per indagare gli atteggiamenti di giustizia sociale che non era stata inserita nell'indagine 1. Il resto del questionario non è stato modificato, così come le modalità di selezione dei partecipanti e di somministrazione del questionario. Pertanto, consideriamo le risposte dei due campioni comparabili come appartenenti allo stesso campione per le scale che le due indagini hanno in comune. Abbiamo utilizzato la teoria della risposta agli item (IRT) per operationalizzare le variabili latenti. Le nostre ipotesi sono state testate utilizzando Stata 17 (Acock, 2013). Per testare le ipotesi sono stati applicati i modelli SEM.

Risultati. Per testare le ipotesi sono stati applicati due modelli SEM. Il primo modello ha testato simultaneamente le ipotesi 2, 3 e 4 e ha valutato la previsione che la mindfulness fosse positivamente correlata al movimento #Metoo e alla responsabilità sociale d'impresa e negativamente correlata alla percezione della giustizia distributiva. Il secondo modello di percorso ha testato l'ipotesi 1 e ha valutato la previsione che la mindfulness fosse positivamente correlata agli atteggiamenti di giustizia sociale dei leader. Per verificare la bontà di adattamento dei modelli, li abbiamo adattati alla matrice di covarianza. Gli indici di adattamento del primo modello: p , $\chi^2 = 0$; CFI = .1; RMSEA = .09.; SRMR = .05; e gli indici di adattamento del secondo modello: p , $\chi^2 = 0.01$; CFI = .08; RMSEA = .07.; SRMR = .03; sono risultati di adattamento accettabile. Unificando i risultati dei due modelli, presentiamo i percorsi standardizzati nella Fig. 1 e gli intervalli di confidenza al 95% per i coefficienti standardizzati delle variabili focali del modello. Come mostrato nella Fig. 1, controllando il paese, il reddito, la posizione lavorativa, il sesso, l'etnia, l'esperienza di meditazione, il settore organizzativo e le dimensioni dell'azienda, la mindfulness è risultata un predittore significativo degli atteggiamenti di giustizia sociale, pari al 5% della varianza ($b = .27$, $p < .05$), a sostegno dell'Ipotesi 1. Utilizzando le stesse variabili di controllo, la mindfulness è risultata un predittore significativo degli atteggiamenti verso la responsabilità sociale d'impresa, pari al 2,3% della varianza ($b = .16$, $p < .01$), a sostegno dell'Ipotesi 2. La mindfulness ha avuto una relazione negativa significativa con la percezione della giustizia distributiva, pari al 2,9% della varianza ($b = -.17$, $p < .01$), che ha portato a sostenere l'Ipotesi 3. La mindfulness ha anche predetto in modo significativo la simpatia verso il movimento #Metoo, pari all'1,5% della varianza ($b = .12$, $p < .05$), quando sono state incluse le variabili di controllo evidenziate, che hanno dato sostegno all'Ipotesi 4.

Limiti della ricerca. In primo luogo, impiegando un insieme ristretto di paesi, la ricerca futura dovrebbe esaminare la generalizzabilità dei risultati ad altri contesti culturali. Sarebbe anche interessante analizzare se dimensioni culturali come, ad esempio, indulgenza contro moderazione (Hofstede, 1984) moderino il rapporto tra mindfulness e orientamento alla giustizia sociale. Inoltre, il contesto o l'impostazione organizzativa, così come la cultura organizzativa e i valori, possono avere un impatto diverso sulla relazione tra mindfulness e giustizia sociale. Inoltre, ipotizziamo che il contesto sociale in cui opera l'organizzazione possa avere un impatto sull'orientamento alla giustizia sociale. In particolare, la pressione istituzionale, l'attivismo sociale e il potere delle parti interessate possono aumentare l'effetto della mindfulness sull'orientamento alla giustizia sociale dei leader.

In secondo luogo, riconosciamo che un bias di desiderabilità sociale può influenzare l'autovalutazione dei partecipanti coinvolti in questo studio. Esprimere atteggiamenti positivi nei confronti delle questioni di giustizia sociale può essere visto dai leader come socialmente desiderabile. Sebbene abbiamo tentato di mitigare il pregiudizio della risposta alla desiderabilità sociale attraverso l'uso dell'anonimato nella gestione del sondaggio (per ridurre la misura in cui un soggetto si sente direttamente o personalmente coinvolto nelle risposte fornite), la ricerca futura dovrebbe fornire ulteriori prove dei nostri risultati utilizzando metodi alternativi.

Infine, sebbene secondo la teoria del comportamento pianificato (Ajzen, 1991) la mentalità normativa dei leader guidi il loro comportamento, non abbiamo osservato empiricamente l'impatto della mindfulness sul comportamento socialmente giusto dei leader. La ricerca futura dovrebbe espandere le nostre scoperte e mettere specificamente in relazione la mindfulness con una serie di comportamenti socialmente responsabili dei leader in un contesto organizzativo.

Implicazioni manageriali. Se riusciamo a instillare una maggiore consapevolezza dei leader per riconoscere l'interconnessione delle pratiche organizzative e del benessere sociale, è probabile che il processo decisionale etico migliorerà. La ricerca precedente riconosce la mindfulness come un'abilità allenata raggiunta attraverso la meditazione e le pratiche di consapevolezza (ad esempio, Berger et al., 2018; Donald et al., 2018; Donaldson-Feilder et al., 2019; Hafenbrack et al., 2020).

Per sviluppare una maggiore consapevolezza, tuttavia, i leader non necessariamente dovrebbero essere regolarmente coinvolti nelle pratiche di meditazione. Per sviluppare una maggiore mindfulness, i leader devono sviluppare un atteggiamento per ristabilire l'attenzione verso la loro organizzazione ed evitare di confrontare o valutare gli eventi attraverso processi di categorizzazione automatica e modi abituali di fare o ragionare (Langer & Moldoveanu, 2000). Ciò può scaturire da frequenti autointerrogazioni/valutazioni dell'impatto che questa o quell'azione può avere sulla società.

Per facilitare lo sviluppo di leader consapevoli, una filosofia di mindfulness dovrebbe essere accompagnata da un progressivo allineamento di tutte le strutture e dei processi organizzativi (Rashkova, Moi e Cabiddu, 2022). In

particolare, l'adozione di valori di giustizia sociale e l'incoraggiamento a prospettive diverse possono portare a una maggiore mindfulness dei dipendenti, nonché allo sviluppo di una mindfulness collettiva della giustizia sociale.

Originalità del paper. Al giorno d'oggi, per affrontare la complessità delle sfide sociali, i leader dovrebbero sviluppare nuove capacità (Maak et al., 2016; Stahl et al., 2018) per considerare in modo integrato l'interconnessione delle agende aziendali e sociali (Maak et al., 2016). Rispondendo a precedenti ricerche che chiedevano di ampliare gli studi sull'impatto delle qualità personali su uno specifico orientamento responsabile (Miska e Mendenhall, 2018) e di rafforzare l'attenzione dei leader su la più ampia inclusione, collaborazione e coinvolgimento degli stakeholder (Pless et al., 2022), in questo studio abbiamo spiegato come la mindfulness sia legata a uno specifico orientamento RL, quello alla giustizia sociale. In particolare, riconoscendo la complessità del costruito di giustizia sociale, abbiamo misurato l'impatto della mindfulness su quattro diverse operazionalizzazioni degli atteggiamenti di giustizia sociale dei leader (individuale, collettiva e sociale).

I risultati di questo studio sono promettenti per quanto riguarda la forza e l'ampiezza della relazione tra mindfulness e giustizia sociale. Essi indicano che la mindfulness individuale dei leader è significativamente correlata agli atteggiamenti e alle percezioni di giustizia sociale. I nostri risultati hanno supportato tutte e quattro le ipotesi: i leader più attenti hanno riportato una maggiore preoccupazione per le questioni di giustizia sociale. L'ampiezza dei risultati indica che le persone con un livello più alto di mindfulness hanno maggiori probabilità di avere una serie di atteggiamenti positivi verso le questioni di giustizia sociale, piuttosto che essere campanilisti o limitati a una sola area. La maggiore simpatia per il movimento #Metoo può suggerire che le persone con un livello più alto di mindfulness hanno una propensione intrinseca a smantellare i sistemi ingiusti. Le percezioni di giustizia distributiva suggeriscono che i leader mindful si impegnano per una distribuzione più equa di diritti, privilegi e opportunità nella società rispetto a quella attuale. La relazione positiva tra mindfulness e atteggiamenti di responsabilità sociale d'impresa indica che i leader con un livello di mindfulness più elevato possono considerare come le loro azioni influenzino non solo le loro organizzazioni, ma la società nel suo complesso. Inoltre, i nostri risultati indicano che le persone con un livello di mindfulness più elevato hanno anche atteggiamenti di giustizia sociale e possono avere una migliore comprensione di come le loro azioni da manager influenzeranno la società nel suo complesso.

I nostri risultati, da un lato, confermano le ricerche precedenti che suggeriscono la mindfulness come caratteristica importante della RL (George 2003; Maak e Pless 2006; Pless 2007; Pless et al. 2022) e, dall'altro, le ampliano fornendo prove empiriche, anche se ancora marginali, sulla mindfulness come caratteristica utile per la leadership responsabile (D'Silva, 2019; Eriksen e Cooper, 2018; Goldman-Schuyler et al., 2017). Poiché la leadership responsabile presuppone la capacità di prendere decisioni morali e di principio considerando il loro impatto sugli altri (Pless e Maak 2011), i nostri risultati offrono l'evidenza empirica che la mindfulness può dare origine a tale capacità. Poiché la mindfulness implica l'osservazione dei sentimenti, dei pensieri e delle emozioni degli altri e l'agire con mindfulness, potrebbe essere più facile per i leader mindful valutare il loro impatto sulla società e ristrutturare le pratiche organizzative irresponsabili che alimentano le disuguaglianze sociali. Basandoci sui risultati di cui sopra e sulla teoria del comportamento pianificato (Ajzen 1991), in cui la mentalità normativa dei leader (compresi gli atteggiamenti) guida il loro comportamento (ad esempio, il processo decisionale) (ad esempio, Chin et al. 2013), proponiamo la mindfulness come una caratteristica importante della RL che può informare il comportamento socialmente responsabile.

Inoltre, contribuiamo alla letteratura sulla mindfulness nella leadership. Finora i risultati della ricerca sulla mindfulness sono stati conosciuti a livello individuale e organizzativo (Mielke, 2021; Wamsler et al., 2018); noi estendiamo i risultati della mindfulness al livello sociale, fornendo una chiara visione della società.

Parole chiave: Mindfulness, giustizia sociale, leadership responsabile

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A preliminary investigation about metaverse in international hotel chains

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Framing of the research. *Digital technology has long been redesigning the market landscape in many sectors, including the hospitality industry. COVID-19 has speeded the penetration of this phenomenon by spreading several pervasive digital technologies (big data, blockchain, artificial intelligence, robotics, etc.), that have transformed both how tourism and hospitality businesses operate and how customers/tourists live their experiences. Furthermore, lockdown gave rise to virtual travelling as a way for firms to reach their target market and for consumers to escaping the everyday. It follows that hospitality sector “is experiencing a wave of digital disruption that threatens to restructure some traditional business models and make others obsolete” (OECD, 2017, p. 7).*

Thereby, in the current scenario, the challenge for the tourism and hospitality industry is to understand how to boost the introduction of transformative technologies to enhance the real-world guest experience, hence taking advantage to being in a new space where the digital and physical worlds converge (The Verge, 2021). The interplay between these issues has been recently identified with the term metaverse (Del Chiappa, 2022) recognizing it as the next disruptive technology (Gursoy et al., 2022) that will revolutionize how hospitality customers and organizations facilitate the co-creation of transformational experiences and values (Buhalis and Karatay, 2022).

The metaverse has been described as a virtual reality (VR) space that utilizes VR headsets, blockchain technology, software agents, and avatars within a new integration of the physical and virtual worlds (Joshua, 2017; Lee et al., 2021). Although examples that can be described as antecedents of the metaverse have been available since the early and mid-2000's with large numbers of global users, the new metaverse concept - as outlined by Mark Zuckerberg with the launch of Horizon Worlds in 2021 by Meta Platforms - has heavily increased the interest of academics and practitioners opening many questions that require just as many answers (Fernandez and Hui, 2022). With reference to tourism, Go and Kang (2022, p. 2) have defined metaverse as “tourism that provides a product or experience with collective spatial environments enhanced by multi-sensory information processing in the converge of physical and virtual environments”.

Even though metaverse is still largely conceptual and not clearly executed, scholars expect this technology to disrupt tourism challenging existing models of tourists planning behaviors and supplier management (Buhalis et al., 2023). The challenge for practitioners as well as researchers is now to understand how players from the hospitality industry can use metaverse to provide tourists with new customer experience, both before (in the purchasing phase), during, and even after the touristic experience (i.e., the so-called never-ending tourism). Buhalis and colleagues (2023) argue that in the purchasing phase, tourism experience providers can use metaverse for promotional and experience design purposes. During travelling and whilst on-site, “metaverse effectively supports users to become active participants or virtual actors in the context they choose to be” (Buhalis et al., 2023, p. 5). After travelling, finally, metaverse can be considered as a good tool to recall and share tourist experiences (Buhalis et al., 2023). Furthermore, first practical evidences suggest that the metaverse will also give the opportunity to virtually live experiences that tourists may not be able to physically try for several reasons (e.g., too expensive, risky, not accessible).

The National Geographic VR, for example, allows individuals to use Oculus VR gear to virtually kayak through icebergs in Antarctica or explore the hidden treasures of Machu Picchu. According to Hotelverse - a network of 1,500 hospitality companies aimed at promoting the use of digital technologies in the industry - the use of metaverse in the purchasing phase will increase customer experience and in turn companies' revenues. This means that metaverse will soon allow consumers to be actively involved, participate, and co-create using experiences (Buhalis et al., 2022) and hospitality and tourism organizations to establish interaction with them (Gursoy et al., 2022). Other examples can span from building a decentralized hotel in the metaverse to more immersive virtual tours, with potential for interaction with some of the room features - dimming the lights, exploring the minibar, checking the floor space for accessibility needs, etc. In addition, further possibilities refer to hybrid experiences and events, which could host remote business attendees, wedding guests, and so on in a more participatory and present way than before, as well as interactive itineraries, giving

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guests the opportunity to explore the area with expert guidance, uncovering local insider tips, restaurant recommendations, and lesser-known places to discover.

Duan et al. (2021) identified a three-layer metaverse architecture: the virtual world, the physical world, and the intersection between them, while Go and Kang (2022) have added a fourth layer, i.e., the inclusion of tourist experiences within metaverse environments. The physical environment includes various types of infrastructures such as tourism attractions, facilities, and supporting technological devices. The virtual environment contains ecosystems formed with user-generated content, economics, and artificial intelligence. As a consequence, metaverse environments are shaped by the intersection of physical and virtual environments. Promoting or allowing tourists to share, review and reproduce their metaverse experiences on social media is the fourth layer (Go and Kang, 2022). A further layer could be foreseen with reference to the relationship with other stakeholders such as the human resources. Examples are the development of metaverse training courses for operational staff to provide an in-situ experience in an immersive and realistic simulated environment or the use of VR and AR for auxiliary and off-site working processes, engaging workforces remotely in an efficient and stimulating format (SITA, 2022).

In sum, metaverse is expected to have considerable impacts on the hospitality and tourism industry that will be increasingly pushed to reengineer its servicescape and experiencescape to ensure that the new metaverse potential is capitalized (Kandampully et al., 2022). It follows that metaverse effectively extends the Augmented Reality (AR) and VR by integrating 3D projection technology (Rauschnabel, Babin et al., 2022), going towards a near-realistic experience via integrating sensory feedback for sight, hearing, smell, taste, and touch (Buhalis et al., 2022). In particular, hospitality services will be greatly influenced with impacts that will invest a very wide range of services, including accommodation, food and beverage, entertainment, and MICE services (Buhalis et al., 2022). As stated by Buhalis et al. (2022, p. 6), metaverse “propels a dynamic transformation of the hospitality ecosystem, forcing a business process reengineering in all functions and processes as well as in operational and strategic hospitality management”. This transformation will give to organizations new drivers to promote products and services through immersive engagement and to deepen their knowledge about consumers’ needs, wants and preferences (Buhalis et al., 2023).

Hotel firms can conduct meta-advertising and lease digital billboards of their metaverse properties to other companies for placing digital advertisements. Furthermore, they can promote their brands and increase their brand awareness in the virtual space whilst offering virtual tours and personalization (Buhalis et al., 2023; Hollensen et al., 2022). Taking advantage of immersion, they can organize virtual tours and experiences, whilst engaging in real-time conversations with concierge or sales executives on the platform. Hotels can re-create their digital twins and services in the virtual space and augment information about the history and attractiveness. Hotels can also use metaverse to change their events into hybrid (fully or partially) virtual format. In other words, metaverse can help create an unprecedentedly strong sense of embodiment for users because they can watch the scene and hear the sound but also experiment the sense of engaging, interacting and touching in the digital world.

Metaverse can be used for the development of facilities and service prototypes. Developing virtual facilities, attractions, and activities is faster, cheaper and more flexible, than constructing physical facilities. Destinations can leverage metaverse to develop attraction prototypes, invite people to gain lifelike experiences, using their MR/VR devices, and solicit their feedback for further improvement. Many aspects are easily adjustable, so tourism organizations can test several iterations virtually before deciding the option to construct (Rauschnabel et al., 2022). Through employing metaverse to involve and acquire input from prospective travelers, this proactive collaboration is expected to help identify more consumer-centric design and ultimately lead to value co-creation (Buhalis et al., 2022).

Metaverse also supports market intelligence and facilitates research and development. Similar to website browsing, travel blog writing and travel photo uploading, users leave digital footprints when entering the metaverse and interacting with others. These big data can enrich tourism suppliers’ knowledge about who their customers are and what they need. Tourism suppliers can proactively use metaverse to engage in conversation, convert sales, and transform the data pertinent to their customers into business insights. Attribution can identify touchpoints and evaluate different methods to improve conversion (Buhalis and Volchek, 2021). These insights empower suppliers to provide consumers with the right product in the right place at the right time (Stylos et al., 2021). Simulations of tourism behavior and preferences can also explain travel routes, paths and patterns.

As highlighted so far, metaverse presents several potential opportunities. However, it also brings a range of challenges as it happens for any disruptive innovation. Among the many emerging issues, exploring how the hospitality industry can eager ways to capitalize on the metaverse becomes imperative (Gursoy et al., 2022). In particular, the identification of innovative processes and resources each hotel should initiate to transform its business model should be of primary interest since to understand how metaverse should enter the business model can support companies to unveil new sources of value creation and value capture. Yet, although several examples of the implementation of metaverse have been underlined, literature about the opportunities it offers in terms of business model innovation is still in its infancy.

The concept of Business Model (BM) defines the way in which a company creates value for customers and how it captures this value (Teece, 2010; Zott et al., 2011). It embodies the way a firm does its business, translating strategies into operative activities that allow it to create and capture value (Afuah and Tucci, 2001; Osterwalder et al., 2005; Zott and Amit, 2010). Companies are increasingly being pushed to go further and reinterpret their conventional way of doing business, and thus their BMs. This is imperative if they want to remain competitive in a market that is experiencing rapid changes characterized by fluctuating consumer behavior and economic conditions, as well as by technological progress (Dhaliwal et al., 2020; Yeoman and McMahon-Beattie, 2018). Indeed, the need to develop BMs

that reflect such trends makes it imperative to experiment new strategic directions such as applying disruptive technologies as metaverse by identifying new sources of value creation that trigger customers' willingness to pay (Bowman and Ambrosini, 2000). This means that to succeed and thrive in the new competitive environment, hotel companies are undergoing digital transformation which leverages digital technologies and requires the transformation of entire organizations and their activities, processes, structure and revenue models to remain relevant and competitive in the marketplace (Matt et al., 2015).

Purpose of the paper. Despite the relevance that metaverse is playing in the hospitality industry, how hotel chains are using it still remains an overlooked issue (Iranmanesh et al., 2022), since hospitality literature has mainly focused on the mere diffusion of other digital technologies (Fileri et al., 2021) and studies focused on metaverse are still in an infant stage. Starting from this premise, this Extended Abstract (EA) will show the preliminary results of a research project started in December 2022 finalized to identify activities generated by a strategic use of metaverse for exploring and exploiting new business opportunities. In other words, our aim is to investigate the role of the metaverse as a digital tool capable to pursue strategies of exploration and exploitation for hospitality firms. We expect that each of this strategic approach is implemented through different mechanisms. The research focuses on hotel chains due to their peculiar organization; in fact, they have the attributes of multinational enterprises and share the characteristics of service industry organizations (Ivanova and Ivanov, 2015) giving us the opportunity to reach more information in comparison with smaller organizations and to have the chance to be nearer to see nascent innovations as the case of metaverse.

Hotel chains dominate the global hotel industry (Pine et al., 2004) and are the most active actors in the hospitality internationalization process and because of this, they have received much attention in the literature (Brida et al., 2016). According to the broadly accepted definition of Ingram and Baum (1997, p. 68), hotel chains are "collections of service organizations, doing substantially the same thing (often the only differentiation is in physical space), that are linked together into a larger organization. The relationships between the components of a chain are horizontal, although typically there are centralized parts of the chain, such as a distribution facility, that have vertical relationships to the components". This form of business organization helps to develop and maintain identifiable image and unified hospitality products, to multiply standards, to transfer knowledge and best practices and to produce guaranteed quality service in the globalized environment.

Methodology. Given the limited attention the previous literature has placed on the role of metaverse in innovating hotel business models, this paper adopts an exploratory multiple case study approach (Eisenhardt, 1989). Following Eisenhardt and Graebner (2007), we adopted a multiple case study methodology due to the ability of qualitative data to explicate complex social processes.

The exploratory analysis takes in consideration four international hotel chains (Accor Hotels, CitizenM, Four Seasons and Marriott). The selected cases represent some of the most diffused and innovative hotel chains in the world, whose analyses would provide a good understanding of the current scenario about metaverse in the hospitality industry.

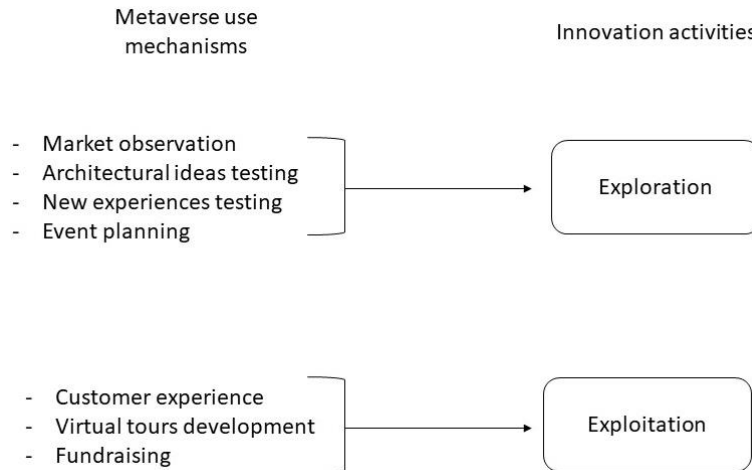
Being ongoing research, the EA can just sketch preliminary findings that emerge from the analysis of secondary data. For each chain we searched for press releases, public disclosure forms, and specific information shared through official websites and social media. At any rate, this can be considered the first step, preparatory to carrying out a more robust analysis done through interviews with key-informants and/or focus groups.

Results. First evidence suggests that metaverse is indeed a technology aimed at innovating business models in a way that allows firms to balance exploration and exploitation activities. The analysis represented in Figure 1 shows that there are seven mechanisms through which hotel chains implement exploration and exploitation. In particular, hotel chains are experimenting the use of the metaverse for observing how customers live the metaverse and the virtual hotel. This mechanism allows companies to grab ideas to test in the digital world. Once that the ideas prototypes are developed, the hotel chains can test them with the metaverse users. The ideas are related to the architecture and the management of the spaces, to new possible experiences and to events organization. These four mechanisms fall under the exploration activity as they give firms opportunities to try new solutions to be applied both in the digital or in the physical world. According to our findings, indeed, hotels also test ideas that can be implemented in the real world.

The other three mechanisms are associated to the exploitation activity. The metaverse, in fact, already provides opportunities to be exploited. One of the mechanisms is the fundraising through the selling of non-fungible tokens (NFT) that give special rewards to virtual tourists. A second mechanism is represented by the increased customer experience: designing offers in the metaverse may imply the development of new digital experiences that engage customers, in particular the tech-savvy, increasing the value of their experiences and consequently their brand loyalty. Finally, the metaverse allows to offer new experiences in the digital world that can be sold to customers.

Conference discussion will contribute to consider remarks and suggestions in order to finalize the empirical research. Meanwhile, preliminary results can be grouped in two main strands, understanding of the hotel chains selected as case studies and the analysis of their experiments related to the use of the metaverse.

Fig. 1: Preliminary results: the metaverse as a tool to explore and exploit innovative solutions



Research limitations. *The research is limited to four case studies and the extended abstract focuses on preliminary results. However, the hotel chains under analysis are emblematic examples to explore this emergent phenomenon as they can be considered as first movers in innovation's adoption.*

Further research steps will corroborate the preliminary highlights. Then, a broader research project will may be promoted also supported by a quantitative analysis.

Managerial implications. *Findings will be of great interest for managers and advisors of hotel chains and tourism organization in general. In fact, this research will depict not only the state-of-the-art about metaverse tourism but also how innovative strategies are shaping the BMs. The mechanisms identified will show managers how some of the most important hotel chains in the world are experimenting the use of the metaverse, shedding light on the innovation opportunities opened by this new and increasing technology.*

Originality of the paper. *This is among the first studies that tries to provide evidence about how metaverse can be used to innovate business models in a way that balances exploration and exploitation activities in the specific context of the hotel industry. In doing so, it tries to find the main mechanisms through which metaverse create innovation opportunities for hospitality companies.*

Keywords: *Metaverse; Innovation; Hotel chain; Disruptive technologies; Exploration; Exploitation*

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The role of internship in the process of human resources training. Application to hotel sport and recreation services

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Framing of the research. *Tourism is an amalgam of service industries (Otto and Ritchie, 1996). Service innovation encompasses the concept of service improvement. Service innovation always involves criteria that can be copied and identified and systematically replicated in the industry. These reproducible criteria can be the outcome of the services or the process of service provision. Comparing the most prevalent definitions of the concept of innovation, it is observed that there are four different perspectives, many authors define innovation as a process, while others state that innovation can also be a function, an activity or an outcome. In any case, innovation is equivalent to the creation or development of something new (Nagy, 2014).*

Therefore, defining innovation in services is not an easy process. Mudrak, Van Wagenberg and Wubben (2005), stated that service innovation is the process through which a firm undertakes changes in its philosophy, culture, operations and processes to add value to the outcome of the service or product for the benefit of the customer. Another definition of the concept was proposed during the Cornell Hospitality Roundtable: ‘Service innovation is the introduction of new or innovative service-focused ideas that provide new ways of delivering benefits, new service concepts or new business service models through continuous improvement in operations, technology, investment in employee performance or customer experience management’ (Verma et al., 2008).

The entry of new ideas of innovation has triggered further research and development in the areas of services that provide new ways of delivering benefits, developing new service concepts or new service business models through continuous improvement of operations, technology, performance from investing in human resources or managing the customer experience.

The hotel industry is increasingly offering more and more facilities through the large hotel chains that monopolize the tourism market. Trends such as, design, social and lifestyle changes, eco-hotel, historically significant hotel, sports hotel, spa hotel, quirky hotel, boutique hotel and modern hotel are constantly developing and differentiating themselves from traditional hotels (Hackett and Melia, 2012).

Hotels are focusing on differentiation to such an extent that the hotel is now the tourist attraction (Van Hartesvelt, 2006) and an integral part of the stay (Freund de Klumbis, 2005; McIntosh and Siggs, 2005). The hotel’s ability to develop and market successful new services is not only vital for its survival, but is a competitive advantage for the organization (Ottenbacher and Harrington, 2010). Investment in innovation is considered key ingredients for improving a firm’s competitive advantage, either in terms of cost or strategic differentiation. In both cases the result is that better performance indicators are achieved for the firm (Fernández and Suárez, 1996; Peteraf, 1993).

Wellness and well-being are important parts of the tourism industry, according to Konu (2010). Wellness, sports and healthcare products are usually associated with luxury properties and five-star hotels. A definition, for this type of hotel, is provided by the National Tourism Development Authority of Ireland “Failte Ireland” (2010), which states that it is a property whose main purpose is to provide a full service of wellness, therapy, spa or sports facilities while being a holiday destination.

The quality of recreation services in hotels has become of particular importance and can contribute to a high degree to the improvement of the quality of life of tourists (Costa et al., 2003; Yfantidou, 2009). Entertainment, as an important objective of tourism and recreation, has led to the emergence of recreation services (animation). The participation of people during holidays in sports activities, their introduction to physical education, games and movement is a step towards recovery. The introduction of new content, the promotion of tourism opportunities based on a modern marketing approach, the involvement of professional staff in the tourism sector, sport and physical culture are the main conditions for the development and confirmation of sport and recreation tourism in this sector (Bulatovic et al., 2019).

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The different types of sport/recreation activities influence the return to the destination. Sports facilities and services, as well as health, spa and wellness facilities and services have a positive impact on the return of tourists. In addition, there is a positive effect on repeat visits and the generation of new tourist visits with potentially significant economic benefits. The emphasis on the role of spa, wellness and other hotel facilities in the recreation and physical activity sector draws attention to the fact that these types of services and facilities have managed to occupy a substantial position in the perception of consumers and certainly have a positive impact on the overall image of the hotel and, by extension, the destination. The findings suggest that managers and policy makers are making additional efforts to create a better environment that supports the synergy between sports and recreation activities (Markus et al., 2019).

Fayos-Solà, Alvarez and Cooper (2014), stresses that human resource training is a necessary condition for the competitiveness of firms. Even the smartest strategy can be fruitless if the firm is not supported by appropriate personnel (in terms of quantity and quality) placed in the right positions. By effectively managing Human Capital, a company can achieve maximum results with its own human capital and be superior to its competitors. Employment in hotels is characterized by a certain specificity due to the behaviour and ability of the workers employed and the nature of the work itself. Particular attention is drawn to the interactions created between customers and employees as the latter are a dominant theme of management practices (Pandit, 2003).

Purpose of the paper. The aim of the research was to investigate the human resources in sports and recreation services provided by five-star hotels operating in Greece, with Mitsis and Grecotel hotels as a case study where the students of the Department of Physical Education and Sports Science of DUTH carried out their internship.

Methodology. The sample of the research consisted of six Managers-Directors of Mitsis and Grecotel hotel groups (five-star hotels in Greece) with which cooperation has been developed in the framework of the implementation of the Internship of the Democritus University of Thrace from the academic year 2018-2019 until 2021-2022.

The five-star hotels of Mitsis and Grecotel groups provide sports and recreation services and have welcomed students of the Department of Physical Education and Sports Science of the Democritus University of Thrace, for their internship. They are listed as follows:

1. Mitsis Faliraki Beach Hotel & Spa
2. Mitsis Family Village Beach Hotel
3. Mitsis Norida Beach Hotel
4. Mitsis Rinela Beach Resort & Spa
5. Mitsis Rodos Maris Resort & Spa
6. Paneuropa S.A. (Mitsis Laguna Resort & Spa)
7. Grecotel S.A. (Olympia Riviera Resort)
8. Grecotel S.A. (Pella Beach)
9. Grecotel S.A. Corfu Imperial
10. Tholari Hotel Tourism Construction & Commercial Limited Company (Mitsis Blue Domes Resort & Spa)
11. Hotels of Crete Mitsis Company S.A. (Royal Mare Thalasso & Spa Resort)
12. Hotel Tourist Businesses Konstantinos Mitsis S.A. (Ramira Beach Hotel)

A new questionnaire was created for this research. Questions were selected from the scales of:

- i) Orfila-Sintesa & Mattsson (2007) - (Section 6 HR & 7 Hotel Director),
- ii) Akomaning, Voogt, & Pieters (2011) - (Appendix A1, Appendix A2 & Appendix A5)
- iii) Odio (2013) Appendix E.
- iv) "Study/Guide for the application and analysis of human resource indicators" Operational Programme "Human Resource Development" during the NSRF 2007-2013, indicators 3.2.1 and 3.2.3. (Epitropaki & Gerakari, 2014)

The questionnaire consists of 49 questions divided into four sections:

- The first section concerns the information on personal data and the consent of the research participant (1 question).
- The second section concerns the demographic characteristics and data of the hotel's manager, with five questions related to gender, age, years of experience in the specific hotel, years of experience in the specific field and level of education (5 questions).
- The third section contains questions on human resources (20 questions). These questions relate to the number of employees in the sports and recreation services and their working relationship with the company, their level of education and the hotel's human resources policy. At the same time there are questions concerning the training of human resources and possible innovation in sport and recreation services, processes, communication channels and organizational structures.
- The fourth section concerns the evaluation of the Internship Programme and includes 23 questions of closed-ended five-point Likert-type scale in relation to:
 - (a) the implementation of the programme,
 - (b) cooperation between the parties involved,
 - (c) placement,
 - (d) human resources roles and
 - (e) Efficiency.

For the collection of the survey data, telephone contact was made with the executives of the Mitsis and Grecotel hotels to agree the cooperation for this research. The hotel Managers-Directors who agreed to participate in the survey were six in total and they had to complete an electronic questionnaire.

Results. Factor analysis was performed. PCA revealed four factors which explain the 97,48% of the total variance:

- Factor 1 Placement 26,48% of variance eigenvalue 6,09
 - Factor 2 Cooperation 26,19% of variance eigenvalue 6,02
 - Factor 3 Efficiency 25,54% of variance eigenvalue 5,87
 - Factor 4 Implementation 19,27% of variance eigenvalue 4,43
- The total Reliability total for the 23 questions was tested with Chronbach α and was 0,97.
- Factor 1 Placement $\alpha=0,95$ (8 questions)
 - Factor 2 Cooperation $\alpha=0,97$ (7 questions)
 - Factor 3 Efficiency $\alpha=0,94$ (5 questions)
 - Factor 4 Implementation $\alpha=0,90$ (3 questions)
- Demographic characteristics of participants:
- Gender: Man 66,7% & Women 33,3%
 - Age: 17-39 years 33,3% & 40-59 years 66,7%
 - Previous Work Experience: 1-5 years 33,3%, 6-10 years 33,3%, 10+ years 33,3%
 - Educational Level: PhD 16,7%, MSc 50%, BSc 33,3%

Demographic characteristics of employees in the sports and recreation sector in hotels: In the sports and recreation section of the hotels whose managers participated in the survey, 14,72% of their staff are employed on a permanent basis, while 26,41% are employed on a contract basis as seasonal staff and 16,45% are hired as temporary staff. The need for staffing the hotels' sports and recreation services is also covered by project contracts with both outsourced professionals in the field at a rate of 17,32% and contracted out to contractors at a rate of 25,11%.

In terms of training and education of staff employed in the sports and recreation department, 45,81% of the staff selected to be employed have received university education. However, hotel managers stated that they recruit staff for the sports and recreation department who come from colleges, institutes of vocational training and vocational schools at 18,5%, as well as secondary school graduates at 19,82%. They also stated that 15,86% of their staff have received only compulsory education.

The participants in the survey were then asked to answer questions concerning the human resources employed in sport and recreation services. Regarding the policy followed by the companies in terms of staffing and job satisfaction of their staff, 100% of the respondents said that they prefer internal promotion of existing human resources and 83,3% of them prefer to strengthen their existing human resources. At the same time 33,3% of the respondents said that the policy of rewards/bonus in the range of 5% to 20% of employees' salaries is promoted by the companies.

In a question concerning the training of human resources in sports and recreation services in the last two years, 50% of the respondents stated that their staff is trained within the company with a specific training plan, while the remaining 50% do not agree with this view and stated that they do not train their staff and do not implement any training plan. The companies that implement a training plan stated that they implement it from time to time at a rate of 80% while 20% of the respondents answered that they implement a continuous training plan.

Regarding staff training methods, respondents answered that the training comes from already trained people, who provide a programme plan. At the same time, they implement in job training & seminars both internally by the central HR department and by external partners.

Regarding the Mean of the Factors:

- Placement Mean=3,71 std=0,91
- Cooperation Mean=4,21 std=0,84
- Efficiency Mean=4,10 std=0,72
- Implementation Mean=3,39 std=1,14

T-tests analysis between Gender and Factors:

- Placement $t_{(4)} = -0.285, p > 0.05$
- Cooperation $t_{(4)} = 0.888, p > 0.05$
- Efficiency $t_{(4)} = 1.675, p > 0.05$
- Implementation $t_{(4)} = 2.046, p > 0.05$

T-tests analysis between Age and Factors:

- Placement $t_{(4)} = 0.285, p > 0.05$
- Cooperation $t_{(4)} = -0.888, p > 0.05$
- Efficiency $t_{(4)} = -1.675, p > 0.05$
- Implementation $t_{(4)} = -2.046, p > 0.05$

Anova analysis between Educational Level and Factors:

- Placement $F_{(2,3)} = 0.149, p > 0.05$
- Cooperation $F_{(2,3)} = 0.205, p > 0.05$
- Efficiency $F_{(2,3)} = 1.462, p > 0.05$
- Implementation $F_{(2,3)} = 1.096, p > 0.05$

Anova analysis between Previous Working Experience and Factors:

- Placement $F_{(2,3)} = 1.787, p > 0.05$
- Cooperation $F_{(2,3)} = 0.184, p > 0.05$
- Efficiency $F_{(2,3)} = 2.208, p > 0.05$
- Implementation $F_{(2,3)} = 0.150, p > 0.05$

Placement

Regarding the question whether “the hotel industry cooperates with the professors of the departments for the education of students” only 16.67% answered that they strongly agree. 33.33% of the respondents maintained a neutral attitude while 16.67% responded that they disagree that there is cooperation with the Department Professors and the remaining percentage i.e. 16.67% responded that they strongly disagree.

In the question on whether the hotel industry cooperates with the Departments for the education of students only 16.67% responded that they strongly agree. 50% of the respondents maintained a neutral attitude as they replied that they neither agree nor disagree, 16.67% replied that they disagree with the opinion and 16.66% replied that they strongly disagree.

When asked whether it would be useful to create a curriculum that would take into account a commonly accepted skills framework for the effectiveness of the knowledge required for human resources in sport and recreation services, 33.33% of respondents answered that they strongly agree, 50% of respondents agreed and 16.67% answered that they neither agreed nor disagreed.

The question whether students evaluate their internship experience by providing feedback to the company was answered by 16.67% with absolute agreement and at the same time 33.33% responded that they agree. On the other hand, 50% of the respondents answered neither positively nor negatively.

At the same time, when asked whether students evaluate their internship experience by providing feedback through reports to the company, 33.33% of the respondents answered that they strongly agree, 16.67% that they agree and 33.33% answered that they neither agree nor disagree on this issue. On the other hand, 16.67% answered that they disagree.

As to the question whether the Internship gives the students the opportunity to apply their theoretical knowledge in the field of implementation of the internship, the respondents of the hotel managers answered that 50% strongly agree that they agree while 16.67% answered that they neither agree nor disagree.

When asked whether employers of the company are generally satisfied with the work performance of interns, 33.33% of respondents said they strongly agree and 33.33% said they agree. However, the remaining 33.34% did not want to be positioned and responded that they neither agree nor disagree.

The surveyed hotel managers, when asked whether the increase in performance has resulted in an increase in staffing in sports and recreation services, responded that 33.33% strongly agree and 33.33% also agree. However, 33.34% gave neither positive nor negative response.

Cooperation

In response to the question posed to the respondents whether the “duration of the Internship should be extended”, 66.66% of the respondents answered that they strongly agree and 16.67% that they agree that the internship should be implemented for a longer period. At the same time, 16.67% responded that they neither agree nor disagree, indicating that the duration the internship is implemented is sufficient.

The question asked whether “the hotel industry should strengthen its support for student education through Internship programs found 50% strongly agreeing in this direction and 33.33% agreeing, while only 16.67% of respondents answered that they disagreed with this view.

The question on enhancing the cooperation of all stakeholders (University - Companies - Students) in student internship found 66.67% of the respondents strongly agree and 16.67% agree. On the other hand, the remaining 16.66% stated that they disagreed with the cooperation of the parties involved.

The question of whether it is important to identify a common skills framework in sport and recreation services for the benefit of all parties involved (University - Companies - Students) found 50% of respondents strongly agree and 33.33% also answered that they agree, while 16.67% answered that they neither agree nor disagree with this issue.

When asked whether students are placed in the appropriate post based on their specialization area during their placement at the company, 16.67% of respondents said they strongly agree and 66.67% said they agree. The remaining 16.66% maintained a neutral opinion on this issue as they replied that they neither disagreed nor agreed.

When asked if there is a clear description of the outcomes that participants in the internship programme should achieve at the company, 33.33% of respondents said they strongly agreed and at the same time 33.33% said they agreed. However, 33.34% stated that they neither agree nor disagree on this question.

Also 33.33% of the respondent’s hotel managers who were asked the question whether the student participants in the Internship program are assigned specific tasks by the company for their work, responded that they strongly agree and 50% that they agree while 16.67 maintained a neutral attitude and stated that they neither agree nor disagree.

Efficiency

At the same time, when asked whether due to the training of human resources, accidents at workplace have decreased, 16.67% of the respondents answered that they strongly agree and 66.67% that they agree while only 16.66%

maintained their neutrality.

The question concerning the link between performance and payments and specifically whether the increase in performance has resulted in an increase in the salary of staff in sport and recreation services had a high percentage of positive responses as 16.67% of respondents said they strongly agreed and 66.67% said they agreed. At the same time, there was also a neutral attitude of the respondents which was expressed by 16.66%

Asked whether there is an increase in competitiveness in sports and recreation services in the hotel sector, 16.67% responded that they strongly agree and 66.67% also responded that they agree. The remaining 16.66% maintained their neutrality as they answered that they neither agree nor disagree with this opinion.

Finally, as regards the question of whether the score of tourists on Trip Advisor or other platforms for sport and recreation services is considered, 83.33% answered that they strongly agree and only 16.67% answered that they neither agree nor disagree.

The question that respondents were asked to answer whether “Departments’ Professors should be actively involved in Internship programmes” found 33.33% strongly agree, 33.33% agree, 16.67% of the respondents answered that they neither agree nor disagree while 16.67% answered that they disagree with the involvement of teachers in Internship programmes.

Implementation

Internship programmes for students are well organized.

The respondents seem to have a positive attitude towards this aspect as 33.33% said they strongly agree, 16.67% said they agree while 33.33% said they neither disagree nor disagree. On the contrary, only 16.67% said they disagree.

Traineeship programmes are accurately implemented.

Respondents have a positive attitude towards the question of whether Traineeship programmes are implemented accurately, with 33.33% saying they strongly agree and 33.33% saying they agree. 16.67% maintain a neutral position on this issue as they stated that they neither disagree nor agree, while the remaining percentage of respondents i.e. 16.67% stated that they disagree with the question.

In the question “Is the time allocated for Internship Programmes sufficient for students to be able to understand the objectives of the curriculum in relation to the work subject” 50% of the respondents do not seem to agree or disagree while the remaining 33% consider that the time allocated for Internship Programmes is not sufficient and only 16.67% consider the time sufficient for students to be able to understand the objectives of the curriculum in relation to the work subject assigned to them.

Concerning the questions asked regarding the integration of the interns in the workforce of the companies, the opinions were divided as 50% of the respondents answered that after the completion of the student’s internship, they proceeded to recruitment and the remaining 50% stated that they did not proceed to recruitment.

However, when asked whether after the completion of the student’s Internship at your company, you intend to hire interns in the future, 16.67% responded that they strongly agree and 83.33% responded that they agree, thus indicating the positive intention for the professional rehabilitation of the interns.

Research limitations. *The results are from a case study of two hotel groups of five-star hotels in Greece, where the Democritus University students made their internship.*

Managerial implications. *In recent years, the competitiveness of sports and recreation services in hotels has increased. Entertainment services have a significant impact on hotel marketing, competing with other resorts, increasing room sales, generating revenue, increasing sales of other services and creating consumer awareness and trust (Gokdeniz and Dinc, 2000; Cevik and Simskek, 2017). There is already a development in the recruitment of qualified staff and hotels are opting for internal promotion of human resources. However, the majority are not involved in human resources training because they choose already trained people. Of course, from time to time they follow in job training & seminars both internally by the central HR department and by external partners. The heads of the departments said that they would like to increase the duration of the internship and the cooperation with the university. They also stated that the hotel industry needs to strengthen its support for the education of students through internship programs and it would be useful to create a curriculum that takes into account a commonly accepted skills framework.*

They would also like to have feedback from students on their internship experience. They agree with the student assessment tools and consider that the internship gives students the opportunity to put theoretical knowledge into practice as they are assigned specific tasks on their subject. They stated that they are generally satisfied with the work performance of the interns and in fact, due to the training of human resources, accidents in the workplace have decreased. It is worth mentioning that the increase in performance has resulted in an increase in staff in sports and recreation services and has resulted in an increase in the salary of staff in sports and recreation services. There is an increase in competitiveness in these services and hotels take into account the tourists’ evaluation on trip advisor or other platforms for sports and recreation services. As the customer holiday experience will be enhanced, overall customer satisfaction and positive behaviours are also expected to increase. Recreation services are one of the most important elements for hoteliers. Today, a variety of recreation activities are available from hotels and their number is growing rapidly thanks to technological developments and staff creativity. Moreover, today’s customers expect interesting, amazing and innovative services from the hotels they visit (Albayrak, Caber & Öz, 2017). Finally, the results showed a positive intention for professional rehabilitation of interns and a willingness to develop further

cooperation between companies/hotels and educational institutions. Hotels that employ students could utilize the skills, up-to-date knowledge and ideas of young people at minimal financial cost, while also creating the infrastructure for their future human resources needs.

Originality of the paper. This research is part of a dissertation thesis and these results have not been published elsewhere.

Keywords: human resources training; five-star hotels; internship; sport; recreation

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La scelta del servizio alberghiero: sostenibilità e percezione dei turisti

ROBERTA MINAZZI* DANIELE GRECHI*

Inquadramento della ricerca. *L'attenzione verso il tema della sostenibilità sta fortemente influenzando il settore turistico e la competitività della destinazione turistica (Buhalis e Main, 1998; Kozak e Rimmington, 1998; Bohdanowicz, 2005). Il business dell'ospitalità in particolare produce forti impatti negativi a livello ambientale, economico e socio-culturale sulla destinazione turistica (es. consumo di energia, di acqua, di cibo) (Crouch, 2007; Mazanec et al. 2007; Font and McCabe, 2017). Per queste ragioni le imprese alberghiere devono fronteggiare una forte pressione da parte degli stakeholder nazionali e internazionali (Dasanayaka et al. 2022; Buffa et al. 2015). Da un lato, la nuova regolamentazione in materia sostenibile a livello nazionale e internazionale influisce sull'operatività delle imprese. Dall'altro lato, i consumatori sono sempre più interessati agli attributi dell'offerta alberghiera legati alla sostenibilità con una predisposizione anche a pagare un "premium price" per soggiornare nei cosiddetti "Green Hotels" (Chang et al., 2015; Alonso-Almeida, 2018; Buffa et al. 2018). Risulta quindi estremamente importante per le imprese dell'ospitalità comprendere la percezione dei consumatori in merito alla sostenibilità come attributo considerato nella scelta del servizio alberghiero.*

Il tema degli attributi considerati dalla clientela durante il processo di scelta del servizio alberghiero è stato studiato dalla precedente letteratura. Dolnicar e Otter (2003) identificano la pulizia e la location come attributi di particolare importanza. Altri studi evidenziano il ruolo del prezzo (Ananth et al., 1992; Lockyer, 2005) e del rapporto qualità-prezzo (Caber and Albayrak, 2014). La ricerca più recente sottolinea l'importanza anche dell'ambiente e della sostenibilità come fattori rilevanti considerati dalla clientela nella scelta dell'hotel (Bohdanowicz, 2005; Lee et al., 2010; Han et al. 2011; Millar and Baloglu 2011). In particolare, lo studio di Verma and Chandra (2018) sottolinea il ruolo prominente delle pratiche sostenibili adottate dalle imprese nel processo di scelta del consumatore seguito da prezzo, location, rapporto qualità-prezzo, brand awareness, qualità del servizio. Tuttavia, in questo caso il fattore sostenibilità è fortemente correlato alla dimensione ambientale e in particolare alle pratiche di conservazione energetica, di waste management e greenscaping. Dall'analisi della letteratura emerge infatti una forte concentrazione degli studi sulla dimensione ambientale (Franco et al. 2021). Non è però possibile fornire un quadro completo del rapporto tra turismo, turista e sostenibilità senza considerare congiuntamente tutte le tre dimensioni. Aspetti come l'utilizzo delle risorse locali e la promozione del Km0 o il rispetto e la valorizzazione del patrimonio locale, materiale e immateriale devono essere analizzate con una doppia finalità: comprendere ciò che il turista desidera e fare in modo che la struttura sia in grado di soddisfare il bisogno nel modo più sostenibile (Nuragheni et al., 2020; Noonan e Rizzo, 2017). Pertanto, il presente studio si propone di esaminare il ruolo della sostenibilità durante il processo di acquisto dei turisti con un approccio multidimensionale che consideri quindi anche le dimensioni sociale ed economica (Tölkes C., 2018, Franco et al. 2021).

Obiettivo del paper. *Lo scopo di questo articolo è quello di analizzare il comportamento dei turisti in fase di scelta del servizio alberghiero con particolare riferimento agli attributi considerati nelle proprie valutazioni. L'obiettivo è principalmente quello di contribuire alla letteratura sul tema indagando in particolare il ruolo della sostenibilità considerata in tutte le dimensioni che la caratterizzano (ambientale, economia e sociale). L'indagine quindi si propone di comprendere l'importanza che i consumatori attribuiscono alle pratiche sostenibili attivate dalle imprese alberghiere, approfondire la conoscenza delle motivazioni e dei fattori che influenzano la scelta degli ospiti, concentrandosi sulle pratiche sostenibili attuate negli hotel raggruppate per dimensione (Xu e Gursoy, 2015; Han, 2021; Gerdt et al., 2019):*

- *ambientale: gestione dei rifiuti, utilizzo dell'energia rinnovabile, progettazione aree verdi, utilizzo di prodotti di pulizia ecologici, ecc.;*
- *sociale: coinvolgimento della popolazione locale, promuovere la mobilità dolce e sostenibile, coinvolgimento dell'ospite nelle pratiche sostenibili, comunicare all'ospite le proprie misure e scelte di sostenibilità, ecc.;*
- *economica: utilizzo prodotti Km zero, prediligere prodotti equo-solidali, favorire l'economia circolare, ecc.*

Di conseguenza, considerando il framework teorico proposto, il presente lavoro cerca di analizzare il profilo del turista sostenibile nelle scelte legate all'hôtellerie con le tre seguenti research questions:

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RQ1: Qual è il profilo dei turisti (sostenibili e non) in termini di caratteristiche demografiche e abitudini di viaggio?

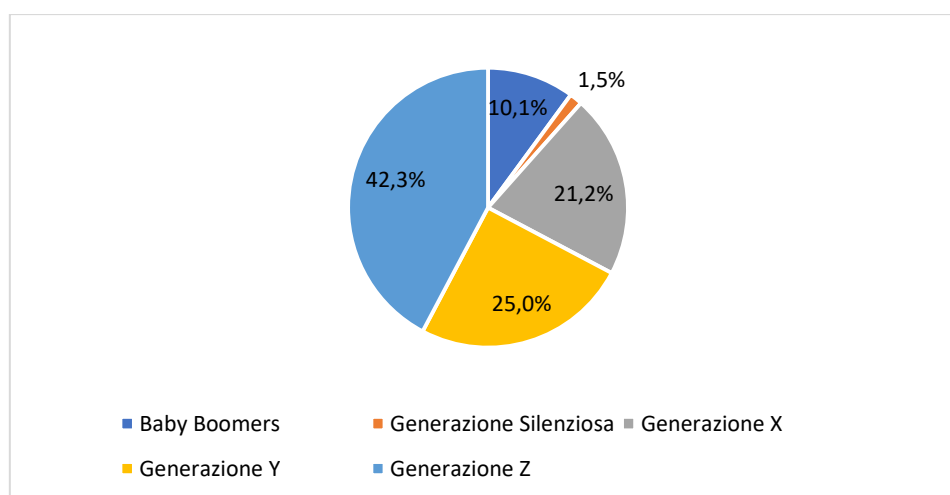
RQ2: Quali sono le pratiche sostenibili ritenute più importanti dal consumatore durante il processo di scelta del servizio alberghiero?

RQ3: Quali sono le dimensioni (fra ambientale, economica e sociale) ritenute più importanti dal consumatore durante il processo di scelta del servizio alberghiero?

Metodologia. È stata condotta un'indagine esplorativa per rispondere alle domande di ricerca presentate in precedenza. Il periodo di raccolta dati è legato ad un periodo storico molto interessante, poiché a cavallo della pandemia di COVID-19, infatti, i dati dello studio sono relativi al periodo novembre 2019-gennaio 2022 e, come menzionato nel paragrafo successivo, sarà possibile svolgere, in futuro, delle analisi comparative per verificare eventuali cambiamenti nelle scelte intertemporali dei turisti. Il questionario somministrato è diviso in 3 parti. La prima parte indaga le caratteristiche sociodemografiche dei partecipanti (come possono essere l'età, il genere e la professione). La seconda parte è relativa ad alcune variabili comportamentali del turista (ad esempio, i canali di acquisto, la frequenza delle prenotazioni, le motivazioni per il viaggio). Infine, nella terza parte del questionario si analizzano gli attributi utilizzati dai viaggiatori durante il processo di acquisto. Considerando il focus del lavoro è data particolare attenzione agli aspetti sostenibili del soggiorno e alle aspettative riguardo alle azioni sostenibili adottate dalle strutture ricettive. Gli attributi degli hotel sono stati identificati sulla base di una revisione della letteratura, illustrata nei paragrafi precedenti, e adattati allo scopo dello studio. Il questionario è stato testato inizialmente su un gruppo di studenti di laurea magistrale e, dopo alcune piccole modifiche, è stato somministrato online a più di 1.100 viaggiatori. Considerando l'aspetto preliminare del lavoro, i dati sono stati analizzati in modo descrittivo e inferenziale (attraverso l'utilizzo di test d'ipotesi al fine di vagliare le differenze tra le varie categorie di turisti). La statistica descrittiva si occupa di riassumere e descrivere i dati attraverso l'utilizzo di metodi grafici e numerici. La statistica inferenziale si occupa di fare previsioni e inferenze su una popolazione sulla base dei dati raccolti da un campione rappresentativo di tale popolazione (Paruolo, 1999). In altre parole, la statistica inferenziale utilizza le informazioni raccolte nel campione per fare conclusioni sulle caratteristiche della popolazione di riferimento. Queste conclusioni includono la stima di parametri e la verifica di ipotesi (nel nostro specifico caso utilizzando Z-Test Proportion e Mann Whitney U Test, per i quali si rimanda a Ruxton, (2006) per approfondimenti sul tema).

Risultati. Il campione dei rispondenti è composto da 407 uomini, 676 donne, 13 intervistati che non hanno dichiarato il loro genere. Considerando gli aspetti demografico sociali, il 43% del campione ha dichiarato di essere lavoratori ed il 42% di essere studenti. Valutando il grado di istruzione 234 intervistati hanno dichiarato di avere una laurea e 683 di essere in possesso di un diploma di scuola superiore. Inoltre, 767 rispondenti hanno dichiarato di non avere figli, e questo è coerente con il metodo di diffusione del questionario e l'età media dei rispondenti. Successivamente ci si è focalizzati sul concetto di generazione, classificando i rispondenti in base ad essa. Nel seguente grafico è possibile avere un riassunto dei rispondenti.

Fig. 1: Generazioni-Ripartizione

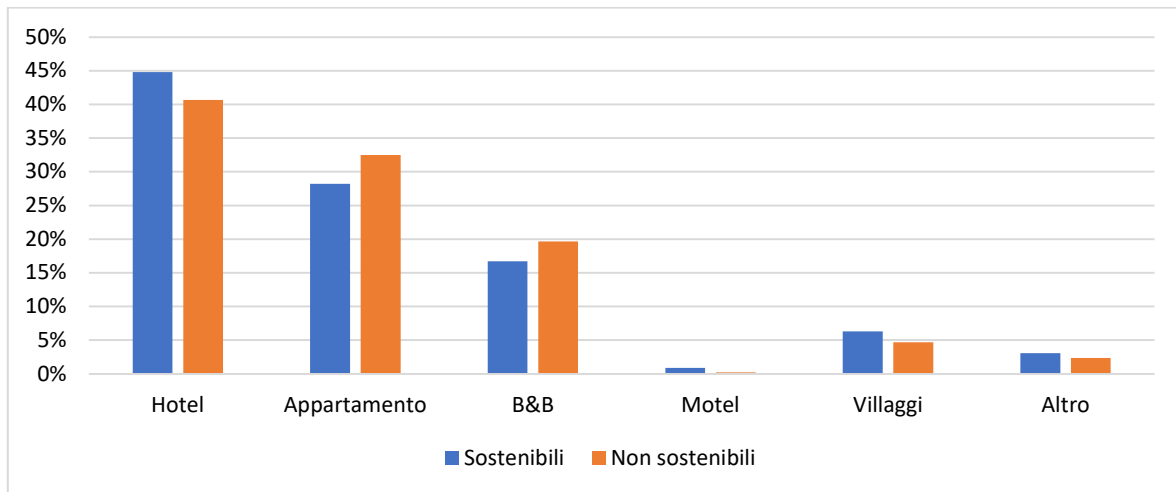


Dal grafico emerge che, il 42% dei rispondenti appartiene alla Generazione Z, il 25% alla Generazione Y e il rimanente alle generazioni precedenti.

In prima istanza, dopo la classificazione sociodemografica, è stato chiesto ai rispondenti di autovalutarsi sul concetto di "essere un turista sostenibile"; questa domanda (nello specifico "Ritiene di essere un turista attento ai principi di sostenibilità (green) nella scelta di una struttura alberghiera") è alla base di partenza per le analisi svolte. Sorprendentemente il campione è suddiviso in modo quasi equo, difatti 556 hanno risposto "Sì" alla precedente domanda, mentre 512 hanno risposto di non essere attenti ai principi di sostenibilità. Per rispondere alla RQ1 si sono svolti dei test, legati all'essere o meno un turista sostenibile, per la differenza tra due proporzioni riguardanti differenti aspetti.

Il primo test è stato svolto sul genere (il quale non è risultato significativo al livello del 5%, difatti il P-Value ottenuto è pari a 0.06). Pertanto, il genere non sembra essere una forte discriminante sul livello di autovalutazione di sostenibilità turistica per questo campione. Sempre a tal riguardo, come descritto nella Figura 2, non emergono differenze sostanziali sulla tipologia di destinazione scelta tra le due categorie di rispondenti. Infatti, le due categorie di rispondenti si recano (con percentuali simili) nelle medesime tipologie di strutture turistiche.

Fig. 2: Accomodation



Per comprendere in modo globale il concetto, sono stati svolti dei test per la differenza tra due proporzioni legati al concetto di generazione ed i risultati sono indicati nella seguente tabella.

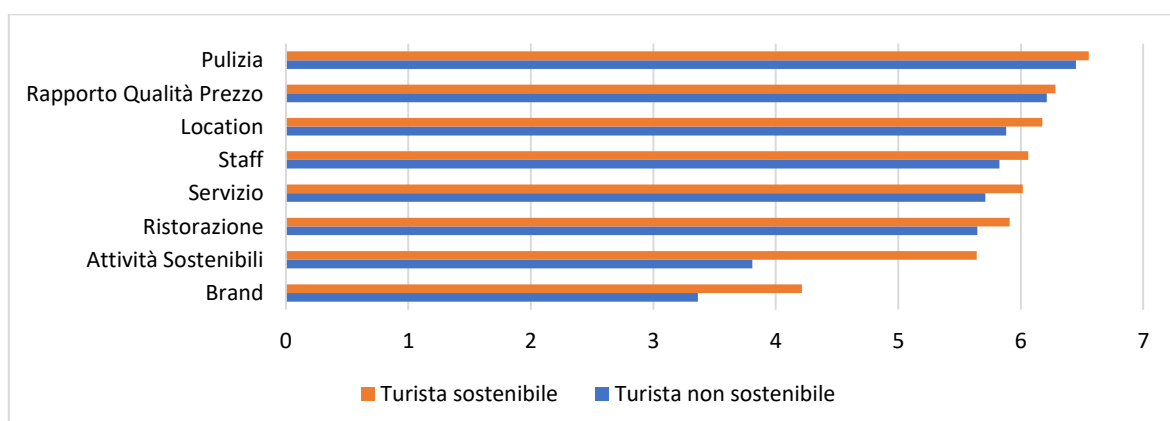
Tab. 1: Test per la differenza tra due proporzioni- Generazione

Generazione	Generazione Silenziosa	Baby Boomers	Generazione X	Generazione Y	Generazione Z	Complessivo
No	7	31	84	153	230	505
SI	9	76	137	110	215	547
Somma	16	107	221	263	445	1052
P-Value	0.47	<0.001	<0.001	0.001	0.32	0.07

Come si può notare dalla Tabella 1, si hanno delle generazioni (Baby Boomers, X e Y) per le quali emergono delle differenze significative sull'autovalutarsi come turista sostenibile, mentre nel complesso non si ha (al livello del 5%) una significatività statistica. Il risultato è fortemente influenzato dai rispondenti della generazione Z, il cui P-Value è molto alto. In conclusione, si può affermare che queste analisi, basate su una autovalutazione personale basata sul concetto di "essere un turista sostenibile ed attento ai principi green nella scelta alberghiera", fanno emergere che il genere, l'accomodation e la generazione non sono variabili estremamente rilevanti e pertanto RQ1 è parzialmente rifiutata.

Spostandoci alle analisi legate a RQ2, ovvero le pratiche sostenibili ritenute più importanti dai rispondenti, ovviamente in comparazione tra turisti "sostenibili" e "non sostenibili", otteniamo la situazione descritta dalla Figura 3.

Fig. 3: Valutazione pratiche sostenibili



Considerando gli attributi, legati all'ospitalità della struttura alberghiera, dalla Figura 3 emerge una sostanziale similarità tra le medie dei due gruppi (la valutazione è stata fatta con una Scala Likert con valori da 1 a 7) anche se ci sono diverse distanze tra i turisti sostenibili e quelli non sostenibili, soprattutto nel contesto delle attività sostenibili promosse dall'hotel. Inoltre, dalla Figura 3 emergono, numericamente, due aspetti molto distintivi delle due categorie di turisti. In questo contesto i turisti sostenibili hanno una propensione a valutare tutti i servizi/attività con un punteggio mediamente più alto. Inoltre, è possibile notare come la maggiore differenza di valutazione sia per la voce "attività sostenibili" il che fa propendere per un'effettiva differente rilevanza per questo aspetto tra le due categorie di rispondenti. Considerando il ranking dei servizi/attività, questi risultati confermano alcuni studi precedenti (Ananth et al., 1992; Lockyer, 2005; Dolnicar e Otter, 2003) i quali hanno affermato che la pulizia, il prezzo e la posizione sono gli attributi più importanti per gli ospiti dell'hotel.

Inoltre, per completare l'analisi, si sono svolti dei Mann-Whitney test (per ulteriori informazioni sul test e sul suo utilizzo su dati non distribuiti normalmente si rimanda a Zimmermann, 1987) legati alla rilevanza delle tre dimensioni della sostenibilità per le due categorie di rispondenti. Si è cercato di comprendere se, il valore medio attribuito alle componenti economiche, sociali e ambientali sia valutato differentemente. Nella seguente tabella (Tabella 2) sono presenti i risultati dei test.

Tab. 2: Mann Whitney Test: Risultati

Dimensioni Sostenibilità	U-Test	P-Value
Economica	11760	<0.01
Ambientale	12211.5	<0.01
Sociale	5172.5	<0.01

I tre test effettuati per le tre dimensioni della sostenibilità sono statisticamente significativi e, di conseguenza, è possibile affermare che la percezione delle tre dimensioni della sostenibilità è molto diversa tra le due categorie di intervistati. Nel dettaglio, la dimensione ambientale è confermata come quella considerata maggiormente dai turisti sostenibili.

Limiti della ricerca. La presente ricerca, legata all'argomento delle pratiche sostenibili degli hotel e la relativa importanza percepita dai turisti ha, ovviamente, alcuni limiti data la sua natura preliminare. Innanzitutto, uno dei principali limiti è la complessità di delimitare in modo univoco il concetto di sostenibilità per l'utente finale. Infatti, esso, può essere interpretato in maniera differente dalle diverse categorie di stakeholder (Poli et al., 2009; Berezan et al., 2013; Dolores et al., 2011). In aggiunta, i rispondenti potrebbe non essere in grado di catturare la complessità delle interazioni tra gli hotel e gli altri attori del sistema turistico. Inoltre, il campione dei rispondenti, seppur ben stratificato, potrebbe essere incrementato e migliorato cercando di avere un maggior numero di risposte in modo omogeneo per poter toccare un maggior numero di differenti categorie di turisti. Infine, lo studio si focalizza solo sul settore alberghiero. Per il futuro potrebbe essere interessante: ampliare i settori di indagine (es. ristorazione, trasporti, attrazioni); ampliare le variabili di indagine (demografiche e comportamentali); procedere con una nuova wave del sondaggio per poter avere un confronto completo tra tre momenti chiave: pre-Covid 19, durante i due anni centrali della pandemia e post-Covid 19.

Implicazioni manageriali. Il tema della sostenibilità rappresenta una questione sempre più rilevante nel settore dell'ospitalità. Il lavoro affronta il tema dell'impatto delle politiche e delle pratiche sostenibili sulla scelta degli hotel da parte dei consumatori studiandone le percezioni. Dai risultati emersi derivano interessanti implicazioni manageriali per gli operatori del settore turistico con particolare riferimento ai manager dell'ospitalità. I turisti durante la scelta considerano la sostenibilità come attributo insieme ad altri già noti come il prezzo e la location. La sensazione è che il ruolo della sostenibilità per il consumatore stia crescendo, si nota però una particolare concentrazione sulla dimensione ambientale, forse anche perché è la più discussa negli ultimi anni anche a livello di comunicazione. Sulla base delle pratiche sostenibili ritenute più importanti per i turisti, le imprese alberghiere possono definire più corretti piani di investimento delle risorse e studiare al meglio le proprie strategie di comunicazione. Vista l'importanza che sia i turisti che si definiscono sostenibili sia quelli che non credono di esserlo attribuiscono agli attributi legati alla sostenibilità, risulta importante per le imprese dell'ospitalità ridefinire le proprie strategie di management e di comunicazione al fine di soddisfare i bisogni della clientela ed incrementare i tassi di fidelizzazione. Nel complesso, è fondamentale implementare politiche di riduzione dell'impatto ambientale attraverso la gestione efficiente delle risorse energetiche e idriche, l'adozione di sistemi di smaltimento dei rifiuti sostenibili e la promozione di comportamenti eco-friendly da parte degli ospiti. Risulta peraltro interessante per le imprese che investono nelle altre dimensioni della sostenibilità, attivare delle opportune campagne di sensibilizzazione della clientela.

Oltre agli operatori alberghieri, i risultati del presente lavoro sono di interesse anche per gli altri operatori della destinazione turistica e per le istituzioni di governance della destinazione in quanto il processo di scelta del turista non può considerarsi esclusivamente legato alla scelta del singolo servizio alberghiero. Al contrario, il processo di scelta del viaggiatore riguarda l'esperienza complessiva e integrata di servizi turistici quali, le attrazioni, i trasporti, la ristorazione, ecc. Anche questi operatori possono quindi beneficiare dei risultati ottenuti dallo studio in merito all'importanza che il turista attribuisce al fattore sostenibilità. Come però preannunciato sarebbe necessario un ampliamento del settore di indagine per poter verificare e comparare i risultati fra i vari settori del turismo.

Originalità del paper. Questo lavoro esamina il ruolo della sostenibilità nella selezione degli hotel e la priorità, data dai turisti, agli aspetti della sostenibilità nel loro processo di scelta. Un primo aspetto di originalità, e quindi di contributo alla letteratura sul tema, è lo studio degli attributi che influenzano la scelta dei turisti con particolare focus sul fattore sostenibilità. Inoltre, il concetto di sostenibilità, rispetto a molti dei precedenti studi, è affrontato con un approccio multidimensionale che considera tutte le dimensioni della sostenibilità (ambientale, economica e sociale).

Lo studio è fortemente incentrato sul raggiungimento di risultati che possano avere una diretta ricaduta sul territorio e quindi sulle imprese turistiche, come illustrato precedentemente. Infatti, il paper fornisce una panoramica dei potenziali vantaggi dell'incorporazione di pratiche sostenibili nella gestione alberghiera per ottenere una migliore soddisfazione del cliente, che porta ad una performance finanziaria ottimale per l'industria dell'ospitalità. In sintesi, l'articolo fornisce una visione originale e preziosa della crescente importanza della sostenibilità nell'industria del turismo e del suo ruolo nel plasmare il comportamento e le preferenze dei turisti.

Parole chiave: Hospitality; Decision making; Sostenibilità; Turista Sostenibile

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Are you willing to share green eWOM? Exploring environmentally-framed reviews in hotel services

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Abstract

Consumers are increasingly concerned about sustainable accommodations. However, few of them incorporate environmentally-related elements when posting a review online about their experience of stay. Combining text analytics and ordered logistic regression analysis on a dataset of 496k TripAdvisor reviews, this exploratory study investigates green eWOM (i.e. environmentally-framed reviews) including its linguistic style and sentiment, and the recurring hotel service dimensions associated by guests. In addition, the study identifies a profile of green eWOM reviewer and explores the extent of which environmentally-framed reviews are associated with customer satisfaction (i.e. rating) and with the managerial response. The findings reveal that environmentally-framed reviews are more likely posted by women business travellers staying at chain hotels, and are generally associated with higher ratings and higher managerial response rates. The recurring hotel service dimensions relate with physical attributes (e.g. hotel features, room amenities) followed by intangible attributes (e.g. relationship with the staff, overall experience of stay, location) and services (e.g. breakfast, coffee). The study contributes to the sustainable consumption research by offering a preliminary understanding of green reviewers' online behavior. Managerial implications are provided to hoteliers suggesting them how to effectively convey their effort in eco-friendly initiatives to guests, and to review platforms on how to display green eWOM online.

Framing of the research. Environmental threats have led to substantial changes in consumers' attitudes towards eco-friendly services and products, with a growing number of customers willing to use green products and services (Chen et al., 2014). Accordingly, a growing number of travelers are likely to choose green tourism products and stay at green accommodations (Filieri et al., 2020). But how many of them are ready to share online about their green experience? The term "prosumers" identifies consumers' ability to openly share their product or service experiences online, thus producing informative data to peers and organizations through electronic word-of-mouth (eWOM) (Chan et al., 2022; Filieri & McLeay, 2014). Consumers are not anymore passive recipients of the content generated by brands, but rather they actively participate in the conversation with and about brands and their products on social media platforms. User-generated content is increasing in popularity, and firms actively ask consumers to generate content in order to create higher engagement levels. Consumers are increasingly acting both as producers and consumers of content, and they are popularly referred to as 'prosumers' (Hartmann, 2016). Prosumers are consumers who create value for firms by actively participating in creating innovative content and sharing their experiences to induce engagement with other fellow consumers (Plouffe, 2008).

Connected to the concept of prosumers is the concept of green eWOM, which has emerged more recently in consumer research, referring specifically to the eco-friendly content shared with others on social media platforms (Filieri et al., 2020). Green eWOM is understood as the extent to which customers inform their peers online about the positive (or negative) environmental messages related to a product, service or organization, with consumers' green motivation stimulating green eWOM.

Sustainable consumption research acknowledges how while some consumers may have an ideal self-concept of being environmentally responsible, others have a strong self-interest in perceiving themselves as green consumers (Freestone & McGoldrick, 2008). Individuals who perceive themselves as green consumers are likely to engage in pro-social behavior (Lee et al., 2006) and pro-environmental behaviors and green consumption to express their self-identity (Oliver & Lee, 2010), for example, through word-of-mouth about green products. Thus, this study builds on green self-identity theoretical foundations to explore the green eWOM phenomenon from a consumer perspective.

In this regard, service research still has to provide a comprehensive understanding of green eWOM, including its antecedents and consequences, as well as its association with tourism providers' performances. Furthermore, still little is known about green eWOM reviewers with regard to their profile. This exploratory study sheds light on green eWOM prosumers, including their socio-demographics characteristics, recurring themes discussed in green eWOM.

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Furthermore, it provides a preliminary assessment of green eWOM linguistic style and its association with customer satisfaction.

Purpose of the paper. The study exploits green eWOM data from the tourism industry with the multiple aims of addressing the following exploratory research questions:

RQ1: To what extent green eWOM data differ from non-green reviews, including length, sentiment, and depth?

RQ2: What are the recurring themes and concepts regarding the hotel services mainly discussed in green eWOM?

RQ3: To what extent green eWOM is associated with customer satisfaction levels (i.e., rating) and managerial response?

RQ4: What is the green eWOM reviewer profile?

Methodology. A big dataset of 494,635 hotel reviews covering six of the most popular cities in Europe over a 10-year time frame (2007-2017) has been collected through Phyton from TripAdvisor. The dataset has been scrutinized for green eWOM, thus selecting a subsample of those reviews where guests specifically discuss green practices. Based on extant studies, a shortlist of keywords referring to green and sustainable lifestyle has been considered. Following Serrano et al. (2021), the words “organic”, “sustainable” and “sustainability” have been selected for this purpose. Furthermore, an iterative process was conducted by the authors with the aim of testing different terms relating to environmental sustainability and green consumption and evaluating how they are used publicly and their function (Kim et al., 2013). This search-identification process of terms characterizes content analysis techniques where a large amount of unstructured data is used (e.g., textual big data). The terms “green”, “environment”, “environmental”, “environmental-friendly”, “environmentally”, “recycling” and “eco-friendly” were included in the final shortlist of terms. Customer reviews, including at least one of these terms, were then selected. As a result, a subset consisting of 9,023 green eWOM reviews were retained for data analysis, meaning 1,82% of guests express or discuss green and related topics within their customer reviews.

The review content has been analyzed by means of text analytics. Specifically, the Linguistic Inquiry and Word Count (LIWC) (Boyd et al., 2022) software was adopted. Different dictionaries have been used to run the analysis, including the internal one with the Posemo and Negemo categories, respectively referring to positive emotions and negative emotions, and through a specific dictionary developed for the study of sustainability (Pencle & Malaescu, 2016) already adopted in the tourism and hospitality domain (D'Acunto et al., 2020; Mariani & Borghi, 2020). This latter has been used to detect the extent of environmental presence and environmental depth embedded in the text by guests when posting online.

Results. The first analysis compares the subsamples of green eWOM with non-green eWOM data. Investigating green consumers reviewing behavior by focusing on ratings (RQ3), the first finding reveals how these guests are more likely to rate their hotel experience higher than non-green customers. Environmental-related reviews rate on average 4.19 versus 4.12 of non-green reviews ($F = 42.951$; $p < 0.01$). This might indicate that customers discussing green and environmental practices online are slightly more satisfied with their stay than other guests.

Furthermore, when focusing on green eWOM linguistic style (RQ1), the main findings exhibit how a much longer text structure characterizes such reviews, with an average word count of 236.61 terms compared to 143.24 of non-green reviews ($F = 5316.203$; $p < 0.01$). This indicates a stronger effort green customers put in detailing their experience when it comes to writing feedback about their stay and where to discuss and inform others about green-related experiences. However, our data show how, despite rating higher and writing longer reviews, green eWOM reviewers are less emotional when disclosing online on green topics, and this happens with regards to both positive (1.41 vs. 1.65; $F = 168.166$; $p < 0.01$) and negative (0.82 vs 0.88; $F = 22.870$; $p < 0.05$) emotions that result lower than in non-green reviews.

Nevertheless, green eWOM reviewers' effort does not go unnoticed by hotel managers, given that they tend to reply more to green eWOM (0.49) rather than to non-green reviews (0.45) ($F = 60.785$; $p < 0.01$). To run this analysis, managerial response has been operationalized as a dummy variable where 1 indicates hotel managers answered the review, 0 otherwise. Extant literature tells us how negative reviews are more likely to be answered by hoteliers, given the stronger implications they have on firms' reputation and for peers. Interestingly, these results might be a peculiarity of green eWOM in that, despite getting higher ratings on average, they also tend to be answered more frequently by hoteliers. This result might also be evidence of how hotel managers are paying particular attention to green eWOM where customers emphasize environmental sustainability and green practices adopted by hotels.

The environmental-depth measure (Mariani & Borghi, 2021) indicates the intensity that online consumers ascribe to environmental-related concerns by going in-depth into their discussion. Our findings confirm how in green eWOM, this level is much stronger (1.304) compared to non-green eWOM (0.994) ($F=649.234$; $p < 0.01$).

Table 1 reports the ANOVA results for the abovementioned analysis.

Tab. 1: A comparison of green eWOM with non-green eWOM: Anova results.

Dimension		N	Mean	Std. Dev	Anova
Rating	Non-green eWOM	485612	4.12	1.009	F = 42.951 p < 0.01
	Green eWOM	9023	4.19	0.959	
		494635	4.12	1.008	
Word Count	Non-green eWOM	485612	143.24	118.079	F = 5316.203 p < 0.01
	Green eWOM	9023	236.61	214.628	
		494635	144.94	121.180	
Posemo	Non-green eWOM	485612	1.6508	1.72697	F = 168.166 p < 0.01
	Green eWOM	9023	1.4137	1.33475	
		494635	1.6464	1.72091	
Negemo	Non-green eWOM	485612	0.8819	1.06027	F = 22.870 p < 0.05
	Green eWOM	9023	0.8283	0.84587	
		494635	0.8810	1.05677	
Managerial response (y/n)	Non-green eWOM	485612	0.45	0.497	F = 60.785 p < 0.01
	Green eWOM	9023	0.49	0.500	
		494635	0.45	0.498	
Environmental depth	Non-green eWOM	485612	0.9942	1.14662	F = 649.234 p < 0.01
	Green eWOM	9023	1.3048	1.18836	
		494635	0.9998	1.14815	

Green eWOM

In this section, the focus is on green eWOM data only, thus running the analysis on a subset consisting of 9,023 observations. First, we run a co-occurrence analysis with the software Leximancer, with the aim of detecting the recurring themes and concepts discussed by customers in their reviews (RQ2). The main results show how guests are more likely to discuss in their green eWOM about the following themes: “hotel”, “room”, “nice”, “staff”, “night”, “stay”, “coffee”. Figures 1 and 2, respectively, report the Leximancer concept map based on co-occurrence analysis and the concepts ranked by relevance (i.e., number of hits in the text).

Fig. 1: Conceptual map of the environmental-related themes and concepts

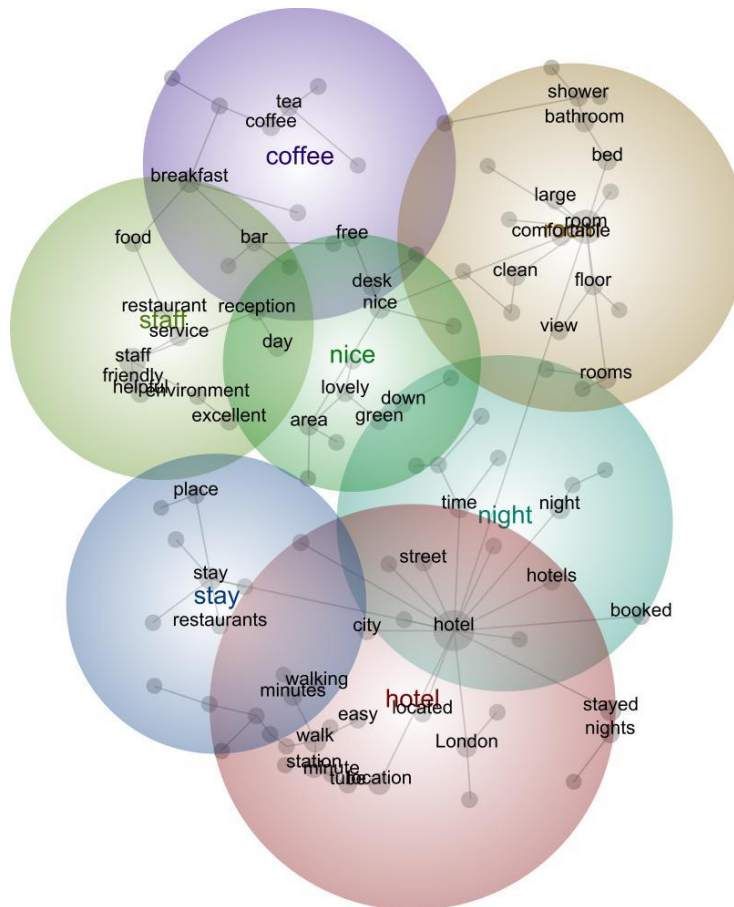


Fig. 2: Ranked concepts

	Count	Relevance	
hotel	9818	100%	
room	6883	70%	
staff	3927	40%	
stay	2900	30%	
breakfast	2556	26%	
stayed	2527	26%	
location	2465	25%	
rooms	2063	21%	
walk	1982	20%	
night	1909	19%	
nice	1799	18%	
clean	1572	16%	
time	1564	16%	
station	1517	15%	
service	1489	15%	
friendly	1419	14%	
nights	1415	14%	
bathroom	1410	14%	

These preliminary findings indicate how guests focusing on green practices are more likely to discuss such topics when reporting their experience about the physical attributes (e.g., hotel features, room amenities) followed by intangible attributes (e.g., relationship with the staff, the overall experience of stay, location) and services (e.g., breakfast, coffee)

The green eWOM reviewer's profile was then analysed to understand whose guests are more likely to discuss environmentally related topics when it comes to reviewing their hotel experience (RQ4).

We run a logistic regression analysis (DV: green eWOM 0/1) to determine the role played by reviewer demographics and by the type of hotel and type of trip on the willingness to post green eWOM messages (versus non-green reviews). Table 2 summarizes the constructs and the operationalization of variables used in our analysis. Regression results are reported in Table 3.

Tab. 2: Constructs and operationalization

Construct	Variable name	Model specification	Operationalization	Source
Green eWOM	GREEN_EWOM	Dependent variable	Dummy variables (1 if yes, 0 otherwise)	This study
Reviewer experience	n°_of_contributions	Independent variable	The overall number of reviews posted by the reviewer	Gao et al. (2018)
Review Length	Word_count	Independent variable	Word count of each review	Chevalier & Mayzlin, (2006)
Reviewer Gender	Man_woman	Independent variable	Dummy variable - reviewer gender	Gao et al. (2018)
Reviewer age	Age_class_code	Independent variable	Reviewer's age (categorical)	Gao et al. (2018)
Rating Score	Rating	Independent variable	Categorical variables ranging from 1 to 5	Xiang et al. 2015
Trip Purpose	Travelled_on_business	Independent variable	Dummy for business (1) or leisure (0)	Mariani & Borghi, (2022)
Hotel type	Chain_0_1	Independent variable	Dummy (1 if chained hotel, 0 otherwise)	This study
Year	review_year	Control variable	Year of review posting	Mariani & Borghi, (2022)

Tab. 3: Ologit model

Independent Variables	B	S.E.	Wald	df	Sig.
n_of_contributions	,000	,000	,288	1	,592
age_class_code	,077	,011	44,633	1	,000
man_woman	-,082	,022	13,918	1	,000
rating	,167	,011	219,076	1	,000
chain_0_1	,271	,023	141,093	1	,000
travelled_on_business	,236	,029	66,673	1	,000
word_count	,003	,000	4128,488	1	,000
Constant	-5,585	,064	7723,957	1	,000
Observations	496,813				
R ² _N	0.043				
LR Chi2	3543.569***				
-2LL	86992,836				
Review Year	YES				

Note: DV: GREEN_EWOM (0/1). Statistical significance: ***p-value < 0.001; ** p < 0.01; * p < 0.05

The main findings exhibit how reviewer gender is negatively related to green eWOM, meaning that women are generally more likely to discuss on environmentally-related topics in their reviews than men. Reviewer age class is positively associated with green eWOM, meaning the older the reviewer, the higher his/her willingness to post green reviews.

Rating score results positively related to green eWOM, suggesting that when a customer rates a hotel higher (customer satisfaction increases), he/she is more likely to discuss green and environmental practices in his/her review. These results are in line with extant studies already finding a similar relationship with regard to ratings and the environmental dimension of CSR (D'Acunto et al. 2020).

When a guest reviews a hotel belonging to a global chain, he/she more likely to discuss environmentally related topics compared to guests staying at independent (non-chain) hotels.

Furthermore, when travelling on business (versus leisure), guests pay more attention to green/environmental dimensions and thus are more likely to discuss these topics in their reviews.

Finally, review length (i.e., word count) is found to be slightly positively associated with green eWOM, while the reviewer expertise (i.e., n° of contributions on the platform) is not significant.

Overall, the predictors with the stronger effect are: the type of hotel (chain vs. non-chain hotel) followed by the type of trip (business vs. leisure travellers), rating score and reviewer age.

Research limitations. This study has some limitations. It used a large sample of reviews for the years 2007-2017 to avoid the Covid-19 effect in our analysis. However, a dataset including more recent reviews, and specifically focusing on the post-Covid lockdown may provide different findings. Furthermore, this analysis excluded those customers who do not post online reviews to discuss their experience after staying at a hotel. Future research could use a survey to further confirm the results of our analysis. The analysis could be done at the country-level to understand cultural differences with regards to environmental eWOM.

Given the exploratory nature of this study, did not consider how service providers respond to green eWOM comparing to non-green reviews. Moreover, causal relationships should be tested in future research, for instance investigating how potential customers (i.e. review platform members) reading green eWOM react to such reviews, considering their willingness to book or their willingness to pay more for an hotel as dependent variables. Another limitation lies in the use of data collected from a single platform (i.e. TripAdvisor).

Managerial implications. This study provides indications to hoteliers on how to recognize guests that are more likely to express their green orientation online by means of green eWOM. In this regard, our findings suggest hotel managers of chained hotels particularly pay attention to business travelers, given that they are more likely to engage in discussing online about green and sustainability practices experienced during their stay. Furthermore, hoteliers are advised that when customer reviews include some extent of green content, they are more likely associated with a higher rating. Thus, hoteliers should emphasize their managed hotel's sustainability effort to increase its overall rating and, in turn, the parent company's online reputation. For instance, training the staff to recall guests about environmentally-friendly actions implemented during their stay and across different moments when they are more sensitive on such topics (e.g., at the check-in, at the restaurant, when in the room) can increase the possibility of guests sharing green eWOM. Furthermore, hoteliers are advised to also include green eWOM in their communication strategies on the corporate website to enhance their eco-friendly image online.

Similarly, review platforms should also prioritize green eWOM given that they are associated with a higher rate of managerial response, thus offering more informative data to platform members and customers.

The originality of the paper. This is the first study empirically investigating the green eWOM phenomenon, including its linguistic style and drawing a green-reviewer profile by considering guest demographics, trip purpose and type of hotel. Furthermore, the study investigates further green eWOM identifying the association of the green consumer discourse with hotel service dimensions, customer satisfaction, and managerial response, thus providing several implications for both customers and organizations and opening up future lines of research.

Keywords: Green eWOM; Green consumers; Big data analytics; Social media; Customer reviews; Hospitality industry

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Smart Tourism and start-ups: a preliminary analysis in Italy

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Framing of the research. Over the past decade, digital technologies such as the Internet of Things, big data, and artificial intelligence have played a crucial role in revolutionizing the tourism industry, driving its smart transformation. These technologies have enabled tourism stakeholders to connect dynamically, share more relevant information, adopt sustainable practices, and enhance the quality of services and tourist experiences (Gretzel et al., 2015).

Indeed, the evolution of the tourism phenomenon has occurred in connection with the development and application of a multitude of information and communication technologies (ICTs) at least since the 1970s (Buhalis and Law, 2008). Computerized booking systems, such as the Computer Reservation System and Global Distribution Systems, were among the earliest examples of technology being utilized in the tourism industry, even before the advent of the internet (Sheldon, 1997). These systems allowed travel companies to speed up transactions, distribute various tourism services (e.g., air transport, accommodation, car rentals, etc.), reduce costs, and improve service quality for tourists. Then, in the late 1990s, the introduction of internet-based technologies (Rayman-Bacchus and Molina, 2001; Standing et al., 2014), social media platforms (Zeng and Gerritsen, 2014), and a range of travel-related mobile apps (Wang et al., 2012) further transformed the industry, enabling digital connections between tourism companies, destinations and tourists. These technologies made information easily accessible and searchable, and facilitated electronic transactions on a global scale.

In recent years, technological advancements have allowed for increased connectivity between humans and machines, as well as networked information exchange. This has given rise to the concept of “smart tourism” (Gretzel et al., 2015), which involves the use of cutting-edge hardware, software, and network technologies to bridge the digital and physical worlds. This interconnectivity allows tourism firms, institutions, and other organizations to form a smart business ecosystem, improving resource availability, allocation, mobility, and service quality in the destination (Gretzel et al., 2015; Barile et al., 2017; Pencarelli, 2020; Polese et al., 2018). In such a smart tourism destination, tourists are engaged in co-created experiences that are personalized and characterized by context awareness, real-time monitoring, and technology mediation (Tussyadiah and Fesenmaier, 2009; Neuhofer et al., 2014; Leoni and Cristofaro, 2020; Polese et al., 2022). Indeed, these advancements improve not only the quality of tourism experiences but also the quality of life of local residents in urban areas (Romão, et al., 2018).

Table 1 summarize the main digital technologies and related applications in the tourism field emerging from studies on smart tourism.

Tab. 1: Main digital technologies and related applications in the tourism field

Technology	Description	Main Application	References
Cloud computing	Delivery of computing resources – including servers, storage, databases - over the internet	<ul style="list-style-type: none"> Data storage about tourist experiences and preferences as well as audio/video streaming, pictures/images regardless of video or image size Data synchronization between platforms Various cloud-based apps (e.g., car rental, hotel, airline reservation apps, map location guide app, journey planner app, weather information app) useful for tourism firms to provide tourists with personalized information to design and plan their holiday 	Imhanwa et al. (2015) Nadda et al. (2020)
Big Data	Collection of large data (generated by users, devices, and operations), even unstructured and fast-moving, which cannot be managed with traditional approaches.	<ul style="list-style-type: none"> Big data analytics (e.g., tourist sentiment analysis; tourist spatial-temporal behaviour analysis; effect estimation of weather on tourism) Tourism marketing Search engine optimization 	Li et al. (2018)
Artificial Intelligence (AI)	Ability of a computer to perform cognitive functions (i.e., learning, reasoning, self-correction) usually associated with the human	<ul style="list-style-type: none"> Voice assistant Face detection and recognition Self-service for information/check-in/check-out; 	Grundner and Neuhofer (2021)

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	mind.	<ul style="list-style-type: none"> • Chatbots • Robots carrying out routine tasks (e.g., booking, managing rooms, drink preparation, information offering) 	
Internet of Things (IoT)	Variety of things or objects – such as Radio-Frequency Identification (RFID) tags, sensors, actuators, mobile phones – able to connect physical and digital entities (making them interact each other and exchange information)	<ul style="list-style-type: none"> • Internet-enabled appliances (e.g., for heating, lighting, and television) that can be turned on or off by tourists through a centralised device. • Sensors and IoT devices for various services, including: <ul style="list-style-type: none"> – environmental monitoring – warning passengers at the airports about the localization of their luggage or restaurant staff when guests arrive. – sending electronic key cards to hotel guests' phones, which, when used, automatically check them in. – real-time information about the current status of essential devices to be repaired or replaced before they stop functioning. 	Ordóñez <i>et al.</i> (2022)
Immersive technologies	<p>Virtual Reality Use of computer-generated 3D realistic navigable virtual environments, that the user can interact with. Visualization, immersion, and interactivity are the three key elements of VR</p> <p>Augmented reality Adds digital elements to a live view, that the user can interact with often using the camera on a smartphone equipped with GPS technology</p>	<p>Creation of virtual environments:</p> <ul style="list-style-type: none"> • complementing real tourist experiences. • creating virtual tourist experiences. • planning and management purposes. • promoting a destination or a site. • getting access to information about places, restaurants, hotels, cultural monuments, tours. • educational purposes. • heritage preservation. • gaming. 	Guttentag (2010) Beck <i>et al.</i> (2019) Loureiro <i>et al.</i> (2020)
Contactless technologies	<p>Radio Frequency Identification (RFID) Remote data sending and receiving system through electromagnetic fields that automatically identify and track tags attached to objects</p> <p>Near Field Communication (NFC) Data transfer through electromagnetic fields that enable two devices (e.g., a smartphone and a payments terminal) to communicate with each other</p> <p>Beacon technology Wireless transmitters using Bluetooth and GPS that transmit signals to other smart devices nearby (e.g., smartphones).</p>	<ul style="list-style-type: none"> • Access authorization. • Cashless payments. • Data collection. • Deep analytics. • E-ticketing. • Data exchange (e.g., about transportation schedules, waiting times for arrivals). • E-wallets. • Boarding passes, and ratings. • Proximity marketing. • Location-based services. • Gaming. 	Egger (2013) Buhalis (2020)
3D printing	Existing objects are replicated in three-dimensional manner in various materials depending	3D personalised souvenirs (mass produced, printed at a facility and also at home)	Anastasiadou and Vettese (2019).

Source: our elaboration

The evolving research and practice on smart tourism have highlighted the emergence of service providers who offer innovative solutions to enhance the tourist experience and facilitate movement within a destination (Guttentag, 2015; Wang et al., 2016; Hsu et al., 2017; Pencarelli, 2020; Perelygina et al., 2022; World Bank Group, 2018, WTTC, 2019). These include new electronic intermediaries, online platform managers, and other players who contribute to disintermediation and re-intermediation phenomena along the value chain, shaping the dynamic of competition and business models in the tourism sector. For instance, digital tour operators offer interactive websites with real-time personalized booking services, while search engines like Trivago compare flights, hotels, and car rentals from a broad range of providers. Sharing economy platforms like Airbnb and Uber allow individuals to offer accommodation and other tourism services to a global marketplace of consumers. Additionally, platforms such as Avatour facilitate remote event attendance, while various mobile applications provide cashless payment, ticketing, and city tours.

It is clear that embracing ICTs and implementing smart technology solutions is strategically essential, even critical, for enhancing innovation, sustainability, and competitiveness not only of tourism firms and destinations but also for the broader development of smart tourism. In this view, an important role in introducing new innovation by building a business model from scratch can be played by start-ups, i.e., a new company with a high character of innovation (García-Gutiérrez and Martínez-Borreguero, 2016; Paniccia and Baiocco, 2018; Kézai et al., 2020; Lytras et al., 2019). Although prior studies have focused on start-ups in the most varied fields, from the information and software technology (Paternoster et al., 2014), to the automotive (Parente et al., 2019), to the healthcare sector (Monda et al., 2020), new firms adopting digital technologies in the tourism field are almost under-researched (UNWTO, 2021; Filieri et al., 2021). Significantly, the Italian Ministry of Economic Development estimates that among the 14,621 innovative start-ups registered at the Chamber of Commerce only 0.47% belong to the tourism sector. This datum is relevant, not least because only accommodation and food and beverage start-ups are considered (Ministry of Economic Development, 2022). Thus, the current ambiguity surrounding tourism digital start-ups and related e-business models presents a unique opportunity to delve them as advocated in literature (Abbate et al., 2019).

Purpose of the paper. *This study aims to empirically analyse Italian start-ups adopting new digital technologies in the tourism field. Specifically, the research provides a classification of these start-ups based on the innovative solutions proposed. We argue that Italy is a proper context to conduct this study in the light of the relevance of the tourism sector for the economy of the country. In Italy, the tourism contribution to GDP have been higher than global and European average at least over the last 6 years up to 2021 (WTTC, 2017-2021).*

Methodology. For the analysis of the most used digital technologies in the tourism sector, the research methodology considers two main steps: 1) an in-depth analysis of the literature, 2) a classification of the tourism digital start-ups.

Starting from the analysis of the existing literature on smart tourism, the research emphasized the technologies currently used in the tourism sector.

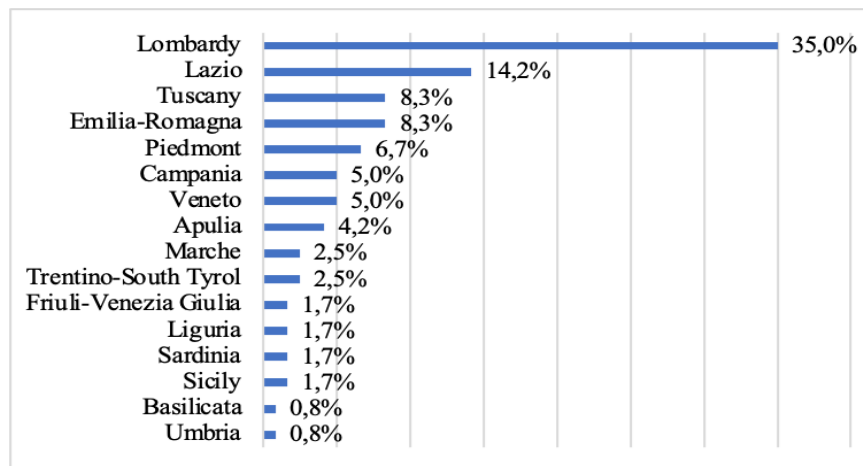
Subsequently, a classification of innovative Italian tourism digital start-ups was conducted, aimed at developing an overview of the tourism sector in Italy.

The research was carried out between November 2022 and March 2023. It involved the collection of data through a portal: Startup Turismo (<https://www.startup-turismo.it/>), which collects information from more than 120 travel start-ups in Italy and collects information relating both to the financial aspects and investment strategies of the associated start-ups and to aspects of the business model, commercial strategies and technologies adopted.

In particular, the data was obtained through an advanced search, using twelve keywords representing fourteen different sectors: “3D printing/3D modeling”, “artificial intelligence”, “augmented reality/virtual reality”, “big data”, “content provider”, “digital marketing”, “experience provider”, “gaming/social engagement”, “marketplace”, “payment”, “technology provider”, “tour operator”.

Results. The classification of Italian digital start-ups provides insight into the characteristics of the smart tourism sector in Italy. In total, there are 120 start-ups that offer tourist services through apps and e-commerce. The majority of these start-ups (35.0%) are located in Lombardy, with other significant clusters in Lazio (14.2%), Emilia-Romagna (8.3%), Tuscany (8.3%), Piedmont (6.7%), Campania (5.0%), Veneto (5.0%), Apulia (4.2%), Marche (2.5%), Trentino-South Tyrol (2.5%), Friuli-Venezia Giulia (1.7%), Liguria (1.7%), Sardinia (1.7%), Sicily (1.7%), Basilicata (0.8%), and Umbria (0.8%) (see figure 1).

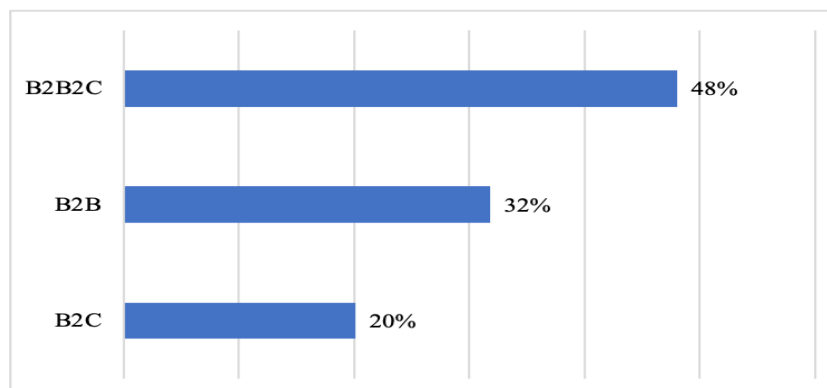
Fig. 1: Geographical distribution of Italian tourism digital start-ups (%)



Source: our elaboration

Three business models (B2B, B2C, and B2B2C) are employed by the analyzed start-ups. Figure 2 illustrates that the B2B2C model is the most common, used by 48% of the start-ups, while 32% use a B2B model and 20% use a B2C model. Many companies use a combination of these models. Regarding the end-users, tourists constitute 88 of the total, companies make up 85, and DMOs are the final recipient in 19 cases.

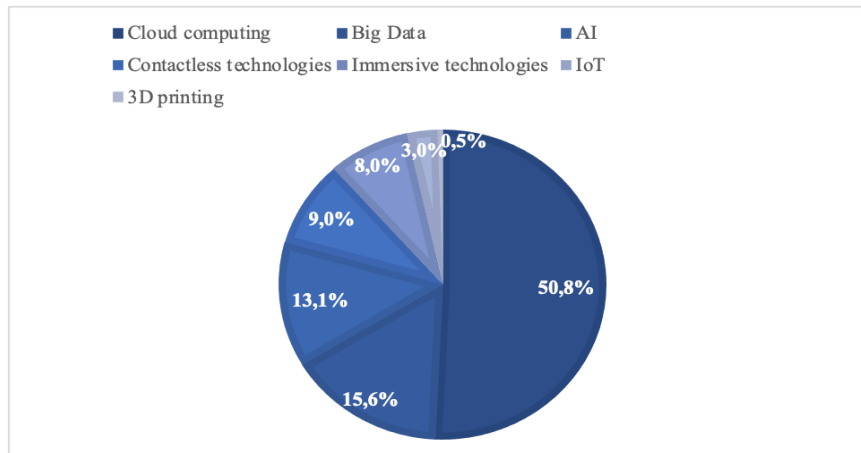
Fig. 2: Business models applied by Italian tourism digital start-ups (%)



Source: our elaboration

Figure 3 reveals that tourism digital start-ups primarily utilize the following technologies: Cloud computing (50.8%), Big Data (15.6%), AI (13.1%), Contactless technologies (9.0%), Immersive technologies (8.0%), IoT (3.0%), and 3D printing (0.5%).

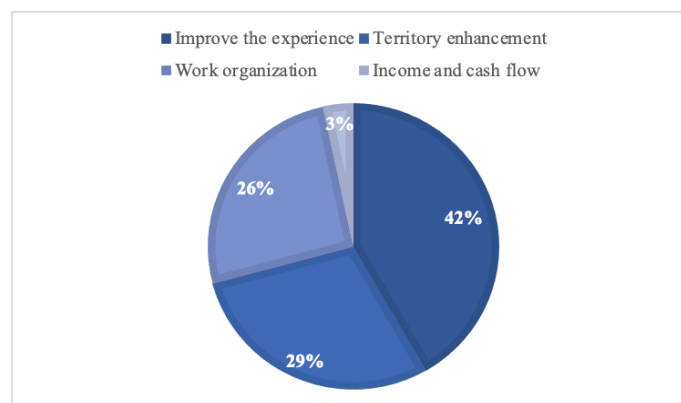
Fig. 3: Technologies applied by Italian tourism digital start-ups (%)



Source: our elaboration

The smart tourism sector in Italy encompasses four primary fields of activity, namely work organization, territory enhancement, improving tourist experience, and generating income and cash flows (see figure 4). Results indicate that 42% of the analyzed sample focuses on providing services that aim to enhance the tourist experience. These start-ups have specific targets, including luxury travelers, pet lovers, sea lovers, disabled individuals, and those with reduced mobility. The mission of 29% of the analyzed start-ups revolves around enhancing the territory through digital tours, storytelling, promoting smart working in secondary territories such as villages, creating communities, and offering unique experiences. The core business of 26% of tourism digital start-ups is linked to providing services that improve hosts' work organization, including self-check-in and self-check-out options or utilizing big data to enhance services. Finally, some of the analyzed start-ups aim to improve income and cash flows.

Fig. 4: Fields of activity in Italian smart tourism (%)



Source: our elaboration

Research limitations. This study is not intended to be conclusive or exhaustive. Its main limitation is that it relies on secondary data. Future research can be supported by survey aimed at data collecting and by interviews with entrepreneurs of tourism digital start-ups as the basis for more in-depth analyses of the phenomenon. Moreover, future research could investigate the factors that can enable or inhibit the creation of tourism digital start-ups in the different regional contexts. Finally, some future critical reflections can concern the role of tourism digital start-ups in contributing to the development of smart tourism being aware that the associated impacts are not always positive. In fact, different scholars refer to various challenges related to the adoption of ICTs solution, from ethical dilemmas, privacy and security concerns regarding customers data (Xu et al., 2018), to the possible reduction of social interactions, negative effects of technologies on tourists' satisfaction (Grundner and Neuhofer, 2021), and existing work activities replacement (Müller et al., 2018).

Managerial implications. This study has significant managerial implications as it can assist policymakers in developing innovative and sustainable solutions to facilitate the successful digital transition of tourism cities. By understanding the trends and characteristics of tourism digital start-ups, policymakers can extend the use of innovative

technologies to new territories and create favorable conditions for the growth of the smart tourism sector. Additionally, by identifying the main technologies and scopes of newcomers in the industry, this study can guide aspiring entrepreneurs on the latest trends and less-focused areas that may present potential entrepreneurial opportunities in the future.

Originality of the paper. This study represents a first attempt to explore the Italian tourism digital start-ups, providing valuable insights into the emerging smart tourism sector in Italy. It focuses on the role of new digital technologies in the evolution of smart tourism and provides a comprehensive classification of start-ups in the Italian context. Starting from the analysis of the existing literature on new technologies in the tourism industry, the study highlights the technologies currently utilized by Italian digital start-ups. Additionally, this study showcases the geographical distribution, business models and fields of activity of Italian digital start-ups.

Keywords: tourism digital start-ups; smart tourism; tourism; digital technologies; start-ups.

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How management uses AI in the museum field: from chatbots towards chat GTP

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Abstract

Artificial intelligence is an innovative tool with considerable potential. In the cultural sector, the use of new technologies translates into the definition and design of a cultural offer based on the components of interactivity and customization. In this direction are inserted the Technological Advances through which the visitors of Cultural Sites can dialogue with deep learning inspired chatbot software, ask for information and even suggestions on the Cultural Experience. The aim of this work is to explore the use that cultural organisations, and in particular museums, make of Chatbot technology, in order to understand if this tool can be effective in enhancement and fruition museum management. To achieve this goal, the strategic choices by a selection of case studies were analysed. From the analysis carried out, the use of Chatbot technology appears to bring the museum audience closer, involving them in the museum narrative thanks to the possibility of making autonomous choices and providing important information on public behavior to management. The future application of elaborate AIs such as GTP chat may offer food for thought on how these processes will be automated and become increasingly efficient.

Introduction. *Technological innovation pervades every aspect of contemporary society. In the cultural and creative sector, the use of digital and immersive technologies is a fundamental pillar of attractiveness for organisations that use them. The process through which these organisations are called to create social, cultural and economic value implies the use of structures and tools that can provide innovative and interactive approaches in cultural-based enjoyment (Chung et al., 2015; Sfodera et al., 2020). The use of the most innovative technologies in the creation and co-creation of cultural value allows to overcome the physical distance in the cultural fruition and invest resources to establish a relationship not only on-site but also online with its users (Del Vacchio et al., 2022). The technology constituted by Artificial Intelligence, in particular, is able to guide and enhance the cultural experience in the phase before the visit, in the phase concomitant to the visit and also in the subsequent phase, triggering significant relational mechanisms between cultural organisations and stakeholders that gravitate in their orbit.*

In this direction, particular attention is covered by chatbot technology. For about a decade, the output from Artificial Intelligence has been receiving increasing attention from cultural organisations, and in particular from museums, as well as scholars (Boiano et al., 2018; Robinson et al. 2008; Vassos et al. 2016). The introduction on the cultural market of software able to dialogue with users and respond to their needs has upset the typical communication trajectories between users and professionals in the cultural sector. The paradigm shift is associated with technological advances introduced not only with written language but also with voice recognition (Gaia et al., 2019). The experiments focused on the use of chatbot technologies are many and varied. The solutions guided by deep learning, through systems that respond to specific requests and, recently, also to recommendation systems, aim to quickly and dynamically customize the interaction with users, improving the experience of cultural enjoyment (Bordoni et al. 2016). The innovativeness of digital solutions is such as to learn to understand the intent or context of a user with the aim of maximizing the effectiveness and efficiency of the chat system and return personalized answers and information (Fast et al. 2018).

This research project intends to explore, through a qualitative approach, the ways in which museums manage these technologies with the aim of understanding, from a managerial perspective, whether these tools constitute a real differential element in the online and online cultural fruition and enhancement of Cultural Heritage.

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Literature review

Digital technologies in museum management

The museum sector is a particularly interesting scenario from a technological point of view: a relationship marked by revolutions in this sector, dictated precisely by digital innovations (Del Vacchio et al., 2020). These convergences between culture and digital have been the subject of numerous studies of a managerial nature, which have contributed to analyzing their dynamics (Antoniou & Lepouras, 2010, Russo Spina et al., 2021). The very management of these enhancement technologies has been based on these technologies above all with involving the public more with interactive processes: an example is augmented reality which in recent years has had a significant application in cultural contexts (Do et al., 2020), but also virtual reality (Williams & Hobson, 1995), and virtual tours (Caspani et al., 2017). It is precisely the search for new variations of these technologies in the cultural context, and in particular in the museum, which is extremely interesting in attracting new audiences, often even less interested in these contexts, such as the younger generations (Akmermer, 2022). For example, there are many contributions in the managerial field on how social media have influenced the relationship between users and subjects related to culture (Vassiliadis & Belenioti, 2017; Liang & Martin, 2021; Maniou, 2021;). In particular, it has been underlined how the use of social media by museums has generated strong loyalty with museums, improving users' skills, and making them more willing to financially support these institutions (Zollo et al., 2022). Museum marketing itself exploits these tools to better understand its audiences, sometimes starting profiling processes in order to detect the socio-demographic and behavioral characteristics of users, easier to detect on social media than in physical visits (Gargiulo & Carignani, 2022). There are therefore numerous studies stating that data from social network content analysis should be taken into account in the decision-making process of cultural heritage management (Liang et al., 2021). This analysis of data obtained from social media, the so-called big data, is therefore fundamental for the management of the museum in the relationship with the public and for developing co-planning relationships with visitors, increasing the value of their experience (Cuomo et al., 2021). The analysis therefore made by the museums of their social networks, therefore traces a scenario composed of users who are characterized in different groups, which together however form real communities with similar interests (Chang, 2022). The main problem of museums, however, is that not always tools such as social networks, but digital technologies in general, are exploited to the fullest, often due to a lack of specialized personnel among the museum staff (Carignani et al., 2022). If social networks are generally more focused on younger audiences, the contribution of digital should not be underestimated in improving the visit of other types of audience, especially the over 50s, particularly useful in providing useful information to users even in the pre and post visit (Traboulsi et al., 2018). Management literature has also focused on digital technologies such as augmented reality (AR) or virtual reality (VR), seen in the past as an element that could compete with a museum visit (Guttentag, 2010), today they are tools considered extremely useful for making the museum visit even more attractive (Passebois-Ducros, 2019). They are therefore a fundamental tool not only for attracting new audiences, but because they give the possibility of using cultural heritage from a distance, often damaged or lost (Styliani et al., 2009). A modern museum management cannot therefore ignore these forms of technology, also focusing on the training of dedicated staff and on communication, through modern digital storytelling (Trunfio et al., 2022). This type of museum management, which involves users in this way, can only create new forms of co-creation of services, where the subjects, curators, managers, visitors and artists, find themselves interacting in completely new dynamics (Massi & Turrini, 2020)

The use of AI in museum management

In recent years, cultural services have seen the implementation of the use of AI in their dynamics, in order to improve the quality of their services (Ivanov & Webster, 2019). In the museum sector there has been a growth in the use of AI in order to offer ever better services to its visitors, entering the perspective of Industry 5.0, and transforming itself from a tool to a real approach to the cultural world and making it possible to better understand users' wishes at different times: before, after and during the visit experience (Orea-Giner et al., 2022). If the lack of resources and the difficulty in managing these technologies at a technological level represent barriers involving economic and human resources (Villaespesa & Murphy, 2021), the evolution of these systems, which increasingly reduce response times, are particularly reconciled with the application in the museum field, where the visitor needs to access information in ever faster times, supported by available devices (Wang & Cai, 2022). The objective becomes twofold: if on the one hand these technologies preserve the cultural heritage, on the other they can give museum management important information on the level of visitor satisfaction in their museum experience (Recuero Virto & López, 2019). At the same time, museum management must not underestimate the importance of monitoring and analyzing the relationship that is created between users and AIs, which can turn into a real co-creation process (Merzagora et al., 2022). In fact, already with the first forms of chatbot, an important change in relations with these technologies takes shape: the relationship is transformed from a linear one to an extremely more interactive relationship, with the user who does not passively follow the visit, but is called to interact directly with the chatbot (Toumanidis et al., 2019). However, the use of these technologies has broadened the studies on the impact of management in the use of these technologies, such as chatbots, in order to facilitate interactions with visitors, but also to initiate processes that can be managed by staff of museums (Ivanov & Webster, 2019).

In fact, it should not be underestimated in the interface between chatbot and user, the possible anxiety that can be generated by the use of a technology and that could adversely affect the experience, although studies show that simple and intuitive interfaces can overcome the problem (Pillai & Sivathanu, 2020).

Methodology. *In order to investigate how museums manage the use of Artificial Intelligence technologies to personalize cultural experiences, the authors have chosen to adopt a qualitative approach (Dubois & Gadde, 2002), consistent with the nature of the theme linked to the analysis of the context in which these technologies are used and the community to which they relate. To achieve this goal, a direct observation was conducted to a selected basket of case studies. In particular, four international organisations related to the museum sector, responding to different legal forms, were found to be in line with the subject of the survey. The selected cases respond to territorial contexts and different audiences for origin and cultural attendance, they are also part of heterogeneous subsectors with each other. In addition to this distinction, each of the selected cases uses different extensions of chatbot technology. The selected cases are:*

- *Centre national d'Art et de Culture Georges Pompidou;*
- *Colosseum Archaeological Park;*
- *Ecomuseum Mare Memoria Viva;*
- *Museum of Tomorrow*

The collected data were analysed following a “logic of replication”, according to which the analysed cases carried out a cross-analysis, with the aim of identifying similar characteristics, differences and determining best practices (Yin, 2018). The multiple case study approach adopted (Gummesson, 2017) is based on a broad and heterogeneous dataset. Specifically, the study stems from an overlap between primary and secondary information sources, such as interviews, articles, website content, essays and reports (Creswell & Creswell, 2017).

Findings. *In the contemporary cultural and artistic scenario, there have been numerous attempts to engage audiences in a more dynamic and interactive way. As Noh and Hong pointed out (2021), cultural organizations exert much effort to engage visitors, provide knowledge, create meaningful experiences and make emotional connections. Artificial Intelligence (AI) proves to be a useful tool in pursuit of this goal as it can provide cultural managers with valuable support in numerous activities.*

The conducted analysis showed how artificial intelligence can have various fields of application in the cultural sector. The first one concerns the use of AI for the production of works of art: various artificial intelligence software and tools, such as Midjourney, are able to generate images and illustrations, with a considerable degree of complexity, from a written text. Nowadays, an increasing number of artists incorporate artificial intelligence into their installations, making this technology an intrinsic component of the experience itself and allowing viewers to become protagonists of the artwork. The U-DATInos project, realised by the Ecomuseo Mare Memoria Viva in Palermo in collaboration with the artists Salvatore Iaconesi and Oriana Persico, aims to create a fusion between the human ecosystem and technology. The installation representing a Mediterranean maquis forest takes the form of an interactive artwork that generates effects of light and sound to visualise and represent the conditions of the surrounding environment. The installation transforms itself based on data from sensors, open data and surveys, conducted by a group of selected visitors, and managed by artificial intelligence software.

The second field of application pertains to the use of artificial intelligence, in the form of chatbots, to assist and support customers of cultural institutions such as museums and archaeological sites.

Aiming to offer its visitors a new way to experience the museum and interact with the artworks, the Centre Pompidou developed, in collaboration with Ask Mona, an interactive mobile guide adapted to the needs of the public. The chatbot, named Tubo, is designed to accompany visitors throughout the visit experience. This tool facilitates the fruition of the artworks by answering frequent questions with the help of artificial intelligence. The user can access the service by taking a photo of the work of interest, which is recognised by the AI and provides access to exclusive content that explain the history of the work, as well as the possibility of asking the chatbot for further curiosities. The chatbot also responds to practical enquiries from users such as rates, opening hours, programmes and activities. Its features are designed to respond effectively at each stage of the visitor journey, from the needs of information before the visit, to specific questions during the visit and after it. Since its launch in December 2021, Tubo has been downloaded more than a hundred times a day and in the first two months has reached a total of 17,000 users, making it rightfully an essential part of the Centre Pompidou's digital toolbox to make visits more accessible and to attract a new target group of younger customers who are less inclined to follow the traditional museum tour.

At the beginning of 2023, the Colosseum Archaeological Park launched Nerone, an artificial intelligence software, designed to provide the public with information about the cultural site and its services. The main goal lies in reaching a more diversified audience and decreasing the response time to information requests made through traditional communication channels including email, telephone and social media. The chatbot is the result of an international collaboration between the Park, the Italian company Machineria srl and the French company Ask Mona, both active in the production of innovative services for cultural enterprises. A detailed analysis of the communication strategy of the Colosseum Park and of the audience it seeks to intercept led to the choice of the iconography representing the Roman emperor Nero, which turned out to be appropriate and led to relevant results in a short time. In the month of January, in fact, the platform was used by more than 160 users per day. The study of the most frequent questions asked by the users helped the cultural manager to intercept the most recurring themes and enabled an improvement in the chatbot's performance with more detailed answers in line with visitors' expectations. The data provided by the Colosseum Archaeological Park reveal that more than half of the questions posed to Nero (69%) are related to the ticketing system, but there is no shortage of requests for curiosities or anecdotes (parocolosseo.it).

Accessibility is a major area that cultural institutions are trying to address in new and innovative ways and artificial intelligence can also be a useful tool for cultural management to observe and understand customers' demands.

Rio de Janeiro's Museum of Tomorrow incorporates AI as a core part of the cultural experience. Through the tool IRIS+, which is a pioneering use of Watson Services, visitors can personalise their experience when interacting with exhibition components in the galleries. The artificial intelligence is designed to engage visitors through a conversational interface, to accept unconstrained responses from visitors and to give meaning to the data collected through these interactions. The information collected helps the museum to understand user needs and improve museum services.

Tab. 1: Use of AI by Cultural firms

Name	Identity	AI Application	Opportunity for visitors and cultural firms
Centre national d'Art et de Culture Georges Pompidou	Museum of Contemporary Art	Tubo Chatbot	Facilitate the enjoyment of works of art and improve the accessibility of the museum.
Colosseum Archaeological Park	Archaeological Site	Nerone Chatbot	Provide the public with information on the services offered and use the data collected to improve the promotion and attractiveness of the site.
Mare Memoria Viva	Ecomuseum	U-DATInos Data physicalization	Provide a new way of enjoying a work of art and stimulate the public to active participation.
Museum of Tomorrow Rio de Janeiro	Museum of Applied Sciences	IRIS+ Digital Assistant	Collect data to understand visitor needs and create tailor-made experiences.

Source: Author's elaboration

As can be seen from the information in Table 1, the institutions analysed have different applications of artificial intelligence. The goals that cultural enterprises and visitors can achieve through this tool are manifold and include: increased knowledge of the site and services offered, a higher level of engagement throughout each stage of the visitor journey and the reaching of different target groups, such as so-called young adults.

In particular, the exponential growth in the use of chatbots by cultural companies (Gaia et al., 2019) is also due to the use of deep learning systems that accelerate the learning process of such tools and make them suitable for providing increasingly personalised information that can increase user satisfaction and improve the enjoyment of the works but also the moments before and after the visit.

Implication. Digital technologies pervade every aspect of creating cultural value process. The use of artificial intelligence, together with other technologies such as augmented or virtual reality, is spreading to offer new experiences of artistic enjoyment. Artificial intelligence, in particular, is an effective tool to support cultural organizations to strengthen the link between them and their stakeholders by providing customers with innovative storytelling for a more immersive cultural experience. The analyzed cases have shown that the tools provided by AI, in the different forms of apps, software, chatbot technology, allow to guide and enhance the cultural experience in the phase before the visit, in the concomitant phase of the visit and also in the subsequent phase. From a theoretical point of view this process implies the strengthening of the relational links between cultural organizations and stakeholders that gravitate in their orbit. From a managerial point of view, these tools provide tangible and objective data about the number of people seeking information about the cultural organization and its proposals. In the same direction, it allows cultural firms to profile users and provide effective metrics on their experience satisfaction. The insights derived from the digital technology of AI allow, in summary, address the strategic and operational choices of cultural management, aligning them to the needs of their stakeholders.

Limitation and future research. The potential of using artificial intelligence for cultural organizations is manifold. This study investigated from a qualitative point of view the use of cultural management in relation to technologies derived from AI. The heterogeneity of the case studies tackled allows to photograph the general state of the art but also constitutes a limit of the research. In this direction also fits the belonging to different cultural subsectors. In view of the above, it seems necessary to extend the number of selected case studies and to observe also through quantitative methodologies the use that cultural organizations belonging to different sub-sectors make of AI. In the same direction, it could be interesting investigating the ways in which museum management achieve stakeholder newest needs regarding the use of AI such us data security and privacy, as well as induced unemployment. This innovative usage is at the early stages of its experimentation but its development could soon be of interest to museums and major cultural institutions that aim to provide their users with a diversified service that can be used remotely.

Conclusion. The applications of artificial intelligence in the museum environment can be extremely varied. Therefore, tools are created that can be extremely useful to museum management, which acquires important information about the user and has the possibility of correcting the cultural offer to better meet the needs of visitors and involve them more and more. At the same time, therefore, these tools are perceived positively by visitors, whose judgement is influenced by the use of simple and immediate interfaces, providing precise and detailed information.

Another great advantage is the speed of processing of the answers, other than the automation of these processes which allow the management to concentrate the workforce on other sectors. However, we must not believe that everything is automatic: it is essential for management to have competent staff who know how to correct the offer and above all interpret the data that these devices collect. Only in this way will the effort behind the adoption of AI be optimized. These processes could also be optimized in the future by the same AIs, such as Chat GTP, which, thanks to a considerable computing power, made available to more and more cultural subjects in an accessible way, could carry out these processes automatically in the future, suggesting any corrective measures are also sent to management.

Keywords: museums; Artificial Intelligence; chatbot; AI; cultural heritage; chatGTP

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Cultural sustainable reputation delle destinazioni unesco: uno studio tra comportamento sostenibile, soddisfazione e atteggiamenti di fedeltà[♦]

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Inquadramento della ricerca. Il concetto di turismo sostenibile è stato definito dall'organizzazione Mondiale del Turismo (UNTWO) come un turismo consapevole dei suoi impatti presenti e futuri, in grado di soddisfare le esigenze dei visitatori, delle comunità locali, dell'ambiente e delle aziende.

Partendo da questa definizione, il concetto di turismo sostenibile è stato ampiamente analizzato, alimentando un dibattito molto vivace focalizzato sul rapporto teorico tra turismo e sviluppo sostenibile in diversi contesti di applicazione (Sharpley, 2020).

Gran parte degli studi e della letteratura ha descritto il concetto di sostenibilità declinandolo attraverso le dimensioni sociali, ambientali ed economiche (Loach et al., 2017; Blancas et al., 2016).

Oggi a distanza di anni la letteratura si è allontanata da questo approccio tradizionale, applicando al concetto di turismo sostenibile una prospettiva olistica e multidimensionale che prevede ulteriori dimensioni: sociale, culturale, ambientale, politica, economica ed etnica (Woosnam e Ribeiro 2022).

Questa nuova prospettiva sottolinea il ruolo della dimensione culturale quale elemento fondamentale nella costruzione di una società e quale specifica dimensione della sostenibilità (De Oliveira et al., 2022; Migliacani e Francesconi, 2022; Throsby, 2016; Soini e Birkeland, 2014).

Per comprendere i principali aspetti legati alla sostenibilità di questa dimensione, occorre fare riferimento al concetto di turismo culturale, definito come “is a type of tourism activity in which the visitor's essential motivation is to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination.” (Richards, 2018, p. 13).

Nello specifico, le risorse turistiche culturali rappresentano le caratteristiche basilari di qualsiasi destinazione, comprendendo aspetti quali il “cultural heritage” (Bui et al., 2020), lo “human life style” e le tradizioni (Carreira et al., 2022), i cambiamenti sociali e culturali nelle comunità locali (Woosnam e Ribeiro, 2022; Stephens e Tiwari, 2015), il patrimonio museale (Cerquetti e Cutrini, 2023; Pencarelli et al., 2017), il patrimonio culturale immateriale (UNESCO, 2003), festival tradizionali (Deng et al., 2023) e la relazione in termini di impatti tra il fenomeno turistico e la comunità locale (Jamal et al., 2010).

Le destinazioni culturali sono considerate come centri di attrattività che contribuiscono in modo significativo allo sviluppo turistico a livello regionale e nazionale, specialmente in Italia.

Il significativo ruolo del turismo culturale ha sollecitato un maggiore interesse anche negli studi accademici (Spencer e Sargeant, 2022; Du Cros e McKercher, 2020; Richards, 2018). In particolare, la letteratura esistente ha soprattutto esplorato alcuni ambiti del turismo culturale in relazione alla sostenibilità, come la conservazione del patrimonio, la gestione del turismo, il suo impatto sia positivo che negativo sulle comunità locali e sui siti culturali (Dans e Gonzales, 2019).

Negli ultimi anni la crescente letteratura accademica, concentrata sul rapporto tra destinazioni culturali e sostenibilità di medio e lungo periodo, ha portato ad una maggiore attenzione degli studiosi verso i siti UNESCO (Tran et al., 2023; Aimar, 2022; De Oliveira et al., 2022; Migliacani e Francesconi, 2022; Scuttari et al., 2021; Dans e Gonzales, 2019; Colavitti e Usai, 2015), che indubbiamente rappresentano dei luoghi privilegiati per l'applicazione di casi empirici.

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Nonostante la letteratura esistente, un ambito di studio poco esplorato è quello relativo alla reputazione della destinazione (destination reputation) (Su et al., 2018), che nel caso della sostenibilità è stato applicato alla dimensione ambientale “eco-friendly (Su et al., 2020) e a quella sociale “destination social responsibility” (Tran et al., 2023), ma raramente a quella specifica culturale.

Coerentemente con il lavoro di Su et al. (2020) e Barnett et al. (2006), questo studio considera la reputazione della destinazione da un punto di vista culturale (Cultural Sustainable Reputation - CSR), definendola come “cultural and social reputation of the destination as the tourists' combined assessments of a destination applying their overall evaluation of the cultural impacts attributed to the destination” (Su et al., 2020, pp. 560). La reputazione culturale di una destinazione potrebbe essere interpretata come una valutazione complessiva dell'immagine nel campo della sostenibilità culturale, che deriva dalle politiche di comunicazione della destinazione nonché dalle valutazioni dei turisti.

Una CSR positiva può portare a diversi vantaggi per la destinazione. In primo luogo può aumentare la sua competitività, sia internamente, migliorando le prestazioni organizzative dei vari stakeholder, che esternamente, influenzando e attirando, nella scelta della destinazione, specifici segmenti di clientela qualificati e sensibili ai temi della sostenibilità (Campos-Soria et al., 2021).

In secondo luogo, lo studio di Su et al. (2020) ha dimostrato che, in linea con la reputazione aziendale (Chang, 2013), una reputazione ecologica positiva della destinazione può avere un impatto diretto sulla soddisfazione del turista. Allo stesso tempo studi precedenti nell'ambito dell'“affective component” hanno confermato che la soddisfazione può assumere un importante ruolo nella creazione di comportamenti di fedeltà al brand di destinazione (Tran et al., 2023; Kumar et al., 2020; Su et al., 2016). Di conseguenza, i visitatori che si sentono maggiormente soddisfatti rispetto ad una specifica destinazione agiranno in favore della comunità stessa, adottando atteggiamenti legati a dinamiche di fidelizzazione come, ad esempio, l'intenzione di tornare nella destinazione culturale (Vareiro et al., 2018) e l'intenzione di raccomandare la destinazione (Altunel e Erkurt, 2015).

Infine, nel contesto delle esperienze turistiche (Pine e Gilmore, 1999), alcuni studi (Zatori et al., 2018; Altunel e Erkurt, 2015) hanno evidenziato l'effetto positivo che le attività di coinvolgimento (in particolare quelle legate all'**on-site e on-line involvement**) possono avere sulla soddisfazione (Cioppi et al., 2022; Hung et al., 2019).

Obiettivo del paper. Nonostante gli studi sopra citati, la letteratura più recente sottolinea l'esistenza di molteplici gap riguardanti l'analisi delle intenzioni e dei comportamenti dei turisti nell'ambito delle destinazioni culturali, come: 1) la scarsità di studi focalizzati sull'analisi empirica degli aspetti relativi alla specifica dimensione della sostenibilità culturale (Migliacani e Francesconi, 2022; De Oliveira et al., 2022) 2) la scarsità di studi che hanno analizzato l'impatto della reputazione della destinazione (destination reputation) sul comportamento dei turisti (Su et al., 2018); 3) la limitatezza di studi che hanno collegato la reputazione della destinazione alla soddisfazione del turismo (Su et al., 2020); 4) la concentrazione quasi totale degli studi esistenti sull'analisi del ruolo del turismo culturale dal lato dei manager dei siti UNESCO, a scapito della prospettiva della domanda (De Oliveira et al., 2022); 5) la scarsità di studi che si sono occupati di analizzare l'influenza della dimensione del coinvolgimento **on-site e on-line** rispetto alle attività sostenibili.

Partendo da questi presupposti l'obiettivo del presente lavoro è triplice: (i) indagare la relazione fra i comportamenti sostenibili generali dei turisti e la percezione della reputazione culturale sostenibile delle destinazioni; (ii) indagare la relazione tra la reputazione culturale sostenibile e la soddisfazione dei turisti; (iii) nell'ambito di questa ultima relazione, testare il possibile ruolo di moderazione del coinvolgimento **on-site**, sia per quanto riguarda le attività sostenibili culturali offline che online; (iv) esplorare se la soddisfazione possa portare i turisti ad assumere atteggiamenti come l'intenzione di tornare e di raccomandare la destinazione culturale, tali da innescare un processo virtuoso nella formazione di viaggiatori fidelizzati.

Lo studio si basa sulle seguenti ipotesi di ricerca (Figura 1):

H1: I comportamenti sostenibili generali dei turisti (sustainable behavior) hanno un effetto positivo sulla selezione delle destinazioni con livelli più elevati di reputazione culturale sostenibile (cultural sustainable reputation);

H2: La reputazione culturale sostenibile della destinazione ha un effetto positivo sulla soddisfazione dei turisti (satisfaction);

H3: Il coinvolgimento tramite i social media (social media activity involvement) modera il rapporto tra la reputazione culturale sostenibile della destinazione e la soddisfazione dei turisti;

H4: Il coinvolgimento nelle attività in loco (on-site activity involvement) modera il rapporto tra la reputazione culturale sostenibile della destinazione e la soddisfazione dei turisti;

H5 La soddisfazione dei turisti ha un effetto positivo sull'intenzione di raccomandazione (Recommendation intention);

H6: La soddisfazione dei turisti ha un effetto positivo sull'intenzione di tornare nella destinazione culturale (Intention to return in the cultural tourism destination).

Metodologia. I dati per l'indagine sono stati raccolti mediante un questionario strutturato, e somministrato a un campione di turisti della città di Urbino¹, una importante destinazione culturale mondiale, riconosciuta anche come sito UNESCO.

¹ Nello specifico, il questionario è composto da quattro sezioni. La prima sezione presenta lo scopo del sondaggio, mentre nella seconda vengono richieste alcune informazioni generali riguardanti il turista (es. quante volte ha visitato la città e se/quante notti

Per quanto riguarda la misurazione delle variabili, le scale adottate sono state appositamente selezionate dalla letteratura scientifica turistica.

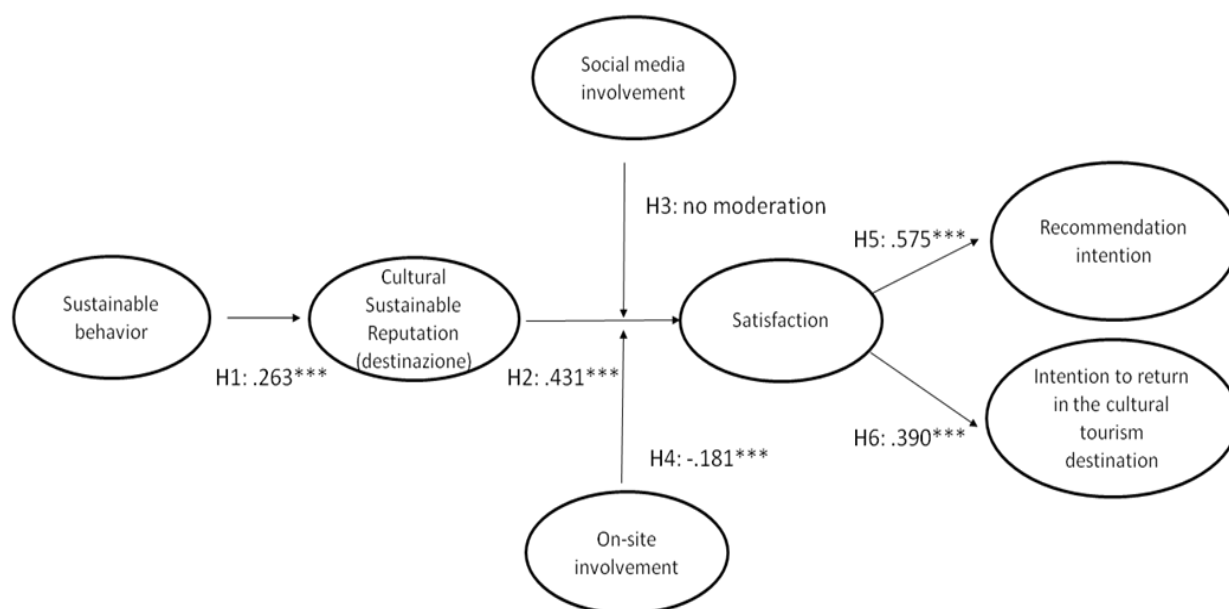
Al termine della somministrazione avvenuta tra agosto e ottobre 2022, sono stati raccolti 803 questionari completi (46 questionari sono stati scartati perché incompleti). Gli intervistati presentano le seguenti caratteristiche:

- il 62% sono turisti italiani e il 38% stranieri, principalmente europei;
- il 62% è alla sua prima visita a Urbino, il 18% alla seconda mentre il 20% ha effettuato più di 2 visite nel corso della propria vita;
- il 54% non ha pernottato ad Urbino, il 18% solo una notte e il 28% per più di una notte;
- il 47% sono uomini e il 53% donne;
- il 19% ha tra i 18-23 anni, l'11% tra 24 e 29 anni, il 15% tra 30 e 39 anni, il 16% tra 40 e 49 anni, il 24% tra 50 e 59 anni e il restante 15% più di 59 anni.
- il 31% ha conseguito un diploma di scuola superiore, il 60% è almeno laureato e il restante 9% è composto da turisti con licenza media.

Risultati. Per testare il modello, sono state adottate diverse analisi (analisi fattoriale esplorativa e di conferma e modellazione di equazioni strutturali).

I primi risultati esplorativi suggeriscono in primo luogo che il modello è accettabile: χ^2 $\frac{1}{4}$ 422.909; df $\frac{1}{4}$ 100; p $\frac{1}{4}$.000; χ^2/df $\frac{1}{4}$ 4.229; IFI $\frac{1}{4}$ 0,960; NFI $\frac{1}{4}$ 0,949 e CFI $\frac{1}{4}$ 0,960; $RMSEA$ $\frac{1}{4}$ 0,063. In secondo luogo, vengono confermate le ipotesi di ricerca, esclusa l'ipotesi H3 che non risulta significativa e l'ipotesi H4 che risulta significativa ma di segno negativo.

Fig. 1: Risultati analisi SEM sul modello concettuale



Dai risultati emerge come la CSR possa rappresentare un importante punto di forza per il successo a lungo termine delle destinazioni culturali, sia in termini di competitività che di sostenibilità. In particolare, lo studio permette di confermare, da un lato, il legame tra i turisti attenti alla sostenibilità e la CSR della destinazione e, dall'altro, il legame positivo tra la reputazione e la soddisfazione dei turisti (Su et al., 2020). Lo studio, in linea con altri (Tran et al., 2023), conferma come la soddisfazione dei turisti possa condurre, anche nelle destinazioni culturali, all'adozione di comportamenti di fedeltà nei confronti della stessa, come l'intenzione di ritornare e di raccomandare la destinazione.

Inoltre, pur non confermando le ipotesi di mediazione delle variabili on-site e on-line involvement (H3:H4), la ricerca offre importanti spunti di riflessione su questo risultato. Per quanto riguarda l'attività on-site, a differenza di altri contributi (Cioppi et al., 2022), lo studio conferma un ruolo moderatore negativo nella relazione tra la percezione della CSR della destinazione e la soddisfazione dei turisti. In una destinazione ritenuta culturalmente sostenibile da parte di turisti sensibili a questi temi, le condizioni della destinazione e le attività sostenibili **on-site** potrebbero non aver rispettato queste aspettative, contribuendo a peggiorare il livello di soddisfazione dei turisti. La non significatività dell'ipotesi del coinvolgimento dei social media nella destinazione potrebbe derivare dal fatto che le destinazioni e le DMO concentrano le proprie strategie social soprattutto nella fase di ricerca delle informazioni per la scelta della

ha pernottato durante la sua ultima visita). Nella terza sezione, invece, vengono indagate tutte le variabili presenti all'interno del framework concettuale proposto (Fig. 1). Per ogni variabile, è stata adottata una scala Likert a sette passi (dove 1=totalmente in disaccordo; 7=totalmente d'accordo). Infine, la quarta sezione contiene tutti i dati necessari per la profilazione dei turisti intervistati (es., genere, età, nazionalità, regione di residenza, livello di istruzione, professione, stato civile, area di residenza).

destinazione da parte dei turisti (Pop et al., 2022; Leung et al., 2013), trascurando quella della visita vera e propria, quando il turista vive in loco la destinazione.

Limiti della ricerca. I principali limiti dello studio sono riconducibili:

- alla raccolta dei dati che hanno riguardato un solo sito;
- alla mancata segmentazione del campione (es., età, condizione sociale, provenienza, livello di istruzione), che in base al contesto culturale e geografico di provenienza può incidere anche sulla percezione della sostenibilità.

Implicazioni manageriali. Lo studio offre interessanti implicazioni di natura sia teorica che manageriale. Dal punto di vista teorico, il lavoro si prefigge di colmare alcuni gap emersi dalla letteratura. In particolare, lo studio (i) analizza, dal punto di vista empirico, la specifica dimensione della sostenibilità culturale (Migliacani e Francesconi, 2022; Soini e Birkeland, 2014); (ii) contribuisce ad arricchire la letteratura esistente focalizzata sull'impatto della reputazione della destinazione sul comportamento dei turisti (Su et al., 2018); (iii) esplora empiricamente il legame tra la reputazione della destinazione e la soddisfazione dei turisti (Tran et al., 2018; Su et al., 2023; Su et al., 2020); (iv) arricchisce la letteratura che si è concentrata sull'analisi dei siti UNESCO (De Oliveira et al., 2022); (v) testa la relazione fra soddisfazione e comportamento di fedeltà nelle destinazioni culturali, arricchendo così la letteratura focalizzata sull'analisi degli **outcomes** della soddisfazione dei turisti (Vareiro et al., 2018); (vi) analizza il ruolo di moderazione delle variabili **on-site involvement** e **social media involvement**, cercando in questo modo di colmare un ulteriore gap emerso in letteratura e riguardante l'esiguo numero di studi che hanno analizzato il loro ruolo (Altunel e Erkurt, 2015).

A livello manageriale, invece, il presente lavoro offre importanti implicazioni ai diversi attori operanti sia nel comparto turistico in generale che in quello specificatamente legato alla dimensione culturale. In particolare, lo studio dimostra l'importanza per le destinazioni e le DMO di valorizzare, nelle politiche di branding, gli aspetti legati alla sostenibilità. Diventa fondamentale, quindi, iniziare a considerare il valore della dimensione culturale quale elemento chiave per attrarre e soddisfare i turisti. Inoltre, la formulazione delle strategie di marketing, in termini di segmentazione e di comunicazione, dovrebbe tenere conto della possibilità di identificare target di mercato con specifiche attitudini e sensibilità ai temi della sostenibilità. I siti UNESCO possono rappresentare dei luoghi privilegiati nello sfruttare questa dimensione comunicativa; tuttavia, non occorre trascurare le insidie che possono emergere da una comunicazione che valorizza gli aspetti legati alla sostenibilità culturale. Infatti, se da un lato le politiche di branding sostenibili sono in grado di attrarre turisti qualificati e più alto spendenti, dall'altro possono creare un'aspettativa molto elevata nei confronti dei visitatori, che, se non mantenuta, può incidere direttamente sui livelli di soddisfazione. Non è un caso che, durante il soggiorno presso la destinazione culturale, le attività di coinvolgimento on-site sostenibili (ambientali e culturali) incidano negativamente sulla soddisfazione dei turisti.

Nel complesso quindi le DMO e gli operatori del settore turistico (Del Chiappa e Presenza, 2013) dovrebbero porre maggiore attenzione al ruolo delle attività di coinvolgimento sostenibili on-site e on-line, per il significativo ruolo che possono svolgere nella soddisfazione dei turisti e di conseguenza nella possibilità che questi sviluppino atteggiamenti di fidelizzazione. In questa prospettiva le destinazioni devono rappresentare ecosistemi turistici sostenibili, caratterizzati da touchpoints fisici e virtuali (Barile et al., 2017), che consentono di coinvolgere il turista in attività esperienziali e sostenibili. Per quanto riguarda le attività di coinvolgimento social (Magno e Cassia, 2018), il presente studio sottolinea la rilevanza fondamentale di investimenti mirati in funzioni specifiche durante la vacanza del turista. Infatti, dato che i social media possono rappresentare uno strumento estremamente importante durante l'intero soggiorno di un turista, le organizzazioni turistiche potrebbero focalizzare la loro attenzione sull'utilità di tali piattaforme, non solo nella fase pre-vacanza ma anche e soprattutto quando il turista si trova in loco, stimolando anche processi di co-creazione del valore attraverso la realizzazione di contenuti digitali "real time" da parte dei turisti (Triunfo e Della Lucia, 2019).

In prospettiva è necessario che gli studiosi e i policy makers pongano maggiormente attenzione al tema della sostenibilità di medio e lungo periodo delle destinazioni culturali, per evitare che le attività turistiche possano trasformarsi in un fenomeno in grado di distruggere il valore dell'esperienza e della soddisfazione per i turisti.

Le linee di ricerca future potrebbero approfondire i temi trattati, tenendo conto anche delle specifiche caratteristiche dei turisti, come la provenienza geografica e culturale, che può incidere sulla percezione rispetto ai temi della sostenibilità (Campos-Soria et al., 2021). Inoltre, si rende necessario anche approfondire l'atteggiamento dei turisti nella destinazione attraverso metodologie di ricerca qualitative, mediante anche una possibile mappatura delle effettive attività sostenibili disponibili nella destinazione.

Originalità del paper. Il presente studio rappresenta un primo tentativo di misurare la reputazione sostenibile della destinazione attraverso la specifica dimensione culturale (Cultural Sustainable Reputation), cercando al contempo di approfondire il suo legame con la soddisfazione del turista. Inoltre, nonostante la letteratura esistente abbia evidenziato come il coinvolgimento dei turisti possa avere un effetto positivo sulla loro esperienza, sono pochi gli studi che si sono concentrati, da un lato, sull'analisi dell'influenza del coinvolgimento online, e dall'altro, sull'analisi congiunta delle attività on-site e on-line nell'ambito della sostenibilità culturale.

Parole chiave: cultural sustainable reputation; cultural/heritage tourism; on-site involvement; social involvement; tourist satisfaction; unesco

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Entrepreneurial dynamics and behaviours within creative industries: Comparing artistic craftsmanship with hi-tech start-ups

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Framing of the research. *Creative industries embrace a wide range of different activities, such as advertising, design, film, music, photography, publishing, the performing arts, artistic craftsmanship, technological, and business process innovation (Garnham, 2005; de Klerk, 2015). The importance of creative industries has increased with the inclusion of information and communication technology in most of these activities (Garnham, 2005). Previous studies show that in the creative industries, the environment is particularly uncertain and resource-constrained (Hotho and Champion, 2011). Thus, most of the entrepreneurial initiatives in these industries, mainly made up of micro-sized and small businesses run by sole traders (Hartley et al., 2013), need to find original solutions to face the challenges of persistent resource scarcity (Daskalaki, 2010; de Klerk, 2015; Potts and Cunningham, 2008). Investigating the behaviour of creative entrepreneurs in acquiring the skills and resources required to manage and sustain their businesses is a key to understanding how they can survive and sometimes prosper in such a resource-constrained creative environment. This is why the lens of entrepreneurial bricolage has been proposed as particularly effective in analyzing the behaviour and performance of creative industry firms (de Klerk, 2015; Morris et al., 2015).*

The concept of 'bricolage' was first used by Levi-Strauss (1966), who described it as "making do with what is at hand" (p. 17). Later, this definition was successfully introduced in entrepreneurship and developed into the concept of entrepreneurial bricolage (EB), identified as a creative approach to resource application that helps new ventures survive and succeed (Baker and Nelson, 2005). In line with this concept, as new ventures typically lack the resources they need, EB may help them survive and even flourish through recombining and reusing resources. Indeed, extensive empirical evidence has highlighted that new ventures engaging in bricolage are better able to manage resource constraints and achieve superior performance (Baker and Nelson, 2005; Cunha et al., 2014; Senyard et al., 2014). However, even if creative work generally requires forms of experimentation with different combinations and processes, the perspective of entrepreneurial bricolage has been widely neglected in the context of creative industries (de Klerk, 2015).

Scholars agree on the importance of entrepreneurial orientation (EO) as a concept developed from strategy-making process literature that models firm-level entrepreneurship (Covin and Slevin, 1989, 1991). Academic research in this area is comprehensive and has grown into an established field in entrepreneurship (Ferreira et al., 2019). EO finds its roots in the work of Miller (1983), who defined an entrepreneurial firm as one that "engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with proactive innovations, beating competitors to the punch" (p. 771). This definition entails the core dimensions of EO: innovativeness, risk-taking and proactiveness (Covin and Slevin, 1989). Innovativeness relates to the extent that firms can innovate their business operations, engaging in new ideas, products and approaches to take advantage of consumers' changing tastes and desires. Risk-taking indicates the degree to which a firm can push its desire to take action even when the outcome is unknown and uncertain. Proactiveness refers to the firm's ability to anticipate customers' needs and act on them before competitors. According to Lumpkin and Dess (1996), who expanded the original conceptualization, EO "refers to processes, practices and decision-making activities that lead to new entry" (p. 137).

Over the last decades, much empirical evidence has been provided regarding the positive impact of EO on organizational performance and growth (Markin et al., 2018; Rauch and Frese, 2008) across a variety of industries, including small and medium enterprises (de Klerk, 2015; Riviezzo et al., 2013; Wiklund and Shepherd, 2003). However, the effect of EO on company performance is not always simple or direct (Hernández-Perlines et al., 2021). Previous studies show that EO is likely to "drive firm performance most strongly and positively when enacted in particular

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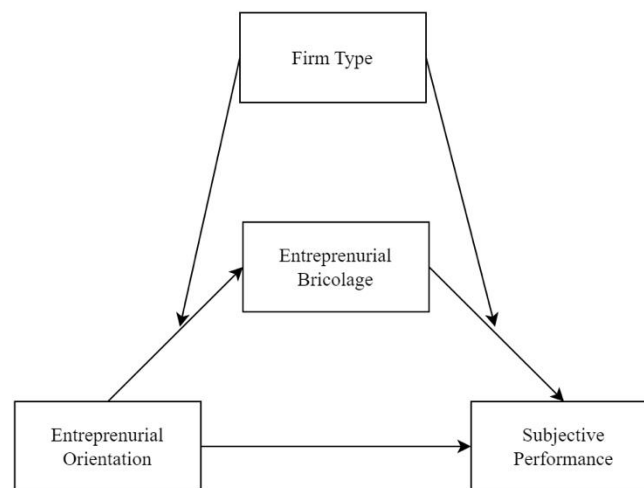
‘congenial’ - environmental and organizational - contexts” (Hernández-Perlines et al., 2021, p. 198). It means that both external and internal conditions can enhance or diminish the impact of EO on firms’ performance (Covin and Miller, 2014).

In light of the above arguments, it seems particularly interesting to investigate how the impact of EO on creative businesses’ performance may be influenced by their entrepreneurial dynamics and behaviours in solving problems and exploiting opportunities despite environmental resource constraints. In other terms, it seems interesting to explore the interplay of EO and EB in affecting creative firms’ performance. At the same time, to consider also the potential impact of firms’ internal characteristics on this relationship, it is worth comparing different categories of creative firms. Indeed, creative industries represent a mixed reality, including firms that offer very different products with dissimilar strategy-making processes.

Purpose of the paper. Our study of 587 Italian creative firms aims to investigate how EO influences creative firms’ performance by introducing EB as a mediator and taking into proper consideration the heterogeneity of firms’ characteristics. To this aim, we compare more “traditional” vs more “innovative” creative firms. In particular, we included Italian artistic craftsmanship and hi-tech start-ups in our sample. By definition, these categories of creative firms are significantly constrained in terms of internal resources (Crowley, 2019; Davidsson et al., 2017). Thus, EO and EB seem particularly well-fitted to investigate their entrepreneurial behaviours and performance.

The proposed conceptual model of the study is depicted in Figure 1.

Fig. 1: Conceptual model



Methodology. Data were collected between the end of 2018 and 2020 with a company specializing in market research. The survey was first administered to 267 High-tech start-ups (HT) founded after 2005. After that, the dataset was expanded, adding 320 firms involved in artistic craftsmanship (AC). All interviews were collected following a CATI procedure. As a result, a total amount of 587 usable questionnaires were collected, and all statistical units included in the final sample were small or micro firms.

All the items used in this study relied on five-point Likert scales. The EB scale was a 4-item scale adapted from Davidsson et al. (2017). The extremes were anchored respectively to “never” and “always”. The EO scale was a 9-item scale adapted from Covin and Wales (2012). Each item was scored on a five-point Likert scale. In this case, extremes were anchored to two opposite statements. Details can be found in Table 1. As an independent variable, subjective performance was used. The subjective performance (SP) scale was a 2-item scale developed by the authors based on a five-point Likert scale, with the extremes anchored respectively to “not satisfied at all” and to “very satisfied”.

Confirmatory factor analysis using the maximum likelihood method was conducted to establish confidence in the measurement model. In the model, SP and EB were modelled as first-order constructs. Differently, EO was modeled as a second-order construct. The results ($\chi^2=136,38$; $df=84$; $RMSEA=0.033$; $CFI=0.977$ $TLI=0.971$; $NFI=0.942$) showed an acceptable fit. Internal consistency was assessed by inspecting Cronbach’s alpha and CR. Convergent and discriminant validity were verified by inspecting AVE values and constructs’ correlations. Of note, EB’s AVE was lower than the usually adopted threshold of 0.50 (Hair et al., 2018). More detail is available in Tables 1 and 2.

Tab. 1: Measurement model assessment: items, reliability, and convergent validity.

Measurement Items	SFL	A	CR	AVE
Entrepreneurial Orientation		0.752	0.849	0.63
EO: Innovativeness (First-order construct)	0.84			
In general, my firm favors a strong emphasis on the marketing of tried-and-true products or services.	0.43			
How many lines of products or services has your firm marketed in the past three years? no new lines of products or services.	0.75			
Changes in product or service lines have been mostly... of minor nature.	0.71			
EO: Risk-taking (First-order construct)	0.67			
In general, my firm has a strong proclivity for low-risk projects with normal and certain rates of return.	0.67			
In general, my firm believes that owing to the nature of environment, it is best to explore it gradually via cautious, incremental behavior.	0.59			
When confronted with decision-making situations involving uncertainty, my firm typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.	0.65			
EO: Proactiveness (First-order construct)	0.83			
In dealing with its competitors, my firm... typically responds to action which competitors initiate.	0.60			
In dealing with its competitors, my firm... is very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc.	0.74			
In dealing with its competitors, my firm... typically seeks to avoid competitive clashes, preferring a "live-and-let-live" posture.	0.37			
Entrepreneurial Bricolage		0.783	0.757	0.439
We use any existing resource that seems useful to respond to a new problem or opportunity.	0.62			
When dealing with new problems or opportunities we take action by assuming that we will find a workable solution.	0.62			
By combining our existing resources, we take on a surprising variety of new challenges.	0.64			
When we face new challenges, we put together workable solutions from our existing resources.	0.70			
Subjective Performance		0.891	0.849	0.785
Subjective assessment of sales performance	0.83			
Subjective assessment of firm's growth	0.98			

Tab. 2: Discriminant validity: Fornell-Larcker Criterion and HTMT.

Theoretical Constructs	1	2	3
1. Entrepreneurial Bricolage	0.662	0.390	0.339
2. Entrepreneurial Orientation	0.432	0.808	0.249
3. Subjective Performance	0.344	0.278	0.886

Note 1: Diagonal and bold elements are the square roots of the AVE (average variance extracted). HTMT ratios above the diagonal.

The proposed model was estimated using Hayes, (2017) process macro for SPSS (Model 58; 5,000-bootstrap sample; 95% bias-corrected confidence intervals). As can be seen in Figure 1, the mediation between EO → EB → SP is moderated by the firm type (FT). FT is a categorical moderator: HT firms were coded with 0, and ACs with 1.

Results. The path analysis revealed the direct effect of both EO (Coeff. = 0.277; 95% C.I.: 0.131 to 0.423) and EB (Coeff. = 0.428; 95% C.I.: 0.306 to 0.550) on firm's performance was positive and significant. Similarly, also the direct effect of EO on EB was positive and significant (Coeff. = 0.385; 95% C.I.: 0.265 to 0.505). The indirect effect of EO on SP via EB was deemed positive and significant (Coeff. = 0.275; 95% C.I.: 0.175 to 0.379). Nevertheless, this effect varied across the different types of firms. It was stronger for AC firms (Coeff. = 0.443; 95% C.I.: 0.280 to 0.611), while weaker in HTs (Coeff. = 0.091; 95% C.I.: 0.027 to 0.158). Similar observations may be made for the moderating effects of FT in both the EO → EB and EB → SP paths. The former moderating effect was deemed as positive and significant (Coeff. = 0.459; 95% C.I.: 0.297 to 0.621). However, such moderating effect of FT on the EO → EB path was weaker for

HTs (Coeff. = 0.385; 95% C.I.: 0.265 to 0.505) when compared to the one for AC firms (Coeff. = 0.845; 95% C.I.: 0.736 to 0.953). The second moderating effect (i.e., EBxFT→SP) was also positive and significant (Coeff. = 0.287; 95% C.I.: 0.072 to 0.503). Additionally, similar patterns to the former moderating effects appeared for the interaction with FT. More details can be found in Table 3 and Figure 1.

In sum, the findings indicate that EO is positively associated with the performance of small firms and is mediated by EB. However, this association varies across firm types. Namely, it is stronger in the case of artistic-artisan micro firms.

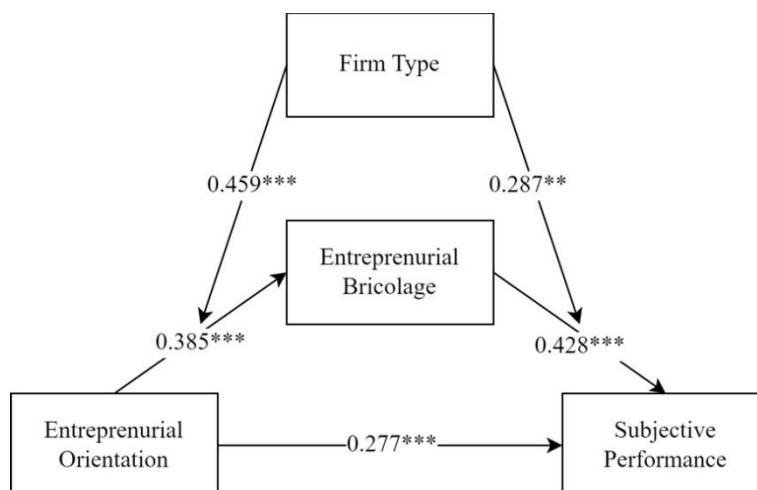
Tab. 3: Path analysis

Direct paths	To Entrepreneurial Bricolage				To Subjective Performance			
	Coeff.	SE	p.	95 % CI	Coeff.	SE	p.	95 % CI
Entrepreneurial Orientation	0.385	0.061	> 0.001	0.265 0.505	0.277	0.074	> 0.001	0.131 0.423
Entrepreneurial Bricolage	-	-	-	-	0.428	0.062	> 0.001	0.306 0.550
Interaction 1	<i>Coeff.</i>	<i>SE</i>	<i>p.</i>	<i>95 % CI</i>	<i>Coeff.</i>	<i>SE</i>	<i>p.</i>	<i>95 % CI</i>
EOxFT → EB	0.459	0.082	> 0.001	0.297 0.621	-	-	-	-
Conditional effects per firm type								
<i>EOxAC</i>	<i>0.385</i>	<i>0.061</i>	<i>> 0.001</i>	<i>0.265 0.505</i>	-	-	-	-
<i>EOxHT</i>	<i>0.845</i>	<i>0.055</i>	<i>> 0.001</i>	<i>0.736 0.953</i>	-	-	-	-
Interaction 2								
EBxFT → SP	-	-	-	-	0.287	0.109	> 0.01	0.072 0.503
Conditional effects per firm type								
<i>EBxAC</i>	-	-	-	-	<i>0.236</i>	<i>0.098</i>	<i>> 0.05</i>	<i>0.044 0.429</i>
<i>EBxHT</i>	-	-	-	-	<i>0.524</i>	<i>0.065</i>	<i>> 0.001</i>	<i>0.395 0.653</i>
F(df1,df2)	93.144 (3, 583)				57.427 (4, 582)			
R ²	0.324				0.283			
Indirect effect		Coeff.		SE				95 % CI
EO → EB → SP		0.275		0.051				0.175 0.379
Conditional Indirect effects		Coeff.		SE				95 % CI
<i>EO → EB → SP (AC)</i>		<i>0.443</i>		<i>0.085</i>				<i>0.280 0.611</i>
<i>EO → EB → SP (HT)</i>		<i>0.091</i>		<i>0.033</i>				<i>0.027 0.158</i>

Note 1: In italics the conditional moderating effect and conditional indirect effect.

Note 2: HTs were coded 0, AC firms were coded 1.

Fig. 2: Estimated model



Note 1: HTs were coded 0, AC firms were coded 1.

Note 2: *: p. <0.05; **: p. <0.01; ***: p. <0.001.

Research limitations. The present study is not without limitations. First, the investigation is limited to a relatively small sample of firms belonging to just two specific categories within the broad creative industries. Second, the study was restricted to Italy, which is characterized by specific economic conditions. Therefore, caution needs to be exercised while generalizing the findings of this study to other countries. Interesting insights could derive from analyses extended

to different activities and national contexts. Another limitation is related to some variables' measurement validity. Since many firms under investigation are not required to file financial statements, we only relied on subjective performance measures. However, this measure may be imprecise, and future studies should put some effort into identifying objective data for the analysis.

Managerial implications. Due to creative firms' economic, social and cultural value, our study has relevant implications from a managerial perspective. Our study highlights that the performance of creative entrepreneurs can be enhanced if they innovate and develop strategic perspectives for running their businesses. Thus, by transiting from traditional approaches to processes and practices based on a high EO, creative entrepreneurs can also better exploit their creativity and convey their inspiration to identify workable solutions for emerging challenges. This is even more important for artisan micro firms. Today more than ever craftsmen operate in an uncertain and resource-constrained context, where being entrepreneurially oriented is essential to take full advantage of limited opportunities. These insights seem in line with a view of bricolage as a means to explore organizational creativity, especially within a time pressure and a crisis context (Le Loarne, 2005). With its long tradition, artistic craftsmanship comprises multiple production areas in which professional qualities, creativity, originality, ability to transform and business flexibility stand out. In a society that increasingly proposes the standardizing production and distribution model, the artisan workshop represents the best expression of individual creativity to be fostered through EB. Indeed, while retaining techniques typical of the traditional one, artistic craftsmanship stands out for the elaboration of new forms and original proposals of creativity and culture. A precise artistic meaning enriches the long tradition of manual dexterity, and today is increasingly influenced by the fruitful combination of local artisan cultures and new technologies.

Originality of the paper. Our study contributes to entrepreneurship research in several ways. First, the present study extends our understanding of the conditions under which an EO might be associated with performance. In fact, we establish a basic theoretical framework that incorporates EO, EB and subjective performance to explain the underlying mechanism of EO's influence on the outcomes of small and micro firms within creative industries. Despite the abundance of studies providing evidence about the relationship between EO and performance, as far as we know, this relationship has not been investigated in the specific research context of creative industries.

Second, while much empirical evidence has been provided on the effects of bricolage in the context of new ventures (Baker and Nelson, 2005), scant attention has been paid to its role in different types of firms. The present study aimed specifically to compare traditional and innovative firms.

Keywords: entrepreneurial orientation; entrepreneurial bricolage; artistic craftsmanship; high-tech start-ups; creative industries; small and micro firms.

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Which growth process for deep tech startups? A stage-based model to cope with critical junctures

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Abstract

Deep tech start-ups (DTs) are a significant emerging managerial phenomenon. These ventures are at the forefront of facing the major challenges of our society and the fundamental problems of human beings by developing breakthrough technological innovations. Many DTs come from academia and research due to the high scientific knowledge required. Given the origin, intrinsic characteristics, and competitive setting, they experience highly challenging launch and growth patterns typical of research-based spin-offs. Despite their undeniable role in shaping future technological trends and innovation quantum leaps in several markets, the specific growth strategies of DTs have not been studied in academic literature yet. Therefore, this preliminary research aims to examine the principal stage-based models of research-based spin-offs debated by scholars. We identify the most suitable model to outline the main stages of growth and related junctures of DTs. The results set the ground for future empirical inductive research. The analysis of DTs and related growth processes is expected to provide significant managerial implications that can be also examined through the theoretical lens of the resource-based view.

Framing of the research. *The last decade has been characterized by the sharp growth of digital and high-tech companies. The impact of technological breakthroughs on our lives and economy is expected to be much more profound in the next years especially because of deep technologies that have been advancing at an accelerated pace (Bobier et al., 2022). Only in Europe, deep-tech companies worth €700 billion (Dealroom and Sifted, 2021). Many of these ventures have their roots in academia and research domain given the high technical skills required. The experts argue there is a lot more potential to be unlocked and the support of governments could be essential to stimulate new entrepreneurship in deep tech and rapidly transfer scientific knowledge to the market.*

Deep tech start-ups (DTs) are a significant emerging phenomenon. They are entrepreneurial initiatives based on breakthrough scientific and engineering knowledge aimed at developing innovative solutions within the realm of artificial intelligence, biotechnology, nanotechnology, robotics, and quantum physics domain that may have a high impact on people, society, and markets. DTs are committed to facing the major challenges of our society, such as sustainability and healthcare, and thus they usually benefit from government grants or other forms of financial support. Most DTs originate from universities and/or public research centres where they have developed emerging technologies. They exploit basic research carried out in laboratories to address fundamental human problems and use the new knowledge and inventions generated to propose innovative technological solutions. In this perspective, they show a problem-solving orientation toward innovation and technology management. In other terms, requested outcomes drive the deep technologies development and not conversely.

Due to their origin, intrinsic characteristics, and the competitive setting they are embedded in, DTs are called to cope with difficult challenges and specific junctures to launch and develop the venture. First, they typically face great market uncertainty, as the new inventions have often a wide array of potential applications. DTs are on the technological frontier and thus usually struggle to identify business opportunities. Therefore, commercial applications can be defined during the development process and/or after the first unsuccessful attempts. Second, DTs face competitive and strategic issues because of entering raising markets or creating non-existing ones. Third, DTs cope with extended time to market. The intrinsic need to push further the boundaries of science represents indeed a complex challenge since there are still unknown research areas that require time to be developed despite their tremendous potential. The complex nature of new products/services requires indeed the integration of sources from multiple technological domains. The development of an effective go-to-market strategy for their new products/services also

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depends on the acquisition of new skills, knowledge, facilities, and infrastructures. Moreover, DTSSs are challenged to set up and develop a solid market reputation to overcome potential customers' scepticism, as well as potential partners' mistrust. Finally, consistent, and long-term financial support is essential to develop deep technological solutions. In this perspective, DTSSs are challenged to be able to attract "patient" investors and significant grants. The high capital-intensive nature derives from specific facilities and infrastructure needed to carry out basic research in the laboratories as well as to finance multiple proofs of concepts and prototypes. Therefore, they must be plugged into an interconnected ecosystem of actors, without which they cannot thrive.

Despite the undeniable role of DTSSs in shaping future technological trends and innovation quantum leaps in several markets, up to now, scholars have almost neglected to address this topic and thus the term "deep tech" has not substantially entered the language of managerial and entrepreneurial studies. More specifically, an in-depth analysis of growth strategies and stages of DTSSs is still lacking. To the best of our knowledge, no studies have disentangled how these ventures can overcome the obstacles and advance to the next stage of the development process yet. This paucity of studies is quite surprising, especially considering DTSSs have been already debated in the grey literature from the industry that has provided some managerial insights to boost the growth pathways.

Purpose of the paper. The growth processes of firms have been widely debated in the management literature (Parmentola and Ferretti, 2018). A stage-model approach is common among scholars when investigating the creation of new companies. In the early '80s, Galbraith (1982) proposed a five-stage process for the birth of new high-tech startups that begins with the identification of commercial opportunities of prototypes. This study was illuminating and inspired much further research in this domain to understand the growth strategies of these ventures.

More recently, the focus has been shifted to research-based spin-offs given their growing economic significance and importance for transferring cutting-edge technological solutions to the industry (Mathisen and Rasmussen, 2019). At the beginning of the 2000s, they have become a central theme in technology and innovation policies because they are considered an excellent tool for the commercial exploitation of knowledge generated within public research organizations (Wright et al., 2004).

These ventures are heterogeneous and developed under very different conditions. Therefore, several authors have investigated the growth path of university spin-offs and the obstacles they can encounter to succeed in the market (Wright et al., 2004; Rothaermel et al., 2007; Rasmussen, 2011, Van Geenhuizen and Soetanto, 2009; Wright et al., 2012). More specifically, the literature on stage-based models describes the organizational characteristics and aspects within each growth stage, suggesting the behaviours and practices these ventures must set up for moving to the next stage (Mathisen and Rasmussen, 2019).

However, to the best of our knowledge, no study has examined yet the growth stages and strategies of DTSSs nor if the previous models on research-based spin-offs can fit the case of DTSSs. Since their origin, strengths, and weaknesses, DTSSs demonstrate to have many similarities with research-based spin-offs. They both focus on research and the exploitation of scientific knowledge to create innovative and disruptive solutions that often address sustainability and societal issues. From this perspective, they require a high level of technical and technological expertise as well as expensive facilities and infrastructures to carry on research activities. Both research-based spin-offs and DTSSs tend to experience challenging launch and growth patterns because of the time and funds needed to develop inventions and go to market. Indeed, the recognition of commercial opportunities for their products/services represents a critical stage of their growth process.

Notwithstanding, DTSSs are called to cope with specific obstacles that might widely differ from other kinds of research-based spin-offs. They are much more exposed to the lack of or poor social capital, networks, financial resources, infrastructures, managerial capabilities, and external support. Therefore, a better understanding of the stages and junctures of their growth process is required to lay the foundation for a comprehensive specific model for DTSSs.

Given the above, this preliminary study aims to examine the principal stage-based models in the academic literature on research-based spin-offs to identify the most suitable for the case of DTSSs. This model is expected to outline the main stages of growth and related junctures of these emerging ventures.

Methodology. We applied the snowball sampling technique (Biernacki and Waldorf, 1981) to perform our literature review. This procedure is widely used by scholars to identify the most important and influential academic papers on a specific topic.

First, we consulted prior literature reviews about academic entrepreneurship to define an initial sample of papers addressing the growth processes of research-based spin-offs (Rothaermel et al., 2007; O'Shea et al., 2008; Hayter et al. 2018; Mathisen and Rasmussen, 2019; Hossinger et al., 2020). These papers were selected using alternative keywords referring to "academic entrepreneurship", "research-based spin-offs", "growth process", and "literature review" on the search engine Scopus Elsevier. Second, we looked at the references cited in those papers to identify important contributions; then, we looked at the references in the new ones to recognize even more significant papers addressing the specific topic of stage-based models. We repeated this process until we reached a comprehensive sample of the most relevant papers in the field of our research. Finally, we evaluated each selected paper according to its relevance to our research, the quality of the results and its impact. More specifically, all the Authors were involved to select only the papers that describe a stage-based model for research-based spin-offs. As a result, the final sample is reported in Table 1. The literature review is presented and debated in the following section where, after an in-depth analysis, we indicate the most suitable model for our scope.

Tab. 1: Stage-based models for research-based spin-offs: a literature review

<i>Author</i>	<i>Year</i>	<i>Title</i>	<i>Source</i>
<i>Roberts and Malone</i>	<i>1996</i>	<i>Policies and structures for spinning off new companies from research and development organizations</i>	<i>R&D Management</i>
<i>Ndonzuau, Pirnay and Surlemont</i>	<i>2002</i>	<i>A stage model of academic spin-off creation</i>	<i>Technovation</i>
<i>Hindle and Yencken</i>	<i>2004</i>	<i>Public research commercialisation, entrepreneurship and new technology based firms: an integrated model</i>	<i>Technovation</i>
<i>Clarysse and Moray</i>	<i>2004</i>	<i>A process study of entrepreneurial team formation: the case of a research-based spin-off</i>	<i>Journal of Business Venturing,</i>
<i>Vohora, Wright and Lockett</i>	<i>2004</i>	<i>Critical junctures in the development of university high-tech spinout companies</i>	<i>Research policy</i>
<i>Gübeli and Doloreux</i>	<i>2005</i>	<i>An empirical study of university spin-off development</i>	<i>European Journal of Innovation Management</i>
<i>De Cleyn and Braet</i>	<i>2010</i>	<i>The evolution of spin-off ventures: An integrated model</i>	<i>International Journal of Innovation and Technology Management</i>

Source: Authors' elaboration

Results. Roberts and Malone (1996) provided one of the first contributions to the growth processes of research-based spin-offs. They do not describe a specific stage-based model and related implications but rather explore the policies and structures necessary to create new ventures spinning out from universities and, in general, R&D organisations. Indeed, after an initial phase of basic research in laboratories, the research results may enter the public domain through publications in scientific journals or research teams may decide to exploit their invention by licensing technological intellectual property or creating a new venture. In these cases, the technology transfer office (TTO) is essential to support the teams by assisting in the patent process, administrative procedures, fundraising, incubation, and business development. Roberts and Malone (1996) provide five alternative scenarios to describe the sequence of interactions between the main actors involved in the growth process of spin-offs and related objectives. Notwithstanding the significant contribution to the literature, the Authors mainly focus on the role of TTO and the definition of an effective commercialization policy for facilitating the formation of spin-offs. Therefore, this contribution partially addresses how these ventures face obstacles and evolve to move to the next stages of the growth path. Thus, it cannot be completely useful for our scope.

Ndonzuau et al. (2002) developed a conceptual model on research-based spinoff evolution emerging from the analysis of 15 university spin-offs in several countries worldwide. It consists of four consecutive stages: the emergence of the business idea; the rise of the entrepreneurial project; the birth of the new spin-off firm; and the generation of economic value. The research results and technological knowledge (whether tacit or not) are the starting point of research-based spin-offs and what distinguishes them from most other start-ups. The Authors recognize the first stage as critical. Commercial opportunities resulting from research must be identified and the support of the TTO or external advisor is often essential to access the second step given the lack of entrepreneurial insight of the founders. Indeed, many brilliant inventions reveal as non-feasible business ideas and cannot be translated into venture projects. The model elaborated by Ndonzuau et al. (2002) is a useful contribution to understanding the evolution of spin-offs. However, what they did not consider is that some phases may overlap and co-exist, especially in the case of DTS where, given the high uncertainty of the technological innovations, the growth process is dotted with failures and successes that affect its linearity. For instance, the opportunity recognition and the new venture project may occur simultaneously

or even in reverse order. Indeed, the core technology and product portfolio can be developed after the foundation. This stresses the need for a more dynamic model with feedback loops among the different stages. Moreover, the process described by the Authors appears too rigid and it does not cover peripheral aspects. For example, some projects can be launched without any external investor, using the personal savings of the founders, and financing the growth of the spin-off via the turnover. Finally, the model of Ndonzuau et al. (2002) fails to include the possibility that the ultimate objective of a spin-off is not only the creation of economic value but also social or environmental goals. This is another reason because the framework Ndonzuau et al. (2002) is not suitable for DTSs since they try to solve fundamental problems of human behaviours and society that may represent their first purpose.

Another significant stage-based model is provided by Hindle and Yencken (2004). The Authors represent a linear growth process that actually is highly interactive and sometimes chaotic. In this perspective, they bridge the gaps of previous models by adding peripheral aspects (i.e., entrepreneurial capacities and external resource inputs) that affect each stage of the core linear path. Although this model is a valid depiction of reality, it reveals some weaknesses. First, the sequence starts from research and leads to technology development, proof-of-concept or prototype in the final stages that constitute the foremost exit point, when, typically, a venture capitalist (VC) could be interested. However, most DTS need to attract VCs just in the early phases to finance further highly expensive research and development activities. Therefore, the entrance of VCs may be necessary for the evolution stages, where the DTS still has a long way to go. Second, as the previous model of Ndonzuau et al. (2002), Hindle and Yencken (2004) almost neglect the overlaps of various stages. Although they include peripheral aspects, the core linear succession of stages remains problematic because it does not consider alternative scenarios. Finally, the model gives little attention to business development and strategies to go to market. Conversely, this activity is pivotal for DTS since the mismatch between the novelty of the technology and market readiness to adopt it.

Clarysse and Moray (2004) propose an analysis of how the entrepreneurial teams of research-based spin-offs evolve during the early stages and how it affects the investment decisions of VCs. The Authors identify four distinct stages of development that are linked to the changes of the entrepreneurial team (i.e., idea, pre-start-up, start-up, and post-start-up). Although this model is not suitable to investigate the overall growth process of DTS, it provides significant insights into hindrances related to the team compositions and skills requirements that appear useful for our study. The Authors argue the initial knowledge of the founding team is not sufficient to sustain the growth, especially for the lack of managerial expertise. As research-based spin-offs, DTS tend to be founded mostly by researchers and scientists. Therefore, the experiential learning processes that take place when external factors induce a shift in the organisational structure are thus crucial. This could be also a test bench for DTS to understand if they were able to acquire the competencies needed to develop the business venture. When the lack of these competencies persists, VCs tend to take measures. Clarysse and Moray (2004) argue VCs may request a drastic change in the founding team and nominate an external CEO before investing or they may not invest at all. However, this solution may generate internal tensions because the newcomers do not often have the technical skills to manage a team of highly qualified and independent researchers. Therefore, the major lesson learnt from the model of Clarysse and Moray (2004) is that spin-offs as well as DTS can evolve only when the founding team has sufficient time and foresight to understand the respective role of each component. Once everyone accepts and agrees with the structure, the venture is ready for a capital injection and advances to the final stages.

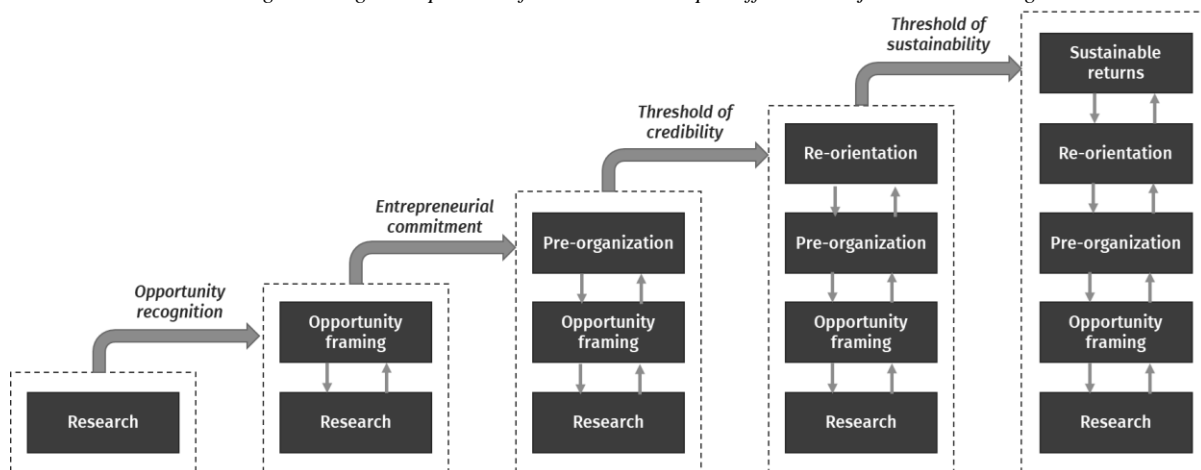
Gübeli and Doloreux (2005) divide the growth process of research-based spin-offs into three stages: “pre-founding”, which refers to the period before the formation of the new company; “founding of firm”, which occurs when the venture is formed; and “post-founding” in correspondence with the birth of the spin-off. The study explores the implications for networking between the spin-offs, the originating institutions, and the local environment throughout the three stages. According to the Authors, the university (i.e., the parental organization) covers a pivotal role during the first stage of the incubation and development of the business idea by providing infrastructure and expertise in a specific field of mentorship. Then, the spin-off needs to acquire external competencies in both the technological and management area. Therefore, outside contacts become crucial determinants in the growth process because they support the new spin-off by acquiring information and knowledge that the host university cannot provide. Gübeli and Doloreux (2005) stress the importance of management and marketing skills along with technical and engineering ones. However, this contribution mainly focuses on the importance of collaborations for the development of research-based spin-offs and does not describe an articulated model with a clear distinction between the growth stages and related junctures.

Based on previous academic work, De Cleyn and Braet (2010) propose a model consisting of six stages. After the first “research stage”, the next one is the “pre-incubation”, in which researchers are called to shift from basic research to applied research and develop a prototype to evaluate the commercial opportunities of the new products/services. In the following “incubation stage”, the products/services are tested on the market and if the results are encouraging, the venture moves to the “early stage”, in which they are definitively launched on the market. During the “growth stage,” there is a consistent injection of funding and development of the business strategy. The Authors argue in many cases the process concludes with an IPO or acquisition by a third party in the final “maturity stage” or company is purchased by a third party. The model developed by De Cleyn and Braet (2010) is particularly interesting for our scope because it provides an integrated framework that links both the business and financial evolution of a research-based spin-off to the content of the evolution of a venture. The Authors also report the types of financial resources that the spin-off can access during each stage. This aspect appears particularly intriguing for the case of DTSs since they need consistent and long-term funding from the early stages to develop new technological solutions. Finally, De Cleyn and Braet (2010) argue the succession of stages is purely indicative and overlaps often occur

according to the different forms of ventures and situations as happens for DTSSs. However, the proposed model suffers from some relevant weaknesses. First, it seems almost exclusively addressed to product-oriented spin-offs because of the focus on intellectual property rights, and product and technology development. Conversely, DTSSs may also develop advanced services and solutions, including diagnosis, monitoring and treatment of diseases as well as algorithms for analysing data to increase the efficiency, productivity, and safety of industrial processes. Furthermore, this integrated model fails in integrating the feedback loops between the different evolution stages that, as stated before, are relevant for DTSSs due to the different trials and errors characterizing their growth process. This framework has the merit of proposing an overview of the principal critical junctures and the important aspects related to the evolution of research-based spin-offs. However, it seems a “utopic and constrained path” because it does not consider alternative exit solutions or shorter successful processes.

Vohora et al. (2004) use an inductive approach on a sample of nine academic spin-offs in the UK to understand how these ventures evolve and which are the main challenges they are called to face. The five-stage model and related critical junctures are reported in Figure 1.

Fig. 1: The growth process of research-based spin-offs: critical junctures and stages.



Source: Authors' elaboration on Vohora et al. 2004

In the first stage, spin-offs focus on research activities to generate significant intellectual property and breakthrough technological innovations. After having tested the validity and performance of the new inventions, in the “opportunity framing” several attempts are made to turn them into commercial opportunities. Thus, spin-offs are called to identify alternative markets and potential applications of their products/services according to customers' profiling and expectations. During the “pre-organisation” stage, a strategic plan is developed to outline the skills and resources needed to structure and evolve the venture. Funding (e.g., seed finance) is a critical resource without which the transition to the following stage is prevented. The “re-orientation” stage concerns the efforts addressed to generate returns through the offer of a consistent value proposition to customers. Thus, the entrepreneurial team is wholly committed to an iterative process of continuously identifying, acquiring, and integrating resources and then subsequently re-configure them. The fifth and final stage is characterized by the achievement of sustainable returns.

The contribution of Vohora et al. (2004) is not limited to defining the main stages of growth but it also describes the critical junctures the spin-offs are challenged to cope with to move to the following stage. Compared to previous academic work, especially De Cleyn and Braet (2010), these junctures, as the proposed stages, are more conceptual. In other terms, they do not reflect specific obstacles and actions to overcome them. Conversely, they describe complex problems that may occur at a point along the growth process of spin-offs and prevent them from achieving the transition from one stage to the following. They are fundamental impediments originating from the inherent limits of research-based spin-offs as well as evolution paths. To summarise, the critical junctures identified by Vohora et al. (2004) are four and they occur between the five stages reported in Figure 1:

- “opportunity recognition”, identification of potential applications of innovations developed during the research stage to satisfy unfulfilled market needs;
- “entrepreneurial commitment”, the transition from the initial academic vision of the founders to a more entrepreneurial business idea;
- “threshold of credibility”, strengthening venture credibility to facilitate the acquisition of key resources and customers;
- “threshold of sustainability”, acquisition of the ability to continuously re-configure resources to generate sustainable returns.

The more abstract and conceptual approach of Vohora et al. (2004) particularly appears suitable for our purpose since it can be tailored to the specific context of DTSSs. Indeed, the model describes a non-linear path that consists of five iterative stages that fit with the characteristics and dynamics of DTSSs. It captures the essence of these ventures that

usually face great market uncertainty and unsuccessful attempts that continuously require to re-orient resources and strategies. Moreover, the framework includes in both stages and junctures different aspects that can widely affect the growth of DTSs. First, management and marketing competencies which the founding team usually lacks. Second, the importance of collaborations beyond the relationships with the parent institution and academic network because they favour the acquisition of key information, resources, and competencies. Third, funding can be injected at different stages and is not strictly related to a specific moment.

For these reasons, we believe this stage-based model is the most appropriate to explore the growth processes of DTSs.

Research limitations. The snowball sampling technique has inherent weaknesses. Indeed, it may not have drawn a comprehensive sample, including all the academic papers on stage-based models for research-based spin-offs. Although we have scrutinized multiple sources and databases, a traditional systematic literature review may provide a wider sample. However, it does not guarantee better results because the selected keyword may miss some relevant contributions.

Finally, the choice of selecting the model of Vohora et al. (2004) as the most suitable for the case of DTSs must be confirmed by empirical studies. For this reason, we are planning to use an inductive approach based on multiple cases stemming from Italian universities and research centres.

Managerial implications. The analysis of DTSs and related growth processes provides significant managerial implications that can be examined through stage-based models emerging from the literature on research-based spin-offs and the theoretical lens of the resource-based view (RBV).

Compared to research-based spin-offs, DTSs may suffer most from the lack of or poor social capital, resources, and internal managerial capabilities. According to RBV theory, the founders of new ventures are called to take a step forward by identifying, acquiring, and integrating new resources to create strategic assets and enhance internal capabilities. This is in sharp contrast to the context of DTSs where basic research competencies and capabilities are predominant, and a silent internal resistance exists to combine social capital and entrepreneurial resources to evolve the venture towards profitability. The analysis also emphasises the managerial weaknesses of DTSs and the junctures they are challenged to cope with for growing, especially concerning identifying market opportunities, defining the business model, elaborating the market strategy, acquiring the necessary capital for development, and finally building the reputation needed to support growth.

Originality of the paper. To the best of our knowledge, this preliminary study is the first that addresses the growth processes of DTSs. Deep technologies and related new startups from the research domain represent an emerging and relevant topic that calls for greater attention of scholars given its significance for managerial and societal implications. Therefore, this paper takes the first step towards this research field by identifying a suitable framework to explore stages and junctures in the development of DTSs.

Keywords: deep tech startup; growth process; stage-based model; critical junctures; research-based spin-offs; literature review

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Can a banking relationship with strong local roots influence the entrepreneurship of spinoffs?

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Abstract

This paper studies an important driver of academic spin-offs' success, i.e., the institutional banking context in which they operate. We find that the development of the banking institutions does not affect academic spin-offs' performance at the time of incubation, when the main source of funding to finance R&D activities comes from public contributions. Conversely, there is a significant positive and growing influence of banking institutions when academic spin-offs enter the market and become independent of public resources. The findings suggest that governments and banking institutions should develop new financial instruments to support academic spin-offs' R&D investments, especially during the early stages of their life cycle. Academic spin-offs should consider bank debt as a complementary source of funding that allows them to encounter the vital growth opportunities emerging during the incubation phase.

Framing of the research. *Universities and research institutes are protagonists of economic growth and transfers knowledge and technology from the academic environment to the market (Passarelli et al., 2020 Clarysse et al., 2005; Chiesa and Piccaluga, 2000), A large number of products and processes existing on the market could not have been developed without the support of academic research (Mansfield, 1995)- Universities and research institutes enact different exploitation strategies and academic/research spin-offs (RSOs) are considered a special tool to promote the technology transfer. Shane (2004) defines an academic spin-off as "those high-tech companies whose core business is based on the commercial valorisation of results of a scientific and technological research", Thus, RSOs create knowledge and generate innovation through new product development (Bellini et al., 2002; Atasu et al., 2009), Moreover, they create new industries and also new employment for both academics and graduates (Rizzo, 2015; Shane, 2004), The importance of spin-offs for economic development has also been highlighted by different authors (De Marco et al. (2020), according to whom RSOs have a key role in the European SME Instrument project¹. Considering the large involvement in economic and social development of RSOs, Miranda et al. (2018) propose a review of the literature on spin-offs by identifying internal and external drivers that boost the success of such companies. Among the external drivers that influence RSO value, the institutional context, the financial incentives, the support and the advice structures at the local/university level all play a vital important role. In this framework, the relevance of banking institutions is a new and interesting driver to investigate, as access to external financial resources is important to RSO growth (Ortín et al., 2007; Patzelt and Shepherd, 2009; Trinugroho et al., 2021), The effectiveness of investors is also fundamental for RSOs in their advancement from the technology development phase to commercialisation (Keuschnigg and Nielsen, 2004; Wright et al., 2006), This is because during the development phase that precedes commercialisation (the incubation period), RSOs need capital to finance their technological activities and to prototype and engineer their innovations (Fernández-Alles et al., 2015; Munari et al., 2016; Ayoub et al., 2017), During early stages it is crucial for RSOs to keep their survival and, in doing so, the availability of entrepreneurial finance is crucial (Vedula and Kim, 2019), This capital can be found through internal or external resources. However, RSOs in the early stages of their life cycle are small and young firms, meaning they are not able to internally generate enough cash (Fasano and Deloof, 2021) and have difficult access to financial markets (Berger et al., 2001), As a result, RSOs could face asymmetric information problems in debt contract negotiations, because financiers have scarce information about their operating activities. However, RSOs, in contrast to other young and small firms, can rely on non-refundable resources that the*

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¹ The European SME Instrument is a funding tool launched by the European Commission whose purpose is to foster SMEs' innovation

government makes available to them to conduct scientific research in the technology development phase. These external resources reduce RSOs' financial needs at their incubation stage. However, when the RSOs are no longer dependent on public contributions, i.e., at the time of their entrance in the product market, the banking institutions could become relevant. Indeed, well-developed banking systems where the bank and the firm are geographically close (La Rocca et al., 2010) could better meet the credit needs of RSOs looking for financial resources to face market competition. This is because the bank-firm proximity allows to acquire soft information, alleviating asymmetric information problems and thereby increasing the use of bank debt (La Rocca et al., 2010). The mitigation of bank-firm information asymmetries is the essence of the banking relationship (Greenbaum et al., 2019) and it bases its foundations on the ability of banks to acquire soft information. Thus, when RSOs after the incubation period are in search of financial resources, the closeness of bank branches could become relevant.

Purpose of the paper. This paper studies an important driver of academic spin-offs' success, i.e., the institutional banking context in which they operate. The paper tries to answer the following research question: does local banking development affect the performance of RSOs both at the time of incubation and after the incubation period? As RSOs in the early stages of their life cycle are small and young firms, they could face asymmetric information problems in debt contract negotiations, because financiers have scarce information about their operating activities. However, RSOs, in contrast to other young and small firms, can rely on non-refundable resources that the government makes available to them at their incubation stage. But when the RSOs do not depend on public contributions any more during their entrance in the product market, the banking institutions could become relevant. In this context, this work empirically investigates whether and how the local banking development affects the performance of RSOs during the incubation period and after the market entry of the product. We want to more comprehensively understand whether and how during the RSO life cycle a well-developed banking system shapes corporate performance. The present contribution aims to bridge an important gap in the RSO literature, exploring the role of a critical institutional factor, the banking system, as a crucial driver to boost RSOs' performance.

Methodology. The study is based in Italy as a perfect background of analysis, as the banking development significantly differs across local contexts (Italian provinces). Such differences allow to capture the effect of different levels of banking development on RSOs performance. Moreover, the detailed information available for this country allows us to investigate the influence of the banking systems on RSO performance by including exogenous determinants of local banking development, following the methodological approach of noteworthy contributions (Guiso et al., 2004; Deloof and La Rocca, 2015; Deloof et al., 2019). The sample is based on an unbalanced panel dataset of 1,879 RSOs from the Italian universities (public and private) and public research institutes listed in the Ministry of Education². We selected only active RSOs during the sample period, which was from 2012 to 2019. Financial and ownership information come from the Amadeus database of the Bureau van Dijk. We investigate the hypotheses first using the ordinary least squares (OLS) technique based on standard errors clustered at the firm and province level. This approach is essential because it facilitates control in observations that are correlated under the provincial dimension. Then, we use the two stage least squares (2SLS) technique with instrumental variables (IV) since omitted factors and simultaneous causality relationship could influence the effect of local banking development on RSO performance. We use the same IV as in Guiso et al. (2004) and Deloof and La Rocca (2015), and others who measured local banking structures in 1936. As Guiso et al. (2004) state, "to deal with the potential endogeneity" it is important to use an instrument that "describe the regional characteristics of the banking system as of 1936". This is because the 1936 banking law has been in force for about 50 years and, as a result, the local (provincial) differences that existed then persist to today.

Results. The Table at the end of the present short paper shows our empirical results. From a statistical point of view, the outcome of the analysis is valid and robust. For the 2SLS regressions, the F-test statistic of the first stage regression shows that the instruments are jointly significant when estimating the local banking development. The p-values of the instruments, based on heteroscedastic robust standard errors, are statistically significant.

We find that the development of the banking institutions does not affect academic spin-offs' performance at the time of incubation, when the main source of funding to finance R&D activities comes from public contributions and when non-operating revenues outnumber sales. It seems that in the early stages of their life cycle, RSOs largely rely on public or university contributions and, consequently, their performance is not influenced by the state of development of the banking system. Thus, when their major source of revenue comes from non-operating revenues, the role of local banking development is meaningless.

Conversely, there is a significant positive and growing influence of banking institutions when academic spin-offs enter the market and become independent of public resources. Once RSOs have started selling their products or services, their dependence on non-operational earnings decreases and their relationship with banks becomes fundamental. At this time, RSOs deal with market competitors and are in search of funds to finance their investments. Here, the role of the banking system comes into play, which is crucial to RSO growth and performance. It seems that the proximity between the RSOs and a loan office enhances personal contacts and accelerates the acquisition of soft information, for which RSOs can more easily obtain external finance. This reduces RSOs' financial constraints and bank debt can be used to obtain valuable business opportunities and face market challenges.

² When information about RSOs was not directly available on the website, we contacted (by email or telephone) each university to obtain a list of RSOs.

When RSOs enter the market, they are more in need of external funds, for which the banking sector interestingly becomes strongly relevant, thus affecting their performance.

Research limitations. The work also has some limitations, as we use only one proxy of local banking developments, i.e., bank branch density. Indeed, to confirm our findings it would be useful to also consider, as a proxy of local banking development, the total amount of credit banks extend to firms as a percentage of GDP. However, this work underscores the need for more research on financial policies in very early stage RSOs, encouraging future researchers to further study their debt policies.

Managerial implications. The findings suggest that governments and banking institutions should develop new financial instruments to support academic spin-offs' R&D investments, especially during the early stages of their life cycle. Academic spin-offs should consider bank debt as a complementary source of funding that allows them to encounter the vital growth opportunities emerging during the incubation phase.

A key implication of the findings is that policy makers should stimulate technology-based entrepreneurship from universities not only via public funds, but also by improving the banking systems through specific banking solutions dedicated to RSOs. Moreover, banks should not ignore RSOs during the engineering phases and, at the same time, RSOs should increasingly look for bank funding. Another crucial implication of the findings is that banks and RSOs should try to better meet each other's needs. They can no longer overlook each other throughout the critical prototyping phases, during which the success of the idea could significantly depend on the availability of financial resources. At the same time, policy makers should ensure the necessary attention is paid to the banking sector, recognising that it acts as a force that boosts the growth of spin-offs. Governments should develop banking instruments that support the business of RSOs. Additionally, policy makers should recognise that a close relationship between an RSO and a bank branch presents the possibility to obtain successful growth opportunities. Thus, policy makers should increase the availability of debt financing for RSOs in those provincial banking contexts with few branches. With this regard, bank promoters could explore and deepen the credit need of RSOs and reduce their financial constraints.

Moreover, banking institutions should support the consolidation of innovative RSOs not only during the maturity stages, but also throughout the early phases of their life cycle.

Additionally, banks could allocate dedicated funds to RSOs, such as financial incentives for specific academic projects. This because the banking sector has a key role in reducing the uncertainty of future cash flows, which is a major concern for RSOs.

From a firm-level point of view, managers of RSOs should try to reduce the informational gap between their company and the money lenders. Too often, banks have no idea of the high income potential from valuable projects. The initial location of an RSO could mitigate such a problem. RSOs could try to reduce the physical and informational distance from their nearest bank branches in order to facilitate debt financing. Moreover, RSO managers should not ignore the possibility of relying on bank loans and could establish production facilities as close as possible to high bank branch density areas.

Countries cannot afford to miss the opportunity to commercialise the results of public research, as it contributes to economic and social welfare. In light of this, this contribution hopes to increase the understanding of the mechanisms through which the application of new ideas, technologies, and scientific knowledge generates economic development and job creation.

Originality of the paper. The importance of the academic entrepreneurship to the growth of a country is of particular interest in the research context (O'Shea et al., 2008). In this field of research, investigating how RSOs interact with banking institutions is a relevant topic that enriches the understanding of RSO success. Indeed, if access to the banking markets is a major concern for firms, this especially applies to innovative firms, such as RSO, whose activities are expensive and require well-developed financial systems (Sharma, 2007; Ayyagari et al., 2007). Considering this peculiarity, it is of academic and practical interest to study the role of the banking system on the activities of RSOs during their life cycle.

Moreover, the use of RSOs to test the effects of local banking development is new in the literature. Most prior papers in this field use firm data or aggregate economic data. The fact that an RSO can rely on the support of universities and research institutes during their incubation period provides an interesting setup to test the influence of the local banking institutions. In the extant literature, little attention has been paid to the role of banks, while have been regarded as important financiers of RSOs, as underlined by Prokop (2021). However, the same author argues that there is still to be discovered about which actors could affect RSOs success (Prokop et al., 2019). Banks could play a part in this game. Indeed, banks have strong tools to assess financial needs of firms and bank monitoring could be a solution to overcome creditworthiness problems (La Rocca et al. 2010), which are typical concerns of RSOs. Also Lekashvili and Bitsadze (2021) interestingly point out that a possible reason of unsuccessful spin-offs could be the lack of "access to financial resources, which integrates the finances of government, university, commercial and international institutions", for which here could come into play to study how banks support RSOs.

The findings aim to enrich both the literature on RSOs and the literature on banking development. In particular, we contribute to the RSO literature by studying an important determinant of corporate success that should be carefully considered both by academic researchers and decision makers. Moreover, we also contribute to the corporate finance literature by investigating a particular typology of firms for which, in the early stages of their life cycle, the role of the banking system as a credit provider is in competition with other sources of funding, namely public or university contributions.

Keywords: banks, local banking development, university spin-off, university, innovation, economic growth.

Main Model: 2SLS results concerning local banking development and RSO performance.

Estimation technique:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Conditions:	OLS Cluster Sample of RSOs in the incubation phase	OLS Cluster Sample of RSOs in the early commercialization phase	OLS Cluster Sample of RSOs in the core commercialization phase	2SLS Sample of RSOs in the incubation phase	2SLS Sample of RSOs in the early commercialization phase	2SLS Sample of RSOs in the core commercialization phase	2SLS Full sample: interaction with Incubation phase	2SLS Full sample: interaction with early commercialization	2SLS Full sample: interaction with core commercialization phase
Dependent Variable				ROA	ROA	ROA	ROA	ROA	ROA
Local Banking Development	-0.208 (0.371)	2.999*** (0.833)	10.792** (4.842)	0.184 (0.536)	2.289* (1.304)	12.053*** (3.173)	-0.369 (0.490)	-0.346 (0.228)	-0.654 (0.549)
Dummy Incubator							-0.029 (0.026)		
Local Banking Develop. × Dummy Incubator							0.095 (0.341)		
Dummy Early Commercial.								0.022 (0.018)	
Local Banking Develop. × Dummy Early Commercial.								0.467** (0.212)	
Dummy Commercialization									-0.057 (0.050)
Local Banking Develop. × Dummy Commercialization									1.233*** (0.367)
Dummy Bank Debt	-0.030** (0.013)	-0.031 (0.026)	-0.038 (0.047)	0.008 (0.017)	-0.033 (0.025)	-0.042 (0.040)	-0.020** (0.010)	-0.004 (0.008)	-0.028*** (0.009)
Cash Holdings	0.005 (0.014)	-0.107 (0.075)	-0.070 (0.128)	0.002 (0.022)	-0.103 (0.071)	-0.107 (0.092)	-0.012 (0.015)	0.006 (0.011)	-0.012 (0.015)
Intangibles	-0.008 (0.015)	-0.243*** (0.059)	-0.040 (0.184)	0.017 (0.028)	-0.243*** (0.056)	-0.061 (0.115)	-0.046*** (0.014)	-0.061*** (0.015)	-0.052*** (0.015)
Tangibility	0.041 (0.027)	-0.041 (0.074)	0.025 (0.188)	0.040 (0.032)	-0.032 (0.068)	-0.002 (0.122)	0.029 (0.024)	0.034** (0.017)	0.038 (0.025)
Size	0.006 (0.010)	0.073*** (0.023)	0.084 (0.054)	0.010 (0.017)	0.070*** (0.022)	0.092** (0.040)	0.021* (0.012)	0.010 (0.008)	0.023** (0.012)
Age	-0.029 (0.021)	-0.004 (0.027)	0.103 (0.137)	-0.051** (0.023)	-0.002 (0.024)	0.116 (0.084)	-0.031 (0.021)	-0.010 (0.011)	-0.027 (0.022)
Patents	-0.000 (0.000)	-0.004* (0.002)	-0.042*** (0.012)	-0.004** (0.002)	-0.004* (0.002)	-0.043*** (0.007)	-0.001* (0.000)	-0.000 (0.000)	-0.001* (0.000)
Dummy Venture Capital	-0.105* (0.062)	0.240*** (0.063)	0.528** (0.240)	-0.069 (0.043)	0.236*** (0.058)	0.593*** (0.192)	-0.093 (0.075)	-0.107 (0.079)	-0.096 (0.073)
Dummy Industrial Company	-0.118*** (0.024)	-0.044 (0.049)	0.047 (0.138)	-0.146*** (0.022)	-0.036 (0.044)	0.032 (0.099)	-0.086*** (0.024)	-0.052** (0.022)	-0.088*** (0.024)
Dummy Financial Company	0.416*** (0.089)	0.000 (0.000)	0.000 (0.000)	0.692*** (0.201)	0.000 (0.000)	0.000 (0.000)	0.547*** (0.106)	0.066 (0.109)	0.496*** (0.093)
Dummy Member Group	-0.029 (0.022)	-0.055 (0.051)	0.314** (0.142)	-0.047* (0.025)	-0.055 (0.047)	0.334*** (0.086)	-0.031 (0.023)	-0.017 (0.024)	-0.031 (0.022)
Dummy Research Institute	-0.013 (0.052)	0.042 (0.033)	0.000 (0.000)	-0.021 (0.042)	0.048 (0.034)	0.000 (0.000)	-0.027 (0.046)	-0.010 (0.027)	-0.032 (0.046)
GDP	-0.001 (0.018)	-0.176*** (0.046)	-0.506* (0.268)	-0.011 (0.023)	-0.138* (0.072)	-0.577*** (0.178)	0.001 (0.001)	0.000 (0.001)	0.011 (0.023)
Fraud	0.004*** (0.001)	0.003 (0.004)	0.020** (0.009)	0.005*** (0.001)	0.003 (0.004)	0.021*** (0.006)	0.000 (0.001)	-0.000 (0.001)	0.004*** (0.001)
North	-0.008 (0.019)	0.095** (0.039)	-0.101 (0.076)	-0.019 (0.017)	0.080** (0.039)	-0.100** (0.051)	-0.002 (0.022)	-0.037** (0.017)	-0.019 (0.020)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	499	284	46	499	284	46	1499	1499	1499
R-squared	0.144	0.124	0.459	0.122	0.121	0.454	0.124	0.052	0.130

Notes: Industry and year fixed effects are the controls. The 2SLS model uses the same instrumental variables as in Deloof and La Rocca (2015) and Deloof et al. (2019) for the local banking structures in 1936 that were largely determined by factors unrelated to local economic development. The superscripts denote significance as follows: *p< 0.10, **p< 0.05, ***p< 0.01. Regressions report standard errors in brackets.

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How the “vertical” and the “horizontal” heterogeneity affect academic spin-offs performance: an empirical analysis of life-science ventures

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Framing of the research. *There is growing interest in how universities acquire more and more importance and relevance for the development of skills and innovations within our socio-economic system (Vesperi and Gagnidze, 2019). To commercially exploit this set of knowledge and skills in the best possible way, one of the most used mechanisms is the creation of Academic Spin-Offs (ASOs). ASOs are a new type of enterprise based on innovation and technology that arises from the transfer of resources and basic technologies developed within an academic or research university institution (Sciarelli et al., 2022). Fini et al. (2011) provides a rather comprehensive definition of a university spin-off; in fact, he argues that it is an enterprise within the university, and among the founding shareholders is at least one academic (full professor, associate professor, assistant professor, doctoral student, research fellow). Thus, two characteristics distinguish an ASO: the presence of at least one founder whom the university employed at the time of startup and the commercialization of a technology originally developed by academic research activity. In this sense, it has been amply demonstrated in the literature that this type of enterprise has become the potential engine for regional and national development, given that they are able to promote economic growth (Ben-Hafaied et al., 2021; Sciarelli et al., 2022), improve employment in science and research-based sectors (De Nicola et al., 2019) and bridge industry to science (Sciarelli et al., 2020). In addition, increasing the role of universities in local economic growth has been widely recognized as a strategy to involve stakeholders more closely in university technology transfer (Audretsch, 2014) and to create conditions for the economic exploitation of intellectual property, tacit knowledge, and academic research. Creating new entrepreneurial entities, in the form of academic spin-offs, is an effective way for universities to contribute to local development in response to their lack of financial resources by partnering with private enterprises.*

The literature related to ASOs has grown exponentially since 2010 and has mainly focused on human and social capital within different teams and how this capital is balanced to achieve better economic performance. Indeed, according to several scholars, the micro-foundations and success of academic entrepreneurship derive from the composition of the entrepreneurial Top Management Team (TMT) (Mathisen and Rasmussen, 2019), i.e. the "group of individuals primarily responsible for strategic decision-making" (Klotz et al., 2014).

Despite the body of literature on the subject, research has yet to find a definitive answer to the problem of team composition within ASOs. The problem arises because ASOs are companies with lower performance than traditional startups and, therefore, a decidedly riskier investment for those who decide to participate.

Little is known about the impact of vertical differences among members: heterogeneity of power, status, prestige, or privilege (Harrison and Klein, 2007). Strategic decision-making is a major responsibility of an entrepreneurial team (Knight et al., 2020). Decision-making power, reflected particularly by ownership, is therefore critical.

After extensively reviewing the literature on the subject, Bunderson and Van der Vegt (2018) state that most articles on team composition within ASOs are based on analysis of the degree of heterogeneity of team members, while few studies have yet questioned the effect of vertical differences between team members, namely diversity of status and power of different participants.

Purpose of the paper. *Our work aims precisely to fill this research gap and, therefore, to shed light on how to integrate the horizontal and vertical heterogeneity of the different teams and its effect on the economic performance of the ASOs.*

Therefore, our research aims to fill the gap by focusing on the relationship between Top Management Teams (TMT) and the economic performance of Academic Spin-Offs through the filter of the micro-foundational approach. In

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particular, our goal is to understand what the right balance between academic and non-academic members is, the necessary skills and a background between the various members that is homogeneous or not, capable of positively influencing the economic performance of the ASO. Finally, our goal is to shed light on how members' vertical differences within teams (in terms of status and power as well as whether CEO Duality is present) can positively moderate the effects due to the creation of balanced and homogeneous teams and, therefore, to influence economic performance better

To carry out this research, we decided to adopt a micro-foundational approach (Barney and Felin, 2013), which allows us to focus on the roles of individuals, processes and structures of companies in the acquisition of skills and competitive advantage, creating the opportunity to shed light on which mechanisms and lower-level individual are able to influence the economic performance of the ASOs. The literature related to ASOs has grown exponentially since 2010 and has mainly focused on human and social capital within different teams and how this capital is balanced to achieve better economic performance. Indeed, according to several scholars, the micro-foundations and success of academic entrepreneurship derive from the composition of the entrepreneurial Top Management Team (TMT) (Knockaert et al., 2011; Wright, 2014; Taheri & Van Geenhuizen, 2016; Huynh et al., 2017; Nikiforou et al., 2018), i.e. the "group of individuals primarily responsible for strategic decision-making" (Klotz et al., 2014).

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Little is known about the impact of vertical differences among members: heterogeneity of power, status, prestige, or privilege (Harrison and Klein, 2007). Strategic decision-making is a major responsibility of an entrepreneurial team (Knight et al., 2020). Decision-making power, reflected particularly by ownership, is therefore critical.

After extensively reviewing the literature on the subject, Bunderson and Van der Vegt (2018) state that most articles on team composition within ASOs are based on analysis of the degree of heterogeneity of team members, while few studies have yet questioned the effect of vertical differences between team members, namely diversity of status and power of different participants.

Therefore, our research aims to fill the gap by focusing on the relationship between Top Management Teams (TMT) and the economic performance of Academic Spin-Offs through the filter of the micro-foundational approach. In particular, our goal is to understand what is the right balance between academic and non-academic members, the necessary skills and a background between the various members that is homogeneous or not, capable of positively influencing the economic performance of the ASO. Finally, our goal is to shed light on how members' vertical differences within teams (in terms of status and power as well as whether or not CEO Duality is present) can positively moderate the effects due to the creation of balanced and homogeneous teams and, therefore, to influence economic performance better.

We focused on Italian ASOs operating in the life-science sector which typically requires multiple business skills and competencies (Di Berardino, 2016). These USOs must be able to change their operations to follow the development of new scientific concepts and the transformation of technologies and prototypes into viable products or services. On this ground, high diversity in TMT backgrounds and competencies may promote a wider range of alternatives and solution which can contribute to preserve ASO's competitive advantage over time.

Prior literature and hypotheses development.

RELATIONSHIP BETWEEN ACADEMIC AND NON-ACADEMIC MEMBERS WITHIN ASOs TEAMS

According to some scholars, the objective underlying the establishment of the ASOs concerns the possibility of transforming scientific knowledge into products or services to be traded on the market (Zahra et al., 2007). This implies for the ASOs having to face both the uncertainties deriving from the market and the scientific-technological ones, relating to the academic and research world.

Indeed, despite their high scientific and research expertise, academics suffer from a lack of business and entrepreneurial experience, which implies the need to include non-academic outsiders in their teams, who can make up for these shortcomings and improve the market skills of the entire team (Vanaelst et al., 2006; Wright et al., 2007).

In addition, the role of academic entrepreneurs also emerges as critical at the level of team formation (Grandi and Grimaldi, 2003). Such composition also significantly improves ASOs' survival and growth performance by providing complementary human and social capital such as business management skills or market and technological knowledge, which are exactly what most ASOs lack but need (Ben-Hafaiedh et al., 2018).

Given these advances, according to various authors it is essential that academic members, at least in the initial phase of the entrepreneurial experience, are supported by real entrepreneurs, with the necessary skills and competences to move comfortably and efficiently in the corporate world. These business-skilled non-academics are defined in the literature as "surrogate entrepreneurs," (Franklin et al., 2001), and are essential for the development of the entrepreneurial idea in the initial phase of the project (Mustar et al., 2006), primarily for the ability to provide leadership, business experience, and market connections to academic members (Sciarelli et al., 2020).

Furthermore, a balanced composition of the team between academic and non-academic members allows for effective integration of scientific and commercial skills in order to positively impact the financial performance of the ASO (Sciarelli et al., 2020; Ben-Hafaiedh et al., 2021). In fact, according to several scholars (Visintin and Pittino, 2014; Dianez-Gonzalez and Camelo-Ordaz, 2016), creating balanced team structures in terms of research and

commercial skills brings significant advantages for ASOs due to the ability of non-academic members to act as mentors to facilitate the process of entrepreneurial learning and the development of professionalism and cognitive diversity within the team (Clarysse and Moray, 2004; Sciarelli et al., 2020; Sciarelli et al., 2022).

However, team diversity can also contribute to coordination and communication problems, making "variety" a double-edged sword (Harrison and Klein, 2007; Díaz-Fernández et al., 2020), the mix of these conflicting identities can create a fault line and thus a schism within the team that can have a negative impact on team performance (Thatcher and Patel, 2012). In the context of ASOs, Rasmussen (2011, p. 460) referred to the "inherent controversies between academic and business cultures" (2011, p. 460), and Nikiforou et al. (2018, p. 96) argued that "balancing these two very distinct but equally important mindsets can hinder knowledge sharing, create tensions in the team, and create problems in communication and collaboration" (p. 96). In fact, the commitment of academics can conflict with their entrepreneurial vision (Jain et al., 2009), particularly when research and business interests diverge (Visintin and Pittino, 2014). This leads to less effective communication within the group and a greater perceived risk in achieving commercial objectives (Li and Hambrick, 2005). The major differences between academic and non-academic members mainly concern the differences in culture, goals and orientation to the entrepreneurial world. In fact, the full-time commitment of non-academic members and the availability only part-time by researchers, could lead to conflicts due to lack of communication, common objectives and, therefore, lack of mutual trust between the two "factions" (Vohora et al., 2004; Visintin and Pittino, 2014; Nikiforou et al., 2018; De Nicola et al., 2019; Ben-Hafaiedh et al., 2021).

Then, we can formulate the following:

Hypothesis 1. Balancing a team structure between academic and non-academic members has a positive effect on the performance of ASOs.

TEAM SIZE IN ASOs

The relationship between academic and non-academic members and their balance within the team structure of ASOs is a thorny issue central to our study. In fact, this differentiation, when not controlled, can lead to harmful effects of separation (Shefer and Frenkel, 2005; Visintin and Pittino, 2014; Sciarelli et al., 2020).

In fact, according to the literature, smaller teams have fewer problems related to mutual communication and integration between the different subgroups of the team due to greater mutual understanding and the commonality of values and objectives within the same subgroups (Smith et al., 1994; Amason and Sapienza, 1997; Visintin and Pittino, 2014). In contrast, larger team sizes can reduce the motivation of various team members to participate as well as the efficiency of mutual monitoring. This means that group members will develop shallower interpersonal relationships and will be less likely to help each other (Kandel and Lazear, 1992; Carpenter, 2002; Backes-Gellner et al., 2006; Visintin and Pittino, 2014; Bunderson et al., 2016).

Therefore we can formulate the following:

Hypothesis 2. The size of the team negatively moderates the performance of the ASO.

SCIENTIFIC BACKGROUND HETEROGENEITY AND ASOs ECONOMIC PERFORMANCE

The ASOs literature focuses on the positive impact on the economic performance of the team with members with similar academic backgrounds (Ensley and Hmieleski, 2005; Talke et al., 2011). In fact, members with similar training are able to provide the team with a greater and more easily integrated set of skills (Williams and O'Reilly, 1998). The teams of the ASOs, so-called homogeneous, show a positive economic performance because they are able to fully benefit from the exploitation of shared scientific knowledge of team members and communication processes simplified by internal team processes, as well as the formation of a shared model of rules and routines, capable of forming commonly accepted values and behaviors among team members (Wuyts et al., 2005; Knockaert et al., 2011; Steffens et al., 2012; Visintin and Pittino, 2014; Sciarelli et al., 2020).

This leads to a series of critical issues which, if not managed properly, can create various communication problems between team members. As pointed out by Pfeffer (1998), in fact, the disparity of status among the different members of the group can negatively affect the performance of the lower level academic members, leading to situations of conformity and lack of participation in the performance of daily management activities.

There are several advantages relating to the homogeneity of the background of individual members of the group, including: it promotes the development of shared norms and values that facilitate communication; is able to improve mutual interaction; reduces categorizations among various members within ASOs teams (Tsui et al., 1992; Williams and O'Reilly, 1998; Beckman et al., 2007; Knockaert et al., 2011). Furthermore, greater homogeneity within groups can facilitate communication and effective mutual monitoring among team members (Zenger & Lawrence, 1989; Grandori, 2000; Clarysse & Moray 2004; Knockaert et al. 2011) and improve cooperation among the TMT members of an ASO (Williams and O'Reilly, 1998).

Accordingly, we tested the following hypothesis:

Hypothesis 3. Homogeneity in ASOs' teams scientific backgrounds positively affects (or moderates) ASOs' economic performance.

HOW VERTICAL DIVERSITY AFFECTS ECONOMIC PERFORMANCE IN ASOs TEAM

In the literature, in most cases, only the components able to influence the horizontal differences (differentiation of profiles within the team) rather than the vertical ones (disparity of status among the various team members) within the teams are analyzed. ASO team (Visentin and Pittino, 2014; Prencipe, 2016; Bunderson and Vejt, 2018). In fact, there is little knowledge in the literature regarding the impacts of vertical differences due to a large heterogeneity of team members in terms of power, status, prestige and privilege (Harrison and Klein, 2007).

Vertical heterogeneity, despite being almost always present within teams, has not attracted much interest from the literature. Vertical differences mainly emerge from highly formalized or informal hierarchies based on power or status. In most cases, vertical inequalities reflect the different degrees of power associated with team members. According to Finkelstein (1992), the sources of vertical inequality within teams in ASOs are of four types: structural; property; experts; prestige. In addition, Visintin and Pittino (2014) note that the disparity in members' academic status (vertical differences) mitigates the benefits of differentiating the group's profile (horizontal differences). If managed efficiently, vertical inequalities within teams may be able to clarify the results deriving from teams that are not very homogeneous and, therefore, with a high rate of horizontal differences (Ben-Hafaied et al., 2021).

Assuming that the distance between the subgroups in terms of norms increases when the group exhibits greater stratification of academic status, that is, when the subgroup of academics tends to replicate the same hierarchical distance that exists between members of the university and the research group to which they belong.

In particular, the disparity in status between the various members may favor conformity, silence and lack of participation as regards members of the lower level team (Pfeffer, 1998). The absence of a well-defined hierarchy between the various teams within the asos entails, for the members, a reduction in the tacit skills and coordination skills necessary for the survival and development of the enterprise (Sciarelli et al., 2020; Ben-Hafaied et al., 2021).

Based on the above, we propose the following hypothesis:

Hypothesis 4. Vertical differences, due to structural, ownership, expert and prestige heterogeneity, negatively affect the economic performance of ASOs

CEO DUALITY AND ECONOMIC PERFORMANCE IN ASOs TEAM

In the literature, studies relating to the benefits and advantages due to CEO Duality are inconclusive (Prencipe, 2016); according to scholars of the agency theory, the two roles should remain distinct and separated in order not to lead to imbalances between the subgroups composed of academic members and those composed of non-academic members (Tang, 2016), a less independent advice (Duru et al., 2016) and a lower efficiency of mutual monitoring among the members belonging to the various teams in the ASOs (Pugliese and Wenstøp, 2007). In any case, CEO Duality involves a strong imbalance in terms of powers within the different teams and, therefore, to a general worsening of the economic performance of the ASOs (Rashid and Lodh, 2011; Gabrielsson et al., 2014). Separate roles, on the other hand, have the effect of improving company services (Rashid and Lodh, 2011) and reducing ambiguity when it comes to having to assign crucial responsibilities during the decision-making process (Anderson and Anthony, 1986; Gabrielsson et al., 2014). So, the overlapping positions of CEO and president in ASOs imply less independence of the board, as well as less efficiency in supervising the activities of managers. As a result, the results related to the performance of managers are poor.

For Stewardship Theory theorists, on the other hand, concentrating the two roles in the hands of one person makes decision making more effective and efficient (Anderson and Anthony, 1986) and improves the CEO's ability to react more quickly and respond in a dynamic business environment and to secure resources critical to the success of the company. (Pfeffer and Salancik, 1978).

In particular, according to these scholars, CEO Duality involves more effective decision-making processes due to greater clarity on the hierarchical scale of the company and, therefore, a better definition of roles and positions (Finkelstein and D'Avanni, 1994; Sciarelli et al., 2020; Sciarelli et al., 2022).

Since it is still an understudied aspect, our goal is to analyze the impact of CEO Duality on the economic performance of the ASOs. In addition, in the presence of resource constraints, Boyd (1995) pointed out that CEO duality provides leverage to engage outside managers and increase the presence of female TMT and ASOs with economic performance on the board to improve stakeholder relations, decision-making, and integration of entrepreneurial members (Hillman et al., 2000).

Based on what has been said, we propose the following:

Hypothesis 5. A greater degree of concentration of power in the hands of a single subject (CEO Duality) negatively moderates the economic performance of the ASOs

Methodology. We employed data from the Netval directory to identify the entire population of Italian active ASOs as in previous studies (Algieri et al., 2013; Muscio et al., 2016; Ramaciotti and Rizzo, 2015). Then, we selected both pure and hybrid spin-offs operating in life-science sector that had at least one academic member on the TMT and were started in a university, excluding those spin-offs proposed by public research centers. Applying these conditions to our sample selection, we came to a spin-off population of 71 firms established from 1994 to 2015. We identified the academic position and the scientific background of academics members using the CINECA scientific platform, and for those academic members not listed in the CINECA platform, such as PhD students and research fellows, we checked the website of their university.

Because our research goal is to investigate the impact of certain entrepreneurial factors on ASO economic performance, we collected data on the governance structure and financial health of each spin-off from AIDA-Bureau Van Dijk).

Results. In line with some prior studies (Franklin et al., 2001, Wennberg et al. 2011; Visintin and Pittino, 2010; 2014), we predict that a balanced structure of ASO's TMT might favour the integration of scientific and business skills, improving the economic performance. This could be particularly relevant for ASOs operating in highly dynamic context such as the life-science sector which face highly uncertain tasks involving the application of new scientific concepts and the transformation of technologies and prototypes into viable products or services (Fontes, 2005, Knockaert et al., 2011).

However, in line with some previous studies (Knockaert et al., 2011; Visintin and Pittino, 2014), the profile differentiation should improve ASO performance even if its effect may be moderated by other features. This argument is consistent with recent theoretical reasoning on the topic (Knockaert et al., 2011) and may contribute also to reconcile the controversies in the literature on team heterogeneity and new venture performance (e.g. Amason et al., 2006).

Research limitations. Our study has some limitations according to different perspectives. First, one-year observation could be a rather short time-frame to assess the impact of individual features on company performance. Therefore, future developments along this line of research should monitor ASOs over longer periods of time and different stages of development. We can also extend this analysis to other sectors and/or countries, in order to provide more reliable empirical evidence. Additionally, we evaluate the heterogeneity of ASOs managers, regardless of whether they are shareholders. This might be relevant for assessing the relationship between academic shareholding and ASO strategic decisions.

Managerial implications. Our expected findings have several practical implications. First, the profile differentiation in TMT can accelerate ASOs' time to market, resulting in a better performance. This could be framed as a best practice for universities in fostering local economic development. Moreover, in academic technology transfer aimed at creating new entities from research, knowledge transfer managers should evaluate academic competences and capabilities in terms of scalability, thereby promoting a well-balanced governance model between academic and non-academic members, as supported by the literature.

The relevance of the profile differentiation between academics and non-academics has also relevant implications for the management and policy support of academic entrepreneurship programs. On this ground, Technology Transfer Offices (TTOs) should assess different strategies according to ASOs' peculiarities, distinguishing those having a pronounced market orientation from those aimed at enlarging and deepening researchers' scientific and technological competences (Colombo and Piva, 2012). Such contingency perspective would suggest that a heterogeneous team is better suited to the highly-dynamic life-science sector which requires strong market alliances and multiple business skills and competencies (Di Bernardino, 2016).

Originality of the paper. This ongoing work is part of the research field on academic business ventures, taking for the first time a micro-foundational perspective to analyze horizontal and vertical factors in TMTs that affect ASOs' performance. Particularly, this work tries to bridge a research gap in the ASO literature, shedding light on the relationship between TMT composition and new venture performance considering some important interactions between team members following a micro-foundational perspective (Barney and Felin, 2013). Our expected findings also contribute to the general literature on entrepreneurial teams in new ventures and suggest a mean to reconcile some inconsistent results of the literature on TMT heterogeneity and ASO performance.

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Women entrepreneurship studies: which impulse from UN Agenda 2030? A Systematic Literature Review

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Objectives. *Women's role in the larger entrepreneurship phenomenon and economic development is destined to change as a consequence of the UN Agenda 2030 (Bidegain Ponte and Enriquez, 2016. Accordingly, women entrepreneurship has attracted the attention of academics and practitioners with a large body of research studies in recent years, specifically systematic reviews of the literature. The goal of a systematic review of the literature is to describe and assess how research is organized and conducted in the field under investigation. Specifically, scholars from different fields of research highlighted the need to investigate various dimensions of women entrepreneurship to extend theoretical concepts to improve our understanding of women entrepreneurship as a topic of research inquiry (Al-Qahtani, Fekih Zgui, Al-Fagih, and Koc, 2022). Themes such as drivers, barriers, risks, and business outcomes have been mostly investigated by adopting various models and methods. However, there is a current call for more objective and technology-facilitated analytical methods. Previous studies, although they have led to different and sometimes contradictory results, agree on the fact that scholars have to spend their efforts to identify a theoretical framework to observe, analyze, and understand the phenomenon. In this perspective, there are still no studies on how literature has positioned itself after the strong impulse that the UN 2030 agenda has given to the development of women entrepreneurship. For this reason, a systematic review of the literature that includes the reference to the UN Agenda 2030 is essential to understand, also at an institutional and political level, what is changed from 2015 to now, and what actions can be taken to stimulate women entrepreneurship further, and remove the cultural, social, economic and financial barriers that still exist. Our study answers to the current call by providing a systematic literature review into the development of women entrepreneurship research including a new analysis on the impact of the Un Agenda 2030. With the aim to build a better understanding on how policies may turn in academic research (and vice versa), this paper attempts to present an overview of the field before and after the introduction of the Agenda2030 and highlight future research directions. In particular, this paper has two broad goals. The first goal is to highlight mainstream entrepreneurship journals by exploring the number of papers published on women entrepreneurship in these journals before the introduction of the Agenda 2030. The second objective of the paper is to review the growth of the field and present an analysis of the literature review papers published on women entrepreneurship till 2022.*

Regardless, there are at least two shortcomings in analyzing and mapping the women's entrepreneurship research field and the link with the UN Agenda 2030. The advent of the Agenda 2030 is powerful, including a goal for the global economy, with unprecedented such universal orientation on businesses. The GEM 2022 global report on the status and perceptions of entrepreneurship activities found that women still constitute a sizable portion of high-potential entrepreneurs: that is, those individuals starting some of the most promising new firms with high aspirations for growth and impact. New companies contribute to their local communities and economies in many ways, but most notably through job creation. While most companies start pretty small as solo endeavors or with 1–5 employees, women are typically much less likely to start companies with high numbers of employees. Thus, women should play a strategic role to meet the goal of AGENDA 2030, with different roles in different SDGs. The first shortcoming refers to the fact that previous studies have undervalued the relevance of women entrepreneurship in achieving sustainable development, which includes the effort to ensure current and future societal wellbeing, under the pressure of UN Agenda 2030. The second shortcoming refers to the fact that, to our knowledge, a limited number of studies have analyzed how women entrepreneurs can nurture sustainable solutions in line with the 17 UN Sustainable Development Goals, such as poverty, hunger, education, and inclusive communities.

Methodology. *This study adopts a Systematic Literature Review (SLR) because it provides a comprehensive overview of literature related to the aim of this study and synthesizes previous work to strengthen a particular topic's foundation of knowledge while adhering to the concepts of transparency and bias reduction (Pittway, 2008; Tranfield, Denyer, and Smart, 2003). Based on the combination of SCOPUS and Web of Science databases, which include a large number of leading journals, this study carries out an analysis of the articles from 2000 to 2023 (export date March, 7th) to verify the publication trend with a particular emphasis on the content of the articles published from 2015 to 2023, to*

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deepen the knowledge on the role exerted by UN Agenda 2030 in terms of whether and how Sustainable Development Goals are stimulating the proliferation of studies on women entrepreneurship, suggesting new perspectives and research directions.

The search in SCOPUS and Web of science was made in three steps. In the first step, we used the following keywords and phrases in Title, Abstract, and Keywords: "Women entrepreneur*", "Female Entrepreneur*", "Gender Entrepreneur*", "Women-led firm*", "Women enterprise*", "Female firm*". We retrieved more than 4,000 documents. In the second step, we used "Agenda 2030" OR "Sustainable Development Goal*" OR SDG*, and the search returned more than 33,000 documents. In the third step, we combined the mentioned searches and retrieved 79 documents. Moreover, we included only English language articles published in academic journals and collected in the subject of Business, Management and Accounting. This step resulted in 43 selected articles, as shown in Table 1, that we proceeded to analyze.

Tab. 1: The selected articles

#	Author(s)	Article
1	Quagraine F.A., Adams S., Kabalan A.A.M., Dankwa A.D.	Micro-entrepreneurship, sustainable development goal one and cultural expectations of Ghanaian women (2021) <i>Journal of Entrepreneurship in Emerging Economies</i> , 13 (1), pp. 86 - 106
2	Karyotaki M., Drigas A., Skianis C.	The Role of Mobiles and Women in the Sustainable Local Economic Development (2022) <i>International Journal of Interactive Mobile Technologies</i> , 16 (22), pp. 111 – 126
3	Samantroy E., Tomar J.S.	Women Entrepreneurship in India: Evidence from Economic Censuses (2018) <i>Social Change</i> , 48 (2), pp. 188 – 207
4	Alicia Mas-Tur	Female-driven social entrepreneurship in service business (2022) <i>Service Business</i> , 16 (4), pp. 791 - 795
5	Chakraborty U., Biswal S.K.	Psychological empowerment of women entrepreneurs: a netnographic study on twitter (2022) <i>Management Research Review</i> , 45 (6), pp. 717 – 734
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7	Cordeiro P.A., Brion C.	Women School Leaders: Entrepreneurs in Low Fee Private Schools in Three West African Nations (2018) <i>Frontiers in Education</i> , 2, art. no. 67
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11	Fernández-Guadaño J., Martín-López S.	Gender differences in Social Entrepreneurship: Evidence from Spain (2023) <i>Women's Studies International Forum</i> , 96, art. no. 102663
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17	Ćurčić N.V., Grubor A., Muhović A.	Customer relationship marketing and institutional support influence on the women's companies sustainability in Serbia (2021) <i>Sustainability (Switzerland)</i> , 13 (19), art. no. 10824
18	Ge T., Abbas J., Ullah R., Abbas A., Sadiq I., Zhang R.	Women's Entrepreneurial Contribution to Family Income: Innovative Technologies Promote Females' Entrepreneurship Amid COVID-19 Crisis (2022) <i>Frontiers in Psychology</i> , 13, art. no. 828040
19	Vukovic N., Nevalenyyi M.	BGlobal Solar Energy Market and Female Entrepreneurship after the Covid-19 Pandemic (2021) <i>Journal Women's Entrepreneurship and Education</i> , 2021 (3-4), pp. 22 - 41
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23	Contreras-Barraza N., Espinosa-Cristia J.F., Salazar-Sepulveda G., Vega-Muñoz A.	Entrepreneurial intention: A gender study in business and economics students from Chile (2021) <i>Sustainability (Switzerland)</i> , 13 (9), art. no. 4693
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26	Ahamed T., Noguchi R., Muhsin N., Ayu Purnamasari R., Islam M.A., Tasnim F., Islam M.Z., Islam M.F., Aknam W.	<i>Sustainable agricultural development: a micro-level GIS-based study on women's perceptions of environmental protection and entrepreneurship in Japan and Bangladesh (2021) GeoJournal, 86 (5), pp. 2071 - 2103</i>
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28	Muhammad S., Kong X., Saqib S.E., Beutell N.J.	<i>Entrepreneurial income and wellbeing: Women's informal entrepreneurship in a developing context (2021) Sustainability (Switzerland), 13 (18), art. no. 10262</i>
29	Lindvert M., Laven D., Gelbman A.	<i>Exploring the role of women entrepreneurs in revitalizing historic Nazareth (2022) Journal of Sustainable Tourism</i>
30	Thapa Karki S., Xheneti M.	<i>Formalizing women entrepreneurs in Kathmandu, Nepal: Pathway towards empowerment? (2018) International Journal of Sociology and Social Policy, 38 (7-8), pp. 526 - 541</i>
31	Pimpa N.	<i>Overcoming Gender Gaps in Entrepreneurship Education and Training (2021) Frontiers in Education, 6, art. no. 774876</i>
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38	Sam K.L.	<i>Women's leadership in local government in the Caribbean (2015) Commonwealth Journal of Local Governance, 18, 68-81</i>
39	Figuerola-Domecq, C; Kimbu, A; de Jong, A; Williams, AM	<i>Sustainability through the tourism entrepreneurship journey: a gender perspective (2022) Journal of Sustainable Tourism, 30(7), 1562-1585</i>
40	Feng, L; Sumettikoon, P	<i>A Promotion of Female Entrepreneurship Education Ecosystem to Empower Girls and Women (2022) Eurasian Journal of Educational Research, 98(98), 284-301.</i>
41	Ferdousi, F; Mahmud, P	<i>Role of social business in women entrepreneurship development in Bangladesh: perspectives from Nobin Udyokta projects of Grameen Telecom Trust (2019) Journal of Global Entrepreneurship Research, 9(1), 58</i>
42	Jaiyeola, EF; Adeyeye, MM	<i>Obstacles along the path of women enterprises in Africa: A case study of Ogotun women in Ekiti state, Nigeria (2021) Heliyon, 7(7), e07593</i>
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Findings. *The study is currently in progress, thus the findings we show are preliminary in nature, even if interesting and intriguing because able to disentangle a complex nest of studies that both face interesting topics and polarize their attention towards well-defined trajectories.*

Preliminary results deriving from the first step uncovered that the studies focused on women entrepreneurship were carried out by facing the topic under the lens of entrepreneurial attitudes, entrepreneurial intentions, gender differences in managing successful firms, women entrepreneurship as a driver to women empowerment especially in poor countries, and the industry as a catalyzer of male or female interest. In a certain sense, some findings contributed to the enhancement of stereotypes, such as the gender division between high-income industries (male-dominated) and low-income industries (female-dominated). The analysis of women entrepreneurship studies from 2000 to 2022 showed that the field of research has increased in its relevance, and exponentially especially from 2015 to 2022. Our first impression was positive because we believed that the suggestions of UN Agenda 2030 stimulated this scholarly increasing attention.

During the second step, we noted an alarming bias due to the fact that UN Agenda 2030 is generally considered in terms of environmental sustainability, while the main contribution of the document is related to the comprehensive framework of sustainability definition.

The third step, which was characterized by the merging of the two searches - women entrepreneurship and UN Agenda 2030 - revealed an underdeveloped field of research. In fact, we found that the number of articles was not high, as we rather expected. Moreover, the selected articles have been published in a small number of specialist academic journals, which have been interesting since their foundation in publishing articles dealing with sustainability issues. In other words, among the selected articles, very few have been published in General Management or Entrepreneurship leading journals.

After reading the articles, however, findings show the main themes that scholars have deeply analyzed, and at the same time, those that deserve to be faced to contribute in unpacking the current and future women entrepreneurship studies.

We identified five main themes that consider, alternatively, UN Agenda 2030 as a driver to enhance women entrepreneurship and, women entrepreneurship as a driver to pursue several SDGs (especially SDG 1, SDG 5, SDG 7, and SDG 11):

- *women in service sectors and in social enterprises* (e.g. Alicia Mas-Tur, 2022; Fernández-Guadaño and Martín-López, 2023);
- *women entrepreneurship in emerging countries* (e.g. Quagraine, Adams, Kabalan, and Dankwa, 2021);
- *barriers and opportunities* (e.g. Pearl-Martinez, 2020);
- *technology as a driver to improve women entrepreneurship* (e.g. Ge, Abbas, Ullah, Abbas, Sadiq and Zhang, 2022);
- *female entrepreneurship education* (Pimpa, 2021).

In addition, the selected articles include several policy recommendations, with profound attention on government interventions and actions to promote women entrepreneurship. The suggested policies appear able to enhance women empowerment, and change the patriarchal culture, especially in well-defined geographical areas.

In sum, the preliminary results of this Systematic Literature Review, which aimed to deepen the knowledge of the role of UN Agenda in the studies of women entrepreneurship, underlined that UN Agenda does not act as a catalyst for women entrepreneurship field of research. Probably, the SDG5, which is related to gender inclusion, has stimulated the proliferation of other studies on women, such as women involvement in C-suite level, undervaluing the relevance of self-employment, and thus entrepreneurship, as a relevant way to ensure women empowerment, reduce gender divide, and contemporarily contribute to the achievement of the other SDGs..

Research limits. We consider two main limits of our study. The first refers to the extension of the data collection. Even though Scopus and Web of Science are very large databases, future research can combine additional databases to enrich the analysis, uncovering interesting further nuances that can help to delineate the trajectories of women entrepreneurship studies that in the last ten years have registered a heavy increase. The second limit that may be addressed to our criteria of data collection is the period of time. We choose to consider the period of timing before and after the introduction of the UN Agenda 2030. However, we also consider the opportunity to investigate the theme before the date of 2000 in order to extend the period of observation. Specifically, future researchers may consider different periods of timing also with the aim to build a history of the field.

Practical implications. Women represent half of the world's population and play a vital role in economic and social development. Our literature review offers a theoretical reflection and a research agenda on the basis of the results achieved. Through this work our aim is to provide a closer look on the impact of national and political policies on theoretical development of academic research on this topic. Further, our findings on existing research trends linking women entrepreneurship and the UN Agenda 2030 has been discussed under the SDG flags issues related to SDG 1, no poverty, SDG 5, gender equality, SDG 7, affordable and clean energy, and SDG 11, sustainable cities and communities. Nevertheless, there are 13 other SDGs, and more importantly, many of the SDGs are interconnected. Consequently, our study shed some light on the practical opportunity to undertake activities on other facets of sustainable development would be beneficial. For example, the potential impact that women entrepreneurs can have on SDG 8, decent work and economic growth action, or SDG 10, reducing inequalities seven, through their choice to start new businesses in specific sectors and by inspiring a new generation of women entrepreneurs (women empowerment).

Originality of the study. The phenomenon of women entrepreneurship is gaining increasing attention from scholars, especially in recent years due to the increase in women entrepreneurs worldwide. Recent studies argue that women play a significant role in entrepreneurship (Noguera et al., 2013), contributing to socio-economic development (Strawser et al., 2021), have positive impacts on poverty reduction and promote inclusion socially (Langowitz and Minniti, 2007).

However, women who decide to create an entrepreneurial activity are significantly less than their male colleagues (Elam et al., 2019)

Several scholars state that this difference, accentuated in some countries compared to others, could derive from stereotyped and male-dominated perspectives which would seem to discourage women from undertaking business activities (Langowitz and Morgan, 2003).

Other studies highlight other barriers, such as lack of education (Hansemark,1998), experience and training opportunities; spatial mobility and lack of family support; lack of institutional support; lack of entrepreneurial management; and problem acquiring financial resources (Raghuvanshi, J., Agrawal, R., & Ghosh, P. K., 2017).

The originality of the study relies on the focus on UN Agenda 2030, to understand if it represents a driver to enhance and stimulate women entrepreneurship. Contemporarily, this study tries to understand whether and how scholars have conjugated women entrepreneurship and UN Agenda 2030 in their studies. Compared to other studies, we produce new findings on the relationship between women entrepreneurship and the UN Sustainable Development Goals (SDG). We see a different relationship with SDG and we consider that future research should invest in the analysis of this difference to consider its impacts, first, on the development of the field and, second, on the practical side of the UN Agenda 2030. Based on our findings, we offer suggestions for future studies to investigate the impacts of Un Agenda 2030 to foster women's entrepreneurship, including a closer look at the evaluation of the various SDGs.

Keywords: women entrepreneurship; UN Agenda 2030; Sustainable Development Goals; Systematic Literature Review

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Harmonic Entrepreneur: a systematic literature review

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Framing of the research. *How the world's most successful entrepreneurs manage their stress? Entrepreneurs put their reputations and often their investments (as well as their dreams) into the company, and in many cases, they are carrying on a reality that has existed for generations and must last for more generations, with an inevitable and solid personal identification (Dyer et al., 2014; Pittino et al., 2018; Parente and Kim, 2021). For these people often the balance between personal and working life is absolutely a mirage, as the company becomes life, the reason for its existence (Ezzedeen and Zikic, 2017). As one of the most high-powered CEOs in the world, Elon Musk only thinks that to suck up any stress he has and work with it. "If something's important enough, even if the odds are against you, you should still do it." He doesn't waste time self-pitying, and instead uses it to his advantage to help keep all of his ducks in a row – instead, he uses it as fuel to get ahead of the game and keep the money (and the business) coming in. "The ability to boil things down, to work on things that are things that really counts, to think through the basics.... It's a special form of genius". Bill Gates' approach is simple, but one that few actually follow through with; the simple task of stripping it back, and taking things one task at a time. Often when we are stressed, we get overwhelmed with the magnitude of the tasks that we have to achieve. But if we take things one step at a time, task after task, we're more likely to have a better performance and outcome. Jobs always took more of a spiritual approach to stress, focusing on mindfulness rather than getting distracted by the stresses of his incredibly busy life. Jobs appreciated just how much the mind can control our emotions and as a result, mean that we're not getting the most out of our day-to-day because we're becoming wrapped up in stress. Instead, try and focus your mind. "If you just sit and observe, you will see how restless your mind is. If you try and calm it, it only makes it worse, but over time, it does calm."*

Kevin N. Lawrence in his famous book on *Oxygen Mask First* (2017) refers to the famous phrase recited by the hostess in explaining the emergency procedure: "first put on your oxygen mask and then help others". This reference can be considered a metaphor to explain a strong dichotomy of entrepreneurship: a human and professional life experience, and yet one that, on the other hand, generates high stress and requires a constant dose of focus and energy. Entrepreneurs constantly test their limits, reckon with their own shadows, enjoy successes, weave relationships, through an up and down of emotions, positive and negative (Rojas et al., 2022).

Entrepreneurs have an enormous responsibility; they involve all their life into the companies so that they can generate value for society. All this represents a major daily emotional burden, which poorly managed, can lead to the 'burnout'.

Frequently the entrepreneur thinks that he/she literally has no time to take proper care of himself/herself, that these moments are not allowed because there are way too many responsibilities and things to do (Nikolaev et al., 2020). It thus enters a vicious circle of stress and malaise that inevitably generates negative relational and economic performance (Lerman et al., 2021). In recent years, partly because of the Covid-19 pandemic, people have begun to think about a more harmonic life able to give a balance among heart, body and mind (Wach et al., 2021). This is an interesting aspect to investigate.

Wellness is an integral part of living a fulfilling and flourishing life and is intimately related to people's ability to work, maintain positive relationships, and experience positive emotions (Ryff and Singer, 1998; Ryan and Deci, 2000; Diener et al., 2010; Seligman, 2012). Higher levels of wellbeing can recharge entrepreneurs' psychological resources such as optimism, resilience, and self-esteem and stimulate them to continue to persist in challenging tasks that others often consider impossible (Foo et al., 2009). This dynamic can become a force for positive change in society, which has positive effects on individual and social wellbeing (O'Neil and Ucbasaran, 2016). In recent years, entrepreneurship

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and management scholars have been questioning the importance of the well-being of the *ENTREPRENEUR* as a person (Uy et al., 2013; Shir, 2015; Shepherd and Patzelt, 2017; Stephan, 2018; Shir et al., 2018; Wiklund et al., 2017). The entrepreneur is first and foremost a “person”, therefore both his existential and logical-formal aspects must be considered. In order to achieve as much, the whole human being must be examined.

Several studies show that happier people have more satisfying jobs (Erdogan et al., 2012), tend to have a more psychologically fulfilling life (Helliwell et al., 2013) and are more likely to live a longer and healthier life (Chida e Steptoe, 2008; Diener e Chan, 2011; Wiest et al., 2011). They also tend to be more creative and productive as well as staying more socially connected (De Neve et al., 2013; Lyubomirsky, 2008). These benefits, in turn, flow back into their families, workplaces, and communities, creating a virtuous circle of wellbeing (Helliwell et al., 2013).

Well-being, in fact, is a word that should be considered as a composed word of “well” and “being”; it explains two main concepts: “being well” and “existing well” is a state that involves all aspects of being human. The Treccani dictionary, in fact, defines wellness as one “a state of good health that characterizes an individual’s life in a positive sense or even a pleasant feeling of satisfaction, of mental and physical fulfilment. The word well-being, finally, can be used as an invariable adjective to indicate something that gives a state of health, of satisfaction”. The root of well-being is the word “well,” which indicates being as operationally effective and healthy.

Purpose of the paper. Coherently with the theoretical framework, the purpose of this work is to propose and explore an anthropocentric perspective of entrepreneurship (from Greek *ἄνθρωπος*, *Anthropos* as “human being” and *κέντρον*, *kentron* that means “center”), based on the concept of harmony. Stemming from Latin “*prahendere*” which means “to take upon oneself”, “to take charge of”, the term “self”, includes both a self-care perspective, a condition of respect, and solicitude for the other; it includes also reciprocity in emotional relationships and cooperation in social relationships.

All these elements explain a wellbeing perspective, where, the word “well”, invokes the word “harmony” as the relational logic that generates all levels of aggregation of matter in which human beings are shaped. Starting from the subatomic elements, the relationship of which forms the atoms, molecules are born from the relationship of the latter, and in turn, from these, relating, are created the organelles that give birth to the cell. From here the tissues, organs, apparatuses and finally an organism endowed with mind and heart: human being. So, human being is an immense harmony of relationships, and the phenomenon that has been described is our life, the life of human beings and also the life of the entrepreneur (Ryff, 2019).

Methodology. In order to answer the research questions, the methodological approach of systematic literature review (SLR) is used with the aim of analysing the state of the art on the topic under investigation (Secundo et al. 2020; Kraus et al. 2020). SLRs are reviews conducted in a systematic manner using an adopted procedure or protocol to guide data analysis, thus enabling transparent and replicable dissemination (Lim et al. 2022a; Kraus et al. 2020). According to Kraus et al. (2022), a SLR is a rigorous and relevant approach that produces knowledge, helps identify trends and research pathways, and potential future research. In more detail, according to Tranfield et al. (2003), this structured review method relies on filtering such that the process is replicable allowing bias in the results to be minimized. In this section, we summarize the main methodological steps suggested by previous studies (Dumay, 2010) with the aim of developing a systematic, transparent, and replicable 3D literature review methodology. Specifically, the first D requires the definition of the research questions, which, according to Massaro et al. (2016), is the preliminary step to conduct a SLR. In this study, some research questions were identified: what is the state of the art in the field of harmonic entrepreneurship? what are the main trends in the literature? what are the main themes on which to focus future research?

To answer these research questions, we move on to the second D, that is: Design a review protocol to determine the articles to be included and perform a comprehensive search of the material. For this work, the guidelines related to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2009) were followed in order to minimize errors in interpreting the results of the collected studies. Finally, going through the last D, a coding framework was developed. This approach was chosen to improve the value of the literature review results and minimize errors in interpretation (Fahimnia et al., 2015). The methodology chosen for the analysis is the bibliometric methodology (Kraus et al., 2022).

Documentary and bibliographic analysis was carried out using the Web of Science platform “a database of bibliographic citations from multidisciplinary areas, pertaining to journals in medical, scientific and social sciences, as well as humanities disciplines,” to retrieve all relevant documents on the topic (Identification). The material search phase was conducted in February 2023.

The first step consisted in searching for documents containing all the words needed to answer the search questions. In the query, the following keywords were entered for the Title section: “well*” and “Entrepreneur*” and in the Topic section the word “Harmonic.” The search returned 289,764 documents. The next step was to limit the analysis to the following categories: Business, Management, Psychology Multidisciplinary, Economics, Social Sciences Interdisciplinary. In the attempt to make the bibliometric analyses even clearer and refine the search, a series of filters were used. These made it possible to select only English-language papers, per journal of particular quality (example ABS 4*,4,3) without specifying a particular time interval. Key conditions for inclusion of a paper depended on whether it dealt with entrepreneurship and well-being or similar concepts. Using the above search criteria, 122 papers were extracted from the database.

Bibliometric analysis allows us to identify changes, both in number and content, within the research topic and provide useful data for assessing scholarly activity in a particular field through keyword analysis and the application of

statistical methods (Morris and Van der Veer Martens, 2008; Van eck and Waltman, 2010). Indeed, according to Cobo et al. (2011), scientific mapping, is an important research topic in the field of bibliometrics. The Bibliometrix package of R-studio software was chosen to carry out the analysis since it is an open-source tool that includes all major methods of bibliometric analysis and science mapping (Aria and Cuccurullo, 2017).

Results. To reach our purpose, it is important to visualize the structural and dynamic aspects of scientific research, made possible by certain types of bibliometric analysis (Börner et al., 2003; Noyons et al., 1999).

Among the most important of these the conceptual structure is included, which explains the main themes covered by a field by representing them in a well-defined scheme. However, we also find Co-citation (Small, 1973) and bibliographic coupling (Kessler, 1963) used to analyse the intellectual structure in a particular field of literature. For clarity, bibliographic coupling is a fixed and permanent relationship because it depends on the references contained in the paired documents, while co-citation varies over time (Jarneving, 2005). Starting with the conceptual structure, the relationship between concepts or words in a set of publications is analyzed. The thematic table was generated, which consists of 4 different quadrants, each of which refers to a particular theme that needs to be defined. To construct the table, two parameters were considered: Centrality (X-axis) and Density (Y-axis) (Callon et al., 1991). Motor Themes are characterized by high centrality and high density; these are the themes that have gradually become more prominent and are the “leading” research themes. Basic Themes are characterized by high centrality and low density. Emerging Themes have low density and low centrality, as they deal with underdeveloped and marginal topics. Finally, Niche Themes have high density (highly developed) and low centrality, due to the fact that they are very isolated themes. As research themes have evolved over the years, the entire time frame of analysis was divided into two, using 2019 as the “cutting year.”

Authors’ keywords were used as the discriminant of analysis and taking about 250 words as the order of analysis.

In the first period, until 2019, the “Motor” themes mainly concern the sphere of subjective well-being, happiness and psychological well-being (psychological well-being, well-being, subjective well-being, happiness, life satisfaction). The theme related to well-being in the “social” perspective is counted among the emerging themes (social entrepreneurship) while entrepreneurial success is niche (business success).

From 2000 onward, the motor themes concern various factors related to the emotional and personal sphere (family support, opportunity entrepreneurship, opportunity recognition, self-determination theory, social entrepreneurship, national well-being, social capital, job satisfaction, autonomy, entrepreneurial stressors). In this period, the aspect related to “prosocial” motivation (entrepreneurial exit intention, gender, prosocial motivation, poverty, women), becomes an emerging theme, highlighting how in the post covid period, issues related to well-being in its “social and ethical” meaning (Eudaimonic, subjective well-being, wellbeing, covid-19, psychological well-being) become established.

While, concerning the analyses on intellectual structure, they highlight the relationships between nodes, which can refer to articles, authors and sources. The Co-citation network related to the papers resulting from “Web of Science”, in order to create the different clusters, at least 6 citations were considered, for a total of 9310 citations. The analysis, developed returned three clusters, referring to different research topics:

- the first includes all contributions in the literature that analyze the emotional aspect and stress management (Cardon, 2009; Baron, 2011; Cardon, 2015);
- the second clusters the works that address issues related to the sphere of personality (Stephan, 2018; Diner, 1984; Ryff, 1989; Wiklund, 2019);
- the third the “Mental health” (Stephan 2018; Uy ma 2013; Ryan 2001).

Regarding the results of the Coupling analysis, (in which the selected papers had at least 6 citations and the clusters were composed by imposing 20 as the minimum number of papers contained in each of them). The analysis returned two main clusters, each referring to future research trends on which the literature is targeting. Specifically:

- The first cluster can be associated with papers that focus on the theme of “well-being,” from the perspective of “physical health and stress management” (Stephan, 2018; Wiklund, 2019);
- The second cluster fits with the theme of “social well-being” (O’Neil and Ucbasaran, 2016; Uy, 2012; 2013).

On the basis of results, it is possible to define a new construct, that is the “harmonic entrepreneur,” one who tends to a balance that involve mind-body relation and mind-heart relation, and operates with passion, to create social value.

Research limitations. This is a first contribution within a larger project, that is in progress. Thus, other keywords can be taken into account in the future and also possible challenges and empirical applications should be proposed.

Managerial implications. The entrepreneur must allow himself/herself to be humanly imperfect, to express how he/she feels, to simply be human, and to prioritize his/her psycho-emotional well-being. From one side the Entrepreneur should be careful of his mental and physical health and the literature is developing different contributes on this field (Cucino et al., 2021).

Exercise and physical activity improve physical and mental well-being. Distraction from stressful events produces important benefits to the individual. For instance, some studies have shown that physical activity reduces anxiety and improves a person’s state of mood (Petruzzello et al., 1991; Raglin & Morgan, 1985); exercise-induced mood improvement and anxiety reduction are linked to the release of β -endorphins, both at the central nervous system level and at the peripheral nervous system level. In addition, reasonable values of T and C improve well-being and even make the entrepreneur more alert to the recognition of opportunities.

From the other side the entrepreneur should “d well” in terms of ethical behaviours. However, we think that ethics must be endogenous to the harmonic-entrepreneur who in the relationship with himself and others establishes a healthy

relationship based on positive values: friendship, love, goodness, common sense, consistency, courage, education, loyalty, fraternity, kindness, gratitude, loyalty, honesty, wisdom, sincerity. We need to rediscover the deep meaning of Kantian thought. According to Kant, in fact, morality corresponds to the set of values of an individual, of a group, while ethics, besides sharing this set, also contains the speculative reflection of norms and values. The inner beauty of the entrepreneur is thus projected into the surrounding world, which is why we need to “take care” of the harmonic-entrepreneur and he in turn has a duty to protect nature and other living beings. Thus, “if we want to rebuild hope, we must abandon the languages, gestures and choices inspired by selfishness and learn the language of love, which is “taking care.” Caring is a new language that goes against these languages of selfishness. This is the commitment: to take care of our lives, our time, our souls; to care for creation and the environment in which we live; and, even more, to care for our fellowmen, those whom the Lord has placed next to us, as well as our brothers and sisters who are in need and call for our attention and compassion. Even of ourselves” (Pope Francis).

A proper balance between the mind-body perspective and the mind-heart perspective generates in the entrepreneur a harmony of life that is reflected in his or her business activities and life in general.

Originality of the paper. This paper, through a systematic literature review with bibliometric methodology, proposes a new entrepreneurial perspective, multidisciplinary in nature, which combines the concept of being well (healthy) with the concept of doing good. Therefore, being well in order to generate good, with passion, leads to a feeling of wellbeing and harmony and enables opportunities that generate paths of “rebirth,” from the crisis, leading to the true economic and social sustainability of the enterprise that should be cherished by all entrepreneurs. It is important to note, that to the limit of our knowledge, this work represents one of the first systematic literature reviews with bibliometric methodology on the topic of entrepreneurship that takes into consideration the entrepreneur, the mind-body well-being perspective and entrepreneurial activity.

Keywords: harmony; entrepreneurship, well-being, ethics, neuroscience

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Capitale umano, sociale e finanziario e differenze di genere nelle decisioni di uscita imprenditoriale

NUNZIA PETACCA* NADIA DI PAOLA*

Inquadramento della ricerca. Nonostante sia stata trascurata fino a qualche tempo fa, l'uscita è una componente critica del processo imprenditoriale ed è uno dei domini distintivi della ricerca sull'imprenditorialità (DeTienne, 2010; DeTienne e Cardon, 2012; Wennberg et al., 2010). DeTienne definisce l'uscita imprenditoriale come il "processo mediante il quale i fondatori di aziende private lasciano le aziende che hanno contribuito a creare" (Cit De Tienne, 2010: 203).

Nella letteratura accademica, l'uscita imprenditoriale è un argomento indagato da parte dei ricercatori, i quali riconoscono in maniera sempre maggiore, che l'imprenditorialità è un processo continuo (DeTienne et al., 2012; Gimeno et al., 1997; Hessels et al., 2011; Ryan, e Power, 2012; Salvato et al., 2010; Wennberg et al., 2010). In questo senso, la decisione di uscita non è necessariamente una scelta permanente di cessazione dell'esperienza imprenditoriale, ma può preludere all'inizio di successive esperienze imprenditoriali (Stam et al., 2010). Inoltre, gli studi recenti sottolineano che gli imprenditori possono decidere di uscire dall'impresa per ragioni anche differenti e non necessariamente collegate alla performance di tipo economico-finanziario (DeTienne e Cardon, 2012; Mayer e Goldstein, 1961; McGrath, 2006; Ronstadt, 1986; Sarasvathy et al., 2013; Taylor, 1999). Una sintesi dei principali studi sull'uscita imprenditoriale è presentata in Tabella 1.

Tab.1: La letteratura sulle strategie di uscita dell'imprenditore

Autori	Titolo	Principali evidenze in letteratura
Chirico 2020	<i>The persistence of family firms: How does performance threshold affect family firm exit?</i>	Nelle imprese familiari, l'imprenditore è condizionato spesso da fattori quali l'attaccamento emotivo, l'orientamento al lungo termine e i forti legami familiari (Akhter et al., 2016; Chirico et al., 2020). Gli imprenditori delle imprese familiari, pur avendo soglie di performance più basse, sono meno propensi alla definizione di strategie di uscita imprenditoriale.
Delmar and Shane, 2004, Pe'er and Vertinsky, 2008	<i>Systematic Review of Research on Exit: a Bibliometric Analysis and Future Directions</i>	L'uscita può essere studiata a livello individuale (imprenditore), a livello di team e a livello aziendale. Gli imprenditori possono uscire dalle aziende che hanno fondato ma queste ultime continuano a operare. Le imprese possono cessare l'attività, ma i loro fondatori (imprenditori) possono continuare a svolgere la loro attività imprenditoriale fondando una nuova impresa
DeTienne 2010	<i>Exit Strategies in Family Firms: How Socioemotional Wealth Drives the Threshold of Performance</i>	L'uscita dall'impresa è il processo attraverso il quale i proprietari/imprenditori "lasciano le imprese che hanno contribuito a creare..." ed è necessario comprenderne le cause, poiché ha effetti sull'impresa, sulla famiglia, sul settore e sull'economia in generale
Gimeno 1997	<i>The fallacy of "only the strong survive": The effects of extrinsic motivation on the persistence decisions for under-performing firms.</i>	Teoria della soglia. L'imprenditore con una soglia di performance bassa potrebbe persistere, mentre un imprenditore con una soglia di performance alta tende a uscire
Petty1997	<i>Entrepreneurial exit as a critical component of the entrepreneurial process: Theoretical development</i>	La strategia di uscita è paragonabile all'acquisto di azioni quotate in borsa da parte di un investitore. Gli investitori acquistano azioni di una società e ne osservano l'aumento di valore nel tempo; solo quando le azioni vengono vendute, i profitti (o le perdite) vengono effettivamente riconosciuti
Rachida J., DeTienne, Sieger P. 2014	<i>Failure or voluntary exit? Reassessing the female underperformance hypothesis</i>	La strategia di uscita è associata alla sopravvivenza dell'impresa. Alcuni studi hanno rilevato che i tassi medi di sopravvivenza delle imprese di proprietà maschile sono superiori del 4-6% rispetto a quelli delle imprese di proprietà femminile. Le ragioni sono: mancanza di accesso a risorse come i finanziamenti, mancanza di esperienza manageriale precedente per le donne
Stam E. Thurik R. Van der Zwan P. 2010	<i>What do we really mean when we talk about "exit"? A critical review of research on entrepreneurial exit</i>	La strategia di uscita è "la decisione di lasciare una carriera imprenditoriale" e rappresenta un cambiamento importante nell'attività lavorativa e/o nell'identità lavorativa. Alcuni autori hanno osservato che sia l'ambiente competitivo che quello istituzionale influenzano l'uscita dall'impresa
Wennberg 2014	<i>Entrepreneurial Exit Strategies</i>	La strategia di uscita è il processo con cui l'imprenditore intende lasciare l'azienda e può essere legata alle motivazioni personali dell'imprenditore. Gli imprenditori escono sia da imprese finanziariamente in difficoltà (liquidazione e vendita) sia da imprese con buone performance
Wiklund 2003	<i>The impact of motivation and causation and effectuation approaches on exit strategies</i>	La strategia di uscita di un imprenditore dipende dalla sua motivazione. La motivazione è l'attivazione di un comportamento orientato agli obiettivi.

Fonte: elaborazioni dell'autore

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DeTienne et.al (2012) identificano tre strategie di uscita: *stewardship*, *raccolta finanziaria* e *cessazione volontaria*. Nel dettaglio una strategia di uscita basata sulla *stewardship* si riferisce ad una decisione guidata da un "senso continuo di obbligo o dovere verso gli altri" (Cit. Hernandez, 2012, p. 174) prevedendo continuità aziendale e cura dell'azienda, della famiglia e dei dipendenti (DeTienne et al.2012). La *successione familiare*, vale a dire, il processo attraverso il quale i proprietari della famiglia trasferiscono la proprietà della loro azienda a uno o più altri membri della famiglia, spesso i figli dei proprietari (Sharma, Chrisman e Chua, 2003) è una comune strategia di uscita basata sulla *stewardship* (DeTienne et al.2012).

Una strategia di uscita basata sulla *stewardship* fa sì, che coloro che la perseguono, sono disposti a sacrificare i guadagni finanziari personali al fine di promuovere la visione a lungo termine della famiglia e tutelare il benessere a lungo termine degli altri stakeholder (Miller, Le Breton-Miller e Scholnick, 2008.)

Una strategia di uscita basata sulla *ricompensa finanziaria* è una strategia basata sui massimi rendimenti potenziali per i proprietari (Babich e Sobel, 2004; DeTienne et al., 2012). Coloro che perseguono una strategia basata sulla *ricompensa finanziaria* tendono a favorire i ritorni finanziari personali rispetto ad altri obiettivi.

Per concludere una strategia di uscita basata sulla *cessazione volontaria* è quella che si riferisce ad un certo punto nel futuro allo scioglimento di un'impresa e alla liquidazione delle sue attività (DeTienne et al.2012).

Le prime ricerche sull'imprenditorialità tendevano a presumere che l'uscita fosse il risultato di scarsi risultati (Boden e Nucci, 2000; Caves, 1998). La letteratura che analizza le dinamiche di uscita imprenditoriale mostra, invece, che le ragioni alla base di tale scelta sono variegata. Il recupero dell'investimento iniziale (Watson e Everett, 1996); la riduzione del rischio in capo all'imprenditore (McGrath, 1999), la disponibilità di un'alternativa lavorativa interessante (Bates, 2005; Taylor, 1999), o anche le motivazioni personali (Harada, 2007) sono tra queste.

Gli studi sull'uscita imprenditoriale hanno individuato due principali categorie di ragioni che conducono all'uscita imprenditoriale sulla base della volontarietà della decisione.

L'uscita involontaria è essenzialmente dovuta ad una scarsa performance economico-finanziaria ed è un evento ampiamente affrontato nella letteratura (Ucbasaran et al., 2013). Essa comprende sia il fallimento in senso stretto, in cui l'impresa ha completato e registrato l'evento fallimentare (Ucbasaran et al., 2013; Balcaen et al., 2012; Taylor, 1999), sia tutte le fattispecie nelle quali la performance dell'impresa non soddisfa "una soglia minima di sostenibilità stabilita dall'imprenditore" (Ucbasaran et al., 2013, p. 175). L'uscita volontaria riguarda l'ipotesi in cui l'imprenditore deliberatamente decide di interrompere la sua esperienza imprenditoriale nell'impresa (Justo et al., 2015). In questo caso, le ragioni che lo spingono sono riconducibili all'ipotesi di uscita per motivi personali e di uscita per la possibilità di cogliere altre opportunità professionali/finanziarie (Justo et al., 2015). Questo gruppo di motivazioni tra l'altro appare alquanto eterogeneo. Esso comprende le scelte di natura professionale, ad esempio relative alle opportunità alternative di carriera (Justo et al., 2015).

Inoltre, esso comprende le scelte guidate da ragioni non lavorative, tra le quali il pensionamento (Harhoff et al., 1998); le questioni relative alla struttura familiare (es. matrimonio, divorzio, problemi di cura dei bambini, assistenza ai genitori che invecchiano) (Marlow e Swail, 2014); problemi di salute (Harada, 2007) o un cambiamento nella motivazione personale dell'imprenditore (Van Praag, 2003).

Tra le caratteristiche individuali dell'imprenditore, quella del genere in letteratura appare rilevante per spiegare molteplici aspetti e fasi dell'esperienza imprenditoriale (Justo et al., 2015; Marlow e Swail, 2015). Innanzitutto, la letteratura si sofferma su alcuni aspetti che limitano la probabilità che le donne intraprendano la carriera imprenditoriale. Gli studi dimostrano inoltre che le donne sono attente al bilanciamento del loro ruolo professionale con la vita privata (Boden, 1999; Bonet et al., 2013; Caputo e Dolinsky, 1998; Brush, 1992). Esse inoltre mostrano una diversa percezione delle opportunità (DeTienne e Chandler 2007), delle difficoltà (Langowitz e Minniti 2007) e persino del rischio associato all'esperienza professionale (Wagner 2007). Inoltre, le donne sembrano avere un diverso atteggiamento nei confronti dell'impegno imprenditoriale, tendendo ad assumere una visione più olistica dell'impresa e a non separare gli obiettivi economici da quelli collegati al benessere dei propri dipendenti o allo sviluppo della società (Hechavarria et al., 2012; Jennings e Brush, 2013; Carter et al., 2003; Cliff, 1998; Brush, 1992; Di Paola, 2021).

Infine, esse sovente percepiscono maggiori difficoltà nella capacità di gestire gli aspetti finanziari e contabili (Anna et al. 2000; Díaz-García e Jiménez- Moreno 2010; Wilson et al., 2007) e tendono ad ottenere minori dotazioni di risorse, sia finanziarie che sociali rispetto ai loro omologhi maschi (Powell e Eddleston, 2013).

Tutto questo scoraggia e limita l'avvio del percorso imprenditoriale per le donne.

Se il genere incide sui motivi per stabilire o avviare un'attività imprenditoriale, alcuni studiosi avanzano l'ipotesi che che questo aspetto possa influenzare anche le successive intenzioni o decisioni di uscita imprenditoriale (Marlow e Swail, 2015), meritando maggiori approfondimenti (Justo et al., 2015; Taylor, 1999; Yang e del Carmen Triana, 2019).

La letteratura si è concentrata sulla performance peggiore delle imprese guidate da donne rispetto a quelle guidate da uomini (Due Rietz e Henrekson (2000); Boden e Nucci, 2000), presumendo che le donne imprenditrici abbiano maggiori probabilità di fallire rispetto ai loro coetanei maschi. In questo modo si è rafforzata la dominante "ipotesi di sottoperformance femminile" nell'imprenditorialità (Du Rietz e Henrekson, 2000; Rosa et al., 1996). Tale ipotesi fa riferimento a una letteratura che, almeno a livello aggregato, ha rilevato che "le imprenditrici tendono a performare peggio rispetto alle loro controparti maschili" (Du Rietz e Henrekson, 2000, p. 1).

Le dinamiche di uscita imprenditoriale però sono state solo limitatamente affrontate in letteratura, sebbene gli studi fatti abbiano mostrato che alcune differenze rilevanti sussistono, ad esempio quando la donna imprenditrice intravede una opzione lavorativa alternativa o la possibilità di ottenere una remunerazione interessante (Justo et al., 2015), o

anche quando le condizioni personali a contorno rendono più difficoltosa la prosecuzione dell'esperienza, ad esempio per esigenze familiari o nel caso di conflitti con i cofondatori (Justo et al., 2015).

Obiettivo del paper

Gli studi sulle strategie d'uscita imprenditoriale hanno esplorato le connessioni tra la scelta del percorso di uscita e il capitale umano e sociale dell'imprenditore (DeTienne e Cardon, 2012; Kaciak et al., 2020; Van Teeffelen e Uhlaner, 2013), indagando sulle implicazioni finanziarie e psicologiche per l'imprenditore (Rubenson e Gupta, 1996).

L'attuale ricerca sull'uscita imprenditoriale tende ad esaminare le intenzioni di uscita con riferimento prevalente al capitale umano, considerando aspetti come quelli del genere, dello stato civile e del sentimento che tiene legato l'imprenditore alla sua azienda (DeTienne Cardon 2012; Gimeno et al. 1997; Justo e DeTienne 2008; Justo et al. 2015; Lee e Lee 2015; Wennberg et al. 2010; Williams et al. 2013).

Secondo Becker (1975), per capitale umano si fa riferimento alle conoscenze e alle abilità degli individui dal punto di vista dell'istruzione, dell'età o precedenti esperienze imprenditoriali che rappresentano un vantaggio in più. Il capitale sociale è definito come la capacità da parte degli individui di trarre vantaggi dalle strutture sociali, dalle reti e dai loro membri (Davidsson e Hong 2003). L'influenza di tali reti sociali è connaturata al capitale sociale, pertanto dovrebbe essere considerata nei modelli che hanno come obiettivo quello di esplorare e di prevedere le intenzioni di uscita imprenditoriali. (Kaciak et al., 2021).

Per concludere il capitale finanziario si riferisce alle risorse finanziarie a disposizione dell'impresa (Cooper et al., 1994). Per l'avvio di una nuova impresa, il capitale finanziario è un fattore chiave perché le imprese nella fase iniziale affrontano una grande incertezza (Cooper et al. 1994; Huang 2016), e scontano le liabilities of smallness e newness (Stinchcombe, 1965).

Il capitale umano, sociale e finanziario, dunque, sono stati descritti in letteratura come driver dell'uscita imprenditoriale in alcuni lavori indicati in tabella 2.

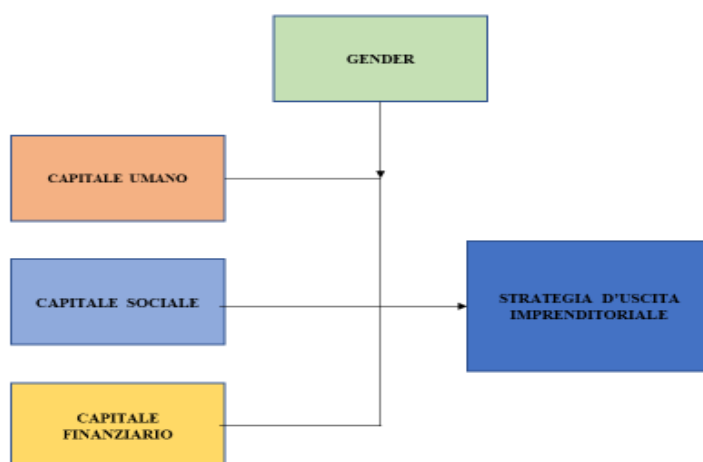
Tab.2: Capitale umano, sociale e finanziario in letteratura

Antecedenti	Riferimenti
Capitale Umano	<p>Strategie di apprendimento (Honig, 2001);</p> <p>Processi di identificazione delle opportunità;</p> <p>Struttura del capitale finanziario (Davidsson e Honig, 2003);</p> <p>Struttura del capitale finanziario (Bates, 1990) e performance (Honig, 1998; Lerner, Brush and Hisrich, 1997);</p> <p>Livello di istruzione (DeTienne e Cardon 2012; Justo e DeTienne 2008; Justo et al. 2015);</p> <p>Età dell'imprenditore (Morin e Suarez, 1983; Harada, 2004);</p> <p>Costi opportunità delle imprese per la carriera professionale dell'imprenditore (es. Gimeno et al., 1997);</p> <p>Sfide che l'imprenditorialità pone all'imprenditrice nella sua vita personale (ad esempio, Marlow e Swail, 2014);</p> <p>Esperienza imprenditoriale simile sotto forma di vendita di un'attività precedente (Van Teeffelen, 2010).</p>
Capitale Sociale	<p>Ruolo dei fattori sociali nel plasmare le intenzioni di uscita degli imprenditori (Kreer et al. 2015);</p> <p>La potenziale utilità dei network sociale sulle intenzioni di uscita imprenditoriali (Wennberg e De Tienne, 2014);</p> <p>L'Effetto dei network sociale sull'uscita imprenditoriale nelle imprese familiari (Kreer et al., 2015).</p>
Capitale Finanziario	<p>Influenza delle risorse finanziarie iniziali e delle risorse strategiche sulla strategia di uscita di un imprenditore (DeTienne e Cardon, 2008);</p> <p>Diversa propensione degli uomini e delle donne a utilizzare fonti di finanziamento interne anziché fonti di finanziamento esterne (Bennet e Dann, 2000; Haynes e Haynes, 1999).</p>

Fonte: elaborazioni dell'autore

Alla luce della letteratura presentata, tuttavia si evidenzia che i capitali umano, sociale e finanziario raramente sono stati considerati simultaneamente dagli studiosi e difficilmente adottando una prospettiva di genere. Pertanto, il presente contributo ha lo scopo di indagare come il capitale umano, sociale e finanziario simultaneamente possano condizionare la possibile strategia di uscita imprenditoriale delle donne imprenditrici, come illustrato in figura 1.

Fig. 1: Framework concettuale



Fonte: elaborazioni dell'autore

Metodologia. Lo studio è in corso di svolgimento e prevede il coinvolgimento di imprenditori e imprenditrici basati in Italia.

Nel contesto italiano gli imprenditori e le imprenditrici tendono ad essere rappresentati in modo opposto: gli imprenditori maschi si riferiscono a sé stessi privilegiando gli aspetti schumpeteriani ed il loro ruolo nelle reti finanziarie; le donne, al contrario privilegiano il punto di vista culturale ed etico (Castagnoli, 2007). Nel Rapporto "Imprenditoria femminile 2021" di Unioncamere, l'Industria della Moda è posizionata al 2° posto tra i settori a maggior densità imprenditoriale femminile, ed è quello su cui il presente studio si focalizza. Secondo le stime elaborate dal Centro Studi Confindustria, il 2022 è stato un anno positivo per il tessile made in Italy, che ha chiuso con un fatturato di circa 8,1 miliardi di euro (+32,4% sul 2021). Anche il raffronto con i livelli pre-pandemici indica un incremento: il fatturato settoriale risulta infatti superiore del +7,1% rispetto al livello raggiunto nel 2019.

La ricerca coinvolge gli imprenditori di imprese localizzate sul territorio italiano, identificate tramite il registro delle imprese della Camera di Commercio.

Per selezionare le imprese si sono presi in considerazione parametri come: l'età e la dimensione dell'impresa, poiché è stato dimostrato che questi due aspetti influiscono sulle performance e possono condizionare la strategia di uscita dell'imprenditore (DeTienne e Cardon, 2008).

Il numero di imprese selezionate per lo studio è pari a 30, ripartite per genere in modo da garantire il bilanciamento complessivo di genere tra gli intervistati.

Il primo contatto avviene via mail, e in caso di risposta affermativa il partecipante allo studio è invitato per un'intervista a distanza. La raccolta dei dati avviene mediante interviste semi-strutturate, condotte da uno o più degli autori. Le interviste sono registrate, al fine di procedere alla trascrizione sulla quale si basano le elaborazioni (Tesch, 1990). L'intervista consta di domande aperte e discussioni guidate dall'intervistatore. Le domande si concentrano su età, livello di istruzione, esperienza imprenditoriale, capitale iniziale investito, social network ed eventuale pianificazione della strategia di uscita.

Tab. 3: Tematiche esemplificative affrontate durante l'intervista

Tematiche	Antecedenti
Livello di istruzione ed eventuali corsi di imprenditorialità frequentati nel percorso di studi	Capitale Umano
Esperienze imprenditoriali pregresse	
Bilanciamento tra impegni imprenditoriali e familiari	Capitale Sociale
Influenza delle reti sociali	
Difficoltà nel reperimento delle fonti di finanziamento	Capitale Finanziario
Se l'uscita imprenditoriale viene presa in considerazione come possibile strategia	Uscita imprenditoriale
Che tipo di strategia d'uscita si intende perseguire	

Fonte: elaborazioni dell'autore

La ricerca ha natura qualitativa, e adotta un approccio deduttivo. L'elaborazione dei dati avviene attraverso analisi tematica. Essa è uno strumento utilizzato nella ricerca qualitativa, perché garantisce il rigore e l'affidabilità dei

risultati, grazie all'uso delle interviste che permettono di rispondere alla domanda di ricerca (Nowell et al., 2017). Braun e Clarke (2006) hanno delineato la procedura adottata in questo studio, che è basata sulla conoscenza approfondita dei dati raccolti, la codificazione degli stessi, in modo da avere un raggruppamento delle idee analizzate, un'eventuale revisione, con l'obiettivo di produrre un report finale che riporti le specificità di ciascun tema trattato.

Nel nostro studio consideriamo tre variabili del capitale umano che possono essere correlate ad una specifica strategia di uscita: esperienza imprenditoriale, età e istruzione (Wennberg et al., 2010). Alcuni studi hanno dimostrato che per le donne era meno probabile: ricevere un'istruzione adeguata (Belcourt et al., 1991; Hisrich e Brush, 1984; Watkins e Watkins, 1983) ed avere avuto un'esperienza manageriale, industriale e imprenditoriale rilevante (Belcourt et al., 1991; Hisrich e Brush, 1984; Watkins e Watkins, 1983).

Per il capitale sociale consideriamo le reti sociali in quanto si può presumere che l'imprenditore che decide di effettuare una strategia d'uscita presti attenzione e tragga vantaggio da tali reti (Kaciak et al., 2021). In tal senso le imprenditrici potrebbero potenzialmente ridimensionare il loro impegno imprenditoriale se la sfera familiare ed aziendale sono in conflitto (Jennings e McDougald, 2007; Marlow e Swail, 2015).

Per il capitale finanziario, abbiamo considerato il capitale inizialmente investito in quanto nella fase iniziale è il più difficile da raccogliere (Prisciotta e Weber 2005). Studi hanno confermato che le donne sono più propense degli uomini a utilizzare fonti di finanziamento interne, come risparmi personali (Bennet e Dann, 2000; Haynes e Haynes, 1999).

Risultati attesi

Il rapporto tra impresa e donne imprenditrici è studiato dagli anni '80, prendendo in considerazione il livello di istruzione (Brush 1992; Singh et al. 2001). Alcuni ricercatori sono giunti alla conclusione che le donne imprenditrici sono più istruite su argomenti che hanno poco a che fare con le loro funzioni e, soprattutto, sono poco formate in campo finanziario (Sexton e Bowman-Upton 1990; Jafari et al. 2011). Rispetto al capitale finanziario le donne ricevono un trattamento economico meno favorevole rispetto a quello degli imprenditori quando trattano con i finanziatori e altri fornitori di risorse (Belcourt et al., 1991; Goeffee & Scase, 1983; Hisrich et al., 1984; Humphreys et al., 1981; Stevenson, 1986). Alla stregua del capitale finanziario, anche nella sfera personale possiamo cogliere degli elementi di disparità di genere: il matrimonio aumenterebbe la probabilità che gli imprenditori escano dall'azienda per altre opportunità professionali/finanziarie mentre le donne imprenditrici per motivi personali, solitamente legati alla nascita dei figli, in quanto sono viste come custodi della famiglia (Blair Loy 2009; Ridgeway 2011).

Tab. 4: Gli antecedenti dell'uscita imprenditoriale in letteratura

Antecedenti	Impatto sull'uscita imprenditoriale
Capitale Umano	<p>Le donne imprenditrici sono complessivamente più istruite degli uomini (Brush 1992; Singh et al. 2001);</p> <p>Ipotesi sottoperformance femminile (Du Rietz e Henrekson, 2000);</p> <p>Le precedenti esperienze imprenditoriali diminuiscono la probabilità di uscita. (Taylor 1999)</p>
Capitale Sociale	<p>Il matrimonio fa sì che gli imprenditori escano dall'azienda per altre opportunità professionali/finanziarie mentre le imprenditrici per motivi personali, solitamente legati alla nascita dei figli. (Blair Loy 2009; Ridgeway 2011);</p> <p>Le imprenditrici potrebbero potenzialmente ridimensionare il loro impegno imprenditoriale se la sfera familiare ed aziendale sono in conflitto (Jennings e McDougald, 2007; Marlow e Swail, 2015);</p> <p>Le intenzioni di uscita di un imprenditore dall'azienda, possono essere influenzate da vari network, come quelli familiari, ma anche quelli legati ad amici, colleghi, collaboratori. (Lacap et al. (2018);</p> <p>Gli imprenditori che accettano il consiglio dei membri della famiglia probabilmente saranno più restii a uscire dall'impresa. (DeTienne 2010).</p>
Capitale Finanziario	<p>Le donne imprenditrici hanno meno probabilità di richiedere un prestito (Kon e Storey 2003);</p> <p>Una strategia attraverso la vendita è positivamente correlata alle risorse finanziarie o all'investimento iniziale totale (DeTienne, 2008).</p>

Fonte: elaborazioni dell'autore

Limiti della ricerca. Come la maggior parte delle ricerche, anche la nostra presenta dei limiti, ognuno dei quali apre ad opportunità per la ricerca futura. Il primo limite riguarda il set di imprenditori considerati nello studio. Il numero è limitato, compatibilmente con uno studio di tipo qualitativo, ma per un'analisi quantitativa tale numerosità andrebbe necessariamente aumentata. Il secondo limite è geografico, considerando appunto esclusivamente il territorio

italiano. Un'espansione ad altri territori potrebbe consentire di rafforzare quanto emerso dall'analisi o di evidenziare differenze dovute a variabili di contesto. Inoltre, dal punto di vista metodologico, la ricerca impiega un'analisi tematica; tale metodo presenta alcuni svantaggi, tra i quali la flessibilità e soggettività del ricercatore nel condurre l'analisi (Holloway e Todres, 2003). L'utilizzo di metodologie alternative, anche di tipo misto o quantitativo, su un campione più vasto di imprenditori, potrebbe portare a un consolidamento dei risultati ottenuti con questo studio.

Implicazioni manageriali. Nonostante negli studi di imprenditorialità l'uscita imprenditoriale costituisca un argomento centrale, le prime ricerche hanno indicato che meno del 50% degli imprenditori avesse una strategia d'uscita (Dahl, 2005; Holmberg, 1991). Considerato che l'evento dell'uscita imprenditoriale si verifica in tutte le imprese (Perry, 1997), la mancanza di programmazione di questo tipo di decisione può fare danneggiare le imprese. È dunque rilevante indagare sulle ragioni che spingono solo una parte degli imprenditori a programmare l'uscita imprenditoriale in modo strategico. Una differenza potrebbe essere rivelata dalle motivazioni e dai diversi obiettivi posti dall'imprenditore al momento della fondazione (Stewart et al., 2003; Morris et al., 2006; Wiklund et al., 2003).

In questo contributo, contestualizzando lo studio alla strategia di uscita imprenditoriale, in primo luogo si risponde alla necessità di fare chiarezza su come questa pratica possa essere vista come opportunità per l'imprenditore, distinguendo l'uscita imprenditoriale come fenomeno involontario, dovuto ad una sottoperformance aziendale, dall'uscita vista come un'opportunità di tipo strategico.

In secondo luogo, in questa ricerca, sosteniamo che capitale umano, sociale e finanziario hanno un impatto importante sulla strategia di uscita delle donne imprenditrici, pertanto analizziamo come queste risorse influenzano la loro potenziale decisione di uscita.

Originalità del paper. Il nostro studio fornisce diversi contributi teorici ed empirici alla ricerca sull'imprenditorialità, soffermandosi in particolare sulle strategie di uscita imprenditoriale delle donne imprenditrici. Il presente lavoro mette in connessione diverse forme di capitale, nello specifico quello umano, finanziario e sociale con la definizione di una strategia di uscita imprenditoriale, adottando una prospettiva di genere, e dunque approfondendo le principali differenze di genere nel consolidamento di questa strategia.

Parole chiave: strategia d'uscita; capitale umano; capitale finanziario; capitale sociale; imprenditorialità; genere

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La leadership imprenditoriale nel processo di cambiamento organizzativo delle start-up in un contesto di smart city

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Inquadramento della ricerca. Negli ultimi anni, molte organizzazioni hanno dovuto adattarsi alle richieste provenienti dall'esterno (Callan, 2013), poiché il continuo dinamismo del loro ambiente richiede continui adattamenti (Errida and Lotfi, 2021). Il cambiamento nelle organizzazioni è generato dalla necessità di sopravvivenza e di mantenere il proprio successo (Al-Haddad and Kotmour, 2015; Bercovitz and Feldman, 2008), intraprendendo nuove iniziative strategiche (Bercovitz and Feldman, 2008). Il cambiamento organizzativo comporta in un'organizzazione la transizione dallo "stato di status quo a uno stato sconosciuto e desiderato" (Hussain et al., 2018, pp.123-124).

Nel corso degli anni sono stati sviluppati diversi modelli per spiegare le fasi del cambiamento organizzativo. Il modello alla base delle teorie sul cambiamento all'interno di un'organizzazione è quello di Lewin (Burnes, 2004), secondo il quale il cambiamento organizzativo avviene in tre fasi: scongelamento, transizione e ricongelamento. Lo scongelamento determina la fase del cambiamento, dallo status quo alla nuova fase; la transizione è la fase del cambiamento effettivo verso nuovi obiettivi e, infine, la fase di ricongelamento in cui si ritorna allo status quo ma con nuovi comportamenti. Molti autori sostengono che l'approccio pianificato di Lewin al cambiamento organizzativo è semplicistico e per un mondo in cui il cambiamento organizzativo è un processo continuo (Burnes, 2004).

Nel nostro studio, per comprendere il cambiamento organizzativo all'interno delle start-up, seguiamo la filosofia del modello di Kotter. Un modello con più fasi rispetto a quello di Lewin, ben 8 fasi: stabilire un senso di urgenza sulla necessità di realizzare il cambiamento, in questa prima fase è richiesta una buona leadership che sarà in grado di mettere in atto le azioni "necessarie, audaci e rischiose" (Appelbaum et al., 2012) p.766; creare una coalizione guida, dei buoni leader saranno in grado di generare una nuova visione e guidare il cambiamento; sviluppare una visione e una strategia; comunicare la visione del cambiamento; dare potere all'azione ad ampio raggio; generare vittorie a breve termine difatti sarà compito del leader a stabilire gli obiettivi da raggiungere e premiare le azioni che permettono il raggiungimento della nuova visione. Sarà sempre compito del leader determinare "gli standard da emulare per il resto dell'organizzazione" (Eisenbach et al., 1999, p. 773); consolidare i guadagni e produrre ulteriori cambiamenti, il leader dimostrerà con i risultati che "il nuovo modo funziona" ed infine sarà necessario ancorare i nuovi approcci nella cultura aziendale (Kotter, 1995, 1996; Appelbaum et al., 2012; Errida and Lotfi, 2021).

Un ruolo fondamentale durante il cambiamento organizzativo è quindi svolto dal leader che, secondo Kotter, deciderà la visione, comunicherà la direzione intrapresa in modo chiaro per consentire la comprensione della nuova visione, motiverà e ispirerà i membri dell'organizzazione a realizzare il cambiamento (Kotter, 1990).

Nella letteratura esistente si evidenzia il legame presente tra l'imprenditorialità e la leadership, attraverso lo studio della "leadership imprenditoriale", ci sarà un reciproco vantaggio con la combinazione delle aree di studio di leadership ed imprenditorialità (Leitch and Volery, 2017). Indagheremo quindi, come la figura del leader imprenditoriale condurrà il processo di cambiamento organizzativo all'interno start-up.

Il contesto in cui vogliamo indagare il cambiamento organizzativo è quello delle smart city, poiché gli aspetti istituzionali possono generare cambiamenti organizzativi (Zucker, 1987), come le iniziative per le smart city (Barba-Sánchez et al., 2019). La scelta di indagare il cambiamento organizzativo delle start-up è stata determinata da una lacuna nella letteratura, per di più in un contesto di smart city caratterizzato da un'elevata attività imprenditoriale (Barba-Sánchez et al., 2019) "dove si sviluppano ecosistemi di start-up con collaborazioni tra policymaker, amministratori di smart city, imprenditori, venture capitalist e vari stakeholder che ne beneficiano" (Mitra et al., 2022) p.3.

Negli ultimi anni, molti comuni si stanno concentrando sullo sviluppo delle smart city (Bosdriesz et al., 2018) in grado di generare benefici istituzionali e socioeconomici (Costales, 2021) all'ecosistema imprenditoriale (Mitra et al., 2022). La smart city ha il compito di incoraggiare l'imprenditorialità e di creare un ecosistema adeguato alle start-up (Mitra et al., 2022).

Le smart city sono considerate quelle città che impiegano varie tecnologie digitali ed elettroniche per trasformare gli ambienti di vita con le tecnologie dell'informazione e della comunicazione (ICT) per soddisfare le esigenze dei mercati (Christofi et al., 2021) o dei cittadini (Chamran et al., 2020; Lai et al., 2020).

Le smart city sono sostenute dalla digitalizzazione e dalle innovazioni tecnologiche che portano a futuri benefici

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ambientali, sociali e finanziari (Bokolo, 2020). La digitalizzazione consiste in tecniche per migliorare i contesti sociali e istituzionali attraverso l'adozione o l'aumento dell'uso di tecnologie digitali o informatiche (Seth et al., 2020; Bokolo, 2021).

La digitalizzazione consente un ampio grado di interattività tra utenti e informazioni. Inoltre, il controllo delle informazioni ottenute attraverso la digitalizzazione è facilitato, poiché i dati possono essere trasferiti facilmente (Brennen and Kreiss, 2015). Il risultato della digitalizzazione nelle smart city può essere misurato attraverso l'aumento della qualità della vita dei cittadini, fornendo così un ritorno sugli investimenti (Serrano, 2018). Inoltre, la trasformazione digitale ha permesso alle smart city di acquisire conoscenza e comprensione delle criticità, ottenendo così un vantaggio competitivo rispetto alle città non digitalizzate.

Un ulteriore aspetto della smart city da considerare è la governance. Secondo la letteratura, la governance gioca un ruolo fondamentale nelle smart city, poiché “le preferenze divergenti dei cittadini si traducono in scelte politiche” (Kohler-Koch, 1999; Meijer, 2018) p. 2. All'interno delle smart city, il coinvolgimento dei cittadini è fondamentale (Savoldelli et al., 2014) per la creazione di valore pubblico e la sua gestione (Aversano et al., 2013; Castelnovo et al., 2016). Attraverso la governance, sarà possibile rispondere alle esigenze dei cittadini, che influenzeranno il processo decisionale delle istituzioni con l'obiettivo di allocare le risorse in modo efficiente (Castelnovo et al., 2016). Una governance inadeguata non permetterà la trasformazione di una città in una smart city (Manville et al., 2014).

Secondo la letteratura, “la teoria istituzionale in un contesto di Smart city postula che la governance sia un importante elemento costitutivo di una SC funzionante” (Ruhlandt, 2018, p.2). Per capire quale sia l'influenza della governance delle smart city sull'attività imprenditoriale, è necessario identificare le principali dimensioni che determinano la governance della città, un modello più comunemente indicato come “Smart Governance” (Bolívar, 2016). In letteratura si afferma che le dimensioni della Smart Governance sono gli stakeholder, le strutture e le organizzazioni, i processi, i ruoli e le responsabilità, la legislazione e le politiche, la tecnologia e i dati, e infine le modalità di scambio (Ruhlandt, 2018).

È quindi fondamentale capire come la digitalizzazione e gli aspetti della governance influenzino il cambiamento organizzativo, analizzando il ruolo della leadership imprenditoriale.

La digitalizzazione e le tecnologie adottate nelle smart city generano dati che aiutano le imprese a esplorare nuove opportunità (Kummitha, 2019). Il contesto della smart city permetterà l'utilizzo e la sperimentazione di nuove tecnologie (Hämäläinen and Tyrväinen, 2018; Sarma and Sunny, 2017; Hämäläinen, 2020). L'utilizzo di tecnologie all'interno di alcune aree d'impresa e la trasformazione digitale determinano importanti cambiamenti nelle attività aziendali (Bokolo, 2020). Attraverso la digitalizzazione le organizzazioni saranno in grado di ottenere maggiore accessibilità alle informazioni in maniera trasparente, determinando una modernità delle organizzazioni, permettendo inoltre una maggiore analisi della conoscenza interna dell'organizzazione (Kuusisto, 2017). La letteratura esistente mette in evidenza come la digitalizzazione all'interno delle smart city influenza la gestione delle necessità dei cittadini, non approfondendo come, l'aspetto della digitalizzazione delle smart city se possa e come possa influenzare il cambiamento all'interno delle organizzazioni.

L'adozione delle ICT negli aspetti di governance ha portato alla costituzione dell'e-governance creando una maggiore interazione tra governo, imprese e cittadini, con l'obiettivo di semplificare e migliorare gli aspetti democratici, commerciali e governativi (Backus, 2001).

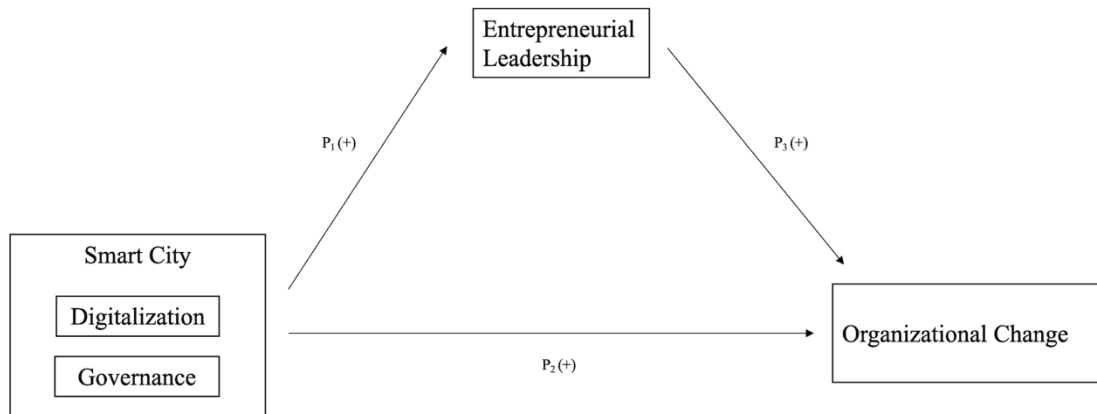
L'interazione tra il governo ed enti con organizzazioni private è facilitata grazie all'e-governance, dove le organizzazioni private possono avere accesso a regolamenti, leggi, requisiti per la loro attività imprenditoriale, inoltre è possibile creare una partnership tra governo industria per iniziative ad hoc oppure collaborazioni tra aziende per portare a termine progetti ed attività (Gil et al., 2018). L'obiettivo è di investigare se e come l'e-governance ha determinato cambiamenti organizzativi all'interno delle start-up attraverso le possibili partnership che la piattaforma e-governance permette di incontrare, ed in che modo le stesse organizzazioni si adattano all'utilizzo dell'ITC nei servizi di e-governance.

Ulteriori fattori da tenere in considerazione per il cambiamento organizzativo nelle start up, sono le iniziative intraprese dalle smart city, combinando condizioni e contesti locali, generando un impatto su aspetti di governance, persone, comunità, economia, ambiente e infrastrutture, con l'obiettivo di creare progetti per rendere una città intelligente (Griffith, 2001). Si è riscontrato un cambiamento nella cultura organizzativa attraverso studi empirici rivolti a quattro smart city nel Nord America relativi all'influenza delle iniziative intraprese dalle smart city (Alawadhi et al., 2012). Sarebbe opportuno quindi approfondire ed investigare come le iniziative intraprese dalle smart city in relazione alle organizzazioni, come le start-up, possono apportare cambiamenti.

L'obiettivo della ricerca è di investigare come in contesto di smart city ed aspetti di digitalizzazione e di governance, influenzano il cambiamento organizzativo condotto dall'imprenditore leader, sarà necessario quindi comprendere in che modo l'imprenditore leader riesca a rispondere alle necessità esterne, per poter adattare la start-up, nel contesto in cui opera.

Attraverso l'analisi della letteratura è stato possibile creare il seguente modello analitico. (Fig.1)

Fig.1: Modello analitico



Obiettivo del paper. L'obiettivo del presente lavoro è investigare in che modo viene condotto il cambiamento organizzativo all'interno delle start-up considerando il ruolo della leadership imprenditoriale. Basandoci sulla letteratura e di conseguenza sul modello analitico creato, presentiamo le seguenti preposizioni:

P1: La smart city ha una relazione positiva con la leadership imprenditoriale.

P2: La smart city ha una relazione positiva con il cambiamento organizzativo.

P3: I leader imprenditoriali hanno una relazione positiva con il cambiamento organizzativo.

Metodologia. Nel nostro lavoro è stata condotta un'accurata revisione della letteratura, che consente di raccogliere e sintetizzare le ricerche precedenti (Baumeister and Leary, 1997; Tranfield et al., 2003), permettendo così di individuare un'eventuale lacuna all'interno della letteratura o di giustificarne l'espansione e l'approfondimento (Snyder, 2019). Analisi della letteratura relativa alle smart city, con particolare attenzione alla digitalizzazione e alla governance, al cambiamento organizzativo, alla teoria istituzionale, agli imprenditori e alle start-up.

La revisione della letteratura è stata condotta utilizzando Google Scholar, in quanto possiede un numero enorme di articoli che supera i database di letteratura scientifica di altri motori di ricerca come Web of Sciences o Scopus, nonostante la possibile perdita di qualità dovuta all'elevato numero di articoli presenti (Halevi et al., 2017).

La strategia di ricerca seguita consisteva in due fasi. In primo luogo, abbiamo identificato parole chiave appropriate per la ricerca nel database online (ad esempio, cambiamento organizzativo, start-up, leadership imprenditoriale, smart city, digitalizzazione, governance), estraendo così un ampio insieme di documenti, tra cui riviste, libri e conferenze, senza porre alcun limite al database per la ricerca. In secondo luogo, sulla base dello studio di Meier (Meier, 2011), abbiamo individuato tre criteri per selezionare i documenti da inserire nella nostra revisione della letteratura: (i) abbiamo incluso solo articoli in lingua inglese; (ii) abbiamo incluso tutti i documenti pubblicati negli ultimi 60 anni; (iii) tutti gli articoli dovevano essere pubblicati su riviste peer-reviewed con il più alto impact factor del settore. Dopo aver esaminato attentamente i documenti (leggendo abstract, metodologia, conclusioni e implicazioni pratiche), abbiamo selezionato i documenti da libri e articoli. Sulla base della revisione della letteratura, sono state avanzate alcune proposte, discusse in precedenza nell'articolo.

Risultati. Questo studio contribuisce alla letteratura esistente sugli imprenditori, concentrandosi sul cambiamento organizzativo in un contesto di smart city. Un contributo teorico primario di questo articolo è quello di considerare il cambiamento organizzativo all'interno delle start-up. In secondo luogo, contribuiamo alla letteratura esistente sulla smart city, evidenziando come fattori quali la digitalizzazione e la governance possano influenzare il cambiamento organizzativo nelle start-up. Infine, l'obiettivo è creare un ponte tra le tre letterature: cambiamento organizzativo, smart city e leader imprenditoriali. Inoltre, il nostro studio ha anche implicazioni pratiche per i politici e gli educatori.

In terzo luogo, con questo articolo possiamo contribuire con una futura analisi empirica al dibattito esistente sulla teoria istituzionale, sul fatto che la teoria porti dei cambiamenti, sul fatto che le organizzazioni possano essere considerate tutte uguali o che ci siano delle differenze.

Limiti della ricerca. Il principale limite del paper è che è costituito da una analisi teorica. Il secondo limite è l'utilizzo di un unico database; la revisione della letteratura è stata condotta utilizzando Google Scholar, in quanto possiede un grande numero di articoli che supera i database di letteratura scientifica di altri motori di ricerca come Web of Sciences o Scopus, nonostante la possibile perdita di qualità dovuta all'elevato numero di articoli presenti (Halevi et al., 2017).

Implicazioni manageriali. La nostra ricerca offre diverse implicazioni manageriali. Analizzare in che modo avviene il cambiamento organizzativo all'interno delle start-up grazie alle capacità della leadership imprenditoriali permetterebbe di creare delle linee guida generali in grado di definire che modo si potrebbe operare all'interno delle organizzazioni, ovviamente considerando che ogni organizzazione è diversa dall'altra, rimarcando così la necessità di maggiori studi empirici a riguardo.

La ricerca, inoltre, può fornire maggiore consapevolezza ai policymaker delle smart city in quanto è possibile comprendere attraverso l'analisi empirica gli effetti che le loro scelte hanno effettivamente sulle organizzazioni

influenzandole ed in che modo ciascuna di esse reagisce, potendo così comprendere quali iniziative possono essere amplificate e quali no.

Sarà quindi possibile comprendere per i policy maker in che modo incentivare l'imprenditorialità, influenzare il modo in cui gli individui lavorano e migliorando l'allocazione delle risorse in modo efficiente.

Originalità del paper. *I risultati della nostra revisione della letteratura evidenzia un gap esistente nell'investigare il cambiamento organizzativo all'interno delle start up, potendo quindi fornire spunti per ulteriori studi.*

Questo studio contribuisce alla letteratura esistente sulla leadership imprenditoriale, fornendo un'espansione della letteratura in organizzazioni piccole e nuove (Miller and Friesen, 1984; Jensen and Luthans, 2006) come le start-up, concentrandosi, inoltre, sul cambiamento organizzativo in un contesto di smart city.

Parole chiave: *cambiamento organizzativo; leadership imprenditoriale; start-up; smart city; governance, digitalizzazione.*

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L'influenza della religiosità locale sul finanziamento dei progetti di crowdfunding orientati al sociale

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Inquadramento della ricerca. Il crowdfunding è emerso come una nuova forma di raccolta fondi tramite Internet, in cui un gruppo di persone forniscono contributi individuali per sostenere un'idea imprenditoriale specifica (Mollick 2014;). Questa fonte alternativa di finanziamento è particolarmente rilevante per i progetti imprenditoriali orientati al sociale, dove le opzioni di finanziamento sono limitate (Tosatto, Cox e Nguyen 2019). Il finanziamento dei progetti imprenditoriali orientati al sociale ha ricevuto l'attenzione di alcuni studiosi nel corso del tempo (Di Pietro, Spagnoletti e Prencipe 2019). Il crowdfunding aumenta la legittimità delle nuove imprese e le imprese sociali potrebbero trarne particolare beneficio in quanto il crowdfunding potrebbe portare ad altre opportunità di investimento (Braund e Schwittay 2016; Deephouse e Suchman 2008; Zheng 2018). Studi hanno anche indagato come l'orientamento sociale delle imprese possa influire sull'esito della campagna di crowdfunding, dimostrando che la missione di sostenibilità ha un'influenza positiva sul successo del finanziamento (Calic e Mosakowski 2016), così come la creatività del progetto, le approvazioni di terze parti (Calic, 2017), e l'uso dei social media (Goodman e Polycarpou, 2013). Nonostante la letteratura esistente fornisca importanti spunti sui fattori che influenzano la raccolta fondi dei progetti imprenditoriali orientati al sociale, il ruolo del contesto locale, che esercita un'importante influenza nel facilitare l'accesso alle risorse finanziarie (Agrawal, Catalini e Goldfarb 2015; Dana 2011; Giudici, Guerini e Rossi-Lamastra 2018; Di Pietro e Masciarelli 2021), è stato finora trascurato. Ad esempio, il livello di altruismo locale dell'area geografica in cui le persone risiedono influenza positivamente il sostegno ai progetti di crowdfunding (Giudici, Guerini e Rossi-Lamastra 2018). Inoltre, Di Pietro e Masciarelli (2021) dimostrano che la religione gioca un ruolo nell'influenzare il trasferimento di risorse di finanziamento tra regioni, favorendo quindi le transazioni di crowdfunding transfrontaliere.

Nonostante il valore di questi contributi, la letteratura esistente non ha considerato come le condizioni ambientali locali, tra cui la religiosità locale, possano contribuire al sostegno dei progetti di crowdfunding orientati al sociale per i quali i sostenitori non si aspettano necessariamente un ritorno finanziario.

Obiettivo del paper. Lo scopo di questo studio è quello di investigare se e come la religiosità locale e le affiliazioni religiose influenzano gli investimenti in progetti di crowdfunding orientati al sociale. La religione è infatti una variabile culturale locale che svolge un ruolo fondamentale nella vita della maggior parte delle persone (Guiso, Sapienza e Zingales 2003) in quanto promuove determinati comportamenti e censura altri, con importanti ripercussioni sui risultati economici (Van Buren, Syed e Mir 2020; Dana 2011; Guiso, Sapienza e Zingales 2003; Kumar et al. 2022; Shu, Sulaeman e Yeung 2012). La religiosità locale, definita come "credenze, attività e istituzioni basate sulla fede in forze soprannaturali" (Iannaccone 1998, p. 1466; La Porta et al. 1999; Siegel, Licht e Schwartz 2011), promuove le relazioni sociali (Glaeser e Sacerdote 2008) e l'imprenditorialità (Dana 2011; Farmaki et al. 2020; Kumar et al. 2022) e, aumentando la fiducia verso gli altri e il senso di comunità (Guiso, Sapienza e Zingales 2003) e la propensione al rischio (Shu, Sulaeman e Yeung 2012), favorisce il finanziamento imprenditoriale tramite crowdfunding (Di Pietro e Masciarelli 2021).

Questo lavoro si concentra sul ruolo svolto dalla religiosità locale e dalle affiliazioni religiose nell'influenzare il sostegno di progetti orientati al sociale attraverso il crowdfunding in Svizzera. La Svizzera è un paese omogeneo per le sue condizioni economiche generali, ma presenta una diversità culturale intra-nazionale importante in termini di religiosità e demografia; quindi, rappresenta un contesto ideale per il nostro studio. Le sue peculiari formazioni storiche e religiose hanno portato i cantoni svizzeri ad ospitare varie combinazioni di minoranze e maggioranze cattoliche e protestanti, che persistono nel tempo.

La religione ha un impatto sui comportamenti di responsabilità sociale e sostenibilità. Studi hanno rivelato che le imprese situate in paesi con una elevata concentrazione di abitanti religiosi sono più propense a partecipare a iniziative di responsabilità sociale d'impresa e, di conseguenza, godono di rapido sviluppo economico (Brammer, Williams e Zinkin 2007; El Jurdi, Batat e Jafari 2017). Studi hanno inoltre mostrato come la religione favorisca l'imprenditorialità delle imprese familiari (Astrachan et al. 2020), l'imprenditorialità sociale e sostenibile (Chandra 2017; Khurana, Ghura e Dutta 2021) e l'imprenditorialità femminile (Wu, Li e Zhang 2019). Pertanto, la religiosità

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locale può esercitare un impatto positivo sulla propensione individuale a sostenere progetti di crowdfunding orientati al sociale. Pertanto, ci aspettiamo che:

Ipotesi 1: La religiosità locale della regione in cui investitori risiedono, influisce positivamente sul successo dei progetti orientati al sociale tramite piattaforme di crowdfunding.

Tra le diverse religioni, le religioni cristiane sono associate positivamente ad atteggiamenti favorevoli alla crescita economica (Guiso, Sapienza e Zingales 2003). Inoltre, all'interno delle religioni cristiane, il protestantesimo e il cattolicesimo mostrano importanti differenze nei livelli di collettivismo (Cohen e Hill 2007; Shu, Sulaeman e Yeung 2012) che potrebbero influire sul sostegno ai progetti di crowdfunding orientati al sociale. I cattolici considerano le relazioni sociali come parte integrante della loro vita religiosa e ritengono che le affiliazioni di gruppo siano importanti poiché le persone sono viste come fondamentalmente connesse tra loro e alla loro comunità religiosa (Cohen e Hill 2007). Pertanto, le persone che vivono in regioni cattoliche sono probabilmente inclini a formare legami sociali basati sulla partecipazione ai servizi religiosi (Glaeser e Sacerdote 2008), il che può essere vantaggioso per il trasferimento di risorse, conoscenze e informazioni sulle opportunità di investimento (Laursen, Masciarelli e Prencipe 2012). Date le differenze sopra menzionate tra i cattolici e altre affiliazioni religiose come i protestanti, ci aspettiamo che le diverse affiliazioni religiose predominanti nelle regioni in cui risiedono gli investitori influenzeranno in modo diverso il sostegno ai progetti di crowdfunding orientati al sociale. Pertanto, ipotizziamo che:

Ipotesi 2: L'orientamento cattolico della regione influenza positivamente il successo dei progetti orientati al sociale attraverso le piattaforme di crowdfunding.

Metodologia. I dati sono stati raccolti in due fasi. La prima fase di raccolta dati è avvenuta da luglio a dicembre 2016, mentre la seconda fase da novembre 2018 a febbraio 2019, su tre piattaforme di crowdfunding svizzere. Per costruire il nostro campione di progetti orientati al sociale, abbiamo selezionato dai tre siti web progetti appartenenti alle categorie "umanitarie", "sociali" e "comunitarie", come indicato dalle piattaforme, disponibili durante il nostro periodo di raccolta dati. Abbiamo selezionato 76 progetti orientati al sociale, di successo e non, e abbiamo raccolto dati sugli investitori di questi progetti. Il nostro dataset contiene 2.431 osservazioni che rappresentano gli investimenti individuali nei nostri progetti campione. I 76 progetti di crowdfunding selezionati appartengono alle tre diverse piattaforme: 28 progetti dalla piattaforma I care for you (rappresentando il 37% delle nostre osservazioni), 25 progetti dalla piattaforma I believe in you (rappresentando il 33% delle nostre osservazioni), 23 progetti dalla piattaforma Wemake it (rappresentando il 30% delle nostre osservazioni). Dei 76 progetti, 66 sono stati di successo (87%), il che significa che hanno raggiunto l'importo target, mentre 10 progetti (13%) non hanno raggiunto l'importo target alla fine della campagna e quindi non hanno ricevuto fondi. L'importo medio raccolto dagli iniziatori di progetto è di 12.537 franchi svizzeri (CHF) da un numero medio di 86 investitori. Gli investitori dei 76 progetti risiedono in 25 diverse regioni svizzere. I promotori dei progetti risiedono in 19 diverse regioni svizzere, principalmente nelle regioni di Zurigo, Berna e Lucerna, mentre 8 progetti sono stati avviati da persone residenti al di fuori della Svizzera. Dei 2.431 investitori nel nostro campione, il 49,6% sono maschi e il 50,4% sono femmine.

Utilizzando i siti web delle piattaforme di crowdfunding, abbiamo raccolto dati sugli (i) investitori nei progetti, come l'importo investito, la città, la regione di provenienza, il genere e la serialità; (ii) il progetto di crowdfunding, compresi il numero di investitori, l'importo richiesto e i fondi raccolti. Per ciascun progetto di crowdfunding, siamo stati in grado di includere nella nostra selezione solo gli investitori che hanno divulgato il loro nome e la loro città di provenienza. Abbiamo escluso gli investitori che non hanno divulgato il loro nome completo (ad esempio, utenti anonimi) o che hanno utilizzato pseudonimi e quelli che non hanno riportato la loro città di provenienza.

Per integrare il nostro database con le variabili a livello regionale (corrispondenti al livello NUTS3), abbiamo consultato i database ufficiali di statistica svizzeri, come l'Ufficio federale di statistica svizzero e l'USTAT e l'ufficio di statistica del canton Ticino, per raccogliere dati sulla religiosità e la religione primaria in ogni regione svizzera e informazioni macroeconomiche, ad esempio il reddito pro capite (in CHF), la cultura digitale, il numero di nuove aziende create negli anni di interesse e la lingua primaria parlata nella regione.

Variabile dipendente. La nostra variabile dipendente, Successo (Success), è una variabile continua misurata come la differenza tra l'importo raccolto (in CHF) dai promotori del progetto attraverso la campagna di crowdfunding e l'importo obiettivo (in CHF) stabilito all'inizio della campagna. La variabile assume valori negativi se il progetto non è riuscito a raccogliere fondi.

Variabili indipendenti. La religiosità locale (Local religiosity) è la principale variabile indipendente. Indica la percentuale di persone religiose che vivono nella regione dell'investitore e viene calcolata come 1 meno la percentuale di persone in ogni regione che non hanno affiliazioni religiose, ovvero non religiose. Abbiamo raccolto i dati dal sito web dell'Ufficio federale di statistica svizzero e ci riferiamo all'anno 2016 per la popolazione svizzera di età superiore ai 15 anni che vive in una casa privata e che ha indicato un'adesione religiosa tra protestante, cattolica, altre affiliazioni cattoliche, islamica, ebraica, altre affiliazioni religiose e nessuna affiliazione religiosa.

La variabile regione orientata al cattolicesimo (Catholic-oriented regions) è una variabile dummy che assume il valore 1 se la religione cattolica è predominante nella regione in cui risiede l'investitore; 0 altrimenti. Una regione viene classificata come orientata al cattolicesimo se la quota di persone appartenenti all'affiliazione cattolica è

superiore alla quota di persone appartenenti alle altre affiliazioni religiose o nessuna affiliazione religiosa nella regione. Ad esempio, la regione svizzera del Canton Friburgo che riporta il 61,3% di cattolici, l'11,1% di protestanti, il 17,7% di atei e il 9,9% di membri di affiliazioni religiose minori è classificata come orientata al cattolicesimo. I cattolici costituiscono il gruppo religioso più grande in Svizzera (il 37,25% della popolazione è cattolica), il 25% è protestante e altri gruppi religiosi come l'islam e gli ebrei sono rappresentati da una piccola parte della popolazione (circa il 14%).

Variabili di controllo. Includiamo variabili di controllo relative alle caratteristiche della campagna di crowdfunding, dell'investitore e della regione dell'investitore, che potrebbero influenzare la propensione a sostenere una campagna di crowdfunding orientata al sociale.

Risultati. Abbiamo analizzato se la religiosità locale - ovvero la percentuale di persone appartenenti a un'affiliazione religiosa nella regione in cui risiedono gli investitori - influisca sul sostegno ai progetti orientati al sociale tramite il crowdfunding. Abbiamo utilizzato il modello di stima Ordinary Least Squares (OLS) (Wooldridge 2002) per testare empiricamente le nostre ipotesi. La tabella 1 riportata sotto illustra il modello OLS.

Tab. 1: Risultati del modello di Ordinary Least Squares (OLS) per il Successo

DV: Success	Model I		Model II	
	Coef.	SE	Coef.	SE
Local religiosity			9551.481 ***	(695.71)
Catholic-oriented regions				
Number of investors	17.28 ***	(1.32)	19.37 ***	(1.27)
Platform - Wemakeit	131.98	(128.63)	157.28	(129.87)
Platform - I believe in you	475.58 ***	(79.66)	563.4 ***	(77.42)
Investor Gender	-39.0	(83.46)	-59.24	(79.82)
Investor Seriality	25.42	(139.62)	68.34	(131.72)
Income Per-capita (in CHF)	2229.47 ***	(279.74)	2637.00 ***	(276.1)
Digital literacy	2074.88	(6869.71)	7822.16	(5945.84)
New companies	-49410.84 ***	(6901.77)	15035.01 †	(8414.21)
Language match	1462.75 ***	(94.4)	1394.95 ***	(89.25)
Constant	-24391.73 ***	(4966.28)	-44628.95 ***	(4490.13)
N	2,431		2,431	
R-squared	29%		35%	

Il Modello I della Tabella 1 riporta l'effetto delle variabili di controllo, tra cui Number of investors, Platform, Investor Gender, Investor Seriality, Income Per-capita, Digital literacy, New companies, e Language match, sulla variabile dipendente Success. Guardando alle variabili a livello di progetto, troviamo un effetto diretto significativo per Number of Investors e Platform su Success. Osserviamo inoltre che l'Income Per-capita è positivamente associato a Success. Non abbiamo trovato alcuna associazione significativa tra l'uso di internet (Digital literacy), il genere dell'investitore e la serialità dell'investitore sulla nostra variabile dipendente. D'altra parte, troviamo un'associazione negativa tra il tasso di imprenditorialità locale (New companies) e il Success dei progetti di crowdfunding orientati al sociale. Questo è un risultato controintuitivo che potrebbe essere spiegato dal fatto che le imprese orientate al profitto possono essere considerate più attraenti dagli investitori e potenzialmente attirare risorse di finanziamento dai progetti orientati al sociale. Inoltre, troviamo che la condivisione di una lingua comune influenza positivamente il successo dei progetti di crowdfunding orientati al sociale. Questo controllo è estremamente importante poiché, controllando la corrispondenza linguistica tra la regione del promotore del progetto e quella degli investitori, possiamo in parte escludere la possibilità che l'influenza dei flussi di risorse sia principalmente determinata dalla condivisione di una lingua comune.

Passando alle principali variabili esplicative, i risultati del Modello II nella tabella 1 sono coerenti con la nostra H1 (la religiosità locale della regione degli investitori influenza positivamente il successo dei progetti orientati al sociale tramite piattaforme di crowdfunding). Ci aspettavamo che la religiosità locale fosse positivamente associata all'investimento in progetti orientati al sociale tramite crowdfunding. In linea con le nostre aspettative, troviamo un'associazione positiva e significativa tra la religiosità locale e il successo dei progetti orientati al sociale tramite crowdfunding ($p = 0,000$, $b = 9,551$). Ciò implica che le persone che vivono in regioni caratterizzate da un elevato livello di religiosità sono più inclini a sostenere i progetti imprenditoriali orientati al sociale.

La religiosità può quindi essere considerata una variabile culturale strategica all'interno del paese che svolge un ruolo significativo nell'influenzare il finanziamento dei progetti di crowdfunding orientati al sociale.

Successivamente, per testare l'influenza dell'orientamento religioso della regione degli investitori sull'investimento in crowdfunding orientati al sociale, includiamo nel Modello III (Tabella 1) la variabile Catholic-oriented regions.

In linea con le nostre congetture (H2: L'orientamento cattolico della regione influenza positivamente il successo dei progetti orientati al sociale attraverso le piattaforme di crowdfunding), la variabile Catholic-oriented regions ha un impatto positivo sul successo ($p = 0,000$, $b = 1,137$). In particolare, troviamo che i progetti di crowdfunding orientati

al sociale beneficiano degli investitori che vivono in una regione in cui il cattolicesimo è la religione predominante. Sugeriamo che ciò sia dovuto alla personalità collettivista dominante tra i cattolici, che attraverso lo sviluppo di connessioni sociali (Cohen e Hill 2007), aiuta nell'acquisizione di informazioni e conoscenze preziose sulle opportunità che beneficiamo la società. Un senso di comunità e fiducia sono ingredienti fondamentali del crowdfunding dei progetti imprenditoriali orientati al sociale (Butticè e Colombo 2020), valori che sono radicati nel cattolicesimo (Glaeser e Sacerdote 2008).

Limiti della ricerca. Questa ricerca ha alcune limitazioni. In primo luogo, ci siamo concentrati su un singolo paese; le nostre analisi potrebbero essere ripetute considerando un campione di paesi diversi. Inoltre, la maggior parte della popolazione svizzera aderisce al gruppo religioso cattolico. Studi futuri potrebbero replicare il nostro studio in paesi in cui altre affiliazioni religiose, come protestanti, ebrei, musulmani, ecc., sono meglio rappresentate.

In secondo luogo, ci siamo concentrati solo sul supporto di progetti orientati al sociale tramite il crowdfunding. Tuttavia, la diversità religiosa intra-paese potrebbe influenzare anche altre forme di investimenti finanziari; in particolare, potrebbe essere interessante esaminare gli investimenti di venture capital o di business angels (Chircop, Johan e Tarsalewska 2020). Inoltre, abbiamo testato la nostra ipotesi su progetti orientati al sociale non motivati dal profitto, in piattaforme basate su ricompense e donazioni (reward e donation crowdfunding). Potrebbe essere interessante ampliare questo studio su un campione di aziende che ricorrono a piattaforme di crowdfunding azionario o di prestito peer-to-peer (equity e lending crowdfunding). Infine, altre forme di diversità intra-paese, ad esempio la lingua, possono essere esplorate. Essendo un mezzo principale per la trasmissione della conoscenza e alle credenze degli altri, la lingua è probabilmente in grado di influenzare la propensione agli investimenti di crowdfunding.

Implicazioni manageriali. La nostra ricerca ha anche implicazioni pratiche. In primo luogo, capire le caratteristiche del contesto locale nell'influenzare il sostegno ai progetti di crowdfunding orientati al sociale può fornire informazioni utili per lo sviluppo di politiche volte a promuovere contributi a iniziative non profit. In secondo luogo, sottolineando l'importanza della religione e delle affiliazioni religiose per influenzare il comportamento degli investitori tramite il crowdfunding, il nostro studio può aiutare gli imprenditori a decidere dove è più favorevole lanciare la propria iniziativa sociale.

Originalità del paper. La nostra ricerca offre contributi alla letteratura che collega religione ed imprenditoria, fornendo una maggiore comprensione del ruolo dell'ambiente locale nell'influenzare il sostegno a progetti di crowdfunding orientati al sociale e fornendo evidenze dell'associazione tra religiosità e investimenti di crowdfunding online. In questo modo, la nostra ricerca contribuisce ad una migliore comprensione di come religione e tecnologia influenzino l'imprenditoria e il cambiamento sociale con ripercussioni positive sulla società.

In secondo luogo, esplorando l'impatto della religiosità locale sull'investimento di crowdfunding, aggiungiamo alla crescente letteratura sulla diversità dei valori culturali intra-nazionali. Esiste un consenso crescente sulla necessità di comprendere come le variabili culturali intra-nazionali, come la religiosità, influiscano sul coinvolgimento degli individui in attività sociali che possono avere importanti ripercussioni sull'economia, ma i contributi finora sono stati limitati dalla disponibilità di dati. Pertanto, la Svizzera, che include la coesistenza di diverse affiliazioni religiose, rappresenta un unico scenario empirico.

In terzo luogo, contribuiamo anche alla letteratura sulla finanza imprenditoriale fornendo una spiegazione interdisciplinare importante su come la religiosità locale e le diverse religioni influenzino gli investimenti in fase iniziale. L'accesso al finanziamento è una sfida per tutte le nuove imprese a causa della novità dei loro prodotti e dell'incertezza corrispondente, questo è particolarmente il caso delle imprese sociali dove il ritorno finanziario non è tipicamente il loro obiettivo principale. Pertanto, poiché il crowdfunding rappresenta uno strumento di finanziamento importante per i progetti orientati al sociale, è cruciale identificare i principali fattori che incoraggiano e ostacolano il loro sostegno.

Keywords: Crowdfunding; religiosità; tecnologia; progetti orientati al sociale.

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Trasformazione delle città ed ambiente economico: videnze empiriche sulla relazione esistente tra ambiente urbano e imprenditorialità femminile nelle città contemporanee

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Inquadramento della ricerca. Negli ultimi anni, le città hanno modificato le loro traiettorie urbane, passando da un ambiente locale e statico ad un contesto più dinamico in grado di fornire un ambiente tecnologico, sostenibile ed efficiente inglobato all'intero dei progetti di smart city (Albino et al., 2015; Caragliu et al., 2011; Vanolo, 2014). Nello specifico, le smart city possono essere definite come città avanzate e ad alta intensità tecnologica con l'obiettivo di collegare persone, informazioni ed elementi della città utilizzando le nuove tecnologie per creare e trasformare le attuali città in contesti più sostenibili, più verdi, competitivo e ed innovativi influenzando di conseguenza la qualità della vita di utenti interni (cittadini) ed esterni (lavoratori, turisti, visitatori) (Bakici et al., 2013).

Questa trasformazione apre una nuova visione della città che si muove verso un contesto urbano più vivibile e umano che coinvolge diverse aree che possono essere classificate nelle sei dimensioni dello sviluppo delle città intelligenti (Smart Environment, Smart People, Smart Living, Smart Governance, Smart Economy and Smart Mobility) (Appio, Lima e Paroutis, 2019; Caragliu e Del Bo, 2021; Christofi, 2021; Vanolo, 2014). In questa evoluzione, la tecnologia è un driver primario ma non essenziale nello sviluppo delle città e consente a queste dimensioni, considerate pilastri nel concetto di smart city, di essere collegate tra loro all'interno del contesto urbano e di influenzare di conseguenza la relazione della città stessa con cittadini ed utenti (Christofi et al., 2021; Ibrahim et al., 2018; Ooms et al., 2020). Pertanto, andando oltre lo sviluppo meramente tecnologico, la città deve essere costruita intorno agli utenti, adattandosi e, contemporaneamente, facendo evolvere l'ambiente urbano in una prospettiva centrata sull'utente (Appio et al., 2019; Neirotti et al., 2014; Vanolo, 2014). In questo contesto, la dimensione "smart living", definita come la dimensione della città che si relaziona con la qualità della vita, immaginata e misurata in termini di disponibilità di servizi culturali ed educativi, attrazioni turistiche, coesione sociale e sicurezza personale (Vanolo, 2014, p. 887), ha assunto un ruolo dicotomico che manca di una concettualizzazione accademica e pratica attuale. Anche se, da un lato, è essenziale creare un ambiente sociale vivibile, sicuro, inclusivo e avanzato, dall'altro è difficile valutare sia il costruito di questo contesto che il relativo impatto sul territorio (Abid et al., 2022; Vanolo, 2014).

In oltre, in questa evoluzione, la spinta delle politiche locali e dell'Unione Europea ha assunto un ruolo centrale nella trasformazione delle città (Paskaleva, 2011). Nello specifico, il rapporto tra investimenti pubblici nelle città e lo sviluppo di progetti di smart cities è un aspetto importante da considerare per comprendere la loro attuale evoluzione. Gli investimenti in ricerca e sviluppo (R&S) da parte dei governi centrali sono sempre più presenti nelle politiche locali, ma rimangono al centro del dibattito per l'incertezza degli esiti e la mancanza di obiettivi ben definiti (Lanahan et al., 2021; Laursen et al., 2012). Tuttavia, basandoci sulla letteratura di riferimento (Betz et al., 2016; Lee et al., 2013; Marchesani et al., 2023), ci sono evidenze teoriche ed empiriche sull'impatto positivo degli investimenti in R&S da parte delle città. Questi investimenti possono contribuire alla creazione di posti di lavoro, lo sviluppo tecnologico della città, l'avanzamento di servizi digitali e ad altri effetti positivi sulla qualità della vita, diventando un fattore di sviluppo fondamentale per le città del futuro.

Seguendo il dibattito accademico attuale, sappiamo le pratiche di "smart living" nelle città contemporanee contribuiscono direttamente all'ambiente delle città influenzando lo sviluppo urbano e la crescita economica (Florida et al., 2017; Neirotti et al., 2014). Sulla base di questo dibattito ed in accordo con l'attuale contestualizzazione delle smart city in relazione all'ambiente imprenditoriale (Kummitha, 2018; Marchesani et al., 2022), questo lavoro si propone di investigare la relazione tra le pratiche smart living e la promozione dell'imprenditorialità femminile in città.

L'imprenditorialità femminile svolge un ruolo significativo nello sviluppo socio-economico (Rosca et al., 2020) ed è direttamente influenzata dal contesto urbano (Allen e Bartlett, 2022; Kimbu e Ngoasong, 2016). In particolare, nella relazione tra la dimensione "smart living" della città e l'ambiente economico, recenti studi accademici hanno evidenziato il legame tra la vivibilità urbana e l'imprenditoria femminile, identificata come gli attori più sensibili alla dimensione abitativa della città (Collins e Low, 2010; Nguyen et al., 2022; Poggesi et al., 2016). Inoltre, l'influenza

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della dimensione relativa alla vivibilità della città “smart living” emerge anche nella letteratura urbana, assumendo che le donne siano più disposte ad avanzare l'attività imprenditoriale in un ambiente sicuro e avanzato (Martínez-Rodríguez et al., 2022; Nesti, 2019; Rosca et al., 2020). Oggi, sebbene la ricerca sull'imprenditoria femminile sia un argomento recente e ampiamente discusso (Estrin e Mickiewicz, 2011; Kogut e Mejri, 2022; Rosenthal e Strange, 2012), vi è una comprensione relativamente scarsa dell'interazione tra le smart city, la vivibilità e l'imprenditoria femminile nel contesto urbano. Questa lacuna è evidenziata dal fatto che (i) la connessione tra le traiettorie delle smart city e l'ambiente imprenditoriale nelle città è ancora poco studiata (Kummitha e Crutzen, 2017; Marchesani et al., 2022), (ii) la dimensione della “smart living” manca di risultati specifici correlati al contesto imprenditoriale (Liu, 2012) e (iii) c'è la necessità di elevare l'ambiente urbano ed economico delle città in una nuova e completa comprensione basata sull'uomo piuttosto che sulla tecnologia (Caragliu e Del Bo, 2021; Shelton et al., 2015; Vanolo, 2014).

Basandoci su questo stato dell'arte, ci concentriamo sull'intersezione tra le pratiche di “smart living” e l'imprenditoria femminile considerando l'influenza degli investimenti pubblici in R&S per fornire analisi approfondite dei contributi che l'innovazione e la vivibilità nelle attuali traiettorie delle smart city possono fornire all'imprenditoria femminile.

Obiettivo del paper. Questo studio mira a investigare la relazione tra l'ambiente economico e la dimensione di smart living incorporata nelle attuali iniziative di smart city, focalizzandosi sul ruolo dell'imprenditoria femminile nelle città contemporanee. Questa interazione è poco investigata e controversa in quanto comprende pratiche urbane che permettono agli utenti e ai cittadini di sviluppare il proprio potenziale e vivere in un ambiente costruito intorno al cittadino, influenzando di conseguenza gli esiti imprenditoriali ed economici.

Questo studio si pone l'obiettivo di offrire contributi empirici al dibattito accademico preliminare sullo sviluppo delle imprese e l'attuale implementazione di progetti di smart city analizzando la relazione corrente tra la dimensione della vivibilità della città “smart living” e l'imprenditoria femminile. I risultati forniranno preziose informazioni sulla promozione dell'imprenditoria femminile nel contesto delle smart city e mirano a far avanzare la discussione teorica su (i) l'intenzione imprenditoriale nell'imprenditoria femminile, (ii) l'avanzamento delle smart city (come contesto), e (iii) la dimensione di smart living (come driver), offrendo importanti spunti per i decisori politici e la governance.

Metodologia. Questo lavoro utilizza il metodo Generalized Methods of Moments (GMM) per investigare il fenomeno in esame. L'adozione di questo metodo è basata su due caratteristiche distintive del nostro campione di analisi, come (i) le caratteristiche intrinseche del nostro spatial-panel-dataset (ii) la specifica dinamica che considera che le pratiche passate delle città possono influire sugli esiti economici attuali. In particolare, i panel dati utilizzato è caratterizzato da una vasta sezione trasversale (30 città) e un periodo di tempo relativamente breve (12 anni) che, includendo entrambi gli effetti fissi temporali e delle città, si adatta al metodo utilizzato (Roodman, 2009). Ci concentriamo sul contesto italiano in quanto è considerato al centro del dibattito accademico e politico sulle traiettorie delle smart city (Abid et al., 2022; Vanolo, 2014), costituendo un importante focus empirico per i dibattiti sullo sviluppo urbano in Europa (Christofi et al., 2021, p. 961). Per garantire l'alta eterogeneità del campione, le 30 città italiane sono state selezionate utilizzando il campionamento proporzionale alla dimensione in ciascuno livello (Localizzazione, sviluppo economico, popolazione) delle città medie e grandi per garantire una altra rappresentatività ed eterogeneità del campione su tutto il territorio Italiano (Levy e Lemeshow, 2011).

Le variabili presenti all'interno del modello considerano “imprenditorialità femminile” come variabile dipendente, “smart living” come variabile indipendente e “R&D investment” come moderatore. In particolare, la variabile dipendente “imprenditorialità femminile” è stata costruita sulla base dei dati presenti nella Camera di Commercio di ogni città, prendendo in esame il numero di imprese fondate da donne e registrate ogni anno nel corso dei 12 anni analizzati. Basandoci su questi dati, abbiamo operazionalizzato la variabile utilizzando il logaritmo naturale della variabile rispetto al numero totale di imprese nella città. Questa procedura ci consente di comprendere lo sviluppo delle attività imprenditoriali femminili di ogni città in relazione a ogni contesto economico e geografico.

La variabile indipendente “smart living” è stata costruita attraverso un indice basato sulle pratiche inclusive, integrate e sociali di ogni città. Questa variabile è strettamente legata alla dimensione della vivibilità urbana e comprende un set di i variabili che considerano i servizi inclusivi, integrativi e sociali basati sulla persona nello sviluppo della smart city (Sharma e Manocha, 2021). Nello specifico, questo indice è basato su diversi indicatori come l'assistenza sanitaria e i servizi sanitari, l'assistenza all'infanzia e agli anziani, l'istruzione, l'ospitalità, l'integrazione lavorativa e i servizi lavorativi.

Inoltre, il nostro modello include come moderatore la variabile relativa agli investimenti in R&S da parte delle città, misurata dal totale degli investimenti del settore pubblico in R&S nella città sulla popolazione annuale. Questa variabile è universalmente associata all'avanzamento digitale e, nel contesto delle città, fornisce un'adeguata leva per diffondere le innovazioni e guidare i progetti di smart city influenzando non solo la creazione di servizi digitali ma migliorando anche la percezione e la qualità della vita (Harrison et al., 2010; Simmons et al., 2018). Infine, partendo dalla dicotomia che lo sviluppo delle città può essere influenzato da diversi fattori, abbiamo incluso un insieme di caratteristiche delle città come la dimensione, gli indicatori economici, lo sviluppo delle aziende, gli investimenti della città e gli effetti temporali per servire come variabili di controllo

Risultati. Risultati preliminari trovano supporto empirico per evidenziare una relazione diretta tra lo sviluppo della dimensione “smart living” della città e la promozione dell'imprenditoria femminile. Le caratteristiche della città in termini di qualità della vita, misurata in termini di disponibilità di servizi culturali ed educativi, coesione sociale, ambiente, e sicurezza influenzano la creazione di impresa e promuovono l'imprenditoria femminile, che tende ad essere

più attiva in una città con un alto livello di pratiche “smart living” nel corso degli anni. Questa relazione è guidata dall'avanzamento del processo di transizione da città a smart city, che crea molteplici opportunità per utenti, cittadini ed imprenditori che trovano un ambiente adatto per lo sviluppo della propria vita e della propria attività imprenditoriale. Inoltre, risultati preliminari evidenziano che gli investimenti delle città in R&S hanno un effetto moderatore nella relazione tra le pratiche smart living e l'imprenditorialità femminile. Questi risultati sono in linea con la letteratura attuale che conferma che l'imprenditoria femminile è direttamente influenzata dal contesto urbano e che le donne sono gli attori più sensibili rispetto alla qualità della vita, ai servizi educativi, alla salute e alla sicurezza in città (Rosenthal e Strange, 2012; Solesvik et al., 2019; Xie e Wu, 2022).

Limiti della ricerca. Questo studio ha alcune limitazioni legate alla natura quantitativa della ricerca. Innanzitutto, lo studio si concentra su un solo paese. Questa è una limitazione comune alla maggior parte degli studi quantitativi legati alla smart city a causa del tipo di dataset, delle misurazioni e delle politiche intraprese nei vari paesi. Tuttavia, l'Italia è considerata un contesto adeguato per indagare la relazione tra smart city ed ambiente economico grazie alla considerevole variazione e distribuzione del campione su livelli geografici ed economici. In secondo luogo, anche se abbiamo verificato lo sviluppo dell'ambiente economico nella relazione, questo potrebbe influenzare lo sviluppo dell'imprenditoria femminile. In terzo luogo, la comprensione attuale della dimensione della smart living non è ancora sufficientemente avanzata, quindi ci siamo basati sulla letteratura di riferimento per costruire la nostra variabile. Sulla base di queste limitazioni (e di altre insite nella natura del lavoro), studi futuri potrebbero approfondire lo sviluppo della dimensione “smart living”, investigandone l'intersezione con con l'ambiente locale (cittadini) ed economico (aziende e imprenditoria).

Implicazioni manageriali. Le smart city stanno contribuendo attivamente al cambiamento sociale ed economico del nostro tempo e questa influenza è positivamente correlata all'aumento alla promozione e allo sviluppo dell'intero contesto economico locale. In particolare, focalizzandoci sui risultati emersi da questo lavoro, l'avanzamento di pratiche “smart living” in una città è cruciale per lo sviluppo urbano e non deve essere considerato meno importante rispetto ad altre dimensioni delle smart cities come la mobilità, la governance, l'ambiente, l'economia e le persone. Dal punto di vista manageriale, questi risultati suggeriscono che le politiche locali dovrebbero concentrarsi sull'incremento del benessere e della qualità della vita, in quanto ciò favorisce l'imprenditoria femminile e l'attività imprenditoriale in generale (Almirall et al., 2016; Camboim et al., 2019).

Inoltre, le città dovrebbero investire nell'innovazione e nella ricerca e sviluppo pubblico per migliorare ulteriormente l'ambiente imprenditoriale. Infine, gli amministratori delle città dovrebbero bilanciare lo sviluppo tecnologico con le esigenze umane e sociali, per evitare che le innovazioni tecnologiche siano sviluppate senza considerare le reali esigenze degli utenti (Vanolo, 2014).

Originalità del paper. L'interesse verso la trasformazione smart nelle attuali politiche urbane ha spinto molte città nel mondo a perseguire iniziative di smart city. Tuttavia, in questa trasformazione da città a smart city, gran parte della ricerca si è concentrata principalmente sulla tecnologia e sull'avanzamento digitale nella città come motore di questa trasformazione, perdendo il senso intrinseco che le città dovrebbero essere incentrate sull'uomo piuttosto che sulla tecnologia o sul capitale. In questo articolo, ci proponiamo di indagare la relazione tra l'ambiente economico e le attuali traiettorie delle smart city, concentrandoci sulla dimensione del smart living. Questa dimensione è poco studiata e controversa in quanto include le pratiche delle città che consentono agli utenti e ai cittadini di sviluppare il proprio potenziale e costruire la propria vita in un ambiente adeguato. Sulla base di questo stato dell'arte, lo studio si propone di indagare come le pratiche di smart living integrate nelle dimensioni delle smart city influenzino l'ambiente economico nel promuovere l'imprenditorialità femminile nelle città. In particolare, questo studio è uno dei primi che cerca di misurare quantitativamente e di affrontare l'importanza della dimensione del smart living nelle traiettorie delle città, considerando le pratiche incentrate sull'uomo, come l'istruzione, la salute, la sicurezza, la coesione e l'inclusione nelle città, che influiscono sulle attività imprenditoriali.

Parole chiave: Smart City; imprenditorialità femminile; ambiente economico; ricerca e sviluppo; innovazione

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The potential role of gamified solutions on sustainable choices

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Framing of the research. *Despite the relevance that sustainability has assumed in the current historical period, many companies still struggle to find the right balance between the pursuit of sustainable behavior on the one hand and utilitarian goals on the other. Although there are still companies today that fail to identify this trade-off, many other companies have made sustainability a focal point of their development. In fact, being sustainable nowadays allows companies not only to benefit from many facilities arranged by governments (Sharma and Henriques, 2005), but at the same time to make themselves more attractive to customers and investors (Danciu, 2013).*

The term sustainability has been used in several fields and in a variety of contexts, spanning from the concept of environmental sustainability to the vision of a sustainable society with a stable economy (Loorbach et al., 2017). In this paper, we consider only some of the definitions that are associated with the term. For example, the management of resources to maximise their continuous production, maintaining a constantly renewable stock (Xu et al., 2021). Or a situation - sustained indefinitely - in which the members of a society enjoy maximum satisfaction (Higgins-Desbiolles, 2018). Or, finally, a development whose decisions - taken at a given time - do not damage the prospects of maintaining or improving living standards in the future (Romasheva and Dmitrieva, 2021). However, the environmental and economic complexities of each concrete situation make it almost certain that the realisation of such a concept is not possible (Demers and Gond, 2020). It is clear from these definitions that the phenomenon has gained importance in a wide variety of fields, but above all that at the basis of sustainability are attitudes and choices made by the various players in the environment (Farjam et al., 2019). In fact, applying sustainable choices requires a radical change in individuals (Bogdanov et al., 2019). This is only possible if the involvement of people is very high (Holmberg and Sandbrook, 2019). If we consider companies - as profit-oriented organisations - applying these changes becomes even more problematic as it is not always easy to achieve sustainable goals without having repercussions in economic terms (Luzzani et al., 2021). For these reasons, managers and companies that wish to pursue sustainable goals that bring benefits are constantly looking for new and creative approaches that can improve user engagement (Gerards et al., 2018) and guide them towards certain behaviours without losing the utilitarian purpose of the company (Hsu and Chen, 2018).

Among the phenomena that can improve user engagement, there is gamification (Xiao et al., 2022). Gamification is an umbrella term in which the use of mechanics, design and other game elements are applied in non-game contexts (Ashaari, 2018). Gamification is a tool that - by exploiting people's primal desires for success, competition, and self-fulfilment - organisations use to guide the behaviour of employees and customers (Aghdaie et al., 2022). Considering that gamification is not limited solely to satisfying hedonistic elements but provides utilitarian benefits to the users (Anim and Omar, 2021), it emerges as a valuable tool useful in increasing employee productivity, improving customer engagement, and even speeding up the production processes of new products or services (Nacke and Deterding, 2017). Among the various areas where the potential of gamification has been applied is sustainability (Günther et al., 2020; Guillen et al., 2021). Gamification applied to sustainability goes by the name of Eco gamification or green gamification, and although the concept emerged a decade ago (Owen, 2013), it is only in recent years that there has been work that has taken this phenomenon into account. For this reason, there are still some gaps on how gamified solutions can be used to guide individuals toward sustainable behaviors and even more so on what steps companies have taken to successfully implement gamification to achieve certain outcomes. Understanding the role that gamification can play in sustainable choice within the company and in customer relationships is essential when considering the actual importance of sustainability. Furthermore, understanding "the steps" that some companies have taken in designing and implementing gamified experiences could be useful for those who wish to achieve sustainability-related goals without affecting the utilitarian nature of the company.

Purpose of the paper. *The aim of this article is to understand how, by using gamified solutions, some companies have succeeded in driving individuals - both internal and external to the company - towards sustainable behaviour, while at the same time managing to maintain utilitarian objectives. Indeed, understanding this relationship may prove highly important in providing - to those companies that have not yet found this trade-off - guidance and suggestions on how to best exploit the potential of gamification as a novel and creative approach that can influence individuals*

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(Gimenez et al., 2021). Even though in the literature, gamification has become increasingly important to the point of influencing a wide variety of fields (Xi and Hamari, 2019; López et al., 2021; Breur et al., 2022), including those related to sustainability (Karoleva and Novack, 2020) there are still many gaps on the relationship between the phenomena considered. Indeed, despite the fact that some scholars have attempted to explain whether and how the use of gamification as a tool can bring about radical changes within organisations (Alhammad and Moreno, 2020), there is still no clear vision of how this occurs, especially when considering the use of Gamification as a tool aimed at guiding individuals towards sustainable choices that do not negatively affect the company's bottom line.

The purpose of this article, first, is to study and understand how and in what ways some companies have been able to take full advantage of the potential of gamification to make improvements, in terms of sustainability, in their organizational set-up without having an impact on profits, indeed, increasing them in some cases (Gatti et al., 2019). Second, the goal is to develop, prepare and suggest a set of practices and behaviors that can be implemented by any company that is unsuccessfully addressing sustainability-related challenges.

Methodology. To achieve the objective of the research and thus put in place practices that harness the potential of gamified solutions to drive sustainable behaviors that can create value not only for individuals but also for the enterprise, we conducted a multiple case study analysis because we are dealing with a topic that is still at an exploratory stage (Yin, 2003). Using multiple cases allows for a more detailed analysis in terms of accuracy and generalizability. In addition, replicability of the results is also facilitated in this way (Bordeleau et al., 2020). In addition, several semi-structured interviews were conducted, which are useful in those cases where despite the use of predefined questions, one still wants to leave room for any unanticipated emergent phenomena (Roulston and Choi, 2018). Each interviewee was asked the same set of questions, developed from sources already used and validated in the literature (Ball, 2019). The advantage of relying on already validated sources increases the possibility of obtaining a reliable and valid questionnaire (Sürücü and Maslakçi, 2020).

The reference sample consists of 3 companies that use gamification and strive to meet a variety of sustainability criteria. Two of the companies analyzed deal with information systems and have implemented gamification first in some services offered to clients and then within their own staff. The third company is in the food & beverage and has implemented some applications aimed at guiding consumers toward sustainable choices. In addition, just as with the others, this company also uses gamified solutions with its employees.

Primary data were collected through interviews and were supplemented with secondary data from literature, company websites, social media, online interviews, and blogs. In this way, we were able to triangulate the data (Stake, 1995). Transcription and analysis were done with the help of NVivo, a computer-assisted qualitative data analysis software. NVivo improves the effectiveness and transparency of qualitative research through efficient coding and retrieval (Sinkovics & Alfoldi, 2012).

To fulfil the study objectives, an abductive method (Dubois and Gadde, 2002) was used, which systematically blends the deductive approach, which entails generating theories from existing literature, and the inductive approach, which aims to create a universal law from specific situations. On the one hand, this work is based on a broad and well-known body of literature on sustainability. On the other hand, the phenomena of gamification have yet to be properly investigated.

Results. Gamification, due to its ability to leverage on the natural needs of the individual (Rigby, 2015), appears to be an excellent tool for guiding user behaviour (Wood and Reiners, 2015). Through our analysis, it is possible to confirm that gamification is not only a socially useful tool, as it provides learning services with innovative and engaging mechanics to multiple individuals by enticing them to make certain choices, but also confirms that through the implementation of gamified solutions in their workforce, companies can derive numerous benefits towards their employees and customers. In addition, it is clear which practices are most used by companies, their purpose and how they are implemented. In the first part of the analysis, primary and secondary data were transcribed and analysed using CAQDAS NVivo. The use of this software can improve the systematisation, reliability, effectiveness, and transparency of qualitative research by following formalised procedures and making the analysis more rigorous (Tate et al., 2015). NVivo helps to establish a chain of evidence by organising and coding data in a systematic way (Wong, 2008). Through coding, it has been possible to identify key nodes where gamification and sustainability-related concepts seem to have a correlation. However, the analysis is still ongoing, and no more data will be entered only when theoretical saturation has been reached, i.e. when no new themes emerge by adding information (Alam, 2021).

Even more interesting are the results obtained from the interviews and the analysis of the individual case studies. Indeed, according to the managers, gamified solutions can play a crucial role in driving behaviour inside and outside the company, including sustainable behaviour. However, certain factors must be considered when designing and planning a gamified experience. Moreover, some techniques may prove more useful than others.

Two of the analysed companies belong to the IT sector and had no difficulties in implementing gamified solutions in their staff and services. The third company is positioned in the food & beverage sector and had some problems interfacing with gamification, so much so that it outsourced the planning and implementation of the experience to an external company. Despite these difficulties for all companies, the steps that were taken were similar: (1) first, the gamified experience was proposed to customers, implementing gamification techniques on already existing products/services offered to the public; (2) then the gamified solutions were introduced within the company, considering the characteristics of the individuals for whom they were intended and the surrounding environment. At this stage, it was necessary to consider the abilities of the subjects and to find the right balance between task difficulty and reward obtained. In fact, the designers had to make several attempts before understanding how to 'activate' the

players' hedonistic desires to increase their involvement; (3) simultaneous with the previous phase was the selection of techniques to be used, sometimes creating a unique gamified experience in which several techniques are combined to maximise user involvement. Through merging these steps, the case company were able to direct both customers and employees towards sustainable choices, and in some cases, as a result of special events launched by the companies and aimed at consumers, employees, and institutions, it was possible to realise projects aimed at creating an ecosystem in which sustainable goals could be achieved through the use of gamified solutions.

Research limitations. Even though the findings may give additional information regarding the use of gamified solutions inside companies and how they may lead consumers towards more sustainable behaviours, the study has significant limitations. First, despite the inclusion of multiple case studies, the use of data from semi-structured interviews and the use of a variety of secondary funds, some information may have been unintentionally left out, which could diminish the credibility of the study. Second, the participants in this study represent only a small sample of the companies that use - or have tried to use - gamification to achieve certain goals and therefore the generalization of the research results to a wider population is limited. Finally, there might have been additional contextual elements that were overlooked and could have influenced the study's findings.

However, this exploratory case study provided insights for future research aimed at investigating (1) the relationship between the use of gamified solutions and the choice of sustainable behaviours; (2) the existence of gamification techniques that are more useful for achieving certain goals; (3) the existence of variables, such as culture, that may influence the techniques used; (4) the importance of gamified experience design for a company and the users of the experience. Furthermore, this study also provided practical implications for managers interested in applying gamified solutions to address the increasing demand for sustainable practices. Future research is needed to explore the relationship between the use and implementation of gamified solutions to guide individuals towards value-creating behaviours, for the company and society. Finally, future research could explore how to implement gamification strategies in companies that have not yet approached them.

Managerial implications. Gamification can be introduced into technological systems to enhance utilitarian goals by providing hedonistic experiences (Hamari and Koivisto, 2015). Considering individuals' desires regarding success and power, it is possible to push them towards certain behaviours. Considering this, our research contributes to the literature in two ways. On the one hand, it provides new information to understand how gamification experiences can guide individuals towards sustainable behaviours and how through a reinforcement system (Macdonald and Brewster, 2019) it is possible to push individuals to repeat such choices over time. On the other hand, this article shows that through the use and implementation of gamified solutions it is possible to generate value for the company and society. This result is in line with the value-behaviour perspective proposed by Whittaker et al. (2020).

Beyond the theoretical implications, this work also presents practical contributions. In the first role, it becomes clear that not all gamification techniques lead to the same results. Therefore, it is necessary to analyze the context in which a gamified solution is implemented and to construct the experience based on the identified characteristics as well as the desired results. Secondly, linked to the design and implementation of the experience, the subjects the experience is intended for must also be considered. In fact, using techniques that require skills not possessed by the users or the imposition of utopian objectives will only lead to the failure of the experience. In fact, it should be kept in mind that while the playful nature of gamification and the desire to achieve a goal are an important incentive for the accomplishment of certain actions, failure in failing to achieve a given goal may lead to a series of negative feelings in those involved (Ouariachi et al., 2020). For this reason, we suggest that managers who act as designers in gamified experiences analyze all the characteristics linked to the context of reference, the surrounding environment, and the culture of the subjects for whom the experience is intended. In this way it will be possible to understand the level of the participants and the objectives that will best capture their involvement.

Originality of the paper. Considering the growing importance of sustainability-related phenomena, the goals set by the 2030 agenda and possible solutions to overcome critical situations, our research demonstrates how through the design and implementation of a gamified experience employees and customers can be guided towards the adoption of sustainable behaviours, capable of being repeated over time thanks to reinforcement systems linked to the intrinsic desires of individuals. In fact, through rewards, linked to the completion of certain tasks in gamified solutions, it is possible to increase - in consumers and employees - the perception of personal value linked to sustainable actions. This research contributes to understanding the effectiveness of gamification for sustainability. The topic is relatively new and still little discussed in the literature (Douglas and Brauer, 2021; Oliveira et al., 2021) and, for these reasons, suffers from some shortcomings. The analysis was developed on the information obtained from the three companies examined and provided several practical and theoretical insights into the future course of the research. From a purely theoretical point of view, this study allows us to better understand the relationship between gamification and sustainability and especially on how to design - and the factors to be considered - in the construction and implementation of a gamified experience aimed at pushing subjects towards sustainable behaviour. Now, the research is still in an embryonic stage, so obtaining information from further sources and considering more companies could add more validity to this work.

Finally, it would be interesting for further future research to conduct a large-scale analysis and set up a quantitative study to determine how gamification may affect the choice of sustainable behaviour and the factors that determine this choice.

Keywords: Gamified solutions; sustainability; user engagement; innovations.

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European R&D grants: assessing the impact of SME Instrument on Technology Transfer activity

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Framing of the research. *The utilization of European funding to promote corporate research and development (R&D) is a widely accepted solution to tackle the issue of private underinvestment in R&D (Nelson, 1959; Arrow, 1972). R&D grants have been suggested to be more effective in influencing the direction of technological change and addressing specific societal challenges, in comparison to other policy measures such as R&D tax credits (Azoulay and Li, 2020 Van Reenen, 2020). The impact of these market failures is primarily felt by innovative SMEs, with financial resource constraints being a significant obstacle to R&D activities, especially with regards to technology transfer (Bukvic and Barlett, 2008). Hence, European funding can play a vital role in stimulating R&D and bridging the financing gap for small and medium-sized enterprises (SMEs) (Cincera et al., 2016; Mina et al., 2021).*

However, despite a tendency to report positive results, empirical evidence has not provided a conclusive answer on the effectiveness of R&D subsidies, as noted by Dimos and Pugh (2016) and Bloom et al. (2019). While R&D grants have the potential to encourage firms to increase their investment in R&D activities, the ultimate impact of such policies may depend on various factors, such as the design of the subsidy program and the characteristics of the firms that receive the subsidies. Furthermore, R&D subsidies may have unintended consequences, such as encouraging firms to engage in rent-seeking behavior or skewing their R&D efforts towards short-term goals rather than long-term breakthrough innovations.

Despite the potential limitations of R&D grants, they remain a crucial tool for policymakers seeking to promote technological progress and economic growth of SMEs. As such, continued research into the effectiveness of these policies is essential in order to develop grant programs that can maximize their benefits while minimizing potential drawbacks. As shown by several studies, European funding can play a crucial role in stimulating R&D and closing the funding gap for SMEs (Cincera et al., 2016; Mina et al., 2021). The support of European funding can enable SMEs to access the necessary resources and expertise to develop new technologies and innovations, thereby promoting economic growth and competitiveness. Indeed, several studies have demonstrated the positive impact of grants on the survival of small and medium-sized enterprises, as well as on their ability to maintain employment levels, invest in tangible assets, and increase sales or turnover (Dvouletý et al., 2021; Pergelova and Angulo-Ruiz, 2014). More concretely, grants are a form of financial assistance that can provide a boost to SMEs struggling to stay afloat or expand their operations. Studies have shown that grants can have a range of positive outcomes, including helping SMEs weather financial challenges and avoid bankruptcy, retaining or even increasing their workforce, investing in new equipment or facilities, and boosting sales or revenue.

Furthermore, European funding can also provide SMEs with access to international networks and markets, facilitating their integration into the global economy (Mulier and Samarin, 2021). This is particularly important for SMEs, which often lack the resources and capabilities to compete globally on their own (Gabrielsson et al., 2004).

By promoting innovation and competitiveness among SMEs, European funding can contribute to the overall economic growth and development of the European Union. As the European Commission notes, "The EU's future growth and jobs depend on its ability to support the creation of new companies and the growth of existing ones, particularly small and medium-sized enterprises" (European Commission, 2021).

Given the importance of European financing in promoting R&D and economic growth of SMEs, the present study aims to investigate its role in fostering innovation and competitiveness among SMEs.

Purpose of the paper. *The SME Instrument (SMEi) is a well-established funding program within Horizon 2020 that was introduced in 2014. Its primary objective is to support high-potential innovation and consolidate the EU's policy efforts to promote European competitiveness in advanced technologies, matching its excellence in science. The program*

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provides funding for SMEs to develop and bring new products, services, and processes to market as well as to access new markets. Moreover, the SMEi has facilitated technology transfer activity through patents activity. Within the framework of the SMEi instrument, businesses participate in a grant competition where the amount of funding can vary from as little as €0.5 million to as much as €2.5 million. Research and development activities that are eligible for funding include prototyping, testing, design, performance evaluation, monitoring, demonstrating, piloting, validating for market duplication, scaling, and application development. Grants cover 70% of all eligible costs associated with the proposed project for a period of 12 to 24 months. The intended outcome of the project is a market-ready product, process, or service (Di Minin et al., 2016).

The SMEi has two types of winners. The first type receives economic compensation while the second type is awarded a Seal of Excellence. The Seal of Excellence is a quality label granted to project proposals submitted under a Horizon Europe call for proposals that meet a predefined quality threshold but were not funded due to budget constraints (European Commission, 2023). More concretely, the Commission awards this seal to recognize the value of project proposals and encourage other funding organizations to benefit from Horizon Europe's high-quality evaluation process.

The aim of this paper is to determine whether SMEi contributes to fueling technology transfer activities, specifically in terms of new patent activity. In other words, this paper investigates whether SMEs improve their technology transfer performance, as measured by the numbers of patents, in the two years following their financing period. Thus, the analysis relies on SMEs that applied for funding to the Horizon 2020 SME Instrument (SMEi) program Phase 2, during the period 2014 to 2020. We have selected this stage because Phase 2 fundings focuses on sustaining innovation projects underpinned by a strategic business plan and a feasibility assessment. During this period, SMEs are requested to reach the market with a new idea (product, process, service) or to develop a business innovation plan which includes a detailed commercialization strategy and a plan on how to attract private investors.

Methodology. To evaluate the impact of the SMEi on technology transfer, we use propensity score matching (PSM) and difference in differences (DID) models to compare innovation performances (patent stock and patent applications) of SMEs that received the SMEi fundings with the correspondent performances experienced by a counterfactual group of SMEs that was awarded with the Seal of Excellence.

We retrieved the information on 3810 SMEi Phase 2 applicants that have achieved the qualification score in the evaluation cycle from eCORDA proposal database. The dataset contains applicants' data and project data for the evaluated project (both funded and not funded) that apply to the SMEi. To analyze the effect on technological transfer of SMEi, we further combined patent information over the period 2013-2021 obtained from Bureau van Dijk Orbis Intellectual Property database. By matching the two datasets, we obtain an unbalanced panel of 2039 firms.

To identify the causal effect of SMEi, we need to control for those elements that might have driven the acknowledgment of the "Main list" status. We need to make sure that our analysis rules out any significant difference between "Main list" and "Below available budget" SMEs in terms of these characteristics. Hence, we run a k-nearest PSM by using a set of variables related to the SMEi proposal (proposal duration, total cost of the project, requested EU contribution, coordinator country, and year of application). After the application of the PSM, the final sample comprises 1152 SMEs. Then, we specify a DID model by introducing both individual and time fixed effect and by clustering at firm level the standard errors.

Results. In Table 1, we report the preliminary results of the DID model to evaluate the impact of the SMEi on technology transfer. We present the results of being funded by the SMEi on the stock of patents and the applications of new patents. In both cases, the impact is positive and statistically significant, meaning that being funded by the SMEi lead to higher technological transfer with respect to the SMEs not funded.

The estimate of DID is higher in column 1 rather than column 2, but this result could be biased by potential acquisition of patents by SMEs. By focusing on the estimated coefficient of DID in column 2, we can isolate the effect of the policy on knowledge production of SMEs by both reflecting the inventive performance of the firm and having a close link to the invention (OECD, 2015).

This preliminary analysis confirms the positive effect of EU public policy in the short term by fostering technology transfer and the innovative performances of SMEs. These preliminary results show that the policy promotes the SMEs involvement in the commercialization of knowledge, hence generating and fostering competitiveness and growth. These early findings demonstrate that the policy encourages SMEs to participate in the commercialization of knowledge, thereby promoting competitiveness and growth. Moreover, the policy has fostered a culture of innovation and entrepreneurship among SMEs, leading to the creation of new products and services and the expansion of existing markets. Overall, the positive effects of the EU public policy on SMEs highlight the importance of continued investment in technology and innovation for economic growth and development.

Finally, our results are in line with the findings of empirical analysis of the U.S. Small Business Innovation Research (SBIR) program, a U.S. program that inspired the SMEi policy design. Studies of the SBIR program have highlighted the policy relevance of technology and knowledge transfers from publicly funded research to SMEs (Hayter and Link, 2021; Link, 2020). These studies have shown that policies that support innovation and technology transfer are effective in promoting the growth and competitiveness of SMEs (Berger et al., 1992). Our findings similarly suggest that the EU public policy has been successful in promoting technology transfer and innovation among SMEs, which has contributed to the growth and development of these businesses. Continued support for these policies will be important for the sustained success of SMEs in the EU.

Tab. 1: Results of the DID model

	Patent stock	Patent applications
DID	0.1467*** (0.02714)	0.1022*** (0.0205)
Observations	8092	8092
N of Firms	1152	1152
Firm FE	Yes	Yes
Year FE	Yes	Yes
Note: Clustered standard errors (in parentheses). *p<0.1; **p<0.05; ***p<0.01		

Research limitations. This study has certain limitations that serve as potential avenues for future research. Firstly, the analysis is limited to a specific time frame, as the effects of the European grant are assessed only within the two years following its allocation. Therefore, future studies could explore a wider time span to fully comprehend the longer-term impacts of the grant. Secondly, while some research highlights the importance of the intangible aspects of technology transfer (Campbell et al., 2020; Cucino et al., 2022), our analysis solely focuses on the tangible benefits, such as patent applications. Future research could adopt a qualitative approach and examine a sample of case studies to investigate the social and reputational benefits of the European grant that are not quantifiable through a quantitative analysis alone. By doing so, we can obtain a more holistic understanding of the impact of the European grant beyond the scope of patents. Moreover, we need to overcome the selection bias and loss of information arising from the presence of missing data in the ORBIS IP database by using the multiple imputation technique developed by Honaker and King (2010), drawn from the statistics literature, to generate a balanced panel and solving the problem of selection bias and randomly missing data

Managerial implications. The findings of this study have important managerial and policy implications. Firstly, companies that intend to participate in the European funding policy for research and development should pay particular attention to the protection of their intellectual property. Since the quality of the proposal is a fundamental criterion for obtaining funding, companies should focus on designing an ambitious and high-risk research and development plan that also has strong commercial potential. In this sense, the European funding policy for research and development can be seen as a sort of catalyst for the adoption of open innovation practices, which improve resource management and awareness of intellectual property (Spithoven et al., 2013; Van De Vrande et al., 2020).

Secondly, the R&D managers of companies that have obtained European funding should design and implement open innovation strategies in order to maximize the impact of the funding. The adoption of open innovation practices can increase companies' ability to transfer the knowledge acquired during the research and development project to other contexts and sectors, thus creating additional business opportunities. Furthermore, collaboration with other companies and research institutions can accelerate the process of commercializing the acquired knowledge.

In summary, our conclusions suggest that companies that intend to participate in the European funding policy for research and development should pay attention to the protection of their intellectual property and design open innovation strategies to maximize the impact of the funding.

From a policy perspective, the SMEi aims to create a unique and specialized group of companies that drive EU competitiveness and growth. Policymakers should consider these findings to optimize the allocation of resources for SMEs seeking European grants. By providing SMEs with the necessary support and tools, policymakers can drive innovation, economic growth, and job creation.

Moreover, this study provides valuable information for managers and policymakers to make informed decisions regarding the allocation of resources for SMEs seeking European grants. It is recommended that managers adopt open innovation practices to maximize the impact of the grant, while policymakers develop ad hoc tools to incentivize the best SMEs to apply for the seal of excellence qualification. Moreover, the study's findings are consistent with the empirical analysis of the U.S. Small Business Innovation Research (SBIR) program. Studies of the SBIR program have shown that policies supporting innovation and technology transfer are effective in promoting the growth and competitiveness of SMEs (Chowdhury et al., 2022; Leyden and Link, 2015; Link and Scott, 2010). Our findings similarly suggest that the EU public policy has been successful in promoting technology transfer and innovation among SMEs. Policymakers can continue to learn from and leverage the experiences and successes of programs like the SBIR to further improve the effectiveness of EU policies aimed at supporting SMEs.

In conclusion, our study highlights the importance of EU public policy in promoting innovation and technology transfer among SMEs. Policymakers must continue to invest in programs like the SMEi to support SMEs in their efforts to commercialize knowledge, generate growth, and remain competitive in today's global economy.

Originality of the paper. The role of European funding in promoting R&D among SMEs is critical, as it can help bridge the financing gap and stimulate innovation, as highlighted by previous studies (Cincera et al., 2016; Mina et al., 2021). One program that supports such innovative projects is the SMEi, which rewards high-risk and ambitious innovation proposals with the potential to disrupt the European market. The program encourages combining market-close innovation with market-oriented approaches to enhance competitiveness (Padilla et al., 2018).

Despite the importance of public support in promoting innovation among SMEs, questions remain regarding the impact of the SMEi instrument on technology transfer activities of SMEs. Therefore, this study aims to investigate

whether the SMEi has supported the patenting capacity of SMEs. While previous studies have focused on the financial performance of SMEs that have received European funding, this study aims to analyze the technology transfer activities of SMEs that have received funding and those that have received the seal of excellence qualification.

The findings of this study can be valuable for policymakers and SMEs seeking to design effective strategies to promote innovation and enhance technology transfer activities. By identifying the impact of the SMEi on the patenting capacity of SMEs, policymakers can optimize the allocation of resources to support SMEs in developing their intellectual property and drive innovation and economic growth. Moreover, SMEs can utilize the findings to enhance their patenting capacity and develop effective strategies for technology transfer activities.

Overall, the study sheds light on the potential impact of the SMEi on technology transfer activities of SMEs and highlights the importance of designing effective policies and strategies to support SMEs in promoting innovation and enhancing competitiveness in the European market.

Keywords: R&D grant; technology transfer; SMEi; innovative firms; European funding

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Technology transfer through Open Innovation practices: a qualitative study on public and private Proof-of-Concept (PoC) programs

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Framing of the research. *Open Innovation (OI) is a well-diffused topic in business studies (Bigliardi et al., 2020), with relevant implications for organisations that deal with knowledge and technology management (Scuotto et al., 2020). OI has been analysed from a process perspective (Chesbrough, 2017) identifying three main archetypes of knowledge and technology flows, namely inside-out, outside-in and coupled OI practices (Enkel et al., 2009).*

Even if the original OI model developed by Chesbrough (2003) mainly addresses private companies (Leckel et al., 2020; Livieratos et al., 2022), the role of Public Research Organisations is fully acknowledged in knowledge and technology transfer (Perkmann et al., 2013; Munari et al., 2016). However, as argued by Schillo and Kinder (2017), OI practices are implemented differently in the public and private sectors. OI practices in the public and private sectors are mostly addressed separately (Bommert, 2010; Huizingh, 2011), and therefore we argue that there might be a lack of discussion about how these practices take place in the two domains (Almirall et al., 2014; Bogers et al., 2018), particularly in the field of technology management and valorisation (Mergel and Desouza, 2013).

We address this issue by analysing a tool that is often used in OI practices, both in the public and the private sector: Proof-of-Concept (PoC) programs (Passarelli et al., 2020). These programs act as enablers for external collaborations to stimulate and develop innovation in the public and private sectors (Bradley et al., 2013; Munari et al., 2017; Battaglia et al., 2021b). More precisely, this work aims to answer the following research question: How do different PoC programs in the public and private sectors facilitate OI practices toward technology valorisation? To pursue the aim of our research, we carried out a qualitative study based on 26 interviews with professionals working in 12 PoC programs and experts in the field of open innovation, technology transfer, and VC funds within the Italian context.

Purpose of the paper. *Several studies addressed OI from a process view, investigating a wide number of dimensions to cover different OI models both from a theoretical and a practical perspective (Chesbrough, 2017). Drawing on Enkel et al. (2009), researchers mainly identify three archetypes of knowledge flows that underpin OI processes in public and private organisations. First, there is the inside-out practice, where organisations transfer ideas to the external environment by bringing ideas to the market, often valorising their technologies or IP. Second, there is the outside-in practice in which organisations enrich their value chain by integrating innovation and technology externally developed. Third, the coupled OI practice combines the two previous ones and refers to value co-creation by collaborating and cooperating with partners. The process leads organisations to jointly develop innovations, gain external knowledge, and bring ideas to the market.*

Traditionally, OI studies have been related to the private sector (Leckel et al., 2020; Livieratos et al., 2022). However, public organisations have also entailed OI practices with their external stakeholders generating value and impact on society (Wang et al., 2012; Uribe-Echeberria et al., 2019). Within this framework, Schillo and Kinder (2017) pointed out that organisations in the public and the private sector tend to differ in OI practices, participating in different ways in those kinds of collaborative dynamics. In fact, when we consider these two sectors, OI practices are mostly addressed separately in terms of interactions with the stakeholders, innovation tangibility (Bommert, 2010), and innovation outcome (Huizingh, 2011). However, we observed a general lack of comparison on how OI mechanisms differ between the public and private domain (Almirall et al., 2014; Bogers et al., 2018), in particular, regarding the field of technology management and valorisation (Mergel and Desouza, 2013).

Within their OI strategies, several organisations started to equip themselves with specific tools and instruments to manage internal and external knowledge flows (Mount and Martinez, 2014). Among those solutions, PoC programs enhance technology co-development in OI contexts (Passarelli et al., 2020). PoCs support organisations in forming open networks in which different actors work together to valorise technologies (Passarelli et al., 2018; Battaglia et al., 2021b). More precisely, PoC programs are pre-seed instruments designed to decrease the technological uncertainty of research-based inventions in their early stages and to support the process of technology valorisation (Rasmussen and Sorheim, 2012; Munari et al., 2016). They aim to transform knowledge into industrial applications (Battaglia et al., 2021a; Munari and Toschi, 2021).

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In recent times, researchers have paid growing attention to the role of PoC programs in facilitating the process of technology transfer, with regard to the activities of public research organisations (Munari et al., 2016; Battaglia et al., 2021b). PoC programs are relevant not only from the perspective of technology commercialisation but also because they support the valorisation process through the enhancement of co-development and networking activities outside the organisations (Maia and Claro, 2013; Passarelli et al., 2018). They have been structured to enable inventors' entrepreneurial capabilities and generate interactions among different internal and external stakeholders both in the public and the private sector but, in the knowledge and technology transfer literature, there is almost no evidence of how those programs differ across these two domains (Bradley et al., 2013; Munari et al., 2017), allowing further discussion on this topic.

Methodology. *The difference in OI practices between the public and the private sectors represents an issue that still needs to be addressed (Almirall et al., 2014; Bogers et al., 2018) and for this reason, the aim of our investigation is mainly explorative. To inductively provide new pieces of evidence and better address the research question, we analysed a set of PoC programs launched in Italy by different kinds of actors (Passarelli et al., 2020).*

We adopted an inductive research method to let the emergence of knowledge through direct observations. By collecting interviews and analysing their content, we recognise specific patterns among the different observations. Based on the grounded theory explorative approach (Strauss and Corbin, 1998), we abstracted the knowledge into a general framework to facilitate the description of this phenomenon and its exploration.

We considered a set of 12 PoC programs launched by 12 different organisations operating in the public and private sectors. We selected the four most common types of organisations operating in the technology transfer domain within the Italian scenario according to measures of research and technology transfer in Italy (Villani et al., 2017). The private sector is represented by three large firms (FF) and three VC funds (VC), while the public sector is represented by three universities (UU) and three national research centres (RC). We considered these four different organisations' typologies to better explore the phenomenon from a wider point of view. The 12 programs are related to specific characteristics that reflect the different contexts in which those organisations operate.

The 12 PoC programs differ in focus, average funding, typology of support provided, and average starting TRL. This is mainly because these instruments assume different characteristics according to the context in which they are applied (Maia and Claro, 2013). Several of the PoC programs are rather general, while others are more targeted to a specific field that has strategic relevance for a certain institution. As will be further discussed in the next sections, the programs also differ in terms of the average starting TRL of the invention considered and the type of support provided in combination with the grant.

According to the so-called Gioia Methodology (Gioia et al., 2013), we based our primary data collection on semi-structured interviews with professionals involved in designing and managing 12 PoC programs in Italy, both in the public and the private sectors. As a matter of fact, these professionals represented the unit of analysis of our study.

To better observe the dynamics that underpin PoC programs, we considered managers of the organisations, administrative staff responsible for the programs' development and management, but also a small panel of experts (EE) in the public and private fields of knowledge and technology transfer to get additional insights on those kinds of solutions. Overall, we made 26 interviews which have been recorded and transcribed. We collected our data between October 2021 and May 2022 through 15 online calls that lasted from 60 to 90 minutes each. The whole process took place on the Microsoft Teams platform.

We considered the grounded theory approach (Strauss and Corbin, 1998) and other more recent methodologies used in qualitative management research (Gioia et al., 2013) to inductively code the interviews' transcripts. To reduce any presence of retrospective data collection bias, we constantly updated our work through a continuous triangulation of data with the other secondary sources previously described (Eisenhardt and Graebner, 2007).

Considering the approach of Corley and Gioia (2004), we schematised the data analysis process according to the different organisations considered: universities (Figure 1), firms (Figure 2), national research centres, and VC Funds (Figure 3). The schemes include representative quotes from the interviewees associated with their specific IDs, first-order concepts, second-order themes, and, finally, four aggregated dimensions.

Fig. 1: Representative quotes from universities.

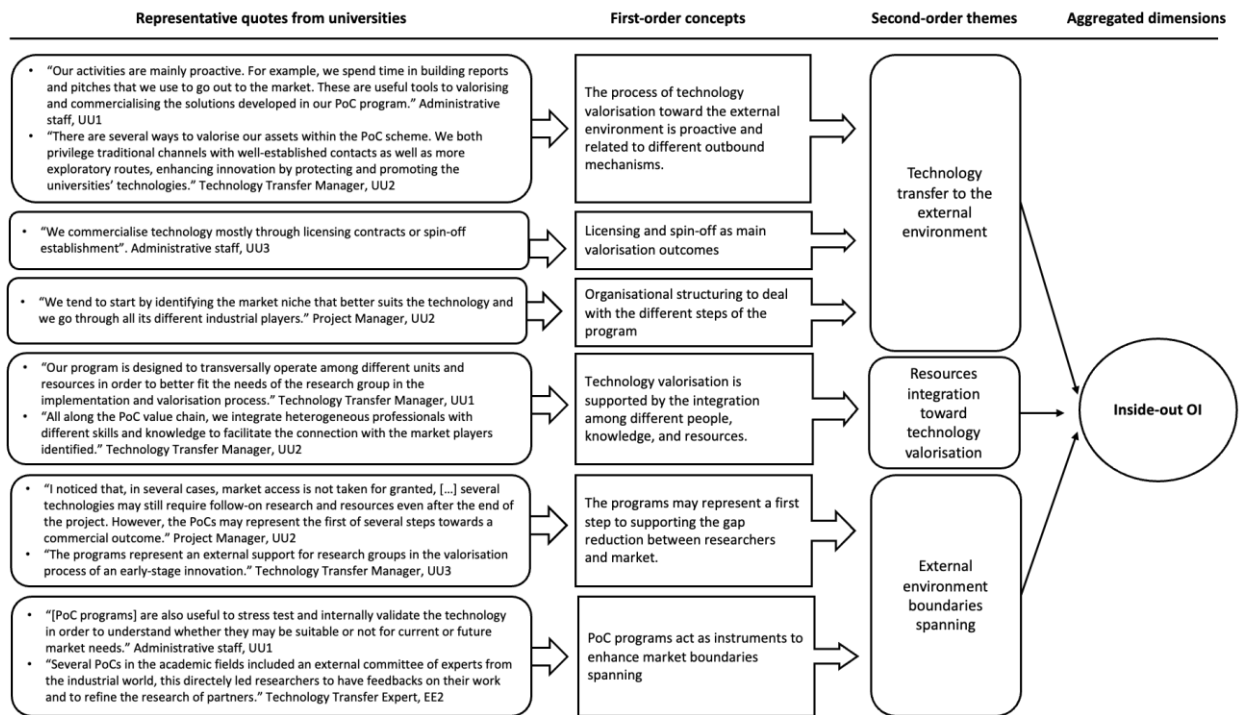


Fig. 2: Representative quotes from large firms.

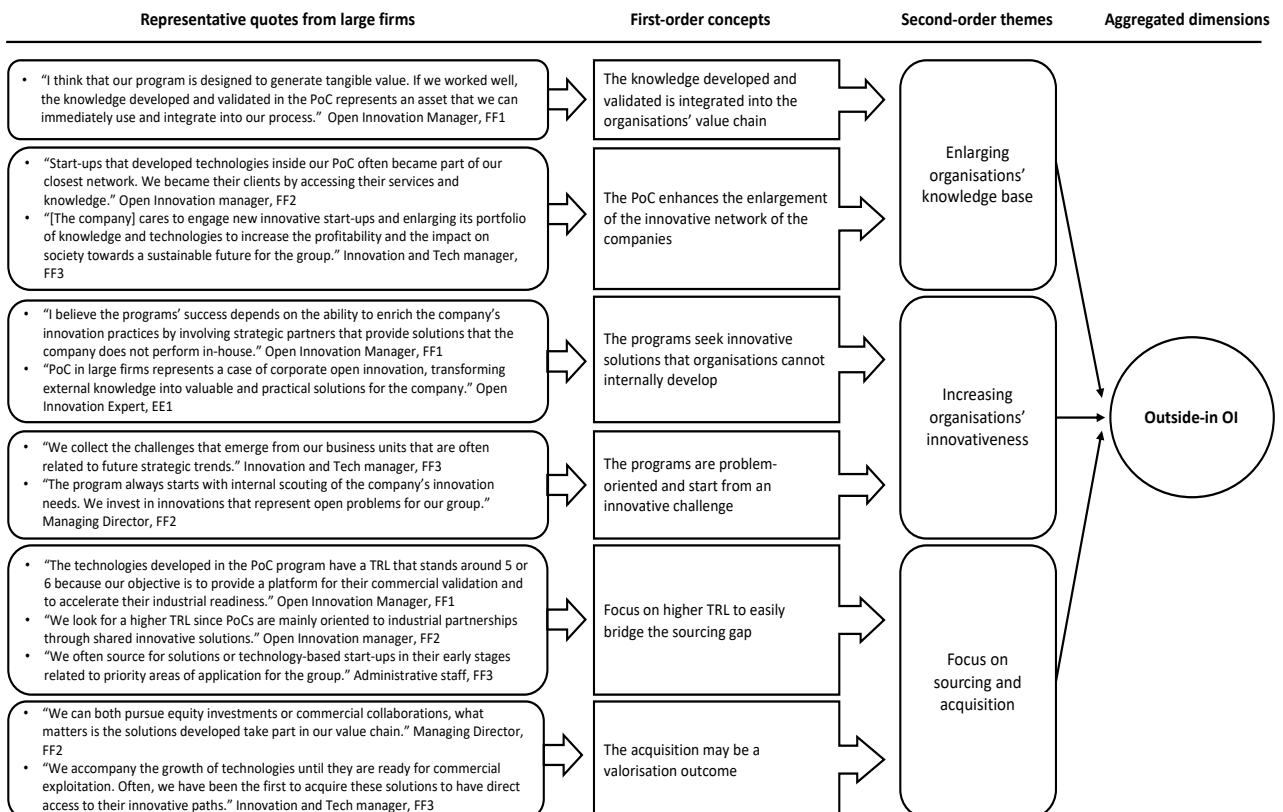
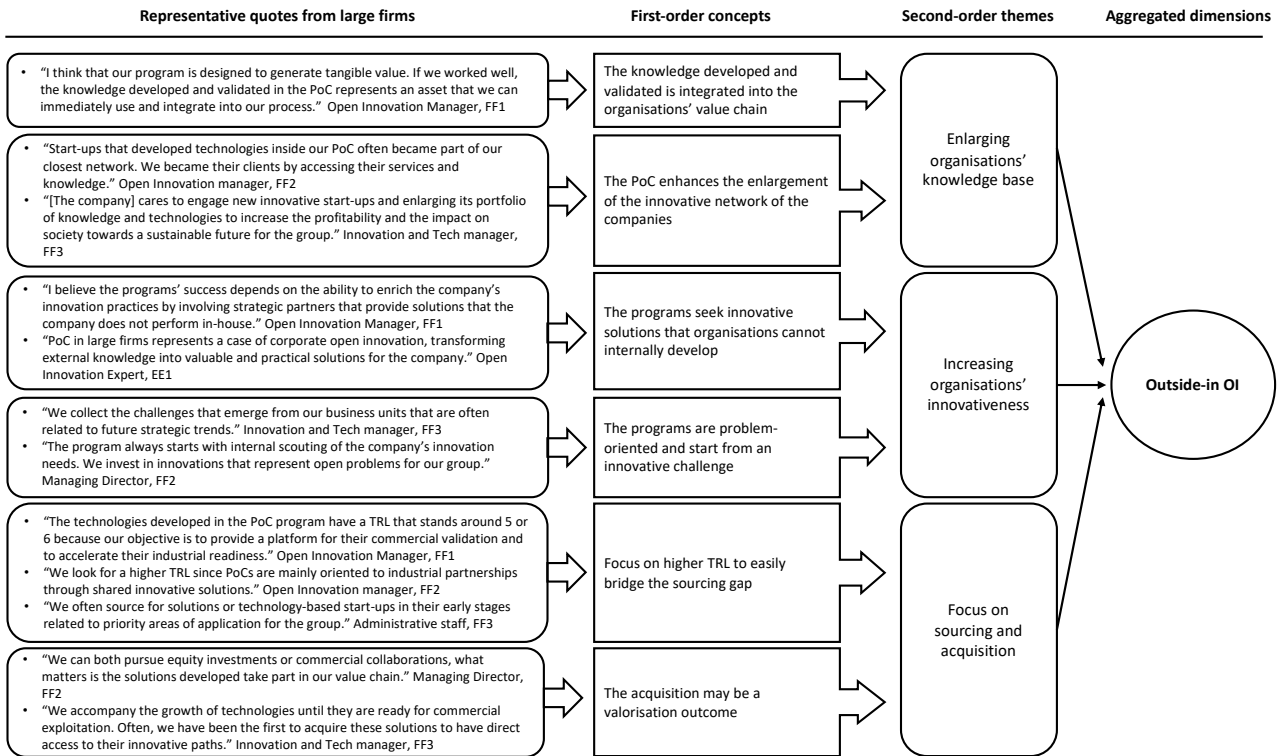


Fig. 3: Representative quotes from Research centres and VC funds.

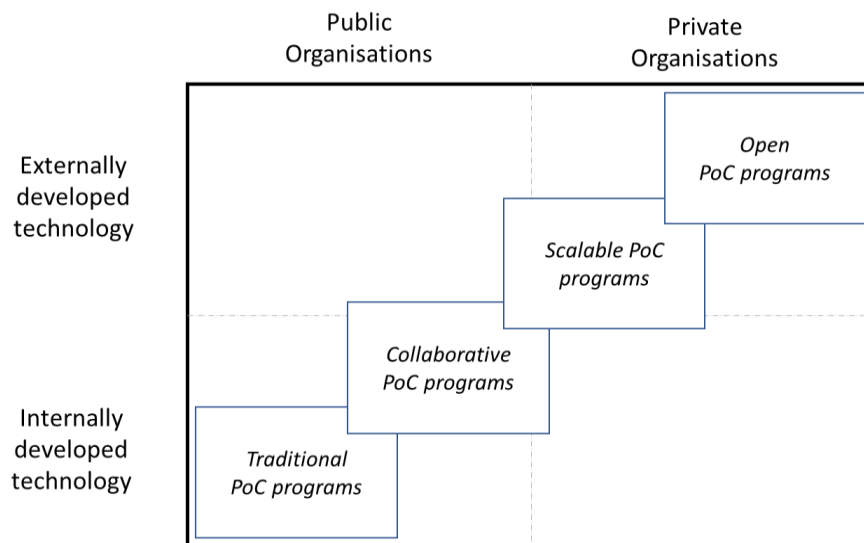


Results.

4.1. PoC programs in the public and the private sector

Interviewing the professionals who deal with PoC programs and analysing the data collected, we observed that four different PoC models emerge when we distinguish between the public and the private sector. The general scheme we developed by answering the first research question has been framed in Figure 4, organising the models according to the sector (public or private) of the organisation that managed and invested in the PoC, as much as on the external or internal technology development.

Fig. 4: PoC models in the public and the private sector.



4.1.1. Traditional PoC Programs

This model reflects the PoCs discussed in academic literature, mainly related to public organisations and technologies that are internally developed (Munari et al., 2017). We observed the emergence of these programs mostly in universities. In these cases, PoCs act horizontally, being oriented to valorise the vast set of knowledge developed inside the laboratories of large public research organisations. Within this frame, even if technology transfer

professionals seek licensing and spin-off as the main valorisation outcomes, it emerged that these programs may be also useful since they represent a first step to supporting the gap reduction between researchers and the market. They act as instruments to enhance market boundaries spanning, supporting public organisations in the path of internally testing and validating the technologies to understand whether they are ready or not to start the process of commercialisation.

4.1.2. Collaborative PoC programs

This is the model that we mostly observed in National Research Centres. Even in this case, we are referring to public organisations that rely on internally developed technologies. This model is specifically designed to create a match between researchers and the industry. In this PoC, a collaboration with industrial players promoted by public research organisations emerged. To enhance this interaction, we observed several cases in which the funding structure is shared between the public and the private sector and so it is the risk. The effort of each partner and the valorisation outcome are often pre-determined at the beginning of the program. Again, in this case, the program leads to the establishment of licensing contracts and spin-offs with an equity split among the parts involved.

4.1.3. Scalable PoC programs

The third model is the “scalable PoC program”. We refer to private organisations that rely on externally developed technologies. These are programs organised and managed by VC funds and are often very vertical around specific high-impact topics according to which the partners work together toward an innovation target. It is not the traditional VC funding scheme in which an investor puts money into a start-up or spin-off. In fact, they tend to invest only in an invention within pre-seed mechanisms with the idea to increase its technology and investment readiness levels toward the creation of a spin-off or start-up ready to go through a seed funding round and to be scaled up.

The programs require complementarity of knowledge and constant interactions to support strategic alignment among the different partners to both develop the technology and the business. We observed that the managing directors and partners of the VC fund have also a scientific background. With their knowledge, they can act inside a mentorship scheme supporting researchers all over the program’s value chain.

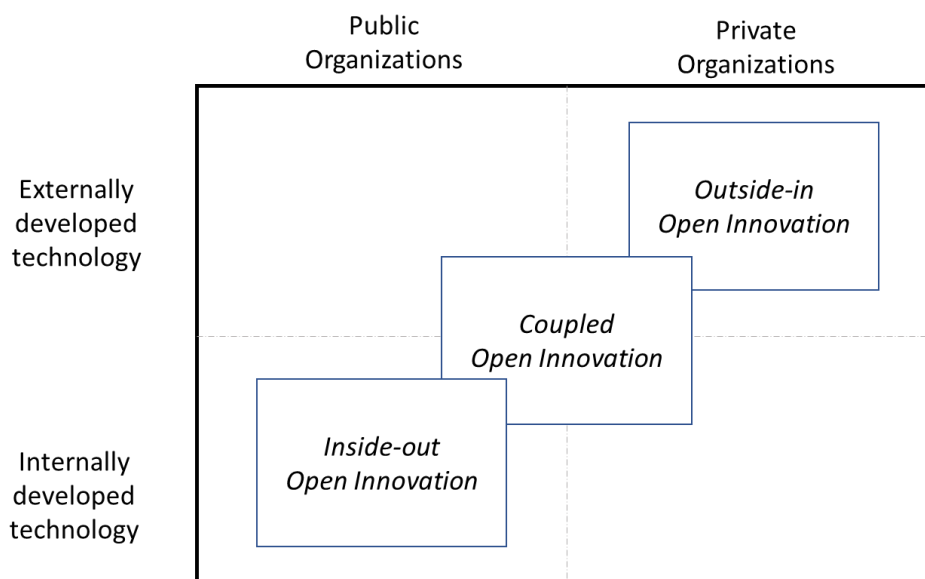
4.1.4. Open PoC programs

The last model is the “open PoC program”. Even in this case, we refer to private organisations, especially large firms, that rely on externally developed technologies. These programs seek innovative solutions that organisations cannot internally develop, they are problem oriented and they always start from an innovative challenge that emerged from an internal scout of the business units’ needs. To better address these innovation calls, firms tend to involve in the program’s technologies with higher TRL with respect to more traditional PoC to easily bridge the sourcing gap. Firms finance technologies that are already at the centre of constituted start-ups in their early stages. Even if it emerged that acquisition may be a valorisation outcome, the programs’ objective is not mainly to acquire those companies but that the knowledge developed and validated is integrated into the organisations’ value chain.

4.2. OI practices in the public and the private sector

Having presented how PoC programs differ in the public and the private sector, we now turn to the OI mechanisms that underpin these programs to observe how PoC programs between these two different domains facilitate OI practices toward technology valorisation. In fact, considering the interviews and the specific case of PoC programs as OI instruments, we observed the emergence of different “shades of openness” (Marullo et al., 2021) when moving from the public to the private sector. Figure 5 provides a visual representation of the three different OI practices that emerged in our study according to the different sectors (public or private) and the external or internal technology development of the organisations that managed and invested in the PoC programs.

Fig. 5: OI practices in the public and the private sector.



4.2.1. Inside-out Open Innovation practices

The first OI practice we observed is the so-called inside-out OI that results to be an aggregated dimension that emerged from our data analysis. When we consider PoC programs as OI instruments (Passarelli et al., 2020), we observed that public organisations such as universities, tend to facilitate OI practices by valorising technologies internally developed via mechanisms of technology transfer to the external environment (e.g., licensing, spin-off).

In this perspective, universities organise and manage those programs to facilitate open innovation by proactively promoting their technologies and involving external partners. As discussed in Battaglia et al. (2021a), all along the technology value chain, universities transversally integrate a set of “heterogeneous professionals with different skills and knowledge” (Technology Transfer Manager, UU2) to work together with academic researchers in increasing the technology and the investment readiness levels.

By transferring ideas and bringing value to the market, universities directly deal with external environment boundaries spanning, impacting, and accelerating the innovation process in an open and diffuse innovative ecosystem promoted by universities and enriched by a vast set of complementary actors.

4.2.2. Outside-in Open Innovation practices

Another OI practice that emerged as an aggregated dimension of our study is the so-called outside-in OI. This kind of OI practice is mainly facilitated by PoC programs in large firms that have the capacity of resources to invest in innovation to solve an internal or societal innovation challenge. In this case, the OI practice is managed by a private actor and relies on a technology externally developed. Concerning other OI practices, the technologies here involved have higher TRL and, as previously discussed, may already be the centre of a start-up or spin-off.

We observe that these OI practices are always problem-oriented and related to enlarging organisations' knowledge base and increasing organisations' innovativeness. By addressing open challenges, companies integrate their value chains with external technologies and knowledge, participating in an OI scheme first supporting the technology and business development of the invention and then adopting those solutions among their standard processes. Within this framework, the integration may take place both with a focus on sourcing and acquisition. However, even if the acquisition emerged as a possible outcome of this OI practice, from the interviews it emerged that the aim is to reach industrial partnerships with these start-ups or spin-offs to solve problems by collaboratively developing and adopting innovation.

4.2.3. Coupled Open Innovation practices

In conclusion, the last OI practice that emerged is the so-called coupled OI. We observed this practice both in public and private organisations (national research centres and VC funds) and both with internally and externally developed technologies. It is positioned in-between the two previous practices discussed and it is characterised by a set of elements that stands as a mixture of inbound and outbound OI mechanisms.

Within the schemes of PoC programs, these practices appeared to be facilitated by an inflow and outflow combination of knowledge that contributes both to technology and market development. In this frame, research centres' TTOs and VC funds experts actively work to “bridge the need for funding of researchers and the need for innovation of companies” (EE3). The combined integration among knowledge inflows and outflows leads to collaborative development and implementation of research-based innovations, valorising the technologies towards specific innovation targets. In particular, OI practices developed in the context of PoC programs in national research centres tend to generate joint start-ups or spin-offs with industries, while VC funds are more oriented towards their scale-up and acquisition on the global market.

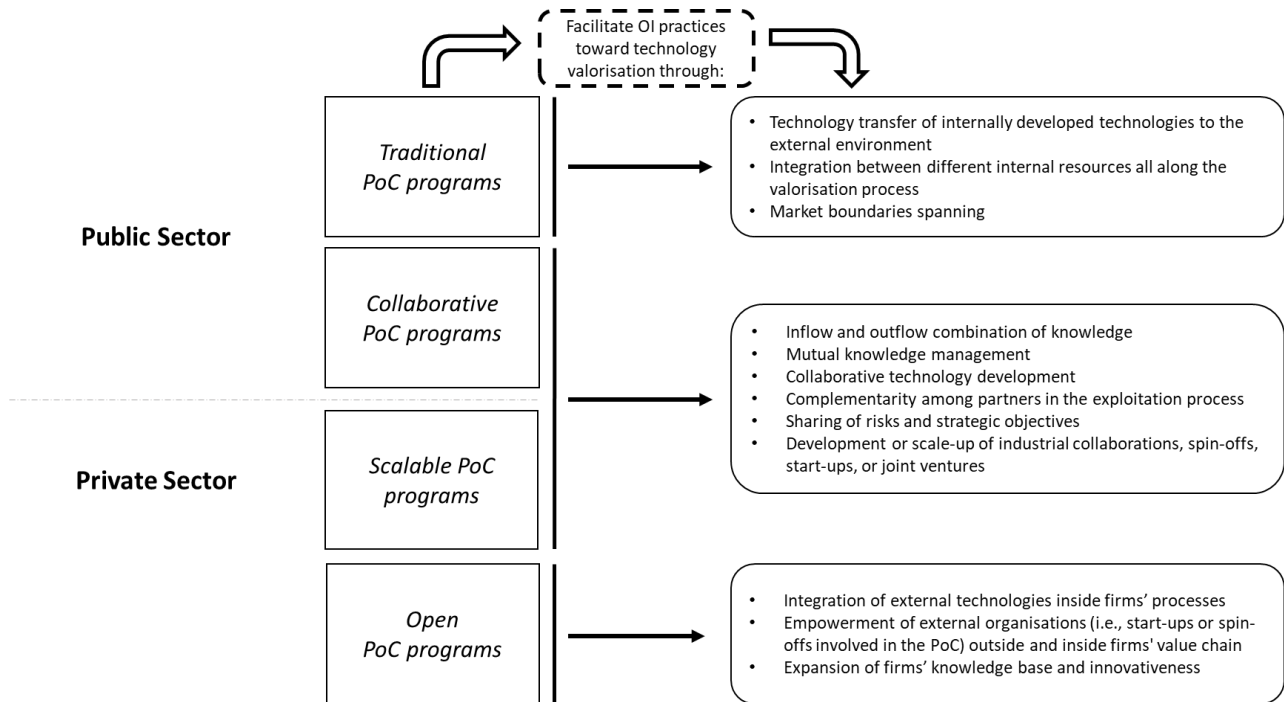
These OI practices are particularly facilitated by the need for constantly sharing risks and strategic objectives, working side by side, and, often, sharing the spaces. This approach is specifically designed to stimulate interactions to strategically align the partners and the complementary support that they can give not only in the implementation but also in the exploitation process.

Research limitations. However, our work is not free from limitations that we hope other researchers may consider as a starting point for future investigations. Our qualitative study may not be broadly generalisable to different national contexts or other kinds of public and private organisations. However, the aim of our research is mainly explorative and represents a first preliminary attempt to extend and develop the theory on OI practices in the public and private sectors. Even if the degree of generalisability remains to be determined, we believe our findings may inform future theoretical and empirical studies in this field toward the definition of a more extended and refined framework.

Managerial implications. Our work explored how different PoC programs in the public and private sectors facilitate OI toward technology valorisation. We schematised the general framework that directly addresses our research question in Figure 6. The exploratory study offers novel theoretical insights and practical implications on the role that those programs have within the OI framework as much as on the mechanisms that facilitate an open valorisation of technologies.

We noticed that PoC programs organised in the public sector mostly rely on the valorisation of internally developed technologies to the external environment, while PoCs organised in the private sector on the integration of externally developed technologies within their value chain. In particular, PoC programs in public organisations tend to spin out the technology by interacting with private partners, while programs in private organisations tend to integrate technology by interacting both with public and private partners.

Fig. 6: General framework



It emerged that PoC programs in the public sector, especially when we consider the case of universities, mainly facilitate inside-out OI practices toward technology valorisation, enabling the transfer of their internally developed technology to the external environment, the integration between different internal resources to boost the valorisation process, and the boundaries spanning with the market. While, PoC programs in the private sector, represented by large firms, mainly facilitate outside-in OI practices toward technology valorisation. In this sector, PoC programs enhance the integration of external technologies inside their processes and support spin-offs or start-ups in which they invest to implement innovation to become their suppliers or to be acquired. By facilitating these OI practices, these PoC programs expand the knowledge base and increase the innovativeness of those organisations.

In conclusion, we observed other PoC programs that facilitate coupled OI practices. It is the case of national research centres in the public sector that deal with internally developed technologies and VC funds in the private sector that deal with externally developed technologies. Here, PoC programs facilitate OI practices toward technology valorisation through an inflow and outflow combination of knowledge. PoCs stimulate OI within collaborative and co-development schemes oriented to manage knowledge, risks, and strategies among complementary partners toward the development or the scale-up of industrial collaborations, spin-offs, start-ups, or joint ventures to valorise technology in the market.

Originality of the paper. Our work provides further insights into the literature on OI in the public and private sectors. Even if previous research identified and investigated three main archetypes of OI practices (Enkel et al., 2009; Chesbrough, 2017), existing studies are fragmented among the processes that underpin these different mechanisms, particularly when it comes to considering their differences in the public and the private sectors (Almirall et al., 2014; Schillo and Kinder, 2017). The academic debate is mainly focused on understanding the emergence of these OI practices but considering these two separately (Wang et al., 2012). For this reason, we still lack a framework able to draw connections between the two sectors, especially concerning the field of technology management and valorisation (Mergel and Desouza, 2013; Bogers et al., 2018).

Drawing on previous literature that identifies PoC programs as instruments to implement OI (Passarelli et al., 2020) and technology valorisation (Battaglia et al., 2021b; Munari and Toschi, 2021), we provide a link between research on OI practices across the public and private sectors (Almirall et al., 2014; Bogers et al., 2018) and on technology transfer through gap funding instruments (Bradley et al., 2013; Munari et al., 2017). As far as we know, no prior investigation has dealt with this interaction before.

Our findings extend existing studies by exploring the role that PoC programs play in facilitating OI practices toward technology valorisation in the public and private sectors. More specifically, we identify how different ways of managing technology (internally or externally developed) as much as different kinds of public and private organisations facilitate technology valorisation. According to the findings, this process takes place through four typologies of PoC programs that facilitate three OI practices characterised by a different range of "openness" (Marullo et al., 2021). In developing this framework, we believe that our work offers some theoretical contributions, as much as some managerial and policy implications.

First, adding insights to the research of Uribe-Echeberria et al. (2019) on how to implement OI practices in research and technology organisations across different sectors, our study pointed out which are the key elements that

facilitate the emergence of OI practices, providing an in-depth look at programs specifically designed to implement these dynamics in the process of technology valorisation. Considering the case of PoCs, the emergence of OI practices appears to be mostly facilitated by the way through which public and private organisations manage knowledge and technology, their relationships with the external environment, their ability to integrate resources all along the innovation pipeline, and how their exploitation process is structured under a strategic and operative path. As argued by Wang et al. (2012), at the basis of the development of OI practices there is a strong presence of “forging ties” among several players between the public and the private sector. Even if this kind of linkage is not always easy to reach, our findings identify how these processes can be facilitated under an inside-out, outside-in, and coupled perspective.

Second, our findings contribute to shedding light on the definition of PoC programs as “relational enablers” first discussed in Battaglia et al. (2021b). We investigated the relational side of these programs within the OI framework, describing how multi-stakeholder partnerships oriented to innovation are managed and how they differ across four different kinds of organisations. We complement the vision discussed in Maia and Claro (2012), which sees these programs as “connectors” within an innovative ecosystem, bridging people, ideas, and resources toward technology valorisation. We observed how public organisations such as universities tend to operate with an outbound relational strategy, managing interactions oriented to an external valorisation of technologies internally developed, while private organisations as large firms tend to operate with an inbound relational strategy, through interactions oriented to an internal valorisation of technologies externally developed. Moreover, we observed a mixed relational strategy in other organisations operating across the two sectors such as research centres and VC funds.

Keywords: *Technology Transfer; Open Innovation; Proof-of-Concept programs*

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Open innovation in agricultural sector: an empirical analysis

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Framing of the research. *Entrepreneurs in general, but especially agricultural entrepreneurs, are faced with several challenges related to their daily business: environmental sustainability, food security, meeting the growing and very diverse needs of consumers and increasing competitiveness (Altobelli et al., 2017; Cavallo et al., 2014; Bigliardi and Filippelli, 2022). In this context, innovation is considered crucial to address present and future challenges (Jha, 2022). The growing importance of innovation in the agricultural sector is due, on the one hand, to the recent changes the sector has faced with the advent of new disruptive technologies (such as the Internet of Things (IoT), blockchain, big data, etc.) (Gardezi et al., 2022; Pillai and Sivathanu, 2020; Sharma, et al., 2022). Technological innovations and an 'open innovation' approach play an important role, not only in the simple growth of agricultural productivity, but in all aspects of this sector (Roberts and Geels, 2019; Touzard et al., 2015; Bronson, 2018). For example, innovation is crucial in improving business performance (Fitz-Koch et al., 2018), product quality (Haji et al., 2020) but also the impact on the environment (Bigliardi and Filippelli, 2022). Indeed, for these reasons and many others not listed, the concept of innovation in agriculture is being increasingly studied, especially in relation to what influences technology adoption or more generally the 'open innovation' approach (Mugge, et al., 2020; Goto, 2019).*

Having said that, it is important to explore, within this topic, the relationship between open innovation and agricultural entrepreneurs (Petruzzelli et al., 2022; Maalouf et al., 2022). Our study was based on two different literature frameworks: on the one hand we based this research on the concept of open innovation and, in particular, on its relationship with the agriculture firms referring to entrepreneur, on the other hand, we assumed that the decision to engage in a certain behaviour, to adopt an open innovation approach.

Chesbrough (2003a) suggests that many innovative firms have shifted to an 'open innovation' model, using a wide range of external actors and sources to help them achieve and sustain innovation. According to Laursen et al. (2006), "the focus on openness and interaction in studies of innovation reflects a wider trend in studies of firm behaviour that suggest that the network of relationships between the firm and its external environment can play an important role in shaping performance".

Open innovations become all the more essential during tough economic times, in particular, for the agricultural sector. The many difficult challenges faced by agricultural entrepreneurs in the transition to more sustainable agricultural systems are often related to resources (water, energy, biodiversity, land), socio-economic concerns (rural development, development of agricultural methodologies and reference to emerging markets), human health and environmental integrity (ecosystem health, environmental justice, climate change) (Bennett et al., 2014; Elzen et al., 2012; FAO, 2014; 2016).

In addition, in recent years, with the advent of the covid-19 pandemic, additional challenges and problems have arisen. The COVID-19 pandemic has affected markets, companies, entrepreneurs, sectors and also technological developments worldwide (Breier et al., 2021). Companies have been forced to adapt in a very rapid and agile manner to survive in an era of great change (Passarelli et al., 2023b). The pandemic has revolutionised many aspects and will influence many more in the coming years and decades. Therefore, it is crucial for companies to adapt and create conditions that require them to rethink business models (Piccolo et al., 2022). Business model innovations often involve digital transformation processes, while digital technologies are used to create or capture new forms of value (Bresciani et al., 2021).

Empirical investigations show that open innovation is mainly driven by larger companies and so, firm' size impacts on the extent of both technology exploitation and exploration (Lichtenthaler and Ernst, 2009) for this reason we investigated if even the small firms included in the sample could have an open innovation approach. Starting from an analysis of the literature on behavioural adoption in agriculture, the contribution proposes a conceptual extension of the theoretical model of the Theory of Planned Behaviour (TPB) (Ajzen, 1991).

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Purpose of the paper. *This study aims to answer two research questions: the first aims to understand which factors influence the entrepreneurs' intention or planification to adopt an open innovation approach in the Covid-19 period; secondly, we conducted an empirical quantitative analysis, referred to a sample composed by agricultural entrepreneurs in two distinct sub-periods: the first characterised by severe restrictions and uncertainty, that we labelled: "strong pandemic period" (referred to the period of 2020) and the other called "Transition pandemic period" (according to the OMS it is referred to the 2022) ". The aim was to understand if there are any differences in the results, considering the two aforementioned periods. We conducted an analysis of the literature on the use of open innovation in agricultural sector and, given the lack of studies in the literature, we investigate the farmers' intention to adopt an open innovation approach (Passarelli et al., 2023a).*

Methodology. *For our purpose, it is necessary to understand in which way the variables included in the analysis may influence the probability (for the farmers) to adopt an open innovation approach, intended as the intention to develop innovation, in collaboration with actors that operate outside the boundaries of the firm. To do so, it is necessary to verify the existence of significant causal relationships between the different independent variables and with two dependent variables called "intention to adopt" and "planification to adopt", using the binary logistic model (Gujarati and Porter, 2008). The dependent variables assume value zero in the case of no intention to adopt an open innovation approach and value 1 in the case of intention to adopt this type of approach. Thus, in this case, a binary logistic model is the most appropriate econometric tool for the analysis. Specifically, the variable "intention to adopt" refers to the intention of the entrepreneur to develop innovation, in the short run, in collaboration with actors that operate outside the boundaries of the firm, while "planification to adopt", refers to the intention of the entrepreneur to develop innovation, in the long run, in collaboration with actors that operate outside the boundaries of the firm.*

In our research project, we use the extended theory of planned behaviour (TPB) that considers (Ajzen, 1991; Fishbein and Ajzen, 2011), added to the original TPB, two more variables: the first is the Access to external financial resources (Sapbamrer e Thammachai, 2021) and the other is Sustainability (Bigliardi and Filippelli, 2022).

To understand which factors, affect the dependent variables, we began our study starting from the creation of a questionnaire composed by two macro sections. The first wants to collect information about the sample, the second part aims to analyse the factors that could influence the dependent variables. The first dependent variable that we considered was the "Intention to adopt an open innovation approach", intended as farmers' probability to adopt this type of approach in the near future; the second dependent variable was called "Planification to adopt an open innovation approach" and it is different from the previous one because in this case we considered a larger timespan in terms of future adoption.

This questionnaire was administered to the same sample of 106 agricultural entrepreneurs (based in Calabria) in two different periods: in the "strong pandemic period" and in the "Transition pandemic period". From the sample, we can note that almost half of the farmers are under 45 years; there is a predominance of the male gender, with 94 male farmers out of a total of 106. From the answers obtained from the questionnaire, we can note that 35 respondents obtained a degree, and most of the firms included in the analysis (58 out of the total of 106) are characterised by the use of internal and external workforce. Finally, almost half of entrepreneurs have already adopted technologies in the past years.

The estimates of the variables, except for the dependent variables and other control variables since they were valued with the dichotomous questions (0=No; 1=Yes), were measured through different 7-point Likert scales. The second section of the questionnaire returns a set of variables measured through different items. We decided to reduce the complexity of the data with an Explorative factor analysis (EFA), a statistical technique able to reduce data to a smaller set of variables and to explore the underlying theoretical structure of the phenomena. The aim is to find out how each of the elementary indicators changes in relation to all the others and how much they are associated one another. Factor analysis is developed using the principal components analytical method: a smaller number of principal components are extracted from the original N variables, that are able to account for a considerable proportion of the variance of the original variables. Subsequently, it is necessary to evaluate the coefficients by the two indicators: Kaiser-Meyer-Olkin index (KMO) and Bartlett's test of sphericity. KMO is constructed by comparing the correlation coefficients with those of partial correlation, with variation between 0 and 1, suggesting the potential inadequacy of factor analysis, since the correlations between pairs of variables cannot be explained by the variance shared by the set of variables, which means that common factors cannot be identified. In these cases, we obtained a KMO index of 0.848 for the post pandemic period and of 0.787 for the strong pandemic period; furthermore, as regards the Bartlett's test of sphericity, used to verify the hypothesis that the correlation matrix is an identity matrix, we obtained for both cases that there are correlations that are sufficiently high not to be comparable to zero. Subsequently, it was evaluated in the analysis of communality, which allows to purify the input variables in order to eliminate from the model those variables that present extracted saturation lower than 0.40. From the analysis on the reference sample, there is a good level of explanation of the variance, for both periods, deriving from the excellent saturation of the chosen variables.

Through factor analysis it is appropriate to lose the least amount of information, therefore, the objective is to select those factors that, cumulatively, are able to explain at least half of the variance. In the present cases, after the explorative factor analyses, four factors emerged; the results for the Transition pandemic, explain about 68,39% of the cumulative variance, while for the Strong pandemic period, we have a cumulative variance of 74,28%. The four factors emerged from the EFA were the following:

- "Attitude to Economic and Sustainability" (ATES) is related to variables that measure the attitude of agricultural entrepreneurs to adopt new technologies with a positive economic effect on the firm and also on the environment;

- “Perceived Behavioural Control” (PBC) is the entrepreneur's perception of controlling external events and corporate resources (Lefcourt, 1991; Abay et al., 2017);
- “Subjective Norm” (SN) is a measure of the approval that the entrepreneur perceives from all the subjects that belong to the ecosystem in which he/she operates (Ajzen, 2012; Hall and Rhoades, 2010);
- “Access to external financial resources” (AER) which refers to subsidies, incentives and credit market products for agriculture (Abate et al., 2016; Pannell and Claassen, 2020).

We used the same approach for both periods of analysis; using the factors coming from the explorative factor analysis, we did two logistic regressions, considering the different dependent variables.

The aim was to understand if there were differences between the factors that influence the dependent variables in the two periods and to identify four different profiles for farmers, based on different factors affecting the probability to adopt an open innovation approach. Multicollinearity was checked between continuous and categorical variables before they were added to the logit model and, after some test, used to understand how the logit model fits the data, we analysed which factors affected the two dependent variables in the different period.

Results. This approach offered different results. The Omnibus test of the maximum likelihood ratio with chi-square was evaluated comparing the model containing only the dependent variable with the model containing all the predictors and, for both analyses, the test is significant with p -value < 0.05 . To understand how well the logit models fit the data, Cox-Snell R-square and Nagelkerke R-square were tested and we obtained good results for each model, in particular the values obtained are respectively 0.335 and 0.474 (for the post pandemic period's model), and 0.495 and 0.736 for the strong pandemic period. Finally, the correct classification of cases into different groups concerns the number of correctly and incorrectly assigned cases based on the probability of occurrence of an event; we obtained a correctness rate of about 80,2% of the cases for the post pandemic period and a correctness rate of about 89,6% for the strong pandemic period. Results from the different logistic regressions, gave us the following results.

- During the strong pandemic period we obtained that the variables that have a positive effect on both the dependent variables (Intention to adopt and planification to adopt) are: the PBC (with a p -value lower than 0.05 in both cases) and the ATER (with a p -value lower than 0.10 in both cases); furthermore, when we consider as dependent variable the “Intention to adopt”, also the Age is significant (with a p -value lower than 0.10) and have an impact on the Intention to adopt an open innovation approach soon.
- During the transition period, if we consider as dependent variable the Intention to adopt, different results come out. Specifically, all the independent variables are significant (PBC with a p value lower than 0.05 while the other four variables with a p value lower than 0.10) with a positive effect on the dependent variable. When the dependent variable is the planification to adopt an open innovation approach, we can note how, again, PBC, and also ATER are significant (with a positive effect) with a significance level lower than 0.05, while SN shows a p value of 0.10.

After these preliminary analyses, results of logistic regressions were discussed. Findings from the strong pandemic period for both dependent variables, gave similar results. In both cases, in fact, the significant variables that have an impact on the dependent variables are PBC and ATER but, given that the adoption timespan is different for each dependent variable, we define in different farmers' typologies. Considering as dependent variable “Intention to open innovation”, led us to define this type of farmer as “Dreamer”, that because in this uncertain period we have an entrepreneur that is influenced (in the adoption of an open innovation approach in a brief period), among others, by his attitude to economy and environmental sustainability and not by external financial support. Farmers in the same period but, considering as dependent variable the “Planification to adopt an open innovation approach”, were identified as “Optimistic” thanks to the fact that the same significant variables, considering as adoption timespan a larger period, are typical of a more concrete entrepreneur that want to deeply understand which is the evolution of this difficult period. The transition pandemic period is probably considered, by the farmers, as a period characterised by a lowest level of perceived risk related to the probability to adopt an open innovation approach. Even in this case, the timespan is different for the two periods, in fact, considering as dependent variable the intention to adopt (and so a brief period in terms of adoption of an open innovation approach) all the independent variables are significant and have a positive impact on the dependent variable; we called this farmer “Pragmatic” thanks to the fact that, even if this period is considered less risky, the probability to adopt an open innovation approach is influenced by the external financial support.

Research limitations. This study is not without limitations. The first one is related to the sample's dimension, we could expand, in the future, our analysis on a larger number of entrepreneurs. The second limitation is related to the fact that we considered the particular case of agricultural sector and we cannot extend our results to other sectors. Furthermore, we could have used different methodologies to understand if entrepreneurs are interested in the adoption of an open innovation approach.

Managerial implications. Our study offers different implications. We can suppose that during the strong pandemic period, entrepreneurs used many resources to keep their firms alive and now, if they want to invest (in a relatively short time horizon) in different technologies and partnership, they need help. Considering a larger adoption timespan, and so the dependent variable called “planification to adopt an open innovation approach”, three independent variables out of the total of four, remain significant; just the variable related to the external financial support becomes not significant. This could be justified by the fact that after a period of adjustment, where the financial support is necessary for all entrepreneurs, farmers are influenced in the probability of adoption, just by variables related to “less concrete aspects” and for this reason, we called this farmer “Ethical”. The identification of farmers' profiles can offer to the

entrepreneurs and to the policy makers, some opportunities to think about financial opportunities and innovation strategies.

Originality of the paper. In literature there are many studies related to open innovation and, in particular, to the relationship between the open innovation and the firms. However, there aren't articles that investigate if farmers entrepreneurs are interested in the adoption of an Open innovation approach, intended as: investments in technologies and collaboration with different types of external partners (e.g. universities, partners, customers etc.). In addition, several studies considered Open innovation as an independent variable, analysing its effect on the dependent one; on the contrary, in this study, we considered the open innovation as a dependent variable and we splitted it into two different ones. Finally, we conducted our analysis in two different periods in order to compare the results and to understand how farmers' propensity to adopt an open innovation approach has changed during these difficult years.

Keywords: open innovation; agriculture; binary logit; technology

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Open Innovation for Local Development: The Role of University and Its Stakeholders

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Framing the research. *Innovation is widely considered an important means for addressing the “grand challenges” of contemporary society, and this explains the extensive interest received from different disciplinary domains and settings (Acar et al., 2019). Even though the literature provides many different definitions of innovation, one of the seminal ones describes it as the creative response of a company, an industry, or an economic system to emerging problems/needs (Schumpeter, 1934).*

Innovation has also been approached as a key source of competitive advantage (Henry and Pinch, 2000) not only for business organizations but also for specific geographical or regional areas (Mas-Verdu et al., 2010). More recently, scholars have increasingly focused on the inner relationship between innovation and regional development (Harmaakorpi, 2006; Mitra, 2019; Afrifa et al., 2022). This relationship has been also recognized by the OECD that underlines the impact of innovation policies on regions’ performance (OECD, 2014). Several regional areas or even cities have further exploited this top-down approach, putting innovation at the core of their “local (bottom-up) development strategies” (Shearmur, 2016, p.440), focusing on the contribution that institutional elements, including intermediary organizations and the related services, can offer to innovation-based initiatives. This bottom-up approach is based on new forms of collaboration between local government, research institutions, universities, companies, and even citizens involved in open innovation processes (Komninou et al., 2013).

The concept of open innovation has grown in prominence over the last decades as a powerful path for stimulating innovation by connecting organizations with outside knowledge sources (Bogers et al., 2017). With the help of digitalization, this is also possible on a global scale through a process called “distant search” (Laursen et al., 2012; Lopez-Vega et al., 2016). Distant search makes it simpler for organizations to identify and collaborate with other organizations in developing new products and services because it gives them access to external knowledge sources regardless of where they are in the world. However, working with diverse partners often with different mindsets can negatively affect the overall trust of the interacting actors (Hannen et al., 2019). To address this issue, a novel approach known as “local open innovation” has been proposed.

Local open innovation is a combination of open innovation and local collaboration, based on a network approach and on the presence of intermediaries (Deutsch, 2013). The goal of this type of innovation is to boost collaborative problem-solving in a particular geographic region (Leckel et al., 2020). Local open innovation makes organizations able to access effective novel inputs, even if they are not the best available worldwide. In addition, local open innovation can benefit small and medium-sized enterprises (SMEs) that may be hesitant in engaging in open innovation due to their local embeddedness (Leckel et al., 2022). Thus, this innovation can assist SMEs in gaining access to external knowledge and resources even though they aren’t engaged in traditional open innovation processes. Local open innovation can be also crucial for the growth of new businesses, as the local economic environment plays a great influence on their success (Jonek-Kowalska et al., 2021). Due to its networked nature, local open innovation may foster the creation of a regional innovation ecosystem and regional development by nurturing an innovation-based collaboration between firms, professionals, research bodies, and institutions (Leckel et al., 2020).

The implementation of local open innovation strategies boosts the improvement of different actors’ expertise, including solution-seeking companies, problem-solvers, and network promoters (Leckel et al., 2020). The latter ones are considered intermediaries of innovation processes because they facilitate the collaboration between two or more

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parties at different stages of the innovation process (De Silva et al., 2018). Recent research on the use of workshops to promote local collaboration in the pharmaceutical industry (Kratzig et al., 2018) demonstrates that research institutions play a vital role in intermediating and promoting local open innovation processes. It appears that these actors have the knowledge, skills, and several trusted relationships essential to engage several other local actors (or stakeholders) in open innovation processes (Leckel et al., 2020).

We suggest that the Triple Helix Model (Leydesdorff and Etzkowitz, 1998), based on networking activities, knowledge transfer, and human capital development, can be a fruitful framework to advance the research on local open innovation. Indeed, it contributes to a better understanding of the dynamics at the core of the interactions occurring between three actors placed in each single helix (government, university, and industry) at different stages of the innovation process (Etzkowitz, 1996; Cai and Etzkowitz, 2020). This is due to this model's ability to involve different local actors in non-linear innovation processes by exploring, exploiting, and expanding the available knowledge (Lichtenthaler, 2011; Kerry and Danson, 2016). The triple helix model is inherently based on an open innovation approach because even if each helix acts according to an internal development logic, at the same time they are also involved in knowledge, products, and services exchange with external actors or stakeholders (Khan and Park, 2012; Yun and Liu, 2019).

The extant literature also underlines the pivotal role that universities and other knowledge-producing organizations play in promoting innovation. Thus, according to some scholars (Etzkowitz and Leydesdorff, 1995; Perkmann and Walsh, 2007), universities are no longer passively focused on the private creation and dissemination of scientific knowledge, rather they are proactively engaged in open innovation networks and in interactive local-based innovation processes. This implies that due to their proactivity and ability in encouraging interaction among stakeholders, universities can act as focal organizations in local innovation networks (Foss et al., 2011).

Purpose of the paper. Drawing on previous research on local open innovation (Deutsch, 2013; Smulders, 2013; Leckel et al., 2020; 2022), this study aims at contributing to the relatively scant literature on the topic, examining the close relationship existing between regional/local development and open innovation processes occurring in “urban settings or clusters, which generate local buzz and allow access to external actors” (Shearmur and Doloreux, 2016). Starting from the crucial role that universities play in innovation dynamics, we assume that they typically serve as “place leaders” and orchestrators of the stakeholders participating in innovation network activities, in addition to their conventional teaching and research roles (Thomas et al., 2021). Orchestration refers to the collaborative practices involved in the creation and development of networks (Dhanaraj and Parkhe, 2006). Through their leadership, universities may act as orchestrators promoting cooperation and information sharing essential for open innovation development (Majava, 2016). More in detail, universities’ orchestration tasks mainly consist of (especially during a network development phase) identifying the reference context and the participants in innovation processes. Against this background, the main goal of this study is to delve deeper into the focal role of universities in boosting the network dynamics among the local actors involved - at different stages and with different roles - in open innovation processes.

For a better understanding of university orchestration tasks, a stakeholder analysis and mapping have been conducted (Parmar et al., 2010) assuming the Triple Helix model perspective (Leydesdorff and Etzkowitz, 1998; Helman, 2020; Baturina, 2022). Stakeholder analysis and mapping are powerful tools for acknowledging stakeholders, i.e., individuals and groups able to influence an organization's goals (Morgan and Taschereau, 1996). In general, stakeholder analysis points to recognizing their influence, power, and interests. This technique will support this analysis, identifying and prioritizing stakeholders’ interests based on their relevance for the achievement of an innovative project (Morgan and Taschereau, 1996; Brugha and Varvasovszky, 2000). In this sense, it is vital to highlight that the institutional framework in which stakeholders operate shapes their power, influence, and interests.

Methodology. This study aims at contributing to the call for further research on local open innovation and provides evidence from a qualitative case study analysis¹. This method is particularly suitable for understanding emerging phenomena “when how and why questions are being posed when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2003, p. 50).

The innovation processes have been investigated according to the perspective of the case organization (a public university based in Italy), intended as a focal local actor able to promote and attract the interest of its stakeholders around innovative initiatives and projects. In doing so, the network approach to stakeholder theory (Cots, 2011; Marcon Nora et al., 2023) and the Triple Helix model (Leydesdorff and Etzkowitz, 1998) - which is built upon the role that the University can have in the generation, transfer, and application of new knowledge (Ranga and Etzkowitz, 2013) - inspired the definition of the focal actor. We collected a mix of primary and secondary data. After the identification of 48 key informants, we conducted interviews through a digital platform between December 2022 and January 2023. We then triangulated primary data with information retrieved from different secondary sources (e.g., official documents and reports, corporate websites, news articles, research reports, etc.) to improve their reliability (Fush et al., 2018).

Our study involved a two-step analysis: 1) stakeholders identification, and 2) stakeholders prioritizing in a power/interest matrix.

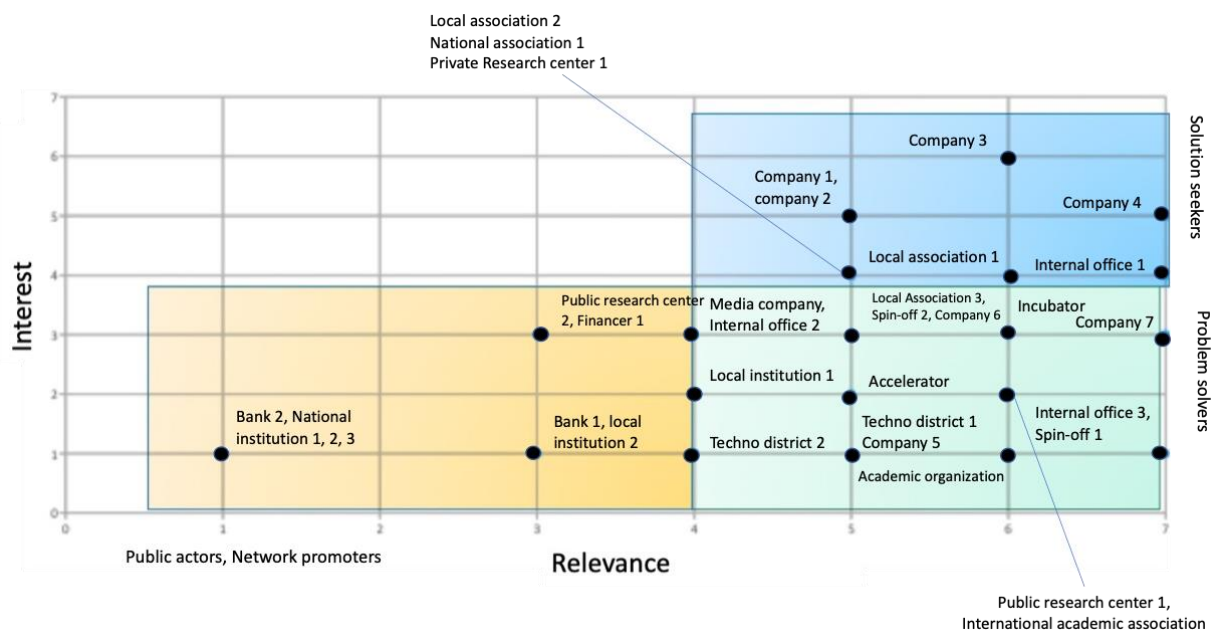
During the first step, stakeholders were identified and, according to the Triple Helix model perspective (Leydesdorff and Etzkowitz, 1998): as a result, we categorized them as Government, University, and Industry actors, according to

¹ It is worth noting that this analysis is part of a wider and multi-year European-based project on entrepreneurial education for the development of local innovation ecosystems.

their macro domain and their core activities. During the second step, a power/interest matrix was developed for mapping and defining stakeholders' interests in and relevance for local innovative projects and activities (Bronke and Winch, 2002; Bryson, 2004). This also led to proposing some appropriate engagement strategies and actions. The matrix was developed according to the information collected by performing semi-structured interviews with stakeholders' key informants. 48 stakeholders were identified and invited to participate in the study but just 36 of them participated in the interview process.

Results. Based on the analysis of primary and secondary data as described above, and after having h coded the interview responses, we developed a relevance/interest matrix. More in detail, relevance refers to the perceived stakeholders' importance for the success of innovative projects (Heugens et al., 2002), while interest refers to their willingness to be engaged within innovative projects (Freeman et al., 2017). The matrix depicts 36 stakeholders (those who agreed the interview protocol) located and grouped according to their relevance for and influence in innovative projects/activities in which also the focal actor is involved (Fig.1). We also attempted to combine stakeholder classification with the one we found in the local open innovation literature. More specifically, following Leckel et al. (2020), we categorized the 36 stakeholders into the following categories 1) Solution seekers or those stakeholders who get benefits from innovation programs (10), Problem solvers or those stakeholders who are open to collaborate for finding new solutions to local problems (18), Public actors or those stakeholders who have the interest and the means to engage others in innovative projects (4), and Network promoters or those those stakeholders (e.g., public or industry agencies, banks, etc.) who support innovation projects within their economic realm (4). Figure 1 represents a provisional attempt to combine two different classifications.

Fig. 1: Stakeholder mapping.



Source: authors' elaboration.

Respondents have been labeled using a generic notation related to their core activity to ensure their anonymity.

The map suggests that most of the stakeholders are relevant to the innovation activities in which the focal organization is involved; thus, they are placed on the right side, even though they have demonstrated a different interest in, and a different relevance for these activities. This suggests that a strategic effort is needed for stimulating the interest, and therefore, the engagement of less interested but relevant stakeholders (problem solvers) for the common purpose of activating value-creation processes essential for innovation. It is worth noting that the number of stakeholders defined as "solution seekers", which have a high relevance and a high interest, is not that high (10) especially if compared with "problem solvers" (18). Therefore, if the solution seekers can be also defined as "partners forever" because are constantly and directly interested in innovation projects/activities, problem solvers can be defined as "work needed" because they need further engagement and better communication strategies aimed at increasing their interest (e.g., through periodic consulting to better focus project activities also on their scope and goals).

Finally, a few stakeholders - mainly public actors (4) and network promoters (4) - are placed at the bottom left of the map; therefore, low relevance and low interest characterize them. Due to their different position in the low-relevance low-interest quadrant, the focal organization cannot ignore them, but it should rather monitor them to plan, design, and develop specific communication strategies to keep them informed about innovative projects.

Even though a good number of case organization stakeholders are interested and engaged at different levels in innovative projects/activities, it is worth noting that institutions (e.g., national, and local ministries and agencies) demonstrated less interest and relevance.

This is an interesting finding because even though the literature approaches them as a group that calls for a minimal strategic effort (Scholes et al., 2001), Todeva and Etzkowitz (2013) maintain that the focal actor cannot ignore them because the activation of triple helix innovative dynamics calls for the engagement and the close interaction between all the three core actors. In this sense, Todeva and Ketikidis (2017) maintain that policy mismatches can negatively affect the proper innovative capacity as well as the decentralization from national innovation systems to regional ones. This implies that the university should act as a “local hub” able to counteract the negative attitude or the low interest of institutional stakeholders toward local innovative projects/activities (Demir et al., 2015) enacting more intensive engagement strategies. This will also boost the participation of these actors in local open innovation activities, activating an effective triple helix constellation and the related innovative dynamics among each helix.

Research limitations. This study is not free from limitations that may inform future investigation. First, it offers evidence from a case study of a mega and public university based in Italy. This limits the generalizability of our findings to different contextual conditions, including for instance, small or private universities. Future studies may remedy this flaw by pursuing empirical studies based on large samples. Relatedly, another important boundary condition is that our study refers to an Italian university and is therefore affected by Italian institutional conditions. To remedy this flaw, future studies could pursue a multi-country comparison of the role played by HEIs in favoring local open innovation.

An additional limitation refers to the unit of analysis/perspective under investigation. As a local open innovation system benefits from the contribution of multiple stakeholders, analyzing different actors (from their perspectives) would provide a more comprehensive account of the phenomenon. Moreover, our study provides a static view of the relationships between the university under analysis and the engaged stakeholders. As their engagement may evolve over time, a processual investigation of how the relationships of stakeholders change over time and under what circumstance may further advance our understanding of how universities enact local open innovation processes and orchestrate innovative resources.

Managerial implications. The managerial implication is that universities should map their stakeholders and identify the best engagement strategies on a regular basis as a part of their strategic planning process. Moreover, as orchestrators, universities can mobilize stakeholders to participate in those transformative processes essential to address societal challenges with local open innovation policies. To this end, the networked interaction between the university, industry, and government at a local level is essential for creating a viable innovation system based on localized trust forms (Meissner, 2017) able to increase the competitiveness and socio-economic growth of a specific area.

Our findings also have important policy implications. Thus, local institutions may benefit from the ability of universities to orchestrate resources and competencies from a plethora of stakeholders and should identify the most effective and suitable mechanisms to favor such a role. Moreover, findings emphasize the importance of informal ties among stakeholders that institutions could leverage upon generating local knowledge bases, and intensifying local interactions in remote areas may be ill-advised: they attempt to generate processes that are inherently urban or cluster related in places where no cities or clusters exist. This opens to the importance of private-public collaboration, which - according to a co-creative logic - can “democratize” innovation and in doing so enhance its beneficial influence for a specific community (Leckel et al., 2020).

Originality of the paper. The literature on local open innovation is still in its infancy and this paper enriches existing studies with an Italian experience based on primary data. Moreover, the empirical study focuses on the role of universities as orchestrators of stakeholders’ activities towards knowledge co-creation for the development and socio-economic growth of a local community. From a theoretical standpoint our work builds upon different research streams by integrating open local innovation with the triple helix logic. In addition, our work introduces the idea of mapping and engaging stakeholders as important tools to nurture local open innovation.

Keywords: Local development; local open innovation; triple helix model; stakeholder engagement; stakeholder mapping.

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Food labelling: l'effetto della blockchain sulle intenzioni di acquisto dei consumatori

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Inquadramento della ricerca. Nel 2020, il mercato alimentare globale ha generato entrate per oltre 8 trilioni di dollari USA e si prevede che raggiungerà circa 9,1 trilioni di dollari USA nel 2025 (Statista, 2022a). Al momento, tale industria sta affrontando enormi pressioni e sfide come l'applicazione dei divieti sull'utilizzo di plastica, la presenza pervasiva dell'e-commerce e l'adozione di tecnologie digitali avanzate. Infatti, una crescente attenzione ai Grand Challenges, ovvero i pressanti problemi ambientali e sociali che affliggono la società come il cambiamento climatico (Cappa, 2022; Cappa et al., 2022d; Centobelli et al., 2020; Sakshi et al., 2020) ha portato i consumatori a diventare più favorevoli alle questioni relative alla sostenibilità. Secondo un recente sondaggio condotto da Deloitte (Hammond, 2021), l'85% dei consumatori sta facendo scelte di vita più sostenibili e un terzo (34%) preferisce brand con forti credenziali di sostenibilità. Inoltre, poiché i consumatori sono più consapevoli delle preoccupazioni sociali, tendono a concentrarsi sulla qualità piuttosto che sulla quantità (Nasir e Karakaya, 2014). Ad esempio, il mercato è sempre più attento alla presenza di antiossidanti nella frutta e nella verdura fresca (Żakowska-Biemans, 2011) e controlla se i prodotti acquistati sono noti per causare inquinamento o altri problemi ambientali (Nasir e Karakaya, 2014). Inoltre, l'adozione delle tecnologie digitali costituisce una tendenza trasformativa che interessa l'industria alimentare. Un esempio è l'Internet of Things, che ha il potenziale per ridurre gli sprechi alimentari (Secondi et al., 2020) dell'1%-4% grazie all'aumento della trasparenza e della tracciabilità della catena di approvvigionamento in tempo reale (World Economic Forum, 2019). L'opportunità di migliorare la tracciabilità del prodotto e la sicurezza delle informazioni sfruttando gli strumenti digitali può produrre benefici lungo tutta la catena di fornitura. La tecnologia blockchain, in particolare, può aiutare a raggiungere questi obiettivi rimodellando la catena di approvvigionamento e il comportamento di consumo. Dall'avvento della digitalizzazione, gli individui e le organizzazioni hanno adattato le loro pratiche commerciali alle nuove tecnologie digitali (Ardito et al., 2019; Bohnsack et al., 2019; Cappa et al., 2022; Hanelt et al., 2020; Visconti e Morea, 2019). Tra le tecnologie digitali emergenti, le blockchain hanno un ruolo primario nella trasformazione delle imprese. Una blockchain è un registro distribuito basato su sistemi web peer-to-peer per registrare informazioni (Chen, 2018; Tapscott e Tapscott, 2017). A differenza dei sistemi basati su registri centralizzati, dove la fiducia nella qualità delle informazioni archiviate dipende dalla reputazione di un'autorità centrale che gestisce i registri, le blockchain consentono di registrare e verificare le transazioni attraverso una rete di individui collegati attraverso il web, senza la presenza di alcuna autorità centrale. Tutti nella rete hanno la propria copia identica del libro mastro e l'informazione è attendibile se una certa percentuale dei nodi nella rete ha la stessa copia di informazioni, memorizzata in blocchi. L'attendibilità dei dati è determinata dalla presenza dello stesso blocco in numerosi nodi della rete, che rende più difficile la vita agli attacchi informatici rispetto a quando ci si concentra su un'unica autorità centrale, e dai componenti crittografici che assicurano la non modificabilità delle informazioni (Chen, 2018; Javaid et al., 2021; Rakshit et al., 2022; Tapscott e Tapscott, 2017). Nel complesso, l'uso della blockchain incoraggia la tracciabilità e la registrazione delle informazioni, nonché l'automazione della catena di approvvigionamento (Javaid et al., 2021).

La blockchain è tipicamente associata all'industria finanziaria all'interno del vasto fenomeno del fintech (Cappa et al., 2022; Fasano e Cappa, 2022), dove questo strumento tecnologico consente di monitorare, verificare lo scambio di attività finanziarie tra i vari stakeholder, e facilitare transazioni finanziarie complesse (Beck et al., 2017). Tuttavia, è anche di grande importanza nei settori caratterizzati da transazioni di beni materiali (Friedman e Ormiston, 2022; Krzyzanowski Guerra e Boys, 2022; Nofer et al., 2017). Attualmente, la tecnologia blockchain ha effettivamente ridotto gli oneri del settore finanziario ed è stata applicata in molti altri contesti come l'industria musicale, dove la documentazione sui diritti d'autore utilizza questa tecnologia per costruire database che forniscono informazioni sulla

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proprietà del copyright (Chalmers et al., 2021). Inoltre, viene utilizzata dai notai per verificare l'autenticità dei documenti (Crosby et al., 2016). Infine, i benefici apportati dalle blockchain stanno iniziando ad essere analizzati anche in altri contesti, come le industrie manifatturiere e agricole (Belhadi et al., 2020; Kamble et al., 2021, 2020; Lohmer e Lasch, 2020).

Le blockchain hanno anche il potenziale per influenzare profondamente l'industria alimentare. Da un lato, la maggior parte degli studi sul tema ha sottolineato i diversi vantaggi associati all'utilizzo di questa tecnologia nel settore. Utilizzando le blockchain potrebbe essere possibile tracciare l'origine e il flusso dei prodotti attraverso le reti della catena di approvvigionamento, prevedere la domanda, ridurre i rischi di contraffazione e frode e ridurre le conseguenze negative per l'ambiente (Dujak e Sajter, 2019). Quando le informazioni vengono raccolte e trasferite in un formato digitale, le blockchain possono consentire la verifica e l'immutabilità grazie a un sistema di registro distribuito, che viene verificato in tempo reale. Pertanto, le informazioni condivise tramite blockchain sono affidabili, sicure, autentiche e verificate solo dai membri della rete di approvvigionamento che sono autorizzati a fornirle (Dujak e Sajter, 2019). Grazie ai sistemi di tracciabilità blockchain, tutte le informazioni prodotte lungo una filiera sono verificabili in tempo reale, con dettagli sui prodotti (Galvez et al., 2018). Di conseguenza, le aziende possono migliorare la loro reputazione e attrarre più clienti (Pizzuti e Mirabelli, 2015). Secondo Kayikci e colleghi (2022), tutti gli attori che partecipano a una blockchain hanno la responsabilità di distribuire informazioni corrette lungo la catena di approvvigionamento, che inizia con le materie prime e termina con i prodotti finiti. D'altra parte, alcuni studi si sono concentrati anche sulle potenziali criticità delle blockchain (Alharby e Moorsel, 2018; Kamilaris et al., 2019; Li et al., 2021; Reyna et al., 2018; Zheng et al., 2018). Ad esempio, secondo Kamilaris et al. (2019), possono sorgere sfide normative a causa della mancanza di politiche e regole specifiche, mentre Paech (2017) ha discusso sul fatto che le questioni relative alla proprietà e alla gestione dei dati non siano ancora state stabilite. Inoltre, con l'uso della blockchain l'integrazione tra i vari partecipanti alla catena di approvvigionamento può essere più complessa (Zheng et al., 2018) e l'accessibilità dei dati può risultare più difficile da implementare (Reyna et al., 2018). Gli studi precedenti hanno quindi esplorato sia i benefici che i costi associati all'adozione della blockchain nel settore alimentare, mentre c'è ancora la necessità di esplorare il suo impatto sull'intenzione di acquisto dei clienti. L'imballaggio dei prodotti e le etichette nutrizionali forniscono informazioni utili sul contenuto nutrizionale di ogni alimento confezionato (Ni Mhurchu et al., 2018). Ad esempio, vengono utilizzati per indicare i valori energetici e la quantità di proteine, grassi, carboidrati, fibre alimentari, sodio, vitamine e sali minerali. Inoltre, le etichette vengono utilizzate per trovare dettagli importanti sull'origine di ingredienti e prodotti.

Il monitoraggio e l'autenticazione della filiera alimentare sono essenziali per creare comunicazioni coerenti e condividere i dati in modo trasparente in ogni fase, evidenziando l'attenzione per la qualità e la sicurezza degli alimenti (Galvez et al., 2018). Secondo Chen e Huang (2013), la trasparenza dei dati nell'industria alimentare è fondamentale per costruire la fiducia dei consumatori, in modo che possano percepire che i produttori non si comportano in modo opportunistico. Pertanto, la trasparenza aumenta il senso di coinvolgimento dei clienti, che è alla base delle intenzioni di acquisto (Chen e Huang, 2013), e può anche portare a differenziare un produttore da un altro (Chen e Huang, 2013). In questo modo, la trasparenza delle informazioni aumenta la credibilità dei marchi, portando i clienti ad acquistare più facilmente da produttori caratterizzati da un più alto grado di divulgazione delle informazioni nonché a preferire produttori che rivelano maggiori dettagli (es. ingredienti e processi) rispetto ad altri (Walters e Lunga, 2012). La tecnologia blockchain, grazie al suo sistema di registro distribuito e alla crittografia, può consentire di raggiungere questi obiettivi di sicurezza e trasparenza delle informazioni. Pertanto, basando il nostro studio sulla signaling theory, che sostiene che la trasmissione di segnali evidenti e facili ai clienti è vantaggiosa in contesti caratterizzati da incertezza (Connelly et al., 2010; Tiwana e Bush, 2014), sosteniamo che l'uso della tecnologia blockchain segnali ai clienti una fondata affidabilità e la sicurezza dei dati nella catena di fornitura. Questo processo favorisce la qualità e la sicurezza dei prodotti immessi sul mercato e di conseguenza anche le intenzioni di acquisto dei clienti. Di conseguenza, ipotizziamo che:

Le informazioni fornite ai clienti del settore alimentare attraverso la tecnologia blockchain influenzano positivamente le loro intenzioni di acquisto.

Obiettivo del paper. La considerazione di quali sono i vantaggi e gli svantaggi è stata utile per chiarire il ruolo che la blockchain può avere nel settore alimentare. Ciò che, tuttavia, è stato finora trascurato è se l'uso di blockchain possa attirare positivamente i clienti nel settore alimentare. In particolare, non è ancora chiaro se l'uso delle blockchain nelle filiere del settore alimentare possa avere un impatto positivo sugli acquisti, che è di primario interesse per le imprese. In questo studio, ci concentriamo sugli effetti causati dall'adozione di blockchain nelle filiere alimentari sulle intenzioni di acquisto, che è un efficace proxy per acquisti efficaci (Cappa et al., 2022c; Nov et al., 2014). Pertanto, la domanda di ricerca affrontata in questo studio è la seguente: la presenza di una indicazione dell'utilizzo della tecnologia blockchain sulle etichette dei prodotti per proteggere le informazioni influenza positivamente le intenzioni di acquisto dei clienti nel settore alimentare?

Metodologia. Per studiare l'effetto che l'uso della tecnologia blockchain ha sulle intenzioni di acquisto, abbiamo somministrato un sondaggio. Più in dettaglio abbiamo adottato un disegno sperimentale per testare un concreto interesse e applicazione di questa tecnologia nel settore alimentare confrontando due diverse situazioni, una che sfrutta la blockchain e una no. Tale progettazione di esperimenti tra soggetti (between-subjects experiment) consente di concentrarsi su un trattamento specifico (Cappa et al., 2022); in questo caso, l'uso della blockchain nel settore alimentare. Abbiamo contattato potenziali consumatori in merito a un prodotto alimentare specifico, ad esempio una tavoletta di cioccolato. La scelta del prodotto alimentare di uso generale per un'ampia porzione di individui e che è in

continua crescita nei consumi all'interno del settore alimentare (Statista, 2022b) mira alla generalizzabilità dei risultati. Abbiamo eseguito un esperimento randomizzato su un totale di 50 individui per stimare gli effetti causali con due diverse condizioni, ovvero una in cui sono fornite informazioni sull'uso della tecnologia blockchain e una in cui non lo sono. Il campione, sebbene limitato, soddisfa la soglia di 10 osservazioni per variabile, considerando quelle utilizzate in questo studio come dettagliato nella seguente sottosezione, per condurre una regressione Ordinary Least Square (OLS) (Cappa et al., 2022, 2021). A un gruppo, sono state offerte semplici informazioni sull'etichetta del prodotto. All'altro gruppo, abbiamo indicato la presenza della tecnologia blockchain per proteggere le informazioni dell'etichetta aggiungendo un marchio visibile accanto all'etichetta rispetto allo scenario precedente. Per entrambi gli scenari è stato utilizzato un prodotto di cioccolato fittizio e ad ogni partecipante è stato proposto un solo scenario, dopodiché è stata registrata la loro intenzione di acquistare il prodotto. I partecipanti sono stati assegnati a uno dei due gruppi in modo casuale e sono state registrate solo le risposte complete al sondaggio. Abbiamo amministrato il sondaggio online tramite Qualtrics, una piattaforma affidabile per creare e gestire questionari. Il link per accedere al sondaggio è stato distribuito tra i contatti degli autori attraverso vari social network per ottenere la variabilità nelle caratteristiche degli intervistati che rispecchia una rappresentazione diffusa di possibili clienti. Il nostro campione è composto da intervistati di età compresa tra i 18 e i 70 anni che vivevano in diversi Paesi europei. La variabile di interesse, ovvero la variabile dipendente, in questo studio, è l'intenzione di acquisto del cliente valutata attraverso una scala Likert (da 1 "Per niente" a 7 "Molto probabile"). La variabile indipendente nel nostro modello è la presenza della tecnologia blockchain che garantisce le informazioni contenute nell'etichetta, una variabile binaria pari a 0 o 1 a seconda della sua assenza o presenza. Il modello completo include anche cinque diverse variabili di controllo. Abbiamo controllato per genere, età, dimensione della città (in termini di abitanti) e livello di qualificazione accademica degli intervistati. Il genere è una variabile dummy che vale 1 se "femmina" e 0 se "maschio". Per la terza opzione, "Preferisco non dirlo", non abbiamo ricevuto risposte. L'età è stata classificata in quattro opzioni, ovvero tra 18 e 30 anni codificati come 1, tra 31 e 50 anni codificati come 2, tra 51 e 65 anni codificati come 3, e più di 65 codificati come 4. Anche il titolo di studio è una variabile di controllo categorica compresa tra 1 e 3 indicante un titolo di studio liceale, di laurea triennale o di laurea magistrale.

Risultati. I nostri risultati mostrano che le informazioni fornite ai clienti sull'uso della tecnologia blockchain influenzano positivamente le intenzioni di acquisto nel settore alimentare (Tabella 1). La blockchain può fungere da base affidabile per garantire che l'accesso alle informazioni sia controllato e che i rischi per la sicurezza e la qualità siano ridotti. Inoltre, i clienti potenzialmente interessati all'acquisto di un prodotto specifico possono verificarne facilmente i dati, come provenienza e ingredienti, e le blockchain potrebbero collegare vari clienti con venditori certificati. In tal modo, forniamo diversi contributi per studiosi, manager e responsabili politici, come dettagliato nelle sottosezioni seguenti.

Tab. 1: I risultati della regressione lineare, dove * indica una significatività con $p < 0.10$

	Modello	
	Coefficienti	Std. Err.
Blockchain	0.6*	0.28
Genere	0.7*	0.28
Età	0.3	0.20
Livello di formazione	0.1	0.25
Costante	3.8	0.90
Fisher F		2.80
Prob>Chi^2		0.03
R^2		0.13

Limiti della ricerca. Questo studio non è esente da limitazioni, ma queste aprono anche la strada a future vie di ricerca. In primo luogo, sebbene lo studio soddisfi la dimensione del campione necessaria per eseguire le analisi, studi futuri potrebbero ampliare il numero di osservazioni per supportare ulteriormente i risultati di questa ricerca. Inoltre, ulteriori controlli potrebbero essere presi in considerazione da studi futuri. Ad esempio, possono essere considerate variabili istituzionali e culturali, con l'obiettivo di controllare la complessità delle istituzioni che potrebbero rinviare o favorire la decisione di utilizzare blockchain come tecnologia alimentare e della differenza culturale che può influenzare l'intenzione di acquisto. Inoltre, il nostro studio si occupa delle intenzioni di acquisto, che si sono dimostrate efficaci proxy del comportamento (Cappa et al., 2022; Nov et al., 2014), ma studi futuri potrebbero cercare di misurare direttamente gli acquisti effettivi. Inoltre, poiché le blockchain richiedono costi di implementazione elevati (Vu et al., 2021), studi futuri potrebbero valutare il punto in cui i benefici generati in termini di intenzioni di acquisto, e di conseguenza gli acquisti effettivi, supereranno i costi complessivi per l'implementazione della blockchain. Poiché questa ricerca è focalizzata su un singolo tipo di prodotto nel settore alimentare (ad esempio, tavolette di cioccolato), studi futuri potrebbero anche esplorare come diversi tipi di prodotti possono influenzare l'impatto dell'uso della tecnologia blockchain nel settore alimentare. Infine, questo studio si è concentrato sul settore alimentare, come contesto rilevante in cui studiare i benefici che la tecnologia blockchain può produrre, in termini di maggiore affidabilità e affidabilità delle informazioni, ma studi futuri potrebbero considerare anche altri settori per esplorare se ci sono differenze o se si possono ottenere risultati simili.

Implicazioni manageriali. I nostri risultati sono rilevanti anche per i manager. Nell'attuale scenario dell'industria alimentare, i manager si stanno impegnando per realizzare una catena di approvvigionamento solida ed efficace, poiché i consumatori stanno rapidamente cambiando il loro comportamento di acquisto. I clienti, infatti, stanno diventando sempre più sensibili alla sicurezza e alla qualità dei prodotti. Questo studio rafforza ulteriormente la comprensione della tecnologia blockchain nel settore alimentare mostrando empiricamente come questa possa essere uno strumento utile per incrementare le vendite. Infatti, grazie all'adozione delle blockchain, tutte le informazioni prodotte lungo le filiere sono verificabili con dettagli in tempo reale, verificando la tracciabilità e l'attendibilità di tali informazioni. Tale maggiore trasparenza e affidabilità migliorano l'immagine e la reputazione di un'azienda, con impatti positivi sulle intenzioni di acquisto dei clienti. I risultati di questa ricerca forniscono quindi ulteriori motivi per i manager per investire nella tecnologia blockchain, poiché ha un effetto positivo sulle intenzioni di acquisto, oltre ai vantaggi forniti in termini di una migliore gestione delle informazioni lungo la catena di fornitura. I risultati della nostra ricerca portano anche implicazioni di policy making. I policy maker stanno infatti incoraggiando gli sforzi del settore per una catena di approvvigionamento sicura e di alta qualità. In questa direzione, iniziative pubbliche come Horizon Europe 2027 nell'Unione Europea o sforzi nazionali come il fondo italiano per lo sviluppo di tecnologie e applicazioni di Intelligenza Artificiale, blockchain e Internet of Things hanno rispecchiato questa volontà di destinare risorse finanziarie a persone e organizzazioni e costruire infrastrutture digitali affidabili anche nel settore alimentare. I risultati di questo studio supportano ulteriormente i policy maker nel favorire l'adozione della blockchain per una catena di approvvigionamento migliore e più sicura nel settore alimentare, dimostrando che influisce positivamente anche sugli acquisti, portando benefici a tutte le parti interessate.

Originalità del paper. Il nostro studio contribuisce a formare una migliore comprensione dell'effetto della blockchain sul favorire l'attendibilità delle informazioni e sull'influenzare l'intenzione di acquisto dei clienti nel settore alimentare. Inoltre, le nostre intuizioni sono rilevanti anche per manager e policy maker perché evidenziano i vantaggi che possono essere ottenuti adottando la tecnologia blockchain nel settore alimentare. Le aziende, infatti, possono diventare più consapevoli degli atteggiamenti che i clienti hanno nel settore alimentare. In questo senso, possono salvaguardare sia la qualità dei loro prodotti che la veridicità delle informazioni fornite, utilizzando blockchain e beneficiando anche degli acquisti. Allo stesso modo, i policy maker possono lavorare su iniziative pubbliche per supportare lo sviluppo di blockchain e incoraggiare l'adozione di questa tecnologia attraverso le catene di approvvigionamento alimentare per favorire lo sviluppo delle aziende che operano nel settore.

Parole chiave: blockchain; intenzioni di acquisto; industria alimentare

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Knowledge-innovation loops as a smart city driver: Exploring the circular interplay between talents attraction and local and economics innovation in contemporary cities

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Framing of the research. *The rise of smart cities has become crucial in economic and local policies in recent years, as technological innovations have enabled more efficient and sustainable management of urban resources. As a result, smart cities have gained increasing importance in the social environment, economy, and innovation (Vanolo, 2014). Today, smart cities play a central role in promoting economic growth, innovation, and sustainable development by providing a supportive environment for creating and implementing new technologies and services (Christofi, 2021). In this context, understanding the relationship between local innovation and developing an innovative economic environment in smart cities has become a crucial research topic.*

This study aims to contribute to this field by examining the interplay between local innovation, the development of an innovative economic environment, and talent attractiveness in current smart cities (Caragliu & Del Bo, 2019; Marchesani, 2022). The study aims to evaluate how current smart cities create a circuit where local innovation influences the development of innovative companies and consequently attracts talent, triggering a self-sustaining loop. The circular relationship reveals the indissoluble source of an innovative local and economic environment and talent acquisition and highlights how increasing one of these factors contributes to elevating the entire cycle towards a more innovative context.

The main objective of this research is to demonstrate how smart cities are becoming a current innovation hub, generating not only a competitive advantage for cities over rural and less advanced areas but also fostering competition among future cities to attract and retain key factors that fuel this loop, such as innovative firms, talent, knowledge, and local innovation in terms of digital and policy innovation.

Purpose of the paper. *Over history, we have seen a continuous interaction between innovative- and economic drivers and the urban environment. This interaction has contributed to the cities' transition to the current "smart" city perspective in the last century. This transition started in the early 1900s and was characterized by financial-intensive capitalism, in which cities such as New York, London, and Tokyo have played a central role (Beaverstock et al., 2000, p. 125) and still maintain their dominant position (Sassen, 2013). However, over the years, the financial-intensive need has met another perspective by considering the innovation and knowledge-intensive need. The city transformation has led to a more comprehensive view of knowledge-based capitalism in cities and regions, representing the key organizing unit for innovative activities, bringing together the firms, talent, and other regional institutions necessary for them (Florida et al., 2017; Jacobs, 1961). This more comprehensive view in the early 70th years opened up a new vision of the urban context and led to the creation of an innovative environment that attracts, retains, and promotes knowledge, financial capital, and innovation as an engine for highly innovative and technological companies. In this case, Silicon Valley in the USA is the best-known example of such concentration (Chandler and Saxenian, 1995; Saxenian, 2002). However, today this evolution is changing again in the second millennium, driven by globalization, the change of habits, the spread of digital and technology in society, and the new and different needs of all actors such as businesses, companies, workers, and people (Christofi, 2021). In doing this, we meet new visions of the regions and 'good cities' in which companies, entrepreneurs, and users interact in the management of urban development (Vanolo, 2014, p. 883), creating a virtuous cycle in which smart cities affect private investment, companies, and knowledge feed to the development of a whole local and advanced ecosystem (Valdez et al., 2018, p. 3398).*

To meet the current users' needs and urban trends, cities are becoming a hub and crucial center of the new world, aiming to manage to provide an ecosystem where innovation, knowledge, and technology are connected to create a new, competitive, and advanced context (Caragliu and Del Bo, 2019; Hollands, 2008; Kummitha, 2019). In this evolution, the adaptive cities' transformation merges with the technological pattern. Hence, economic growth, in combination with internal and external actors' needs and practices, generates an adaptive ecosystem capable of self-

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generation based on 3 pillars such as (i) local innovation, (i) innovative economic environment, and (i) attraction and knowledge creation.

Building on the literature, the relationship between knowledge, local innovation, and innovative and entrepreneurial activities is at the center of a current debate (Abid et al., 2022; Adler and Florida, 2021; Caragliu and Del Bo, 2021; Kummitha & Crutzen, 2017). However, there is a lack of current understanding regarding who influences whom and how. What is certain is that the presence of these 3 factors affects the development of cities and that smart cities are the container that allows these factors to interact together. For example, we know that innovation and entrepreneurship do not simply take place in but require cities (Florida et al., 2017, p. 93). This perspective led to a bidirectional relationship between entrepreneurship and smart cities as (i) entrepreneurs initiates technological interventions that help cities undergo socio-technical transitions and become smart cities (Kummitha, 2019, p. 1), at the same time, (ii) the technologies being adopted in cities generate data which then helps enterprises to explore new opportunities (Kummitha, 2018, p. 330). The role of knowledge also fits into this relationship. Specifically, while we know that innovative and entrepreneurial activities influence the knowledge inflow and entrepreneurship in cities positively affects this relationship (Marchesani et al., 2022, p. 1), it is also true the reverse as cities advance innovation and innovative entrepreneurial activities that impact and promote the development of the host places in attracting knowledge and high-skilled human capital (Faggian et al., 2007; Parrilli et al., 2019, p. 1; Saxenian, 2002). This debate is intrinsic to the current city trajectories, and the direction of those relationships is hardly extricable. However, what is certain is that cities are the container of this transition, as the current smart cities vision helps us understand the interaction between technology, innovation, and knowledge. Building on this state-of-the-art and in line with the economic agglomeration and smart city debate, we posit the following research questions:

RQ1: “There is a direct and circular relationship between local innovation, innovative economic environment, and talent attractiveness in the development of smart cities?”

RQ2: “Which of the three factors mainly influences this relationship, and how do they relate to each other?”

To answer these questions, this paper empirically investigates the interplay between urban innovation, innovative economic environment, and talent attractiveness in the city to advance a theoretical model and empirical research to explain the impact of the relationship between city and innovation in current smart cities trajectories.

Methodology. This research is based on 30 Italian cities for a 13-year period (2009-2021). To ensure high heterogeneity in the sample, we selected the cities on an equal basis within the country’s territory, and the final sample was determined based on several constructs. Firstly, we ensured the homogeneity of the variables included in our model to guarantee uniformity in our approach. Secondly, the sample was constructed based on the reference context, characterized by cities of different sizes with populations ranging from 67,200 to 2,852,000. Finally, we applied probability-proportional-to-size sampling in each stratum of medium and large cities to ensure the robustness of our sample (Levy and Lemeshow, 2011). Our model also used this distinction between large and medium-sized cities as a control variable. The final analysis sample included 30 equally distributed cities within the country to ensure heterogeneity in our analysis.

This empirical investigation focuses on the current state of Italy, which is at the center of academic and political debates on smart city transformation, social and economic policies, and sustainable development trends, and constitutes a prominent empirical focus for sustainable development debates in Europe (Ferraris, 2015; Vanolo, 2014, Christofi, 2021). City-level variables were used, and data were collected from databases at the national (ANPR, AGCOM, ISTAT, GreenItaly, GSE, OECD, MIUR CoC, and IBS) and international (EUROSTAT and OECD) levels. The variables considered are related to urban innovation, the innovative economic environment, and talent attractiveness. Urban innovation is measured through an index that includes 9 variables representative of cities’ smart transition from a digital perspective (i.e., Wi-fi, Home banking diffusion, Online Services, Open Data, and Social Media) in accordance with the literature (Abid et al., 2022; Hampton and Gupta, 2008; Kummitha and Crutzen, 2017; Marchesani, 2022). The innovative economic environment is measured through an index that considers 5 variables related to the economic environment (startups, innovative companies, spin-offs, private R&D investment, and the number of workers in private sector research and development). Finally, the talent attractiveness variable is measured through student inflows into the city from (i) other cities in the same region, (ii) other regions, and (iii) other countries. Due to the intrinsic characteristics of our sample, which is based on a panel dataset comprising cities located in the same region and neighboring each other, producing spillover effects, we use spatial panel models based on Lee and Yu (2010) and Elhorst (2010) in our paper to estimate the effects of local innovation and the innovative economic environment on talent attraction, and how these factors shape the trajectories of smart cities. To confirm the suitability of spatial econometrics, we perform the Moran test for spatial dependence. Thus, we estimate our model using both fixed effects (FE) and random effects (RE) specifications in the spatial panel data models. To interpret the results, we use the Mundlak approach to select the appropriate FE or RE models. This approach is designed for small samples and is considered more robust compared to the Hausman test for this sample of analysis (Debarsy, 2012).

Results. This research examines the links between local innovation, an innovative economic environment, and talent attraction to assess their respective roles in shaping the trajectories of smart cities. Preliminary results confirm the interplay between these factors and demonstrate their central role in the current smart city transformation. Furthermore, these results will allow us to weigh the impact of individual variables on the smart city ecosystem, providing a practical and significant picture of the current theoretical framework conceptualized in the literature. Thus, our objective will be to propose a conceptual framework that relates the ecosystem of the city to the entrepreneurial ecosystem, highlighting the central role of knowledge and talent acquisition in current perspectives of urban

development. This framework will allow us to have a comprehensive understanding of the interplay between various factors and stakeholders involved in the development of a smart city. It will serve as a valuable tool for policymakers and urban planners and contribute to the smart city literature. Specifically, these findings empirically support the current academic debate on smart cities, which emphasizes (i) the impact of an innovative local environment on the creation of an innovative economic environment (Marchesani, 2023; Florida et al., 2017) and the attraction of talent (Kummitha and Crutzen, 2019); (ii) the role of an innovative entrepreneurial ecosystem in driving the smart transition of cities (De Jager et al., 2017; Kummitha, 2018) and the connection between talent and urban areas cities (Marchesani, 2020; Marchesani, 2022); and (iii) the central importance of talent in intercepting local innovation and promoting an innovative economic environment (Kummitha and Crutzen, 2019). Thus, these preliminary results strengthen the current theoretical debate and provide new insights into the role of innovation and knowledge in the urban ecosystem.

Research limitations. Our approach has limitations intrinsic to the empirical nature of the approach. Firstly, our research sample consisted of 30 Italian cities that have initiated smart city projects over a 13-year period, which provides a significant starting point for the Italian national fabric. However, future research could improve the sample and explore connections with other important cities worldwide. Secondly, our analysis covered the years 2009-2021, a period during which economic growth was affected by the 2008 crisis and rapid changes in innovation and technology. Moreover, current global issues, such as the COVID-19 pandemic and ongoing geopolitical conflicts, may have an impact on the current smart city trajectories and accelerate (or slow down) the process of urban development and attractiveness. Therefore, it is crucial for future research to consider the dynamic nature of these factors and their potential influence on the relationship between attractiveness, economic and technological environments, and urban development.

Additionally, given the direct influence of the economic and technological environment on major cities, the relationship with attractiveness may be impacted. Although we tried to reduce this effect by considering a local and spatial context and controlling for variables, this limitation must be acknowledged. Finally, our variables were constructed based on the reference literature on smart cities and theoretical constructs since no absolute variables can evaluate the three factors considered in the model. Future research could expand the model to include internal factors, such as infrastructures and services, economic factors related to companies' innovation, and talent-related factors, like high-skilled workers and researchers.

Managerial implications. Managerial implications can be drawn from our result to advance the current smart city policies and should serve policymakers, governance, and urban planning to construct current and future policies. Specifically, smart city managers can leverage these findings to develop various factors and create a competitive advantage for their cities. By promoting, attracting, and retaining innovation and talent, they can strategically drive smart city implementation in local and international ecosystems. Consequently, smart city managers can design targeted interventions to achieve a higher level of implementation and secure an advantage in terms of innovation and attractiveness.

Furthermore, our findings shed light on the still-emerging debate about the intersection between the smart city and the entrepreneurial environment. Our preliminary results support the argument that the smart city and entrepreneurial ecosystems have an existing and indissoluble relationship. This offers managers a practical vision of the current state of the art, moving from an exploratory and theoretical context to a practical implementation on which to base policies and urban planning. Finally, to create synergy between the entrepreneurial environment, technological development, and incoming talents, universities, and the private sector must collaborate with each other to promote and stimulate the development of this loop (Kummitha and Crutzen, 2017). Thus, we encourage policymakers to adopt a more comprehensive vision of the city that includes stakeholders and interested parties with the ultimate goal of creating an integrated ecosystem between universities, the entrepreneurial environment, and the city to advance the city towards a new, competitive, and advanced concept of a smart city.

Originality of the paper. This study is one of the first to empirically evaluate the intersection between local innovation, an innovative economic environment, and talent attractiveness in current smart city trajectories. In Italy and the broader European Union, there is widespread rhetoric of smartness, which risks building public consensus without empirical evaluation, particularly regarding energy efficiency, digitization, and sustainability. Despite the debates on the smart city concept from various perspectives, such as urban environment, sustainability, information system, and economic agglomeration, the empirical evidence on the actual outcomes of this transformation and the role of various factors in the ecosystem are still unclear. Therefore, this study aims to evaluate how current smart cities create a circuit where local innovation influences the development of innovative companies and subsequently attracts talent, creating a self-sustaining loop. The research aims to demonstrate how smart cities are becoming innovation hubs, generating not only a competitive advantage for cities over rural and less advanced areas but also fostering competition among future cities to attract and retain key factors that fuel this loop, such as innovative firms, talent, knowledge, and local innovation in terms of digital and policy innovation. These findings contribute to the current theoretical and conceptual debate (Christofi et al., 2021; Kummitha, 2019; Marchesani et al., 2022; Vanolo, 2014).

Keywords: smart city; innovation; economic environment; talent; innovative ecosystem; digital technologies

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Does founders' local pre-founding experience influence SMEs' innovativeness

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Objectives. *Small and Medium-sized Enterprises (SMEs) are separately owned firms that are not dominant in their field of business (D'Amboise and Muldowney, 1988; Baldassarre et al., 2022; Zamani, 2022). Given their resource poverty (Welsh and White, 1981; Miklian and Hoelscher, 2022), literature acknowledged that founders – individuals involved in the setup of a firm and who initially had an equity investment in the same firm –matter for SMEs innovation and success (Colombo and Grilli, 2005; Kato et al., 2015; Barroso-Castro et al., 2022). In the spirit of the upper echelon theory (Mason and Hambrick, 1984; Pongelli et al., 2023), founders' contribution to firms' performance is shaped by their influence on structure and process (Golinelli, 1974; Baccarani, 2015). Moreover, there is an underlying assumption in the upper-echelon theory that measurable and observable leaders' characteristics, like demography and past experiences, are proxies of their beliefs and endowments (Busenitz and Barney, 1997; Denzau and North, 2000; Bryant, 2007; Popli et al., 2022); and, given the imprinting effect (Marquis and Tilcsik, 2013), founders' beliefs and resource endowments are to shape the organizational structure and process, which are essential to SMEs innovation and success. An extensive number of researches have focused on founders' contexts of related areas of experience before founding (Van de Ven, 2004; Niittymies, 2020), like industries, firms, and organizational functions (Roberts et al., 2011; Hashai and Zahra, 2021). However, given the same area of experience, founders can develop it in a context that is local/non-local compared to the SMEs location (Mauro, 2009; Accetturo et al., 2011). Therefore, we proposed that such dimension matters for SMEs innovativeness, as measured by their innovation outcomes.*

Concerning the geographic areas, by distinguishing between local versus nonlocal sources of experience (Simons and Roberts, 2008; Liu and Guenther, 2022), scholars theoretically discussed the negative effect of greater levels of locally developed experience on firms' innovation outputs. Such negative effect is explained by the knowledge-based view and specifically by the mono-cultural, less diverse knowledge exposure and acquisition which limit search strategies for new knowledge and the ability to combine different chunks of knowledge (Un, 2016; Un and Rodríguez, 2018; Almodóvar and Nguyen, 2022). In this vein, scholars empirically observed that founders with greater local experience levels will harm firms in entering new international markets (De Cock et al., 2021) and adopting new organizational forms in entering such new markets (Simons and Roberts, 2008). It has also only theoretically advanced that lower levels of local prior-founding experience, as in the case of immigrant founders, will enhance firms' innovations in terms of new products and services (Bajaba et al., 2021). In our study, we tested the main effect of founder local prior-funding experience on SMEs innovation in Italy. In addition, we contribute to the literature by considering how and under what conditions such a main effect will be produced and whether its sign will remain negative.

Given the relevance of the inter-organizational relationships in small firms (Lorenzoni, 1990; Vurro et al., 2014), in the local prior-founding experience-SMEs innovation association, we argue that greater levels of founders' local experience will induce more positive attitudes and perceived behavioral controls toward the conditions at the local environment, which, given the founder imprinting effect (Marquis and Tilcsik, 2013), in turn, will induce a local stamp to their firms, at both intra- and inter-organizational levels. Such an effect is augmented by the founders' endowment locally developed over time. As personal ties, collaboration, and commercial commitments are developed by founders in local contexts (Milanov and Fernhaber, 2009), they make easier for founders themselves to leverage such local relationships than more distant ones, thus reinforcing their firms' local stamp, particularly in the inter-organizational relationships (Johnson, 2007; Bryant, 2014). Moreover, it has been observed that relational embeddedness facilitates tie stability (Polidoro Jr et al., 2011). Founders' resource endowment developed via locally related experiences favor social relationships embedded in local contexts (Marchington and Vincent, 2004; Barden and Mitchell, 2007), which induces greater levels of stability in local relationships of a given SME with its task environment. Accordingly, founders prior-founding local experiences will influence the localness and the stability of inter-organizational relationships, and, in turn, such inter-organizational relationships will influence SMEs' innovation. As for the latter association, building on the knowledge-based view of the firm, within contexts of firms attempting to innovate by entering new markets (Simons and Roberts, 2008) or by introducing new products in foreign countries (Un, 2016), scholars introduced two main mechanisms that may affect firms innovation: cultural diversity and conformity Given the two suggesting

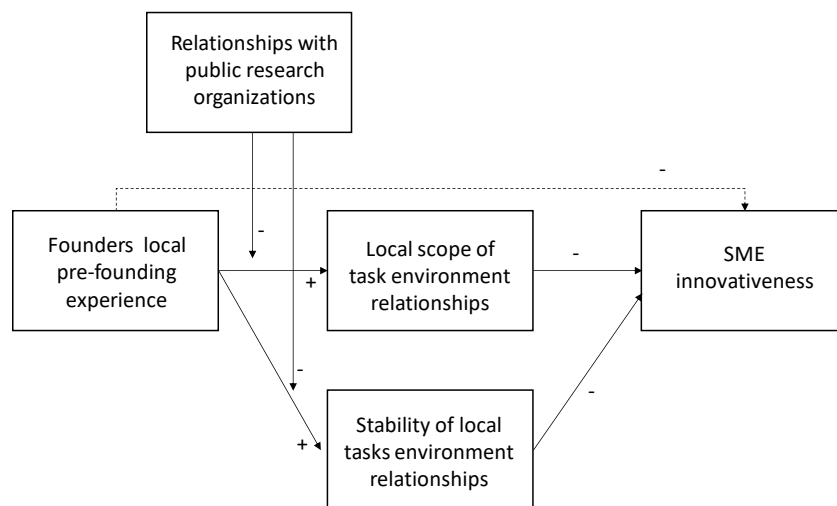
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mechanisms, we add that greater levels of local-stable relationships between SMEs and their task environment will both limit cultural diversity and increase conformity to the local environment, which, in turn, reducing diversity and variety of available knowledge, limiting knowledge recombination, all essential ingredients for SMEs innovation (Varaldo and Ferrucci, 1996; Guckenbiehl et al., 2021; Hervas-Oliver et al., 2021).

We advanced that, given the broader, general scientific scope of knowledge developed and accumulated by public research centers (Masiello et al., 2015), established relationships with local public research centers to partially offset the founders' local prior-founding experience-SMEs local scope and Stable task environment relationships association, which in turn will benefit SMEs innovation. Public research organizations are defined as universities and other public research centers. These organizations are vital since, as noted by early research, many technological changes could not have been introduced without organizations collaborating with public research organizations, particularly with universities (Mansfield, 1991). Moreover, collaboration with universities in innovation can bring organizations overall enhancement in competitive advantages (Leckel et al., 2020). Public research organizations offer unique opportunities to firms to acquire external, highly diverse sources of knowledge, which is crucial for generating new technologies (Cohen et al., 2002). In addition, publications, seminars, workshops, and conference meetings are additional channels that technological collaboration with public research organizations makes available to firms to share and exchange more distant, diverse knowledge (Meyer-Krahmer and Schmoch, 1998). Thus, SMEs collaborating with public research organizations offer opportunities for establishing more diverse, non-local collaborations and, at the same time, to reduce the stability of existing task environments, by injecting varieties of knowledge and variability of opportunities for collaboration. Therefore, we expected that established relationships between SMEs and public research organizations will negatively moderate the Founders' local pre-founding experience association with the Local scope and Stability of task environment relationships.

The main concepts and their association are included in Fig 1. The dotted line represents the main effect, while solid lines the indirect effects.

Fig. 1 Our theoretical framework



Methodology. The associations included in our theoretical framework were tested on a random sample of 350 founder-lead SMEs located in Southern Italy. Data was collected through a survey, with a direct personal interview with founders. To reduce the mono-responded bias, we asked interview founders to indicate three other individuals to whom address the same interview, except for the founders' local pre-founding experience. For each sampled SME, we calculated the inter-interviewed agreement whose average score is equal to .98. When we observed inter-interviewed scores lower than .95, we organized a joint meeting with the interviewed subjects to resolve salient differences through discussion. Then, we averaged responses from the different interviews for each of the sampled SMEs.

The independent variable is the founders' local pre-founding experience. In particular, we asked each interviewed founder about the city in which he/she studied and the city in which he/she had the last professional experience before founding the current firm. Accordingly, we calculated the geographic distance between the coordinates of the city in which her/his SME operates and the coordinates of the other cities in which each founder studied and/or had professional experience. The resulting distance was then normalized to range between 1 (full local pre-founding experience) and 0 (full nonlocal pre-founding experience).

Concerning the local scope of a firm's task environment, we asked interviewees to list the main suppliers and their geographic locations. Accordingly, we calculated the geographic distance between the coordinates of the City in which the SME operates and the coordinates of the city in which each SME's supplier operates. As before, the distance was then normalized to range between 1 (full local scope of an SME's task environment) and 0 (full nonlocal scope of an SME's task environment). We also asked interviewees to indicate the turnover of SME relationships with its suppliers. In particular, we asked for the share of input costs from new suppliers used in the last five years. For robustness, we

requested interviewees to provide us with evidence through accounting data. We also asked interviewees to list the established relationships with public research organizations (e.g., universities or public laboratories) in the last five years. We also asked about the nature of such relationships (e.g., joint research projects, Ph.D. grants) and independently check the accuracy of interviewed responses.

As for the dependent variable, organizational innovativeness, we asked the interviewed the number of innovations introduced in the last five years. These figures were checked by a team of three experts in the industry to which each SME belongs. A majority rule was then introduced to select the number of innovations to be considered. In other words, innovation was considered true if at least two out of three experts confirmed its nature.

As control variables, we considered, at the SME level, the average R&D expenditures over sales in the last three years, age, number of employees, and number of family-related individuals involved in the firm. At the founder level, we instead controlled for his/her age, highest degree, and tenure in years. To control for additional heterogeneity, industry dummies were also considered.

Findings. We tested the main effect of founder' local pre-founding experience on SMEs innovativeness, with included control variables ($R\text{-squared} = .15$; Oster (2019) $\Delta = 11$). The association was negative and significant ($\text{Beta} = -.04$, $p < .05$). Such association is also robust to the selection of unobservable, given that the Δ value is greater than one. Among control variable, the extent of R&D investment has a significant positive effect on SME innovativeness ($\text{Beta} = .01$, $p < .01$). Concerning our mediating variables, the founders' local pre-founding experience has a positive and significant effect on the local scope of SMEs' task environment ($\text{Beta} = .10$, $p < .01$). In addition, SMEs relationships with public research centers has a negative and significant effect ($\text{Beta} = -.19$, $p < .01$). Among control variables, R&D expenditures have a negative and a significant effect on the considered mediating variable ($\text{Beta} = -.01$, $p < .01$). As for the stability of local task environment relationships, we observed that founders local pre-founding experience has a positive and significant effect on the considered variable ($\text{Beta} = .03$, $p < .01$), while SMEs' relationships with public research centers have a negative significant effect ($\text{Beta} = -.06$, $p < .01$). Among controls, R&D expenditures have negative significant effect ($\text{Beta} = -.01$, $p < .01$). Finally, considering the effect of mediators on SMEs' innovativeness, we noted that both the local scope of the task environment ($\text{Beta} = -.25$, $p < .01$) and the stability of the local task environment relationships ($\text{Beta} = -.07$, $p < .05$) have a negative and a significant effect on SME's innovativeness. Finally, the two considered mediators account for 41% of effect of founders' local pre-founding experience on SME innovativeness.

Research limits. Our study has several limitations. We focused on SMEs located in selected areas of Italy. Although we limit unexplained heterogeneity, considering homogenous geographic areas, replicating the current study in different areas or regions may contribute to the generalizability of our results. We measured the dependent variable with a single measure captured via interviews with key SME representatives. Using additional measures, such as the number of patent applications, could have contributed to further triangulating our results. However, holding our sampled firms, very few SMEs had patent applications. Thus, we excluded this possible additional measure of innovation outcome. We measured the local nature of the pre-founding experience referring to the location in which such an experience was developed. We did not measure, instead, the local content of such an experience. However, such a measure would have required us to understand founders' experience content, separating its local vs non-local components, and accordingly, measure its degree of localness.

Practical implications. Our study has implications for practice. It suggests prospective founders broaden their pre-founding experience, well beyond their local contexts. Such a non-local experience could expose prospective founders to a diverse, new source of knowledge that once combined with local knowledge, could inject into their SMEs more opportunities to introduce innovations. Those founders that have already developed local pre-founding experience, may find opportunities to interact with public research organizations, which will provide broader, more diverse knowledge to complement the more specific, homogenous knowledge derived from a founder's local pre-founding experience. Finally, founders with local pre-founding experience can also foster the development of relationships with more distant suppliers. At the same time, they can foster changes in such local relationships, which in turn will mitigate the negative effect of founders' local pre-founding experience on SMEs' innovativeness.

Originality of the study. Our study delves into the concept of liability of localness, which initially referred to the competition between local companies and multinational companies' subsidiaries, and extends to SMEs and, specifically to their founders' experience and knowledge acquired during their study periods. We argued that Founders' local pre-founding experience is transmitted to their SMEs via the imprinting effect. We further introduced two additional theoretical variables able to capture two channel mechanisms through which represent how the imprinting effect will produce its effect on SMEs. These two mechanisms, namely the local scope and the stability of task environment relationships, reflect the founders' local pre-founding experience, and induce a liability to SMEs, by making their knowledge less diverse and more homogeneous, thus less able to contribute to innovation outcomes. We also advanced that such an iron cage, produced by founders' local pre-founding experience on SMEs' task environment, is partially unleashed for SMEs that established relationships with local public research organizations. These organizations are to inject new partnership opportunities, new contacts, and new, diverse knowledge, which in turn will reduce the effect of founders' local pre-founding experience on SMEs' local scope and stability of task environment relationships. In other words, SMEs' collaboration with public research organizations is a moderating variable to partially offset founders' local prior experience negative effect on SMEs' innovation. We developed a theoretical framework and tested it on a sample of Italian SMEs. To the best of our knowledge, we are not aware of empirical studies on the same issue. From our empirical analysis, we also provided evidence that did not disconfirm our theoretical associations. Our study

contributes to the debate around the effect of founders' backgrounds and experience on their firms' performance. While scholars focused more on the breadth and depth of theoretical vs practical experiences, industry-specific or industry non-specific, we advanced that locations in which such experiences and knowledge have been developed are relevant, particularly in SMEs located in areas of low research and innovation intensities. Founders with local pre-founding experience may well understand local contexts and main players. However, may miss the broader picture, and the opportunities available in more diverse, more distant contexts. Our study attempts to contribute to the debate between the local and global scope of SMEs. We advanced that founders' local or non-local scope of their pre-founding experience matters too. We also discussed and empirically observed that an SME can hold its local scope, but to sustain its innovation performance the firm must build more distant diverse relationships. In this vein, relationships with public research organizations do matter.

Key words: SMEs innovativeness; Local pre-founding experience; Public research organizations; Localness and stability of SMEs' task environment

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“How Matter Matters”: “Translations”, Boundary Objects, and Digital Innovation in the Public Reforms[♦]

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Framing of the research. *This paper illustrates a research program on the processes of organizational change and institutional learning in the Italian administration of the justice and in the trajectories of courts technology development. It is argued that objects, artifact and materiality should be included in theoretical accounts of organizational phenomena connected with (digital) innovation and change (Carlile et al. 2013). Drawing on the “socio-technical-systems” (STS) (Law 1986; Mol 2002; Latour 2005, 2009; Bijker et al. 2012; Pickering 1995; Nimmo 2016), we argue that it is possible to understand the process of reform in the Italian judiciary: (i) by combining two theoretical dimension, between “institutions & materiality” and “materiality & change”; (ii) conceptualizing the relation between technology, work and organizations as “enacted in practice” (Orlikowski, Scott 2008); (iii) and analyzing the introduction of accountability mechanisms, and digital technologies in terms of “sociomaterial practices” (Power 1997; Gherardi, Lippi 2000).*

The theoretical premises of this work are based on the interpretation of:

- a) *the change in the governance structure of the Italian judicial system as one of the expression of the technology of accountability (Power 1997), considering how the “transformative/performative” process in which this technology is used makes the administration of justice truly more “accountable” than before;*
- b) *the administration of justice as a set of “situated and emerging practices” (Suchman 1987; Gherardi 2012), in which the practice-based perspective has the interpretive advantage of eliminating the organizational boundaries of a phenomenon articulated at different organizational levels, between center and periphery (Council of the Judiciary, Ministry of Justice, Courts of Appeal on one hand, courts on the other), showing forms of decoupling between means and ends and policy and practice (Bromley, Powell 2012);*
- c) *institutional learning and organizational change as participation in social practice that produces and circulates knowledge situated in contexts of interaction and mediated by technological artifacts (digital archive as artifacts, “digital evolution of archiving practices” as “memory practices”, and processes of “digital infrastructure” within the courts as “technologically dense environments”, i.e., Suchman 1997; Bowker, Star 1999; Mol 2002; Pickering 1995; Bowker 2005);*
- d) *the reform as a process of “translation-into-practice” by an “actor-network” capable of triggering institutional learning in the judicial system and organizational change in the courts (Czarniawska, Sevón 1996; Gherardi, Lippi 2000; Nimmo 2016), rather than an “implementation” of a policy (i.e., a model of rational and temporally linear decision) or “diffusion” of an innovation (i.e., recalling the absence of “agency” and logics of “replication”, or “institutional isomorphism”).*

Purpose of the paper/Evidence. *Since the mid 1990s, the reforms of the European judicial systems have addressed the issue of improving efficiency, quality, and accountability mechanisms, in line with the “new public management” (NPM) approach intended as “an assortment of ideas and orientation driving the reform of public administration” (Power 1997: p. 92; Miller, Power 2013).*

As can be seen in the following abbreviated episodes, the interdependence between the two dimensions of the phenomenon, namely 1) the introduction of digital technologies and 2) the performance evaluation mechanisms, is taken for granted (CEPEJ 2022), while our theoretical perspective considers this as a matter of concern:

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[1] «Courts are first considered as legal entities, i.e. institutions responsible for settling disputes submitted to them by citizens. [...] In addition to their character of legal entities, courts can also be defined by their geographic location, i.e. by the premises in which judicial activities take place» (p. 79)

«The good development and proper use of ICT is an important element of the good functioning of judicial systems as it contributes to increased transparency, efficiency, access and quality of the services delivered. ICT is no longer a novelty in European judicial systems. Judicial systems whose traditional activities and work organization were based on paper (legal texts, case files, court registers, etc.) are increasingly replacing the old tools with the digital one. The courts are being transformed to accommodate new options and move on-line. Some hearings are taking place via videoconferencing, electronic evidence is regularly presented, while case files and court decisions are becoming digital objects with their content tagged to ease search, analysis and legal reasoning. ICT innovation in the European judicial systems has evolved through different paths because of tensions between different elements, which have led to different results in various national contexts. Examples of these are tensions between local versus centralized solutions, between the development of specialised tools versus more global and generic systems, data security versus external access by users and the public, competences between the executive power in this area and judicial power. Furthermore, institutional settings may differ, depending on the national specificities in the organisation of the judiciary» (p. 95).

[2] «The efficiency of courts and public prosecution services is one of the vital factors for upholding the rule of law and a critical component of a fair trial. It facilitates good governance, promotes the fight against corruption and builds confidence in institutions. Efficient courts and public prosecution services enable individuals to enjoy their economic and social rights and freedoms. They improve the business climate, fosters innovation, attracts foreign investment and secures stable state revenues. [This chapter] demonstrates the main trends and tendencies, while also promoting the best practices among member States, entities and observers. It also provides basic facts and figures on the performance of courts and public prosecution services. It treats all jurisdictions equally and compares them without any intention of ranking them or promoting any particular type of justice system. Its approach is inspired by the fundamental principle enshrined in Article 6 of the European Convention on Human Rights – the right to a fair trial.

The CEPEJ has developed two performance indicators to assess court efficiency at the European level. Clearance Rate (CR) and Disposition Time (DT) present an overall picture of the judicial efficiency in a particular judicial system. An analysis of their evolution provides a clear picture of efforts of the judicial system to maintain or improve its efficiency. The CR is the ration obtained by dividing the number of resolved cases by the number of incoming cases in a given period, expressed as a percentage. CR shows how the court or the judicial system is coping with the in-flow of cases and allows comparison between systems regardless of their differences and particularities. DT is the theoretical time necessary for a pending case to be resolved, taking into consideration the current pace of work. The resulting indicator should not be taken as an actual calculation of the average value. Actual average times needed for case resolution would need to derive from judicial case management ICT systems. [...] This indicator offers valuable information on the estimated length of the proceedings» (p. 107).

Figure 1 describes the research context of this paper, by illustrating on the left the three waves of the recent Italian judicial reforms. In addition, it proposes a matrix based on two descriptive dimensions, namely professional control and administrative accountability, within which some episodes are situated. Below the matrix, the multidimensionality of the concepts of accountability in the field of judicial governance are described. These aspects will be discussed in detail in the following paragraphs.

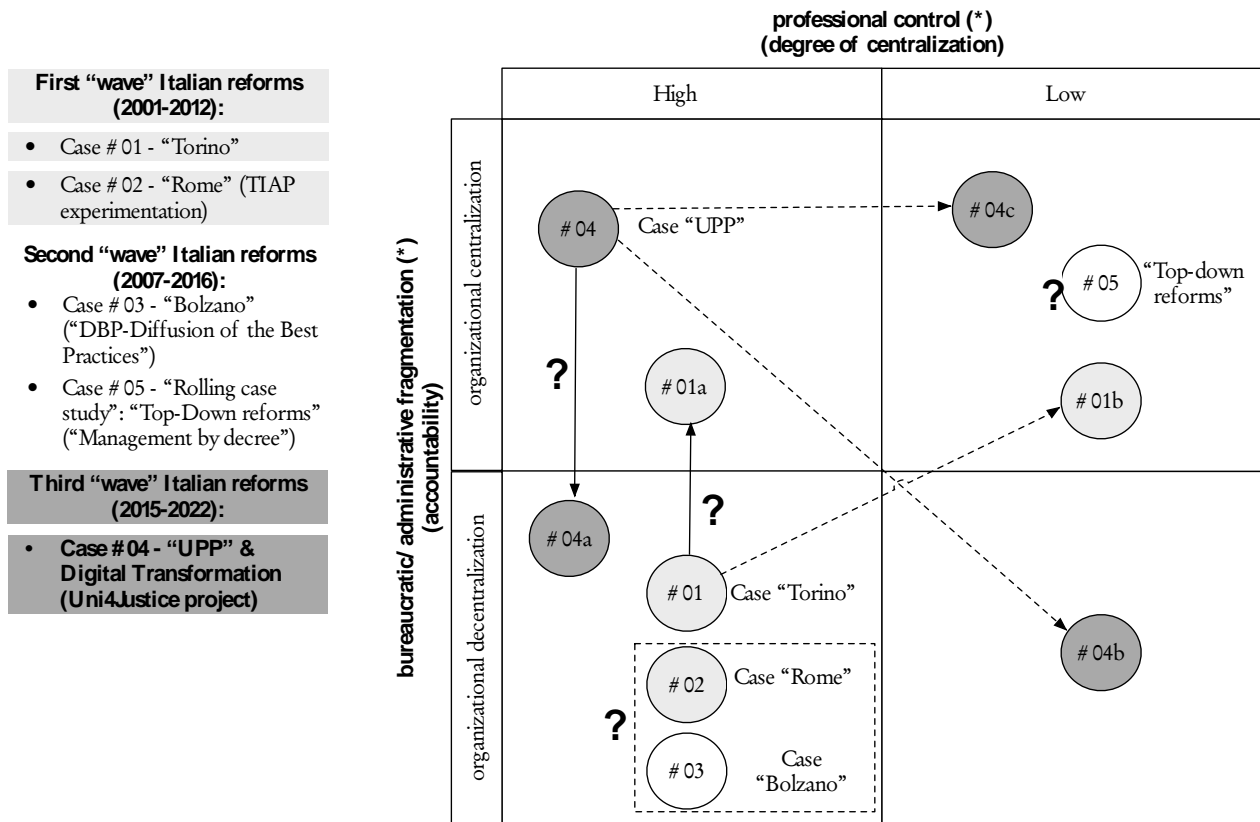
The three “waves”, also overlapping, of the Italian judicial system are the following (Sciacca et al. 2013; Piana 2016, 2017; Vercelloni 2020): 1) a “quality-of-justice-oriented” agenda (2001-2012); 2) the judicial offices “in-search-of-best-practices” (2007-2016); 3) and the “management-by-decree” and “digital transformation” reforms (from 2015) (CEPEJ, 2020). This work mainly focuses on this last stage, in relation to the NextGenerationEU – “UNI4Justice” project.

The intent of the reforms largely responds to the need to introduce European standards into the Italian judicial system (CEPEJ 2020, 2021a, 2021b). In 2002, the European Commission for the Efficiency of Justice (CEPEJ) was created within the framework of the Council of Europe, inspired by a user-oriented and a results-oriented viewpoint and by a coherent agenda of macro themes (Piana 2017, p. 187): “access to justice and the proper and efficient functioning of courts; the status and roles of legal professionals; administration of justice and the management of courts; use of information and communication technologies (IT)”. Although the States are not under the supervision of the CEPEJ, the spread of rationalizing trends in the international language of the reform process of bureaucratic administration was pervasive: “ruling issued within reasonable amounts of time; judicial decisions executed in conditions of certainty and reliability; transparency of budgetary policies; transparency and accessibility of legal proceedings and legal texts” (Guarnieri, Pederzoli 2002, 2020; Piana 2016). The “dual” Italian system of judicial governance is founded on the balance of power between the executive branch (the Ministry of Justice ensure the availability of resources and their management) and the High Judicial Council (responsible for judicial appointments and promotions). In this “resource/goals oriented” approach (Piana 2010, 2017), the “appropriateness of the quality-of-justice mainstream has been perceived for years as being very low, [and] any policy touching upon the institutional and the organizational setting of the court system has since the early 1990s encountered a high level of conflict” (Piana 2017, p. 191). The most notable example of escalation of conflict between the judicial branch and the political elite in the important actions against corruption can be seen in the “Clean Hands” affair.

Since 2001, the first wave encouraged the Italian public policy debate to explicitly take in consideration the quality of justice: a constitutional provision entrenches the principle of “fair trials” and by means introduces the conditions for a number of legal measures, among which the most significant is the law on the damage suffered because of unreasonable delays in proceedings (“Law Pinto”). The Government presented a decree law which aimed to digitize civil proceedings: Civil Trial Online (or “Processo Civile Telematico-PCT”) is the digital procedure for civil cases in

the Italian judiciary (Zan 2002, 2004): it is expected to reduce delays in the courts, and to reduce the costs of the justice system, and its use became compulsory in 2014.

Figure 1 - Professional control and accountability in the Italian judiciary reform



(*) (An assemblage of) Norms and standards of quality of justice (in the “language” of European Commission and Council of Europe) (Piana 2010, p. 59):

(1) Legal accountability:

- Centralised control of constitutionality; judicial review handled by specialised bodies (i.e. constitutional courts)
- Coherence with arts. 5 and 6 of the European Convention for Human Rights
- Respect of the timeframe standards of a fair trial in due time
- Artt. 5 and 6 of the European Convention for Human Rights
- Every citizen should be ensured about the availability of a legal representative in case she can't afford the costs of legal representation
- Organization of systematic and comprehensive programmes of training in law

(2) Institutional accountability:

- The Judicial Council's board should be composed by a majority of judges (but not all of the members should be judges)
- The Judicial Council has representative and administrative functions
- The Judicial Council is entitled to handle all the mechanisms of recruitment and promotion
- HJC prepares the budget; the court manager is managerially accountable to the HJC
- Creation of a judicial school, centralised, providing programmes of initial and in-service training; the State should provide for the budget for training; the School is accountable to the Judicial Council for the programmes and for the management

(3) Professional accountability:

- Legal training
- Judges and prosecutors (courses of ICT by experts of public administration)
- Adoptions of National and Supranational Codes

(4) Managerial accountability:

- Court manager; system of e-filing
- Non judicial staff
- Performance assessment for judges and clerks at the court level
- ICT tools for judges & ICT tools for clerks; data set of case law and doctrine

(5) Social accountability:

- front office system of e-filing
- web sites of judicial institutions; broad and free availability of information about rights of citizens
- information about the development of judicial procedures
- statistics and survey available to public

A second “wave” of judicial policies is marked by 2006 and 2011’s interventions (Sciacca et al. 2013; Piana 2016; Verzelli 2020). The first attempt to reform the judicial branch leads to reconsider the mechanisms of performance evaluation “whereby the confirmation in office of chief justices and chief prosecutors was made subject to the outcome of performance evaluations in their first four years office – with a consequential increase in their organizational entrepreneurship” (Piana 2017, p. 191). The reform has taken several years to be fully implemented effectively, mainly for the weakness of central institutions (both the executive and judicial branches). As a result, “in 2011 [Mario Monti forms a new government], the level of conflict between the judicial and the executive branches decreased. [...] Since 2013, a large number of measures [...] designed to improve the management and organization of judicial offices have

been introduced” (Piana 2017, p. 194). This introduces an organizational change to harness skills, competences and leadership in the courts based on a logic of “management-by-decree” (Panozzo 2000; Miller, Power 2013), marked by incisive change at the ministry of Justice.

The first two waves of reforms have been characterized by (Piana 2016; 2017; Contini, Lanzara 2009; 2014):

(a) initiatives taken by a number of chief justices to digitize civil proceedings, relying on the collaboration of the local bar association and the availability of technical expertise with pilot projects in Bologna, Milan and Florence (Piana 2010; Sciacca et al 2013);

(b) initiatives taken by a number of chief justices and chief prosecutors to improve the accountability of the offices in the quality-of-justice mainstream, with pilot projects in Turin, Bolzano, Rome (Piana 2010, 2017);

(c) initiatives to incorporate into regional planning programs the projects of organizational innovation praised by the EU and financially supported by the structural funds, with pilot projects in Bolzano and “DBP” (Sciacca et al., 2013; Castelli et al. 2014);

(d) initiatives driven by the general policy regarding IT, trying to regain control and centrality of the digitization processes to ensure homogeneous implementation patterns in the judicial districts (i.e. e-justice platforms for civil and criminal trials; the introduction of the “Ufficio per il Processo” (UPP), “Office for Proceedings”, within the PNRR).

The evidence on the judicial policies between 2001 and 2016 reflects three features (Piana 2017: p. 194): 1) in policy formulation the “local level” predominates; 2) the lack of leadership in the central judicial institutions – the High Judicial Council and the Ministry of Justice – has obstructed the governance of the results achieved by the projects; 3) the long wave of local initiatives taken to improve the quality of justice has had unintended consequences both at the micro and macro levels.

The third “wave” of reform starts from and develops the digitization processes, in line with the highlights above.

The analysis of the evolutions in the governance and reforms of the judiciary system in Italy leads to identify the two dimensions, which give rise to the matrix proposed in figure 1 (Piana 2010, 2016, 2017; Sciacca et al. 2013; Castelli et al. 2014; Verzelloni 2020): the level of centralization of professional control connected to the judicial independence, and the degree of institutional fragmentation among different organizational levels considered as an initial approximation of the dimension of judicial accountability.

Research Design/Method. This work uses the language of the “sociology of translation”, or Actor-Network Theory (ANT) (Latour 2005; Czarniawska 2017) to make sense of the reforms concerning the introduction of digital technologies and accountability mechanisms in the administration of justice (Gherardi, Lippi 2000). The “actors” who enter into action in a space of social action (an “action net”: Callon 1984; Law 1986, 2009) can be considered as translators who, in attributing and negotiating the meaning of what they do, also build the collective subject who implements the process of translation (Gherardi, Lippi 2000). In the ANT language, the actors of a translation process (Callon, Latour 1981; Latour 2005) form a space of relationships that involves (Gherardi, Lippi 2000): those who produce and codify/share expert knowledge (universities, legal training, consultants); regulators and laws that impose themselves as obligatory passage points, the movements and detours that must be accepted as well as the alliances that must be forged (Law 1986, 2009; Latour 2005) (the ministry of Justice, the High Judicial Council, the CEPEJ, the reform decrees, internal rules); the “territorial” actors who in turn produce knowledge, imitate, copy, adopt what a “transfer center” imposes or disseminates as a model, such as courts that “resist” the process of translation or promote it as forms of “representation” or as a “community of practice”; intermediaries, anything that circulate between actors and defines their relationships (Law 1986; Latour 2005), who can be humans (i.e. chief justices and chief prosecutors), technological (i.e. software or performance indicators) and, in general, texts, documents, exchange of information in various forms (i.e. conferences or meetings, legal training classes, slides in power point).

The courts constitute a local translation center in which the intermediaries, starting with the judicial file as an artifact (a digital archive) converge, stabilizing the meaning of digital technologies and accountability mechanisms in an actor-network that will act as an “actor of the translation” (Callon 1984; Law 1986, 2009; Latour 2005, 2009).

In the cases of Turin (#01, #01a and #01b) and Bolzano (#03), chief justices and chief prosecutors are facing with the construction of relationships between “discourses”, bodies/work practices, texts, machines, infrastructure/architectures in an attempt to make sense of reforms that have by object technologies and forms of accountability (digital innovation, quality-of-the-justice, performance indicators). The case of Turin is based on the idea of reducing the time of justice by extending the experience of the chief justice of the “civil section” to the entire court when the magistrate becomes president (Sciacca et al. 2013; Piana 2016, 2017). The court adopts the “Strasbourg programme”, a series of organizational practices based on a large collaboration in the classifying pending files by “seniority”, based on the “risk factor”: the risk the file could generate a proceeding in the European Court of Human Rights (ECHR) in Strasbourg and, by analogy, the risk of falling under the “Law Pinto”. The “inventory” of pending judgments requires the identification of different “social group” in the court which relates to the artifact (the inventory), redefines the nature of the problem and produces some alternative solutions, for example, sharing the importance of enhancing internal court monitoring mechanisms. The judicial offices agree on the elaboration of two statistics a year which become the “communication standard” used by the Courts of Appeal (i.e., in the inauguration of the judicial year). In 2001, the court added two more statistics on the disposal of pending judgments “by seniority”, sharing the information with the entire organization. In 2009, 98% of the pending cases were outside the “Pinto risk” and the “Strasbourg risk” (Piana 2016).

Table 1 - Boundary objects, centers of coordination and “translation” in the Italian reform of judicial system (***)

CENTERS OF COORDINATION (**)	
Centers of coordination (**): are representative of a set of situations which have to do with ‘working together’ [the world of humans interacting with the world of non-humans and with ICTs which support distance work]. These places [...] make it possible to revise categories of analysis like cooperation and individual/collective work, as well as organizing understand as an activity situated in practice (Gherardi 2012)	
BOUNDARY OBJECTS (**)	
Boundary objects: they are a major method of solving heterogeneous problems. BOs are objects that are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. [...] A BO “sits in the middle” of a group of actors with divergent viewpoints. <i>Translation: The world of the BOs depends on the practices of the heterogeneous domains to which they are translated</i> (Bowker et al 2015, p. 251).	
(A) Repositories (**)	<ul style="list-style-type: none"> • there are ordered “piles” of objects which are indexed in a standardized fashion. • Repositories are built to deal with particular devices, but in generally structured courses of action involving the assembly of heterogeneous devices into a working information system (2) Reading a scene: how competency in these settings involves learning how to read scene, through the juxtaposition and interpretation of verbal reports, visual images, and various forms of text, in real time; into provisional assessments of an emerging situation (3) (Re)producing a normal order: how, through their management of everyday contingencies, workers are able to maintain an accountable space/temporal order (4) Structures of participation: how participants in a multi-activity settings structure their focus of attention and engagement, from moment-to-moment (5) Constituting workspaces: how workspaces are dynamically configured through interactions across visible and invisible boundaries (6) Acquiring competency: how the identity of competent practitioners is acquired through progressive rounds of increasingly demanding work, supported in <i>study</i> by experienced co-workers (7) Authoritative knowledge: relations between participants’ access to technologies and the distribution of knowledge taken to be consequential for the work at hand (8) Designing for change: implications of the relations between professional design and design-in-use
(B) Ideal type (*)	<ul style="list-style-type: none"> • this is an object such as a diagram, atlas or other description which in fact does not accurately describe the details of any one locality or in the presence of different means of communication across dispersed work groups. Because the natural history work took place at highly distributed sites by a number of different people, standardized methods were essential. In the case of the amateur collectors, they were provided with a form of fill out while cooperating partners share a common referent. • An example of an ideal type is the fact described non specimen, which incorporated both concrete and theoretical data and which served as a means of communication across both worlds. Ideal types arise with differences in degree of abstraction. They result in the deletion of local contingencies from the common object and have the advantage of adaptability
(C) Coincident boundaries (*)	<ul style="list-style-type: none"> • these are common objects which have the same boundaries but different internal contents. They arise as methods of common communication across dispersed work groups. Because the natural history work took place at highly distributed sites by a number of different people, standardized methods were essential. In the case of the amateur collectors, they were provided with a form of fill out when they obtained an animal, standardized in the information it collected. • The results of this type of boundary object are standardized indexes and what Latour would call ‘immutable mobiles’ (objects which can be transported over a long distance and convey unchanging information). • The advantage of such objects are that local uncertainties (for instance, in the collecting of animal species) are deleted.
(D) Standardized forms (*)	<ul style="list-style-type: none"> • these are common objects which have the same boundaries but different internal contents. They arise as methods of common communication across dispersed work groups. Because the natural history work took place at highly distributed sites by a number of different people, standardized methods were essential. In the case of the amateur collectors, they were provided with a form of fill out when they obtained an animal, standardized in the information it collected. • The results of this type of boundary object are standardized indexes and what Latour would call ‘immutable mobiles’ (objects which can be transported over a long distance and convey unchanging information). • The advantage of such objects are that local uncertainties (for instance, in the collecting of animal species) are deleted.

Definitions (***) - Memory practices: acts of committing to record (such as writing a scientific paper) do not occur in isolation; they are embedded within a range of practices (technical, formal, social) that collectively I define as memory practices. Taken as a loosely articulated whole, these practices allow (to some extent) useful/interesting descriptions of the past to be carried forward into the future» (Bowker 2005: p. 7). Four moments of Translation (***) - problematization in which translators attempt to define as issue and offer an obligatory passage point drawing an initial set of actors together to solve it; **‘invention’** in which translators determine and fix the interests of key actors so that they are willing to sign with an emerging project; **enrolment** in which representatives of main groups of actors are assigned roles and drawn together to build an alliance; **mobilization** in which the actor-network is extended beyond an initial group» (Lawrence, Suddaby 2006, p. 243)

McGee K. (ed.) (2015). *Latour and the passage of Law Labour* 2005, 2013; Latour, Weibel 2005; Callon 1984; Law 1999; Mol 2002; Bowker 2005; Bowker et al 2015 (**)

Suchman L. (1997). “Centers of Coordination: A Case of Institutional Ecology, Translation and Boundary Objects: Amateurs and professionals in Berkeley’s Museum of Vertebrate Zoology, 1907-1939”, *Social Studies of Science* 19(3), pp. 387-420; Berg, Bowker 1997; Bowker, Star and Some Themes”, in Kenlik-Lib, et al. *Disorder: Tales of a Living Ecology* pp. 41-62; Suchman 1987; Gherardi 2012; Pickering 1995; Harvey, Insausti, Motta 2017, (***) **ST9 ANT**; Gherardi S., Lippit A. (eds), (2000). *Traduzione/translation* McGee K. (2014). *Boundary: The World of the Network*; 1986; Bijker, Hughes, Pinch 2012

In 2004, in Bolzano the new chief prosecutor proposed a program for the “rationalisation, monitoring and quality certification of the office” (Piana 2016): revision of the forms, revision of the “operation management” of the judicial files, attention to the time and costs of the procedures. In 2006, the “Bolzano case” was extended to all Italian judicial offices (ministry of Justice as a promoter). Since 2007, the European Commission has included this experience in the program for the implementation of “best practices” in judicial offices funded with the European Social Fund, within the National Operational Plan PON 2007-2013. The DBP program acts on the organization of the work of the administrative staff, without the direct involvement of the magistrates (Piana 2016): it is possible to change the organization of the courts without changing the law; the chief justices and chief prosecutors can play a decisive role in the organizational change; the DBP program has at least introduced the idea that the courts can report and adopt goal-oriented strategies (CEPEJ 2020, 2021b, 2022). The PON Governance and Institutional Capacity 2014-2020 program, which includes the Uni4Justice project, and the funding from the NextGenerationEU start from these foundations.

The evidence proposed in figure 1 brings out a common feature that allows us to justify the choice of the court as the empirical context for this research (Piana 2017).

Findings. In the context of the third wave of reform, the Italian National project “Uni4Justice” aims at investigating digitalization and the introduction of “Ufficio Per il Processo” (UPP), within courts, in consequence of a recent legislative reform. “Uni4Justice” is a complex project involving a consortium of universities coordinated by the Alma Mater - University of Bologna. This research project promotes organizational, technological, and professional change in the courts on the basis of objective and verifiable knowledge of work practices, methods in using the resources, and monitoring tools. This interdisciplinary project, funded under the PON Governance and Institutional Capacity 2014-2022, involves socio-legal experts, legal informatics, and management scholars and fits into the third wave of Italian judiciary reforms (figure 1: case #04 and case #05). In 2012 (with Law Decree 179/2012), the UPP was introduced in courts and Courts of Appeal as an “urgent measure” meant to reduce the length of trials: in these offices were employed even students in internship or on-training staff, auxiliary judges at the Courts of Appeal and honorary judges at the courts, with the purpose of supporting full-qualified judges in their routine duties (e.g., writing minutes of the hearings and drafts of the decisions: CSM 2019, 2021). Adapting similar legal initiatives enacted in other Countries (e.g., UK, USA, Spain and France) in 2021 (with Law Decree 80/2021), additional personnel was recruited in order to increase the efficiency of the UPP as an extraordinary measure included in the programs financed by the Next Generation EU Plan. Those resources, called “Addetti all’Ufficio del Processo” were aimed at supporting the legal workflow performing complementary tasks (e.g., organising files, planning hearings, and facilitating the imminent process of digitalization: CSM 2019, 2021). The combination of said pieces of legislation (figure 1: cases #04b and #04c: UPP & Digital Transformation; case #05: “management-by-decree” or “top-down” reforms), both justified by urgency and necessity brought further confusion, bringing uncertainty in procedures, and establishing overlapping competences (Zan 2002, 2004; Sciacca et al. 2013).

The organizational work in the reform of the Italian judicial system is heterogenous, requiring different actors and viewpoints (Contini, Lanzara 2009, 2014; Verzelloni 2020). Table 1 presents a scheme in which actors managed this tension in “the making of law”. In a practice-based perspective (Gherardi 2012), we argue that: (i) if the process of “translation-into-practice” of the reform of the judicial system in Italy involves the adoption of digital technologies and the introduction of the UPPs; (ii) we will investigate the evolution of this process in the court, considering “the judicial file” as the “unit of analysis”; (iii) considering digital archives as artifacts (boundary objects: Star, Griesemer 1989); (iv) the digital evolution of archiving practices (memory practices: Bowker 2005) as “infrastructure processes” (Bowker, Star 1999; Berg, Bowker 1997); (iv) and, as well as, the UPP as a “center of coordination” (Suchman 1987, 1997: forms of “situated work”, a “technologically dense” workplace and a “technology in use”; case #04a). The episodes that intersect in the scheme and populate this analytical framework emerge from our research process: “having identified the relevant social groups for a certain [digital] artifact, we are especially interested in the problems each group has with respect to that artifact. Around each problem, several variants of solution can be identified” (Bijker et al. 2012, p. 28).

Research limitations. The research project considers the problem of how the “adventures” of a “requested reform” in the Italian judicial system are marked by the general need for “facilitating a comprehensive introduction of managerial vocabulary and knowledge into the public domain” (Panozzo 2000, p. 357). However, since managerial notions of accountability and performance, of organizational change and digital transformation are enacted by law (“management by decree”, Panozzo 2000), “they enter into a terrain governed by legal framework and terminology” (p. 347). The rhetoric of change and “management by decree” constitute a paradox in the reform of the Italian judiciary (i.e.: figure 1, case #4b and #04b; case #05). From an institutional learning perspective, when the relationship between means and ends is opaque, some consequences emerge from our analysis of this form of “decoupling” (Powell 1997; Bromley, Powell 2012; Miller, Power 2013): (i) internal organizational structures become increasingly complex, (ii) organization persist in a state of perpetual reform, and (iii) resources are often diverted away from core goals.

Theoretical and managerial implications. According to Star and Griesemer (1989), we identify four types of BOs: repositories, ideal types, coincident boundaries, standardized forms. Based on the Suchman’s study of an air traffic control tower (1997), we consider eight themes for research and analysis. Through the language of the “sociology of translation” (Callon 1984; Czarniawska, Sevón 1996; Callon, Latour 1991; Nimmo 2016) and the concepts of actor-network (Latour 2005; Law 2009; Nimmo 2016; Czarniawska 2017), heterogenous engineering (Law 1986; Bijker et al 2012; Law 2009; Nimmo 2016), sociomateriality (Orlikowski, Scott 2008; Carlile et al. 2013), we have combined the

notions of boundary objects and center of coordination with the aim of bringing out a type of organizational environment (the UPP: figure 1, case #04a) that allow us to define technology (both the digital and the accountability) as a social practice. John Law suggested that “heterogeneous engineers seek to associate entities that range from people, through skills, to artifacts and natural phenomena. This is successful if the consequent heterogeneous networks are able to maintain some degree of stability in the face of the attempts of other entities or systems to dissociate them into their component parts” (Bijker et al. 2012: p. 123).

Managerial implications concern the multidimensionality of the concept of (public) accountability in the same semantic field of judicial governance, as listed in figure 1 (Bovens 2009; Piana 2010; Castelli et al. 2014; Verzelloni 2020).

Originality of the paper. In contrast to traditional models, the metaphor of “translation-into-practice” of justice reform should produce (Gherardi 2012): (i) “technologically dense environments”, (ii) in which “working implies expert practices” and specific “technological know-how”, (iii) in which “human and technology work together”, (iv) and interaction is made possible by technologies (i.e. space-time is “reconfigured on the basis of such interactions and technologies”).

Keywords: materiality; organizational change; judiciary reform; digital innovation; accountability; actor-network theory

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The role of business networks into the energy transition: a study on companies belonging to different sector creating ties to foster hydrogen economy

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Framing of the research: *The sustainability challenge in business environment is not anymore considered a passing trend but it represents the new frontier with which companies must deal with. The complexity of these challenges requires the collaborations with a set of multiple stakeholders (Albino, 2012). The specific focus of this study concerns interorganizational relationships between multiple companies belonging to different sectors or value chain steps. We seek to understand how such relationships allow the development of environmental innovation as well as a widespread adoption of new technologies or business models.*

In the broader context of sustainable transition, this study, falls within the scope of energy transition, with a specific focus on green hydrogen (H2). There are several reasons why we consider particularly relevant to study green hydrogen and the strategies that can enable a widespread adoption in the market (IEA, 2022): (1) it allows a deeper penetration of renewable energy sources by stocking electricity when there is an overproduction; (2) it enhances energy security by balancing the energy mix; (3) it decarbonizes many hard to abate sectors where the electrification is not an available option (i.e., steel making industry, heavy transportation, chemical, refinery, heating, etc...). For the reasons above the growth of green H2 solutions is expected in coming years but the scale-up of business models H2 based is still challenging. The main barriers (IPCC, 2022) lie on: (i) high costs of green H2 comparing with fossil fuel solution; (ii) slow development of production capacity and delivery infrastructures; (iii) lack of clear regulatory framework; (iv) lack of a clear incentives; (v) wrong perception of danger by the population. Through the theoretical lens of Relational View (Dyer and Singh, 1998) and alliance management capabilities, we will analyse how the attributes of these streams of literature interacts together into H2 based projects to overcome the barriers and to generate environmental innovation. To the best of our knowledge there is a significant gap into this field since only few studies (Donbesuur et al., 2021; De Almeida et al., 2021) investigated the relation between the post-formation alliance capabilities (Schreiner et al., 2009) and the complementary roles of certain RV constructs in generating environmental innovations. This study will complement the current knowledge by using a mixed method approach able to catch, through a series of interviews a more nuanced picture of these topic.

Theoretical Background:

The Schumpeterian concept of Innovation lies on the combinations of the following: (i) new materials and components, (ii) the introduction of new processes, (iii) the opening of new markets, (iv) the introduction of new organisational forms. This vision of innovation highlights the two intertwined dimensions of the innovations which are the technical world and the business world (Tao et al., 2010).

The environmental innovation (EI) according to Kemp and Pearson (2007), is a step forward into the conceptualization of innovation. EI include the production of a product, service or the exploitation of a business method which will have to result in a reduction of “environmental risk, pollution, and other negative impacts of resource use (including energy use) compared to relevant alternatives.

Sometimes companies need to implement strategic alliances to pursue EI. These alliances involve mutual agreements between two or more partners to exchange resources or to collaborate on developing knowledge (Rizzi et al., 2013). By forming alliances with external partners, companies can gain access to new environmental knowledge that increases their understanding of sustainability issues and fosters environmental innovation.

The academic interest in business interconnections has deep roots in socio-managerial studies. The Relational View (RV) (Dyer and Singh 1998; Dyer et al., 2018) systematizes the multiple theoretical contributions related on

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partnerships and alliances and it proposes an interorganizational theory that explain the competitive advantage of partner companies by using as unit of analysis the relationships between companies.

The theory indeed suggests that exchange relationship between partners companies lead to relational rent, which is defined as supernormal profit jointly generated by partners that cannot be generated by either firm in isolation. The determinants of relational rent are organized in four pillars: relation-specific assets, knowledge-sharing routines, complementary resources and capabilities, and effective governance mechanisms (Dyer and Singh, 1998).

Research has successfully studied the effectiveness of the RV to demonstrate the rent generating effect of the networks or dyads (Dyer, 2006; Kale et al., 2001). Similarly, the positive interaction between environmental innovation and interorganizational relationship has been extensively reviewed. As a matter of fact, it's been demonstrated that collaborations between different players could enhance the environmental performance (Albino, 2012). Moreover, it has emerged that green innovation is influenced by the ability of a company to create networks of collaborations (Dangelico, 2016; Melander, 2017; Pereira et al., 2020).

Although there is a rather extensive literature on the topic, the overall potential of horizontal collaborations between multiple actors in green innovation networks is considered a research direction still underexplored (Melander, 2022) and most of all, the RV model has been weakly analysed (Gölgeci et al., 2019; Juo and Wang, 2022) in conjunction with sustainable transition topics.

Indeed, we believe that a more comprehensive analysis of the potential of cross-sector collaboration should include, in addition to the structural components of partnership that are well highlighted by the RV, the role played by the skills, abilities and specific attitudes of the companies involved in the partnership itself.

The alliance management capabilities literature is a vast research stream where it's been deeply examined the role of alliances in enhancing economic performance as well as firms' innovative output. Standing on the framework proposed by Wang & Rajagopalan (2015) the capabilities of managing alliances can be classified into three different levels of analysis: firstly, the individual-alliance capabilities which emphasize a company's skills in initiating, managing, and concluding individual alliances (Schreiner et al., 2009); secondly, the alliance-portfolio capabilities which focus on a company's abilities in developing and coordinating a portfolio of alliances (Sarkar et al., 2009); and thirdly, the dyad-specific alliance capabilities which represent the relational capability of a dyad (Dyer and Singh, 1998; Zollo et al., 2002). In addition, the three levels mentioned can be categorized into two temporal segments: (i) pre-formation alliance capabilities, which emphasizes ability to select partners and negotiate terms and structures of an alliance agreement with partners, and (ii) post-formation alliance capabilities, which refers to characteristics helping firms to create and capture value from the partnership (Anand and Khanna, 2000) such as coordination, communication (Schreiner et al., 2009), and interorganizational learning (Schilke and Goerzen, 2010; Kale and Singh, 2007).

In line with Kohtamäki (2018) we recognise significant gap related to the interaction between different post-formation alliance capabilities, so the question on how different capabilities impact the key partnership attributes (Robson et al., 2019) remains unexplored.

This study, drawing from the RV theory and from the alliance capabilities literature, examines the combination of structural and relational factors affecting the environmental innovation in the energy transition field. Thus, it will investigate the role played by companies' network in allowing the achievement of energy transition through hydrogen solutions.

Purpose of the paper: This study arises from the need to understand the factors that companies can leverage, and the resulting strategies implemented, to enable hydrogen-based business models to establish themselves in the market and overcome the afore-mentioned barriers. Therefore, the paper addresses the following research question: which interactions among which firms' alliance capabilities and relational view constructs affect the successful development of hydrogen development projects?

Building upon the theoretical introduction presented above, the objective of this study is to identify how the alliance capabilities of a focal firm relate to the structural components of the alliance (RV constructs) to generate value in the form of environmental innovation. The coexistence of alliance capabilities and the RV is harmonious, indeed the literature on alliance capabilities, as highlighted by Wang and Rajagopalan (2015), draws heavily from the RV to introduce dyad-specific alliance capabilities. Similarly, there are a many studies that focus on how a company's partnerships or alliance capabilities can foster the development of EI. On the contrary, we believe that a joint analysis of how alliance capabilities and RV impact EI is basically missing or underexplored.

We have selected a specific set of alliance capabilities and determinants of the RV since they are theoretically linked to EI and recent studies have tried to understand how they these constructs are related (Donbesuur et al., 2021).

Coordination Dimension: coordination in alliance is the extent of routines to coordinate activities and resources with the alliance partner (Gulati et al., 2005). So, it describes the attitude of the firm to efficiently manage tasks, responsibilities, interdependences and to flexibility adapt partners' agreements (Schilke, 2014; Schreiner et al., 2009). We emphasized that alliance coordination expresses the ability to manage and enhance interdependence among partners. This aspect is in fact of crucial importance as the interdependences among partners and their resources plays a triggering role in the alliance creation (Dyer, 2018); furthermore, the level of interdependence denotes the speed of value generation. Huang and Li (2017) have demonstrated that the coordination capability, by simplifying the co-engagement between separate functions, has a positive impact on green product innovation. Moreover, the interactive effect of interorganizational coordination and environmental innovation in partnering companies was empirically demonstrate by Donbesuur et al. (2021) making use of the mediating role of environmental in-learning.

Communication Dimension: The communication capability refers to the formal and informal sharing of significant and timely information between partners (Schreiner, 2009). Effective communication involves the use of various modes and media among alliance partners, and if properly utilized, can improve knowledge acquisition, learning, and it can foster greater understanding of complex issues among partners. Frequent exchange between firms and the use of multiple channels are essential to structuring a decision-making process that is shared among partners and expressive of their mutual wills and intentions (Schilke and Lumineau, 2018). It also enables members of the company to pool opportunities and risks associated with joint activity or project (Dhaundiyal and Coughlan, 2022). The interconnection with the innovation processes is highlighted in the literature (Huang and Li, 2017) since the effective communication is presented as fruitful for the collaboration among people from different functional areas and these interactions are likely to induce innovation patterns. Moreover, this individual alliance capability resulted positive related to environmental innovations (Donbesuur, et al., 2021) when it is mediated by environmental in-learning.

Interorganizational learning: In line with the RV theory, the capacity of dyads to produce relational rent is contingent on the presence of knowledge sharing routines. These routines are patterns of inter-firm interactions that facilitate the transfer, recombination, and creation of specialized knowledge. This concept not only pertains to the exchange of knowledge between partners, but it also concerns the recipient's ability to internalize and utilize the knowledge shared. According to Dyer and Singh (1998), the recipient's ability to leverage the knowledge shared by a partner is directly proportional to their "absorptive capacity," which is influenced by the extent of overlapping knowledge bases between partners and the routines of interaction established between the firms. Interorganizational learning capabilities, which refers to the ability to transfer knowledge across organizational boundaries, serves as an appropriate proxy for this concept (Dyer and Nobeoka, 2000). Von Hippel (1988) argues that a network characterized by high level interorganizational learning mechanisms among partners will be able to "out-innovate" itself and Dyer and Singh (1998) agreed that firm's alliance partners are the most important source of new ideas and information that result enhanced innovation level.

Transaction-Specific Assets: The Relational View framework posits that a firm which engages in developing specialized assets in collaboration with its partners can generate a competitive advantage that is not easily replicable by rivals. Indeed, the specialization of assets can generate greater trust and improved coordination in partnering companies (Dyer et al., 2018) which are qualities of a relationship that are difficult to replicate. This construct is contingent upon the duration of the partners' agreement, with longer safeguard periods resulting in reduced risks of opportunistic behaviour (Dyer and Singh, 1998). Furthermore, the presence of a transaction specific asset is likely to increase transactions volume between partners leading to enhanced operational efficiency and specialization. Dyer and Singh (1998) stated that transaction specific assets can lower the value chain costs and enhancing product differentiation, fewer defects, and faster product development cycles (Dyer and Hatch 2006).

Methodology: To address our research question, we have chosen to utilize the Qualitative Comparative Analysis (QCA) methodology. Unlike inferential statistical methods, this methodology is not used to establish and confirm the existence of a causal relationship between variables. Rather, it helps to identify recurring patterns among variables that are useful in supporting and enriching knowledge about causal relationships (Schneider and Wagemann, 2010). In other words, this method helps us to understand how certain variables relate to each other when a particular outcome of interest is achieved. However, the use of QCA resulted from a multi-step process of the collection of data: selection of cases, semi-structured interviews, and questionnaire survey, which is summarized below.

Empirical context and selection of cases:

To identify the key actors involved in the development of the hydrogen supply chain in Italy, we employed various channels and strategies. First, we used the IEA Hydrogen Projects Database, which showcase projects that have been commissioned since 2000 (last updated in October 2022) to produce, distribute, and use hydrogen. Additionally, we identified actors who are part of independent associations that promote the progress of technologies related to hydrogen use. Among these associations, we highlight the H2IT and the European Clean Hydrogen Alliance. From this initial screening, we obtained a list of 64 companies. Some of these companies didn't have ongoing project since they participate to the associations just to voice their interests or concerns regarding market and regulatory developments or to actively monitor market trends. Through further investigation based on the analysis of websites and documents published by companies, we arrived at a list of 37 companies actively involved in hydrogen supply chain development projects in Italy.

Finally, we contacted the companies to ensure that the projects they were conducting adhered to the following principles: (i) projects that were ongoing or completed within 2022 (to ensure the utmost relevance of the study); (ii) projects conducted in partnership with other actors; (iii) projects involving the production, distribution, or usage of green hydrogen.

Considering these constraints and the companies' willingness to participate in the study, we arrived at a final sample of 18 projects.

The projects we analysed are distributed along the value chain as in illustrated Table 1.

Table 1: Projects

H2 Value Chain Steps	Project sector	Type of Project	N. of Project
R&D Testing	Energy	Development of an Industrial Technology Testing Hub	1
	Steel Making Industry	Usage of H2 & Natural Gas Blending	1
		Usage of H2 in a DRI process	1
	Engineering and Manufacturing	Optimisation of Value chain steps	1
H2 Production	Energy	H2 Valley Development	2
H2 Distribution	Energy Infrastructures	Definition of blending % in national pipelines	1
H2 Technology Providing	Engineering and Manufacturing	Electrolysers Production	1
H2 Usage	Steel Making Industry	Upgrade to Hydrogen DRI process	3
	Refinery	Substitution of grey H2	2
	Mobility	Hydrogen Train	1
		Refilling stations	1
		Hydrogen Busses	1
Trucks mobility	2		

Variables and data collection:

The data collection process was structured in two phases consisting of a series of interviews with the leading company of the project and a questionnaire to the project managers involved in the project development activities.

Semi-structure interviews:

The interview sessions were conducted with focal company' informants (i.e., the company that triggered the project and mainly responsible for the proper integration of the various players contribution) involved in strategic decision-making processes and in the supervision of the selected projects. The positions of the interviewees fall into the categories of company's CEO, director of innovation, project manager. The semi-structured interviews lasted around 1 hour and were conducted using a protocol with the main objective of understanding the project itself, the relationship between partners, and the mechanisms by which such partnerships are managed. To this end, we have deepened and mapped for each project the existence and the further implementation of the four pillars of the Relational View using the Nvivo software.

Questionnaire survey:

The questionnaire was developed to limit interpretational issues with some of the interview questions and to obtain more nuanced insights into the theoretical constructs that we aimed to investigate. The data will be collected through an online questionnaire spread among persons involved in the supervision of the selected projects. The items used to measure the constructs of relational view and alliance capabilities were based on prior literature and were measured using a 6-point Likert scale with 1 = strongly disagree....6 = strongly agree. Table 2 summarize the single variables and related references.

Table 2: Questionnaire' Items

Items	Reference
Coordination Dimension	Adapted from M. Schreiner and P. Kale's (2008) (Donbesuur et al., 2021; Dhaundiyal et al., 2022)
Communication Dimension	Adapted from Schreiner and Kale's (2008) (Paulraj et al., 2008; Donbesuur et al., 2021).
Interorganizational Learning	Adapted from Schilke and Goerzen's (2010) (Inigo et al., 2020)
Transaction-Specific Assets	Adapted from Wu et al. (2017) (Donbesuur et al., 2021)

The environmental innovation of our ongoing projects was measured through the projects' evolution (the green component is embedded in each of selected projects since they all aim at launching green H2 technologies or business model) over a certain temporal interval.

The measure of the progress of a project, requires the contextual consideration of multiple dimensions to determine whether the project is evidently moving towards commercialization. For these reasons, we chose to use the balanced readiness assessment tool (Vik et al., 2021; Kobos et al., 2018) to evaluate the multiple dimensions that characterize the evolution of these technologies or business models.

The methodology expands the well-known Technology Readiness Level (TRL) assessments, with a method for assessing TRL as well as Market Readiness Level (MRL), Regulatory Readiness Level (RRL), Acceptance Readiness Level (ARL), and Organizational Readiness Level (ORL) in concert (Vik et al., 2021). Each of these dimensions, consists of 9 scalar levels that express from an early stage of project evolution (level 1) to ready for scale commercialization (level 9) the readiness level.

The questionnaire asks to evaluate for each of these 5 dimensions:

- the project's state one year prior to the questionnaire,
- the current project's state

The difference between (a) and (b) allows us to identify, for each dimension of the balanced readiness level, the evolution targeted by the project over one year. Therefore, the average of the 5 gaps becomes the value of the project's evolution able to indicate the project scale-up.

QCA:

QCA method is useful to unravel the causal complexity relations and it is worthy when the goal is to observe how different attributes of the cases interplay to produce a certain outcome (Parente, 2019). The study aims to identify the combinations of causal conditions (RV pillars and Alliance Capabilities) for the occurrence of the environmental innovations (project scale-up). QCA bridges the gap between qualitative and quantitative analysis and provides a mechanism to research a small-to-medium number of cases (Ragin, 2008).

The analysis will adopt a Crisp Set for the calibration of conditions which it use a dichotomous approach that entails assigning binary values of 0 or 1 to denote absence or presence of the attribute. The values 0 or 1 of each variable is determined by the average of the answer to each theoretical construct. This sample-based calibration is adopted in circumstances where there is no existing theoretical knowledge that can be used for calibration thresholds (Greckhamer, 2016). The collected questionnaires will be used to build the truth table by adopting the logic of necessity and sufficiency (Ragin, 2008). Then, it will be identified the configurations that consistently will produce the outcome of interest i.e., the evolution of the project.

Preliminary results: This paper provides the preliminary results of a still ongoing research. To date, we have collected data on 15 out of 18 projects by interviewing their respective focal companies. We therefore have a total of approximately 30 hours of interviews (i.e., 2 hours per project) that have been transcribed and coded with Nvivo to identify recurring patterns and modes of implementation of the afore-mentioned projects.

The questionnaire survey has not yet been finalized with companies, thus we do not yet have the results that will emerge from the QCA. Only after running the QCA model, we expect to identify the necessary and sufficient conditions for the evolution of H₂-based projects, and therefore the interaction between the various components of the RV and the Alliance Capabilities.

Research limitations. The present research is affected by a series of limitations that might, in turn, represent a starting point for future explorations.

The first and most important limitation regards the limited size of the sample, indeed, a larger sample might offer a more comprehensive and exhaustive analysis.

Second, further studies, by using a larger sample, might include more variable into the research, thus they could explore the interaction between more alliance capabilities in relation to the environmental innovation.

Third, the study is limited to Italy, this highlight the necessity for further explorations where the results will be checked also in other countries.

Managerial implications. We believe that this study can be helpful for companies entering the hydrogen market with pioneering projects aimed at the development of new business models. The evidence emerging from these projects can be valuable lessons learned for other managers. The definition of the most performing business approaches to the new technology scale-up will shed light on the role of the business network in the energy transition and will demonstrate how to pursue environmental result and business opportunities into the hydrogen market. By defining the attributes that the networks present when the projects evolve successfully is a worthy insight for the companies that enter this market. The leading company of future projects could accordingly with our results, structure the alliances and invest in the capabilities that lead to the best outcome.

Originality of the paper. To the best of our knowledge, there are no studies that focus on the development of environmental innovations such as green hydrogen solutions, by analysing the perspectives of multiple actors distributed across all the various steps of the value chain. As such, we have a series of actors who are at the starting line and are vigorously preparing themselves to tackle the challenge of participating in the development of the hydrogen economy.

This study is one of the few to adopt a project perspective in order to understand how individual initiatives are evolving and therefore to grasp how they may contribute to the development of a widespread adoption of hydrogen-based technologies.

Furthermore, our study benefits from the contribution of first-rate corporate partners, including energy companies, steelworks, refineries, EPC contractors, etc., who hold a leading position at the global level. The understanding of the barriers and challenges that these companies face in responding to the political and social needs of launching a hydrogen economy is expression of the voice of the market. Therefore, analysing the best strategies and the structures they implement to overcome these obstacles and to guide an energy transition, allows us to better understand what can be done on a global scale and what is still missing for widespread sustainable transition.

Keywords: relational view; environmental collaboration; alliance management capabilities; environmental innovation; hydrogen economy; innovation scale-up

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Product sustainability and willingness to buy: a parallel mediation model of product traceability and consumers' environmental concerns

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Abstract

This study examines the relationship between product sustainability and consumers' willingness to buy, as well as the mediating effects of product traceability and environmental concerns. Through a survey involving 239 participants, the study showed that product sustainability positively influences consumers' willingness to buy, and that product traceability and environmental concerns partially mediate this relationship. The findings have important implications for businesses seeking to promote product sustainability and increase consumers' willingness to buy sustainable products. Specifically, businesses should focus on improving product traceability to increase consumers' confidence in the sustainability of the products they purchase. Additionally, businesses should seek to educate consumers about the environmental benefits of their products to increase their environmental concerns and willingness to buy sustainable products.

Framing of the research. *The growing demand for eco-friendly or sustainable products (Teoh and Gaur, 2019; Konuk, 2019), driven by pollution and environmental concerns, has prompted organizations to shift towards sustainable and environmentally friendly products like organic food, to remain competitive in the global arena and to satisfy consumers' needs. Consumers' demand is not only more environmentally conscious but also socially conscious: more consumers are aware of the environmental, social, and economic impact of their choices (Joshi and Rahman, 2016) and are directing their consumption behavior towards sustainable purchasing due to their increased awareness of detrimental impacts of nongreen purchase (Dagher and Itani, 2014). Accordingly, consumers have increased their demand for organic food (Eyinade et al., 2021) because perceived as healthy, safe, environmentally and animal-respectful (Dangi et al., 2020; Janssen, 2018; Lea and Worsley, 2005) as well as for its sustainable, authentic and natural characteristics (Mazzacano D'Amato and Falzon, 2015) and for motives that go beyond health and often include hedonic characteristics (Brantsæter et al., 2017). Therefore, health and environment have become important parameters for consumers in purchases, even if not always this interest in sustainable and environment-friendly products translates into their purchases (Sultan et al., 2020), due to the well-known intentions-behavior gap (Boulstridge and Carrigan, 2000). Even though environmental protection and animal welfare attributes have been shown to have a strong influence on consumer willingness to buy organic food (Ghali, 2020), purchase intentions are also influenced by functional values related to personal gratification mechanisms: consumers are likely to experience pleasure and gratification because they believe that their purchase behavior contributes to the well-being of environment and animals (Giffors and Sussman, 2015; Padel and Foster, 2005). Likewise, consumers are likely to experience pleasure because they believe that buying organic food is synonymous of high quality, integrity, safety and transparency (Trienekens and Zuurbier, 2008): product traceability effectively acts as a boost for consumers' confidence through assisting food quality and safety assessment, thus affecting their health consciousness (Wu et al., 2021; Chang et al., 2013). Therefore, since organic food has become popular among consumers for both its health and environmental benefits, there is a growing interest in understanding organic food consumption as parallel of those in sustainable food and health-oriented lifestyles and as it is believed that health and environmental consciousness drive consumers to purchase pure and chemical-free food (Parashar et al., 2019). Those arguments make this topic relevant for decision-makers, given that consumers have become more familiar with and attribute a different value to organic food, thus changing their behavior in the wake of increasing environmental concerns. Therefore, identifying factors that*

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may, directly and indirectly, influence consumers' purchase behavior toward organic food could be useful for producers, marketers, and researchers.

Purpose of the paper. From the consumers' perspective, previous studies focusing on organic food consumption have examined willingness to buy (Ghali, 2021; Aschemann-Witzel and Zielke, 2017; Bartels and Onwezen, 2014; Hoffmann and Schlicht, 2013; Onyango et al., 2007; Padel and Foster, 2005), as a surrogate of purchase intention and a predictor of actual consumers' purchase behavior (Lio and Hsieh, 2013). Willingness to buy (WTB) consists of consumers' likelihood to shop, purchase, and recommend stores to others (Ghali, 2019) and it has been correlated to a positive attitude toward an environmentally friendly product (Malik and Singhal, 2017). Among the multiple motives to purchase organic food products (Eberlet et al., 2022; Lee et al., 2020; Bartels and Onwezen, 2014; Voon et al., 2011; Ahmad and Juhdi, 2010), this study focuses on the mediating role of environmental concerns and the importance of product traceability in the relationship between product sustainability and WTB. Sustainable products are those with positive environmental and ethical attributes (Luchs et al., 2010) and that contribute to one or a combination of the economic, social, and environmental dimensions of sustainability (Reheul et al., 2001). Product sustainability has been found to positively affect consumers' WTB due to its social and ecological impact (Nie et al., 2021; Kaczorowska et al., 2019). Following Konuk (2019), who tested the impact of mediating variables on consumers' WTB and willingness to pay for fair trade food, when examining consumers' purchase behavior towards organic food, the literature suggests considering conditional values that contribute to the overall product features or attribute perception (Lin and Huang, 2012), thus affecting their WTB through the impact on consumers' environment-friendly identity. In this spirit, since consumers tend to self-obligate themselves to act in ways that can protect the environment, some authors recognize their positive impact on consumption behavior (Johnstone and Tan, 2015; Chen and Chang, 2012). In particular, by defining environmental concerns as individuals' awareness of the environmental problem and their willingness to be part of the problem solution (Chan and Lau, 2000; Maloney and Ward, 1973), previous research individuated environmental concerns as a component of pro-environmental/green self-identity (Confente et al., 2020), being associated to an increased frequency of buying organic food (Kushwah et al., 2019; Paul et al., 2016; Kim and Choi, 2005). Other studies have demonstrated that environmental concerns mediate the relationship between values and behavior (Confente et al., 2020; Whitmarsh and O'Neil, 2010; Smith and Paladino, 2010; Schultz, 2002). Confente et al. (2020), by differentiating between values (as the set of personal convictions and beliefs that individuals have about themselves) and perceived values (as the collection of qualities the consumers have about products) demonstrated the positive impact of pro-environmental self-identity on perceived values. In the same direction, Smith and Paladino (2010) evidenced a positive impact of environmental concerns on consumers' organic values and attitudes. On the contrary, in their study about consumers' intentions to purchase organic food in the context of the theory of planned behavior (TPB), Yadav and Pathak (2016) did not find any significant effect of environmental concerns. Among variables impacting on WTB, also product traceability importance has been shown to orient consumers' purchase choices (Haleem et al., 2019; Chen and Huang, 2013). As defined by the European Commission Act (178/2002), traceability is the ability to track the production of food, forage, livestock and feeding raw materials in all stages of production, processing, and circulation, thus enhancing food supply chain safety and food quality (Marozzo et al., 2022; Adam et al., 2016), and with a direct effect on the hedonic and utilitarian dimensions of consumers' behavior, through their increasing health consciousness.

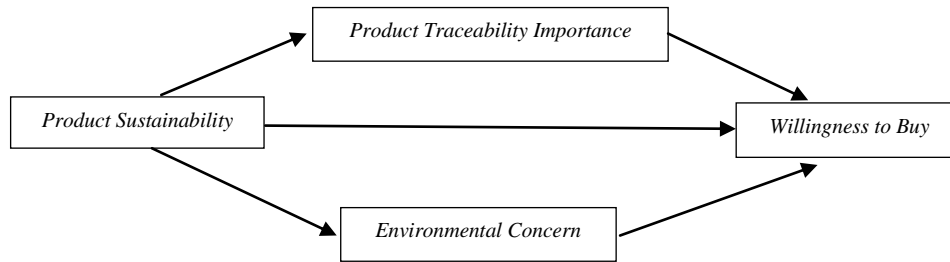
Hence, it seems necessary to incorporate the critical factors mentioned above to develop a more comprehensive model and a better understanding of organic food purchase behavior, by examining the role of environmental concerns and the importance of product traceability as mediators in the relationship between product sustainability and WTB organic food. In particular, going beyond the direct relationships among single constructs, environmental concerns and product traceability importance, through their effect on both utilitarian and hedonic attitudes, impact consumers' purchase intentions. Therefore, we argue that since organic food consumption has a lower environmental impact, buying organic food contributes to the consumers' psychological well-being (Manning et al., 2019; Bartels and Onwezen, 2014) as well as organic food chains impact consumers' well-being and their purchase behavior (Esteki et al., 2019), through their capabilities of going above and beyond their safety criteria to shape consumers' values (Liu et al., 2013). Consequently, they are able to shape the relationship between product sustainability and WTB. Based on previous findings in the literature (Cavite et al., 2022; Amin and Tarun, 2021; Lee and Yun, 2015; Chen and Huang, 2013; Smith and Paladino, 2010), we hypothesized the following hypotheses (see Figure 1 for the proposed conceptual framework):

H₁. Product traceability's importance mediated the relationship between product sustainability and consumers' willingness to buy.

H₂. Consumers' environmental concerns mediated the relationship between product sustainability and consumers' willingness to buy.

H₃. Product traceability's importance and consumers' environmental concerns parallelly mediated the relationship between product sustainability and consumers' willingness to buy.

Fig. 1: Proposed conceptual framework



Methodology. Quantitative data were collected from a sample of the Italian population (N=239) with an online survey built on the Qualtrics software platform. Participants' age ranged from 18 to over 65, with the median category falling into the 45-54years range. 50.6% of the respondents were female, 82% of the sample had at least a bachelor's degree, and 46.9% were employed. The survey was advertised through a convenience sample (Taherdoost, 2016), which is a kind of nonrandom sampling in which members of the target population are selected for the purpose of the study if they meet certain practical criteria, such as geographical proximity, availability at a certain time, easy accessibility, or the willingness to volunteer (Dörnyei, 2007).

The questionnaire was constructed using established and adapted scales with 7-point Likert items, asking participants to indicate the extent to which they agree or disagree (1=strongly disagree, 7=strongly agree) with the proposed statements. The concept of product sustainability was measured using three items scale (e.g., Carter, 2014; Marozzo et al., 2020), while the concept of willingness to buy was measured using three items scale adopted from Mugge et al. (2017). The concept of the product traceability importance was captured by two semantically different items (adopted from Verbeke and Ward (2006) by asking "To what extent do you pay attention to the traceability of the product when buying an organic product?" (ranging from 1=very low attention to 7=a lot of attention); and "To what extent is the traceability of the product important to you when you buy an organic product?" (ranging from 1=totally unimportant, to 7=extremely important). Finally, the concept of consumer environmental concerns was captured using three items scale adapted from Lin & Huang (2012).

Then, descriptive statistics and Pearson correlation analysis on the average score of the constructs were performed to test the relationships among measured variables. Finally, the parallel mediation analysis was performed. In particular, the parallel mediation assumes that both constructs of product traceability importance and consumer environmental concerns mediate the relationship between product sustainability and consumers' willingness to buy in a comparable manner. To test the proposed model, willingness to buy was entered as the outcome variable, product sustainability as the predictor variable, and product traceability importance and consumer environmental concerns as mediators. Additionally, four variables were controlled in this study, which are education, occupation, gender, and age added as covariates in the model. Then, the parallel mediation analysis was performed through the PROCESS macro (model 4) of SPSS developed by Hayes (2017) which uses the resampling method of bootstrapping, which gives an estimate of the indirect effect based on 5000 bootstrap samples, to avoid classical Type 1 errors that may arise from non-normal distributions of an indirect effect. In this study, 95% CI was employed, which was deemed significant when the 95% CI did not contain zero.

Results. Data were entered into IBM SPSS Statistics (version 25, SPSS Inc., Chicago, IL, USA), and data accuracy was checked throughout the process. Firstly, all the used scales were evaluated for reliability. Specifically, the concept of product sustainability showed a Cronbach alpha (α) of .82 and all corrected Item-Total Correlations were $>.65$; WT showed an $\alpha=.92$ and all corrected Item-Total Correlation $>.82$; for the product traceability importance, an $\alpha=.84$, and a corrected Item-Total Correlation equal to $.74$; finally, the concept of consumers' environmental concerns showed an $\alpha=.81$ and all corrected Item-Total Correlations $>.60$ the For each of the above-mentioned constructs (product sustainability, willingness to buy, importance of product traceability, and environmental concerns), an average score was computed.

Descriptive statistics and correlations for the constructs were provided in Table 1. Product sustainability was found to be positively and significantly correlated with product traceability importance ($r=.346, p<.01$) and environmental concerns ($r=.416, p<.01$). Likewise, willingness to buy was found to have significant positive relationships with product sustainability ($r=.595, p<.01$), product traceability importance ($r=.433, p<.01$), and environmental concerns ($r=.519, p<.01$).

Tab. 1: Descriptive statistics and correlations between variables (N=239)

Variable	M	SD	Product sustainability	Product traceability importance	Environmental concerns	Willingness to buy
Product sustainability	5.7197	1.23366	-			
Product traceability importance	5.8661	1.37232	.346*	-		
Environmental concerns	5.2008	1.36024	.416*	.468*	-	
Willingness to buy	5.5872	1.24411	.595*	.433*	.519*	-

* $p < .001$

Then, we conducted the parallel mediation analysis by using PROCESS macro (model 4) for SPSS. Table 2 and Figure 2 showed the results of the regression analysis by controlling for the covariates. The results indicated that product sustainability positively predicted product traceability importance ($\beta=.36, p < .001$) and environmental concerns ($\beta=.44, p < .001$). In addition, it was found that product sustainability, product traceability importance, and environmental concerns significantly predicted willingness to buy ($\beta=.43, p < .001, \beta=.15, p < .001, \text{ and } \beta=.24, p < .001$, respectively).

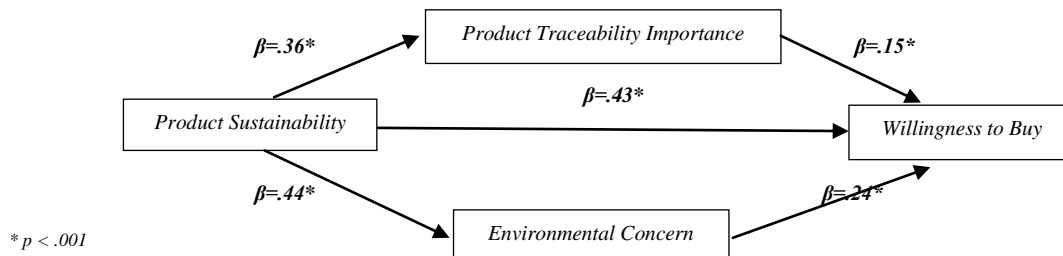
Tab. 2: Results of regression analysis

Regression Equation		Fitting Indices		Regression Coefficient	
Outcome Variables	Predictor Variables	R ²	F	β	t
Product traceability importance	Product sustainability	.14	7.66*	.36	5.27*
Environmental concerns	Product sustainability	.18	10.08*	.44	6.67*
Willingness to buy	Product sustainability	.47	29.38*	.43	7.96*
	Product traceability importance			.15	3.06*
	Environmental concerns			.24	4.54*

* $p < .001$

Note: all control variables (education, occupation, gender, and age) were not significant in all regression (all $p > .05$)

Fig. 2: The mediating effect of Product Traceability Importance and Environmental Concerns on the relationship between Product Sustainability and Willingness to Buy



The parallel mediation model of the relationship between product sustainability and willingness to buy by product traceability importance and environmental concerns was presented in Table 3. The total indirect effect of product sustainability on willingness to buy through product traceability importance and environmental concerns was .59 (95% CI [.49, .70]), from which the indirect effects of product sustainability on willingness to buy through product traceability importance and environmental concerns were, respectively, .06 (95% CI [.01, .11]) and .11 (95% CI [.04, .18]). These confidence intervals suggested that there were significant indirect effects between product sustainability and willingness to buy through both mediators.

Tab. 3: Results of Bootstrap test

Indirect Effect	Effect Size	Boot SE	Boot 95% CI	
			Lower Limit	Upper Limit
Total	.59	.05	.49	.70
Product traceability importance	.06	.03	.01	.11
Environmental concerns	.11	.04	.04	.18

Boot SE: Boot Standard Error; Bootstrap 95% CI: Bootstrap 95% Confidence Interval
 Total: Total effect of Product sustainability on Willingness to buy

With the aim to investigate whether product sustainability may impact consumers' willingness to buy through the product traceability importance and the consumers' environmental concerns, this study used a parallel mediation model. Our study found that product sustainability was found to be positively associated with product traceability importance, the consumers' environmental concerns, and the willingness to buy. Product traceability importance and the consumers' environmental concerns were observed to be positively associated with consumers' willingness to buy. Furthermore, our results demonstrated that product sustainability exerts its effect on consumers' willingness to buy via product traceability importance and the consumers' environmental concerns as mediators.

Research limitations. Future studies could address limitations present in the current research. Firstly, recruiting participants from diverse cultures and backgrounds could enhance the generalizability of findings as the current study only includes Italian participants. Secondly, to establish causality, longitudinal, experimental, and cross-cultural studies beyond the scope of the current research are required. Thirdly, the research solely relied on self-reported data, which may only reflect the participants' subjective perceptions. To obtain a comprehensive understanding of the actual effects, a study incorporating quantitative measurements should be devised. Therefore, it is required warranting caution in the interpretation of results. Lastly, the R² value in this study explained a not-so-high portion of variation (< 50%), and this implied there might be other underlying mediators that need to take into account between product sustainability and willingness to buy in future studies. Additionally, in future investigations, it would be beneficial to

explore more intricate models that incorporate moderators alongside mediators. This approach would enable the examination of particular circumstances in which the relationships are intensified or amplified.

Managerial implications. The present study enriches the knowledge producers and marketers have of the values and attitudes of the consumer decision-making process towards organic food. First, from a producer's perspective, a well-defined marketing strategy highlighting the perceived and desirable values of organic products on consumers' health and lifestyle would be an interesting tool for increasing consumers' environmental awareness and creating more ecological consciousness, especially for consumers with a strong green identity. Second, by emphasizing the product social benefits, it could be possible to enhance customers' overall environment-friendly behavior. Additionally, as consumers are becoming more familiar with organic food consumption and product traceability, the authors recommend marketers to use consumers' different perceptions of product traceability importance for segmenting their markets accordingly and for better targeting their green strategy.

Originality of the paper. This study develops a model that integrates important factors related to organic food consumption to generate a more comprehensive analysis of this mainstream research. In particular, to the best of our knowledge, this is one of the first studies to investigate the parallel mediating role of environmental concerns and product traceability importance to obtain a more focused understanding of how those factors influence consumers' purchasing intention (WTB) when applied specifically to organic food.

Keywords: Product sustainability; Willingness to buy; Product traceability; Environmental concern; parallel mediation model; Italy

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Young Generation Consumption Behaviour in Organic Wine Markets: A preliminary analysis

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Framing of the research. Worldwide, exponentially increasing numbers of people are becoming aware of the environmental (Paul et al., 2016) and social (Pfafjar et al., 2022) consequences of their consumption behavior and are displaying a heightened interest in solving the problems that result from unsustainable behavior. Simultaneously, among the main goals of many national, regional, and international organizations and institutions in recent years are sustainable development due to the increasing consciousness regarding the ecological ramifications of human actions (Mensah, 2019). Furthermore, the pandemic period has worked toward a broadening of the importance of the concepts of a shorter supply chain (Casalegno et al., 2020), respect for the environment, and respect for health (Forman et al., 2022), and this has led to an increase in more responsible and, therefore, sustainable consumption of agri-food products (Ben Hassen et al., 2022), among which wine (Moscovici et al., 2022). Literature, indeed, has addressed specific attention to the wine industry in the last decades since its choice is more complex when comparing wine to other food products (Wright et al., 2023), brought not only by the significant number of perceived differences among products and brands but also by the importance of the country-of-origin and the region of production (Defrancesco et al., 2012; Jaeger et al., 2013; Yang & Paladino, 2015). The concept of country-of-origin image has been used to encompass various aspects related to a particular country, such as its identity, political environment, culture, population, history, and economic and technological development. However, it does not refer to the country's products themselves, according to Hamzaoui and Merunka (2006). Additionally, the country-of-origin image is recognized as a factor that influences consumers, simplifying their purchasing choices (Papadopoulos & Heslop, 2002) and helping them with the choice of a product with relevant, tangible, sustainable characteristics also highlighted by certifications that represent essential attributes for consumers' choice of wine (Klohr et al., 2013) nowadays.

Furthermore, the wine industry production has always faced a plethora of environmental challenges (Notarnicola et al., 2017), addressing environmental and social issues at both global and local levels that have been previously neglected, as noted by Christ and Burritt in their 2013 publication; however, in recent times, environmentally sustainable viticultural practices, such as biodynamic and organic methods, have become increasingly important for institutions, producers, and consumers. This has led to extensive research in this area, as highlighted by studies conducted by D'Amico et al. (2016) and Nassivera et al. (2020).

What is said above represents why understanding how internal factors such as perception and motivation affect more sustainable buying behaviors and consumption has strategic importance for firms, particularly wine producers. Among the most crucial consumer models often used in the agri-food marketing literature, there is the Theory of Reasoned Action (TRA) (Fishbein et al., 1980) and the Theory of Planned Behaviour (TPB) (Ajzen, 1991). In keeping with the Theory of Reasoned Action (TRA), an individual's behavioral intention is determined by the information they have about a specific behavior and the expected outcome. The Theory of Planned Behavior (TPB) expands on TRA by examining a broader range of behaviors based on consumer intentions. As noted by Ajzen (1991) Theory of Planned Behavior, an individual's intention to engage in a particular behavior is influenced by three primary factors. These factors are: their attitude toward the behavior, which is their subjective evaluation of the behavior based on perceived advantages or disadvantages; social norms, which are the perceived social pressure to perform or avoid the behavior based on the belief that others would approve or disapprove of it; and perceived behavioral control, which refers to the individual's subjective assessment of the ease or difficulty of performing the behavior based on perceived facilitators or obstacles. During the last ten years, the application of the TBP theory and its models on sustainable behavior has led to the emerging importance of environmental and social issues (Rojas-Méndez et al., 2015; Boncinelli et al., 2019; Caliskan et al., 2021), and several academic studies have highlighted consumers' "pro-environmental behavior" as the main theme (Markle, 2013), also known as "green behavior" (Kaiser et al., 1999).

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Since the TPB seeks to explain all behavior of individuals acting of their own free will (Campos-Arteaga et al., 2022), this theoretical model is also valid for the analysis of organic wine consumption behavior (Canova et al., 2020; Taghikhah F. et al. (2021); Caliskan et al., 2021). For this reason, the TPB model (Ajzen, 1991) has been chosen as the theoretical framework for examining predictors of consumer behavior towards organic wine consumption since 2002 with Thøgersen.

Purpose of the paper. Under the lens of TPB, this study examines the possible antecedents of consumers' attitudes of purchasing behavior toward organic wine, which represents an interesting area of research since the economic slowdown caused by the Covid-19 outbreak restricted the demand for organic wine while this market was growing and expected to grow more (Organic Wine Market Forecast to 2028, 2022; Pagliarini et al., 2013).

Furthermore, this analysis is a first step in broader reasoning about post-pandemic organic wine consumption. It considers a sample of young wine consumers belonging to the Z generation (going from 1998 to 2010, according to Kotler et al., 2013), which on the one hand, is approaching the wine market with interest (Casalegno et al., 2019; Castellini & Samoggia, 2018; Radovanović et al., 2017) and, on the other hand, appears to be very sensitive to sustainable issues (Gencoglu & Yarkin, 2019). In addition, the study is focused on Italian wine consumers, given their accentuated wine culture (Casalegno et al., 2019) and deep involvement in their Country of origin (Foroudi et al., 2020). More specifically, the goal of this research is twofold: 1) to isolate factors that can affect the TPB theory determinants (attitudes, social norms, and perceived behavioral control) to understand deeper sustainable Z generation purchase behaviors in the organic wine market (Caliskan A. et al., 2021; Campos-Arteaga, N. et al., 2022); 2) to analyze whether and if young consumers are affected by the country-of-origin effect in choosing organic wine.

Methodology. To the best of our knowledge, no research has been published using a mixed (qualitative-quantitative) methodology which will instead be used in the present study for investigating the factors that would promote the purchase of organic wine by shedding light on the possible gap between intentions and behavior purchase in generation Z (also called digital natives, people born between 1998 and 2010 (Kotler et al., 2013)).

The explorative nature of this study required, at the first stage, the use of qualitative methods (i.e., focus groups) to understand the possible determinants of purchase intention -Zikmund et al., (2013) summarized the advantages of such group discussions as Synergy; Snowballing; Serendipity; Stimulation; Security; Spontaneity; Specialisation; Structure; Speed; Scrutiny-

Then, to empirically estimate the impact of these determinants, an online survey of a sample of Italian consumers was carried out (Wright, 2005). Another aim of this focus group was to identify the items related to Ajzen's (1991) determinants to be included in the quantitative analysis. The focus group interview lasted about 60 minutes and involved individuals with different social backgrounds belonging to Generation Z. In the focus group, all participants were asked about the factors that could promote the intention to purchase organic wine. Participants were chosen according to their ability to make a specific contribution to the research; their voluntary availability; and whether they had something in common with the research topic (i.e., respondents had a particular connection to the wine sector, and all participants stated that they were regular wine drinkers). Accordingly, the participants were chosen randomly but with some homogeneity (Kitzinger, 1995). The list of topics included in the schedule was mainly based on Ajzen's determinants (attitudes, social norms, and perceived behavioral control).

The topics proposed by the moderator of the focus group included: (i) the attitude towards respectful wine, and in particular, the concept of supply and demand encompasses several factors, including the perceived benefits or drawbacks of consuming different types of wine; (ii) social norms that influence whether individuals choose to engage in such behavior based on the perceived approval or disapproval of others; (iii) perceived behavioral control, which refers to an individual's subjective assessment of the ease or difficulty of using organic wine based on perceived facilitators or obstacles. The results of the focus group served to structure the quantitative analysis by administering a questionnaire. It is worth noting that this is a research in progress in which we collect data for quantitative analysis. Therefore, the next section will offer a presentation and discussion of the results deriving from the focus groups.

Results. The results of the focus groups provide some insights into the three determinants of TPB (Ajzen, 1991). Concerning attitudes, the focus group participants identified some common advantages or disadvantages of organic wine consumption. First, most were concerned that these kinds of wines might have a higher price than traditional ones. Indeed, many said they should consider buying organic wine only if the price is comparable to a traditional one. Participants who declared having a certain experience in the wine market expressed another issue: taste. However, other participants showed a favorable attitude toward sustainably grown wine for its capacity to improve health and preserve nature, partially confirming the emergence of environmental concerns among attitudes affecting factors, as Caliskan et al. (2021) stated.

As for social norms, the participants identified various factors that may affect their buying decision. One of the most mentioned categories was that of family members, as Gen Z individuals are still concerned about their opinions, confirming the Taghikhah et al. (2021) analysis of this determinant. A second category mentioned is represented by wine sellers, shop assistants, or people working directly in the cellar: more than one participant revealed their confidence in experts and their advice. On the other hand, there was no alignment for the category of friends because some participants cited friends as potential influencers for various reasons, including being experts; on the other hand, friends might also advise against buying an organic wine because they were skeptical about whether it met all the standards and products that would make it so.

In the last part of the focus group, the interviewed individuals identified as a subjective evaluation of which factors or circumstances might facilitate organic wine purchasing behavior (perceived behavioral control). Many of them, as

factors or circumstances that could influence their purchases, have mentioned experiences such as the opportunity to taste and thus try the product, discount vouchers, and hear the story of the winery from its foundation to the different characteristics of the products that allow you to create a different wine offer from the traditional one, strongly confirming something that the literature has already suggested in the past (Casalegno et al., 2019). As factors or circumstances that might not influence the choice to purchase organic wine, in common agreement, the difficulty of finding the product if the quantity produced is insufficient to satisfy the entire demand and the difference in taste to which the consumer is not accustomed was mentioned.

Eventually, from the conducted analysis, it emerges that consumers belonging to generation Z did not consider the country-of-origin as a factor that would facilitate organic wine purchasing behavior. This leads to directly testing them via a survey in the future.

Research limitations. Since the nature of the present research is a preliminary study, we need to highlight some limitations. Firstly, the sample of respondents will consist of Generation Z only. Future lines of research could examine different generational cohorts and compare them, extending the research to Generation Y -also known as millennials-, to be able to detect possible differences in factors that would lead to the choice of organic wine when comparing two generational cohorts (Kotler et al., 2013).

Secondly, although the three determinants of TPB might give a fair understanding of how sustainable factors affect organic wine buying behaviors, the present research focus group suggests that there are other factors influencing this kind of behavior as well as the main concepts and constructs leading to sustainable behavior and consumption that have been addressed in the marketing literature, beyond the already emerged environmental concerns (Caliskan et al., 2021), such as environmental citizenship (Markle, 2013, p. 908); collectivism (Pérez & Del Bosque, 2013); and consumer perceived effectiveness (PCE) (Ellen et al., 1991). Indeed, pilot analyses are necessary to improve the validity and reliability of the study instrument, and their purpose is to ensure high-quality research (Malmqvist et al., 2019). It would also be interesting to analyze all the different 'environmentally friendly' wine categories and see how much the consumer knows about them. Moreover, it would be interesting to analyze all the different 'environmentally friendly' wine categories -biodynamic wines, natural wines, regenerative wines- and to see how much the consumer knows about them.

Managerial implications. This research deepens the understanding of what motivates organic wine consumption by Generation Z, which undoubtedly represents the most interesting target market since its interest in wine is in an emerging phase. Indeed, literature suggests managers need to deepen their knowledge about young consumers' behaviors (Castellini & Samoggia, 2018; Lior et al., 2017; Thach & Olsen, 2006) since they do represent not only a critical target market but also can create trends and their potential impact on the wine market in the future. Furthermore, the knowledge of new purchase attitudes and concerns helps wine producers and wineries in general to adapt their offerings.

Originality of the paper. The originality of this study consists in the analysis of a generation (i.e., Generation Z) that, according to the existing literature (Castellini & Samoggia, 2018; Radovanović et al., 2017), represents a relevant segment of consumers who still are unknown under many aspects, but can be able to generate new trends and to impact both the traditional and organic wine markets, positively.

Keywords: Organic wine; sustainable behaviors; Theory of Planned Behavior (TPB); Country of Origin (CO); Z generation.

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Good bye Waste! Discovering consumer's attitudes toward staple foods enriched with agricultural waste

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Framing of the research: *this study explores the understanding of the territorial capital in sustainable development research by analysing consumers' attitudes and preferences toward food products enriched by agri-waste extracted ingredients. In order to do so, a survey was carried out to perform an exploratory factor analysis for the identification of the main factors that better capture the consumer orientation. Both with a multiple regression analysis, this study aims to understand whether these constructs may be potential drivers toward consumers' purchase intentions.*

Purpose of the paper: *this paper examines the potential consumer's attitudes toward food products enriched by extracted ingredients from a territorial agri-waste supply, in the context of the circular economy for sustainable consumers' behaviours. In addition, the study aims to explore the potential implications of these orientations toward purchase intentions from a territorial capital perspective.*

Methodology: *the study employed a quantitative exploratory research based on a survey that involved 147 Italian respondents. Firstly some descriptive statistics offered a first overview of the phenomenon. Secondly, an exploratory factor analysis determined the main constructs that better explained the consumer's preferences and attitudes. Thirdly, a multiple regression analysis will attempt to understand the main drivers behind the intention to purchase in the context of territorial agri-waste and its re-utilization in the improvements of other food staples.*

Results: *data and analysis identified three main constructs (Food Wellness Attitude, Food Health Consciousness and Food Choice Dilemma). These scales allowed us to explain the attitudes of respondents toward the phenomenon analyzed. Furthermore, a strong intention to purchase toward products enhanced with nutrients from agri-waste was revealed from the statistical descriptions performed.*

Research limitations: *this research has as main limitation the sample size that only allowed to explore in a preliminary approach the phenomenon examined. Further studies will follow by involving a larger sample and employing this study's defined scales and constructs to better investigate the research questions.*

Managerial implications: *the study contributes to support the managerial decisions by exploring consumers' attitudes towards the staple food industry concerning nutrients from agri-waste. Insights could be used to develop new products and successful marketing strategies for businesses. Moreover, the findings could support strategically relevant brand partnerships with suppliers to generate innovative value streams and minimize food waste.*

The originality of the paper. *This paper is characterized by the novelty of the research in understanding consumers' orientation, preferences and attitudes toward the adoption of food products enriched by agri-waste ingredients from a local agriculture. To date, there is a lack of research examining the potential implications of territorial capital and circular economy from a consumer perspective based on empirical evidences.*

Keywords: *agri-waste; circular economy; territorial capital; staple food; sustainable consumer behaviour;*

1. Introduction

Due to the growing importance of sustainable development, pressure is addressing the global food industry to reduce waste and to adopt more sustainable methods. In this context, there is a concerning amount of food waste produced annually that involves also agriculture (88 millions tones in EU annually) according to the European Court

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of Auditors (2016). Puglia, a southern Italian region, is experiencing an expansion of the agricultural sector (Ansa, 2023), especially relevant for fruits and vegetable production. Puglia was ranked first in Italy for vegetable crops and second for fruit orchards due to the region's increase in income (756 million euros) and profitability (14 million euros) from export activities. The region is becoming a significant player in the nation's agriculture sector (Region Puglia, 2023). In addition, many agricultural firms are employing a large workforce, becoming vital to the local economy. In this landscape, the natural extracts from a local agricultural waste can be incorporated into food staples as a viable solution to reduce agri-waste and to offer enhanced nutritious value. Nonetheless, the perceptions of consumers for such items ultimately may determine the success of these sustainable practices. For these reasons, the study aims to explore the attitudes of consumers toward these categories of products.

2. Literature review

Since the Brundtland Report in 1987, the academic definitions and conceptualizations of Sustainable Development have undertaken several directions. The most common definition is the one that considers it as: a progress that satisfies the requirements of the present generation without jeopardizing the ability of the next to meet those needs (EU, 2022). The term Sustainable Development was initially used in relation to environmental issues. However, over time it has encompassed a wide range of goals for development since the questions about sustainable development are very complex (Kates et al., 2005) due to the intricated traits of human organizations and natural environments. Elkington (1997) introduced the concept of triple bottom line, which considers three sustainability pillars (people, profit, and planet) that led to the coordinated convergence of a more balanced integration between economic, environmental, and social dimensions of sustainability (Mckelvey, 2002). In this systematic paradigm, Geissdoerfer et al. (2017) positioned the circular economy concept. This idea was first introduced by Ellen MacArthur Foundation (2013), which defined Circular Economy as an economic model characterized by a circular design that seeks to restore or regenerate resources. In this view, the circular economy expresses the environmental dimension of sustainable development that relates mostly to the economic and financial benefits, involving companies, pollution and environment (Geissdoerfer et al., 2017). In particular, Yuan et al. (2008) argued that the cornerstone of the circular economy is the usage of raw materials and energy across numerous phases in a cyclical, repeated and closed implementation flow. According to Wijkman et al. (2015), there are several benefits from circular economy, it firstly attempts to eliminate waste by improving and developing the design of new materials, goods and processes. Secondly, it allows to reorganize in a more sustainable focus, the organizations' business models. In this view, a circular economy leads to use mostly renewable energy, avoiding the misuse of hazardous chemicals and finally consumes only recycling materials. By encouraging the sustainable use and management of natural resources, minimizing waste and pollution, and supporting local economic development, the circular economy can support the growth of territorial capital (Tapia, 2021). The term Territorial Capital was initially used by the OECD (2001) to describe a system of resources pertaining to a certain region or territory with economic, cultural, social, and environmental worth. Using the potential of this complex combination of locally based factors is essential for an efficient development of areas and territories. Camagni (2008) established a lexicon based on the dimensions of materiality and rivalry in order to better comprehend these components. This approach clearly defines the qualities of local assets rather than just listing them, making easier to identify potential interactions and policy implications. Beyond sustainability, there is a need to promote accountability among farmers, businesses and consumers. The relevance of circular economy applied effectively to rural areas development was highlighted by Salvia et al. (2018). All actors should consider social fairness and ecological compatibility for a substantial approach to sustainability (Marchetti et al., 2020). This calls for a multifaceted strategy that addresses, among others, a positive contribution of value from food chains by implementing climate-smart farming practices (El Bilali, 2018). In this view, the present study aims to examine bio-waste from agriculture production as a by-product of staple food enrichment from a consumer behaviour perspective. The circular economy seeks to reduce waste in the agri-food chain while simultaneously making the greatest use of the wastes, by raising their value according to Toop et al. (2017) who introduced a European project for circular agriculture economy. Moreover, scholars examined the circular economy in the agri-food chain sector to explore the potential of agri-waste in the production of biogas (Kapoor et al., 2020); the investigation of biochar production and carbon neutrality (Yrjälä et al., 2022); the examination of agri-waste employment to produce food additives with nutritional value for food products, and sustainable practices in a food chemistry perspective (Chamorro et al., 2022); or to investigate food waste optimization about waste reduction strategies and recycling methods (Bigdeloo et al., 2021). Given the aforementioned literature review, there is a lack of research for an in-depth examination of the attitudes and preferences of consumers for food staples, enhanced with agri-waste by-products. This study aims to fill this research gap based on empirical analysis through a survey, that intended to develop reliable scales for consumer preferences' measurement. Therefore, given these considerations, the following research questions are formulated:

RQ1: what are the consumer's attitudes toward staple foods enriched with nutrients from agri-waste?

RQ2: how can we accurately measure consumers' preferences for staple foods enriched with nutrients from agri-waste?

RQ3: what are the main drivers behind the consumers' intention to purchase staple foods enriched with nutrients from agri-waste?

3. Methodology

3.1. The questionnaire

In order to respond to the formulated research questions, this study applied a quantitative approach through a web-based survey developed on the Google Forms Platform (www.google.forms). This data-gathering tool has several advantages related to accessibility, reliability and data availability (Vasantha Raju and Harinarayana, 2016). As a result, 147 valid responses were collected (only five excluded). Overall, six variables were measured, as composed of 83 items, evaluated on a 7- point Likert scale. The variables were organized in (1) Food neophilia (composed of 10 items, referring to the propensity to try new foods adventures); (2) Food innovativeness (structured in 13 items, related to the degree to which consumers wanted to try new food technologies); (3) Food perceived importance (constituted by 30 items, referring to the importance that consumers attributed to several characteristics and factors of food enriched by nutrients from agri-waste); (4) Healthy choice propensity (organized in 16 items, related to the propensity to make healthier food choices); (5) Food Safety (composed by eight items, related to the perceived relevance of health food features); (6) Food pleasure (6 items, concerning the preferences about hedonic features). The survey was launched among Italian consumers over three months. Respondents were informed about the basic concepts of agri-waste, their territorial origin (from Puglia Region agriculture), and their nutritional aspects, before the data were collected. This study is organized in three main steps. First, an overall examination of the descriptive statistics was conducted to achieve a clear picture of the sample. Second, an Exploratory Factor Analysis was performed to determine the most reliable constructs able to better capture the phenomenon examined. Third, a multiple regression analysis will be executed to test the potential drivers behind the purchase intentions related to foods enriched by territorial agriculture waste components.

3.2 Descriptive Statistics

The descriptive statistics were mainly performed to achieve an overall picture of the respondent's demographics and some additional general information about the phenomenon. From Table 1, there is evidence of a balanced distribution among genders (49.7% male, 50.3% female). The age was grouped into five ranges: less than 20 years (1.4%), 20-30 years (49.0%), 31-50 years (36.7%), 51-60 years (8.1%) and more than 60 years (4.8%). Results revealed a majority of younger consumers (Gen Z) among the sample. Looking at the location distribution, most of the sample was in Puglia (70.1%), while the city area where the residence was located evidenced a majority for city centre (55.8%). Moreover, the respondents declared a high level of education with graduates (46.9%) and master's degree / PhD (23.8%). This results, mostly evidenced a reflection in the occupations' responses such as students (38.8%) and employees (37.4%), with a majority of annual income in the range 21K – 40k (38.1%). In addition, some information about the store choice preferences was collected into four main categories of food staples that resulted in a majority for supermarket distributed in: biscuits (89.8%), breadsticks (74.1%), bread (49.9%), pasta (87.8%) and wine (44.2%). Lastly, respondents were asked about their intention to purchase products enriched with lemons, artichokes, onions and wine extracts. The results evidenced a strong intention to purchase for all the categories of product features involved (range 5-7 Likert points) for lemons (73.4%), artichokes (50.3%), onions (54.4%) and wine (65.3%).

Tab. 1: Descriptive Statistics

Demographics				
No. of participants		147		
Description	Percentage		Mean	SD
Gender			1.503	.501
Male	49.7 %			
Female	50.3%			
Age			2.660	.839
Less than 20	1.4%			
20-30	49.0%			
31-50	36.7%			
51-60	8.1%			
More than 60	4.8%			
Education			2.939	.742
Middle School	.7%			
High School	28.6%			
Graduate	46.9%			
Master's degree /PhD	23.8%			
Occupation			1.891	.861

Student	38.8%		
Employee	37.4%		
Self – Employed	19.7%		
Looking for occupation	4.1%		
Location - Region		2.524	2.672
Puglia	70.1%		
Basilicata	2.0%		
Sardegna	4.8%		
Campania	1.4%		
Lazio	8.8%		
Emilia-Romagna	6.8%		
Lombardia	0.7%		
Calabria	3.3%		
Toscana	0.7%		
Piemonte	1.4%		
City – Area		2.517	.577
Countryside	4.1%		
Suburbs	40.1%		
Citycenter	55.8%		
Income			
Less than 10.000 €	13.6%	3.503	1.885
11.000 - 20.000 €	20.4%		
21.000 - 30.000 €	25.2%		
31.000 - 40.000 €	12.9%		
41.000 - 50.000 €	11.6%		
51.000 - 60.000 €	6.8%		
61.000 - 70.000 €	6.1%		
More than 70.000 €	3.4%		
Store Preferences	Supermarket		
Biscuits	89.8%		
Bread Sticks	74.1%		
Bread	49.9%		
Pasta	87.8%		
Wine	44.2%		
Purchase intention	Strong (Likert scale 5-7)		
Lemon extracts	73.4%		
Archichofs extracts	50.3%		
Onion Extracts	54.4%		
Wine Extracts	65.3%		

* Source: Own Elaboration – SPSS IBM

3.3 Exploratory factor analysis

Since this study is exploring a new phenomenon, such as the consumer's preferences and orientation toward food staples enriched by nutrients obtained by a local agri-waste, an Exploratory Factor analysis (EFA) was considered the appropriate approach for the reduction of scales dimension, the evaluation of constructs' validity and the definition of factors structure (Taherdoost et al., 2022). The EFA was performed using the Principal Components with a Varimax rotation as an extraction method (Pallant, 2011) through IBM SPSS. First, the factor analysis followed a criterion for factor loadings cutoffs through communalities values excluding items with values below .40 (Hair et al., 1998). Moreover, from the graphical representation of eigenvalues and the rotated component matrix, the final items were defined in three final factors. In addition, the KMO measure of sampling adequacy value showed respective values (.891 > .60) in line with Taherdoost et al. (2022). In addition, Bartlett's test of sphericity ($p = .000$) resulted significant for all the variables (Netemeyer, Bearden et al. 2003), showing that the correlation matrix was statistically different from an identity matrix. The final factors, as evidenced in Table 2, were also tested for scale reliability. The results revealed a high internal consistency for all the measured constructs. As observed in Table 2, the items are displayed with respective Cronbach's alpha with values above (.7), indicating a very good level of internal consistency (Pallant, 2011).

Tab. 2: Final Scales

Scale Name	Description	Items	Mean	SD	Cronbach's alpha
<i>Food Wellness Attitude</i>	<p><i>The propensity to prioritize health and nutritional benefits for consumers' attitude when deciding food choices.</i></p> <p><i>Items:</i></p> <p>It is important that the food I eat every day:</p> <ol style="list-style-type: none"> 1. It allows me to stay healthy 2. Is nutritious 3. Has a high protein content 4. It is good for the health of the skin/teeth/hair/nails, etc. 5. Help me to cope with stress 6. Help me in everyday life 7. Help me to relax 8. Keep me sharp and active 9. Is easy to prepare 10. Can be cooked easily 11. Can be prepared quickly 12. Can be purchased easily in accessible stores 13. Is widely available in stores 14. It has a good smell 15. Has a good appearance 16. Has a good texture 17. Has a good taste 18. It is not expensive 19. Is Inexpensive 20. Has good value for money 21. Has few calories 22. Allow me to stay in good shape 16. Has a good consistency 17. Has a good taste 18. It is not expensive 19. Is inexpensive 20. Has good value for money 21. Has few calories 22. Allow me to stay fit 23. Has very little fat 24. Is something I usually eat 25. Has the place of origin visible 26. Has eco-friendly packaging 	26	133.354	33.391	.966
<i>Food Health Consciousness</i>	<p><i>The propensity to prioritize healthy eating habits by making informed food choices.</i></p> <p><i>Items:</i></p> <ol style="list-style-type: none"> 1. It is annoying to choose the wrong food 2. I am attentive to what I eat 3. Making the right food choice is important to me 4. The food I buy tells something about me 5. Deciding what to eat is fun 6. Choosing food is like picking a gift for myself 7. I evaluate the foods choices before making the purchase thoroughly 8. I always read food labels 9. I learn about foods and eating habits for a proper nutrition 10. Others would say of me that I care a lot about food decisions 11. I am very careful about food healthiness 12. I always keep a healthy, balanced diet 13. my daily diet must be rich in vitamins and minerals 	13	60.898	17.197	.926
<i>Food Choice Dilemma</i>	<p><i>The consumers' dilemma when making food choices concerning safety and social perceptions.</i></p> <p><i>Items:</i></p> <ol style="list-style-type: none"> 1. If I buy the wrong food, I might make a bad impression on my friends 2. When I have to choose between several foods, I struggle with what choice to make 3. Choosing between different foods is quite complicated 4. When I choose food, I am never sure about the choice made 5. The healthiness of foods has little impact on my choices 6. I eat what I like without worrying much about the healthiness of foods 	6	19.054	7.428	.789

* Source: Own Elaboration – SPSS IBM Factor Analysis

3.4 Description of constructs

The final constructs resulted in three main scales that are mainly characterized by the following aspects:

- *Food Wellness Attitude: this scale is composed by twenty-six items that indicates the extend of which the respondents have feelings about the value of consuming food with nourishing features. Moreover it refers to the*

advantages for general health and well-being, by supporting stress and everyday life management. In this scale, consumers have a favourable propensity for food's nutritional value while choosing their diet. They tend to seek foods that are nutritional, protein-rich (benefits for skin, teeth, hair, and nails), and valuable for their health and well-being. Also, there is a propensity to place a high importance on food that support the everyday activities and reduce stress. Food availability and pricing are also significant features since customers conveniently evaluate options that offer a good value for money. This construct could support the research for a further examination of consumers' attitudes toward the benefits of food enriched with ingredients extracted from agri-waste.

- **Food Health Consciousness:** the items of this variable, in total thirteen, indicate that consumers with high scores have the propensity to be aware of the nutritional value of the food they eat, a higher tendency to read food labels, and to be higher educated for dietary decisions. They also prioritise eating a healthy, balanced diet and may see their food preferences as a reflection of their personalities. Therefore, this scale could be further used by research since it reflects a favourable attitude toward the choice of nutritious foods characteristics and nutritional benefits awareness.
- **Food Choice Dilemma:** this construct, composed by six items, reflects a consumer's dilemma in food decision-making and the consequences not only for healthy aspects but also for their social life. While choosing what to eat, consumers may prioritize considerations about food safety or social approval. The items indicate that people who score poorly on this factor might not consider health or social advantages when making food decisions. Generally, this characteristic reflects a lack of positive attitudes toward selecting healthy foods and discomfort in making food judgments.

3.5 Final notes

Using the constructs defined from the previous exploratory factor analysis, the following step will be to enhance the sample size and perform a standard multiple regression analysis (Tabachnick & Fidell, 2007) through IBM SPSS. Moreover, the Variance Inflation Factors (VIF) and Tolerance tests will be computed to test the existence of collinearity among the variables. The purpose is to investigate the most relevant drivers behind the decision to purchase staple food enhanced with agri-waste origin ingredients for a more holistic phenomenon understanding.

4. Conclusions

4.1 Discussion and conclusions

This study aimed at verifying the consumers' attitudes and preferences in choosing food enhanced by agri-waste origin ingredients.

Firstly, the findings highlighted a majority of younger consumers (Gen Z) characterized by a strong propensity for a high intention to purchase this kind of food category. This result is in line with the lifestyle orientation of this generation in buying sustainable food. Gen Z individuals with high environmental consciousness tend to consider more eco-friendly and healthy product features (Su et al., 2019).

Furthermore, this study offers some analytical implications related to the definition of measurement constructs (with a high scale reliability) for the measurement of attitudes directed toward the food categories examined in this study. Identifying the three constructs (Food Wellness Attitude, Food Health Consciousness, Food Choice Dilemma) permits us to achieve a useful tool, relevant for further empirical examinations of this specific topic (DeVellis, 2017).

The results deriving from the analysis of consumers' attitudes towards this food category, measured through the constructs preliminarily proposed by the exploratory factor analysis, will be used to develop new food products. It can enable to exploit agricultural waste, to increase the value for the consumer, to trigger and to exploit virtuous mechanisms of economic and environmental sustainability.

Managers could also use the insights to conceptualize new and successful marketing strategies that consider mostly the propensities and attitudes of consumers. Finally, the findings could support the strategic development of relevant brand partnerships with local suppliers, in the creation of innovative value flows to minimize food waste.

4.2 Limitations and further research

This extended abstract pursued the main objective to perform a preliminary investigation of consumer's sustainable preferences when making staple food choices by developing some relevant measurement scales. This preliminary character is evidenced by the limited sample size, which will be further enhanced in the full paper to achieve the necessary robustness of results. In order to provide a comprehensive picture of the phenomenon under research, the primary drivers that influence purchase intentions will also be studied. Moreover, future research should focus on defining a global theoretical framework, to capture the holistic perspective of the sustainable behaviour.

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Personal branding in female entrepreneurship: Exploring narrative devices in the sustainable fashion industry

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Framing of the research. *The academic literature has witnessed the rise of the female entrepreneurship agenda drawing attention to the need to overcome masculine concepts of the entrepreneur (Ahl, 2006), stereotypes, prejudices, and expectations that gender brings about in the business world (Stead, 2017). While the literature focusing on the male entrepreneur emerged in the 1930s, women entrepreneurship arose in the late 1970s, rapidly evolving between the end of the 1990s and the early 2000s (Jennings and Brush, 2013). Some valuable academic contributions present entrepreneurship as a gendered process and phenomenon (Bird and Brush, 2002; Jennings and Brush, 2013), highlighting differences between women and men in terms of the identified opportunities (DeTienne and Chandler, 2007), barriers to face (Shinnar et al., 2012), and business aspects prioritized when founding a company (DeMartino and Barbato, 2003). Gendered business practices were in focus, concluding that these can be strategic to the entrepreneur's success (García and Welter, 2013). According to Cardon et al. (2017), female entrepreneurs distinguish themselves for an evident passion for people, i.e., they are passionate about “working with family, satisfying customers, and building meaningful relationships with employees, vendors, or affiliates” (page 29).*

In recent years, women have struggled to run and take on important roles within their businesses (Ughetto et al., 2020). The literature has underlined the positive effects deriving from the presence of women in companies, especially when they play leadership roles; to cite a few, according to some authors, women suggest new ideas (Burgess and Tharenou, 2002), are more cooperative (Kuhn and Villeval, 2015), and bring more innovative environments (Cunningham et al., 2017). At the same time, when women start a venture, they usually have to deal with some issues, such as low propensity to risk (Fairlie and Robb, 2009), lack of support from institutions, and poor access to social and financial capital (Thébaud, 2015; Ughetto et al., 2020). In this vein, a particular mention must be reserved for developing countries, where female entrepreneurs face even more challenging entry barriers to the formal labor market (De Vita et al., 2014). Furthermore, it is also necessary to consider a more psychological aspect, according to which women perceive themselves as less skilled than men in creating and leading a business reality (Minniti and Nardone, 2007). Overall, gender equality has not yet been achieved in entrepreneurship due to cultural norms and values that are difficult to eradicate and gender stereotypes against women (Ahl, 2006; Ughetto et al., 2020) who have difficulty reaching legitimacy as female entrepreneurs (Marlow and McAdam, 2015). Social, political, ideological, and economic categories frame and contribute to structuring female identities in both developed and developing countries (De Vita et al., 2014). In this context, women entrepreneurs adopt and exploit self-identity narratives to bridge gender gaps and earn legitimation (García and Welter, 2013; Crosina, 2018, cited in Mmbaga et al., 2020).

Personal branding literature provides an analytical perspective to investigate self-expression through the crafting of personal narratives and imageries. In recent years, the interest in the entrepreneur brand has been revamping both in practice and the literature. The entrepreneur can personify the business venture, with personal branding contributing to the business's competitive advantage (Thomson-Whiteside et al., 2018). The owner-manager's personality is often a key asset for SMEs branding (Resnick et al., 2016). Personal branding has been associated with human branding, self-promotion, self-marketing, reputation management, impression management, and employee branding (Parmentier et al., 2013; Gorbatov et al., 2018; Thomson-Whiteside et al., 2018). There is fragmentation and a lack of consistency in the use of the terminology (Scheidt et al., 2020). A comprehensive definition of personal branding derives from Gorbatov et al.'s review of the literature (2018), according to which it is “a strategic process of creating, positioning, and maintaining a positive impression of oneself, based in a unique combination of individual characteristics, which signal a certain promise to the target audience through a differentiated narrative and imagery” (page 6). The literature

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has discussed various elements at the core of personal brands as ingredients to develop self-expression narratives and imageries; some of these are personal qualities, past experiences, values, competencies, and skills (Rangarajan et al., 2017), individual strengths and points of uniqueness (Labrecque et al., 2011), ideas, expertise, and sponsored products (Malik et al., 2023), amount and quality of field-specific cultural and social capital (Parmentier et al., 2013), specialist knowledge, background, skills, qualifications, personality, and customer relations (Resnick et al., 2016), and business and personal life (Md Saad and Yaacob, 2021). Limitations, weaknesses, fears, and imperfections (Thomson-Whiteside et al., 2018) also emerged as a basis for personal brand building. Online platforms and social media have been heavily exploited for crafting personal brands and for personality self-expression (Labrecque et al., 2011). In particular, social media allow individuals to experiment with self-expression forms (Thomson-Whiteside et al., 2018). Artifacts, such as “narrated selfies”, social media photos, and YouTube videos, help individuals craft narratives and project imageries (Gorbatov et al., 2018).

Purpose of the paper. Research on female entrepreneurs and their organizational initiatives is weak and marginal in the academic field (Ahl, 2006), and is still characterized by historical inattention (Hughes et al., 2012). At the intersection between marketing and entrepreneurship, personal branding has been under scrutiny in the case of female entrepreneurs to investigate how they undertake personal branding to support their business in the market (Thomson-Whiteside et al., 2018). Online platforms and social media push general awareness of the importance of controlling personal brands and drawing attention to consistency across channels and audiences (Labrecque et al., 2011). In fact, with the Web 2.0 development, personal branding has been extended from celebrities, politicians, and business leaders to everyone in the conditions to leverage online tools for projecting her/his image (Shepherd, 2005; Labrecque et al., 2011; Kucharska, 2017; Gorbatov et al., 2021). The paper contributes to entrepreneur branding studies by investigating female entrepreneurs’ self-representation and positioning. This study addresses the following research questions: **RQ1)** How do female entrepreneurs communicate their personal brands online? **RQ2)** To what extent are gendered themes used as strategic narrative devices to build the entrepreneur brand?

Methodology. The sustainable fashion industry provides a fertile empirical setting for the proposed inquiry, given the centrality of sustainability values inspiring the entrepreneur as a human being, the firm mission, the organization, and the business model. Sustainability has reached centrality in the fashion industry (Liu et al., 2020), where it remains a key challenge and an area of development. Simultaneously, personal branding is assumed to help entrepreneurs address a threefold challenge, that is, framing a credible and robust sustainable value proposition, which balances the ecological, social, and territorial business aspects; propagating sustainable production and consumption modalities to pursue the entrepreneur’s mission; and avoiding the risk of perceived greenwashing. Thus, we focus on women working in the sustainable entrepreneurship field, of which scant yet growing research has made a case for a gender perspective (Ousios and Farooqi, 2017; Figueroa-Domecq et al., 2022); moreover, women are usually presented as more involved with the fashion system than men (Gupta and Gentry, 2016).

We adopted a content analysis approach to investigate and analyze the narrative devices women entrepreneurs use and exploit to build their personal brands online (Henry et al., 2016). For the study, we selected three fashion companies founded and led, in Italy, by women and based on a sustainable fashion business model. In particular, we considered these three case studies according to their degree of coherence and illustrative capacity for the present study’s objective; to do this, we consulted secondary material (e.g., companies’ websites and social reports, online news archives, and corporate and personal social network profiles). Moreover, all three companies were selected considering the prior research done by the authors of this paper, who related directly to the entrepreneurs. The first business reality examined was founded in 2018. After a period of intense dissemination about the topics of sustainable supply chains and raw materials, “Made in Italy” productions, self-production, positive and harmless entrepreneurship, female empowerment, and links with territories and local organizations, this female entrepreneur decided to start her own business to put into practice the values and the entrepreneurial philosophy in which she believes. For the knitwear production, she uses only Italian yarns already in stock and discarded in warehouses. The second case examined concerns a company born in 2013 from a new and radical fashion idea of its female founder, who advances a sustainability perspective that is highly focused on the social nature and takes into account relationship with communities, passion for crafts, handprints, and fabrics, and redemption for women in need. Finally, the last company was founded in 2018 to connect the passion for historic craftsmanship with that for sustainability. After a personal experience that marked her life, this female entrepreneur runs the venture with the desire to help women in need through her skills in traditional craft techniques in fashion and creates highly recognizable sustainable bags.

To answer the research questions, we proceeded in two phases: a) we conducted preliminary in-depth face-to-face semi-structured interviews with the three female entrepreneurs; b) we carried out a content analysis on the last 50 Instagram posts (i.e., single photos, photo carousels, videos, and reels) of each company (on March 1st, 2023). We considered Instagram as it has a consistent relevance in the social media landscape (Milanesi et al., 2022) and is the social network most used by the selected female entrepreneurs as a means to construct their personal brands. We created an Excel worksheet reporting each company’s posts, the date, the caption, the #hashtags, the number of likes, the number of comments, and some researchers’ preliminary notes. In total, we collected 150 posts on Instagram. The analysis carried out was aimed at identifying the main words used and topics conveyed in line with previous research (see, for example, Ranfagni et al., 2020). For data analysis, we used a mixed qualitative netnographic approach (Kozinets, 2017) and a quantitative text-mining approach.

Results. The analysis’s preliminary findings show how women entrepreneurs rely on some narrative devices for creating their personal brands. Key themes that emerged from the analysis are the following: personal values, passion,

and motivations. The first important topic emerging from data is sisterhood, traceable in posts and texts and evidencing the relevance of ties with other women. The focus of sisterhood is specifically on reinforcing human relations amongst women, especially concerning establishing strong connections and solidarity in critical areas for women in need or in diversity and social inequality subjects. In this sense, the concept of sisterhood refers to women that are not simply those current customers but also potential ones and are demographically varied, from diverse origins, professional careers, races, or ages. Those women may be other entrepreneurs, clients, friends, or simply Instagram surfers. In the posts, showing entrepreneurs' strong empathy with other women is essential, and it comes up as a leitmotif across the diverse cases analyzed. In particular, the willingness of women entrepreneurs to support other courageous entrepreneurs like them strongly emerges; they team up, organize events together, and raise awareness among customers based on a common vision and the same way of doing business.

The second important topic is the passion for sustainability in the fashion industry. Passion for sustainability emerges in varied forms, from the technical aspects related to the production of fashion items to the social implications of the industry itself. The study data show how the different entrepreneurs approach their passion for sustainability from the diverse areas of competencies and made the center of entrepreneurship venture out of it. In their wish to contribute to environmental protection or to increase and stimulate social justice for women, they build their brands' identity and operations around specific sustainable projects that help women victims of violence or rely on only ecological or regenerated materials for their collections.

The third topic is related to motivational content. Female entrepreneurs post texts that encourage other women to succeed in what they want to do. Motivational posts are often associated with their own life evolution as women and professionals and their brand's role in it. In fact, some posts give the brand a critical role in a kind of redemption path that the entrepreneurs experienced in their troubled lives.

The analysis made the core narrative devices emerge as significantly gendered themes. The entrepreneur's gender is not a neutral fact in personal brand building. Instead, it shapes and qualifies the key emerging themes: sisterhood as a personal value refers specifically to solidarity and bonding among women; passion for sustainability is made concrete through women's technical skills and competencies and projects for women and social justice; motivational content, then, is deeply rooted in emancipatory and empowering narratives, telling about barriers and resilience in the entrepreneurs' life paths of female workers and businesswomen.

Research limitations. Despite its contribution, this study presents some limitations. Our research focuses mainly on narratives in text posted by female entrepreneurs on Instagram. Future research could also investigate the visual dimension and what images let the female entrepreneurs show their personal brand. Moreover, this study investigates the topic of personal branding in the context of the fashion industry. While relevant, the result may be affected by this sector. In addition, the study focuses on the fashion industry in the Italian geographical context. While some of those brands have started to face international markets, they are proper to the Italian entrepreneurship context and, consequently, it could also be appropriate to investigate potential similarities or differences in other geographical settings, assuming a more global perspective. Furthermore, future research should adopt a cross-sector approach, investigating to what extent narratives may be specific to fashion or could be replicated by female entrepreneurs in other settings from a comparative perspective.

Managerial implications. The findings suggest that entrepreneur branding can be framed as a gendered business practice (García and Welter, 2013) of strategic relevance to the company's success. The entrepreneur personality may become the company brand personality, with a significant emphasis on abstract and intangible brand values at the expense of functional and tangible brand attributes. While personal values and motivations have emerged in previous personal branding literature, passion adds to the existing knowledge and represents a promising field for narrating the entrepreneur's personality. The existing literature on personal brands warns against a potential loss of authenticity, irritation against an oversharing attitude, and self-commodification (Thomson-Whiteside et al., 2018). In this vein, entrepreneur branding framed as a gendered practice might carry the additional risk of a perceived "gender-washing" for crafting polished narratives of women in business. In an attempt to project positive, emancipatory, and empowering messages, the entrepreneur brand might lose credibility and genuine connections with limitations, weaknesses, and imperfections (Thomson-Whiteside et al., 2018).

Originality of the paper. The original contribution of the paper is threefold: 1) it contributes to the study of female entrepreneurship with a novel approach that focuses on personal branding, supporting their journey into the entrepreneurship venture; 2) it investigates how female entrepreneurs may use digital tools for personal branding strategies to communicate their brand identity, enhance the brand image and reputation, and boost customers' identification; 3) it identifies themes as narrative devices to be exploited for personal branding by female entrepreneurs in the sustainable fashion business.

Keywords: women; entrepreneurship; personal branding; fashion; sustainability; Instagram

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“Good places”: young adults’ views on domestic destinations

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Framing of the research. *In June 2022 the Italian tourism service providers registered a significant growth in booking confirmations. The National Tourism Agency announced that the summer season looked promising despite the war between Ukraine and the Russian Federation and the galloping inflation (IlSole24Ore, 2022). Previously, during the Covid-19 pandemic, young people had lost their tourist role and once the restrictions were lifted they were craving to travel. Several factors influenced their preferences in destination choices. Tourism marketing campaigns assume that tourists’ decision-making is based on objective quality and value considerations (Kock et al. 2019). However, prior research has evidenced that the symbolic meaning of destinations and the emotions and memories they evoke often play an equally important role in destination selection (Cassia et al. 2018). On one hand, preferences to travel within the home country, especially in the post-pandemic, could be seen as a kind of moral obligation to support the domestic economy. On the other hand, as shown by De Canio, Martinelli and Viglia (2023), domestic destinations are seen as safe and familiar, thus perceived risks are minimal. Kock et al. (2019:436) argued that tourists’ ethnocentrism, i.e. their preference for domestic holidays over international travels, is a “silver bullet for tourism managers” because it is not related to the quality of offerings and amenities but rather to the affective meaning imbued in a place. Given that youth tourists constitute an important target segment for domestic tourism and there is a need to enrich our understanding of how young tourists mentally elaborate on imagery related to their home destinations (Irimiás, 2023).*

Young tourists’ ethnocentrism is investigated by introducing the concept of “good places” that interconnects place attachment to youth domestic tourism and domestic destinations.

Good places: the role of place attachment

Places are imbued with personal meanings catalyzed by the interface between evocative local values and individual characteristics (Chen, Hall and Prayag, 2021). This symbolic relationship influences how a person thinks about and perceives places and featured “good places”. Good place’ is defined by Michalkó (2023:15) as a “tourism destination people talk about, recommend to others, return to visit and can imagine living there”. These attributes strongly link “good place” to place attachment and people’s well-being, concepts widely used in tourism and environmental psychology (Chen and Dwyer, 2018). People-and-place bonding refers to the emotions a place evokes in people and the particular relationship that connects people with a specific setting. As Chen, Hall and Prayag (2021:4) highlighted “sense of place arises where people feel a particular attachment or personal relationship to an area in which local knowledge and human contacts are meaningfully maintained”. The social and emotional feelings catalysed by people’s sense of belonging and the special connection they have with their favourite places positively affect they wellbeing (Canosa, 2023). Sense of place evolves according to the interactions between people and places over time. The experiences lived in the pre- during and post-Covid-19 pandemic have tremendously increased sense of belonging and place attachment. In fact, the pandemic has stimulated reflection within both the academic community and tourism marketers to rethink and redirect tourism development with a focus on ‘good places’, familiar places and local values. Understanding perceptions about good places becomes key to selecting the local values to promote domestic tourism by targeting specific segments, e.g. youth tourists.

The youth tourism

Current marketing discourse on young people continues to use certain stereotypes which are all too easy to fall into, especially when we are trying to quickly and easily identify a consumer segment (Irimiás, 2023). The tourist segment of youth tourists is often described as tech-savvy, narcissistic and in search of personalised products and services (Ketter, 2021). Pencarelli, Gabbianelli and Savelli (2020) argued that young tourists are strongly influenced by the use of technologies in the pre-travel experience. In fact, young tourists choose a tourism destination, collect information, and evaluate offerings based on their preconceptions about places. Although there have been warnings about the ‘sin of homogenisation’ and the stereotyping of tourists (Pearce, 2011:18), research has not yet fully evidenced the rich diversity of young adults’ travel motivations and preferences. Shedding light on this under-researched consumer

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segment in terms of young people's attitudes, values and preferences is significant and relevant for both tourism management and the travel industry targeting domestic and international tourism.

Domestic tourism and tourism ethnocentrism

In most countries, domestic tourism has been dominant with respect to international tourism in terms of economic contribution (Massidda and Etzo, 2012). The Covid-19 pandemic widened this gap by affecting familiarity with the place and perceived risks. Once countries started to reopen, domestic destinations were considered safer destinations than pre-pandemic. In 2022, domestic tourism totalled record numbers - 1.53 billion nights spent in tourism accommodations with an increase of 0.7% compared to 2019 (Eurostat, 2023). Domestic tourists' familiarity and attachment are reflected not only by visitor numbers, but also by the purchase of products and services embedding local values and the will to support small-scale local enterprises (Arbulù et al. 2021). Gursoy, Del Chiappa and Zhang (2018:139) argued that tourists' familiarity with the place is particularly important in destination management since it provides a "clear measure of individuals' direct and indirect knowledge about a destination". The higher the familiarity, the more personal information and memories of domestic tourists are linked to previous experiences. Conversely, the less familiar a tourist is, the more one searches for information on review sites and specific travel-related websites. This insight is strengthened by Cassia et al. (2018). Compared to tourists, they found that residents tend to be more critical about a destination's attributes because their perceptions are based on a more objective knowledge.

The increased preference for domestic holidays over international travel manifested by domestic tourists may be explained by the concept of ethnocentrism. Tourism ethnocentrism is defined by Kock et al. (2019:427) as "an individual's prescriptive beliefs and felt a moral obligation to support the domestic tourism economy". In tourism literature, these beliefs are often referred to as a home-country bias. Here, the authors argue that this bias towards domestic destinations constitutes a predisposition to consider local values and familiar places as "good places". Mental representations of domestic destinations are thus more affected by personal and symbolic meanings than by the quality of services or the uniqueness of products.

Purpose of this paper. This research aims to contribute to the theoretical debate on domestic tourism and ethnocentrism brought to light by Covid-pandemic by investigating young tourists' interpretation of "good places" and ethnocentrism with respect to selected destinations conceived as "good places". Accordingly, the paper's main questions are the following:

- How do young adults interpret "good places"?
- What are young people's beliefs about "good places" and how do they create local imagery?
- What aspects of young adults' interpretation of "good places" affect their tourism ethnocentrism?

Methodology. The research employed a qualitative visual method based on participatory videography to explore the concept of "good places" related to tourism ethnocentrism and domestic destinations as interpreted by young people. Videography has been used in social sciences for field research, analysis and representation by combining ethnography with the production of audio-visual media (Pink, 2008). For these reasons, it is considered an interpretative approach along with a cultural production with symbolic meanings (Knoblauch and Tuma, 2011). In consumer research, videographic production has often been used to explore tendencies of subjective interpretation of consumption practices. Strongly believing in the relevance of videography, Kozinets and Belk (2006) called for a broader use of audiovisually literate consumer research. Due to the contemporary social media-influenced society based on active participation and co-creation, videography must reflect a collective participatory approach by allowing a self-made media product. In other words, participants have the chance to express their views, perceptions and the ways in which they experience local values and "good places". As Kozinets and Belk (2005:130) suggested, giving the natives the camera allows the autovideographical technique to have advantages over researcher-conducted observation because it allows a better understanding of participants' perspectives in action and a first person type of data. Additionally, as Pink (2008) pointed out, videography allows researchers to observe the ways participants are engaged in place-making, and this aspect is particularly relevant to this study for interpreting "good places".

A convenience sample of young adults from Trentino Region/Province (Italy) was involved in this exploratory research. Trentino was deemed an appropriate destination to carry out this study because it has an important domestic tourism share and it is frequently described as a "good place" by tourism planners and marketers. Our convenience sampling consisted of 110 Italian undergraduate students enrolled in a tourism management course, who worked in teams of five. The research was conducted between February and May 2022. As Irimiás, Mitev and Volo (2022) argued, tourism management students need to be stimulated to step out of their comfort zone and get involved in collaborative and creative learning tasks. Although most young adults use digital communication technologies in their everyday life, they rarely have the opportunity to use their skills to approach managerial issues (Karakas, Manisaligil & Sarigollu, 2015).

Data were collected following Kozinets and Belk's (2006) guidelines on how to structure participatory videography. Regardless of the research question and material, the method is flexible and follows a sequence of steps suitable for the analysis of visual and textual material (Schreier, 2014). First, participants were asked to build a script in teams on in-class discussions around the topic of "what good places are". Second, based on this script, they were also asked to develop a video storyline linked to a domestic destination that all the team members identified as a "good place". Third, to create a short video of max. 2 minutes that had to be filmed and edited by using a smartphone; background music was optional. To facilitate participants' work, the researchers were available to clarify doubts and queries and to

minimise procrastination. Researchers’ feedback helped participants to develop their perceptions about “good places” and domestic tourism and to concentrate on the filming of the video.

Not all the students took part in this videography research. Participants who successfully engaged in the proposed videographic research in teams met once a week for a period of five weeks. They were considered co-researchers and developed their projects autonomously. They managed to overcome challenges and obstacles during the process, as the following quote shows:

“Preparing the script was difficult from a design point of view, as we had to imagine in advance what the video would look like. What I didn’t expect was the time needed to shoot and edit the video: it’s a much more complex activity than I expected. The main difficulty that accompanied me through all the tasks was the fear of not getting a perfect result, which often drove me to postpone my work”. (female, 22 years old).

Content analysis was carried out by the authors on 19 videos and 32 reflective reports (script and video storylines) developed by participants.

Results. The results of this explorative concern what a “good place” meant to young adults and the local imagery they wanted to represent along with the link of this imagery with young adults’ tourism ethnocentrism and domestic destinations.

“Good places” are mainly featured by young people as natural and cultural environments. 15 videos directly addressed landscape aesthetics (e.g. Lake Garda, Non Valley) and 7 videos featured tangible cultural attractions in urban tourism destinations (e.g. Piazza Duomo in Trento, the Chess Square of Marostica). One of the videos was produced by five female participants who were eager to feature apples as the protagonists of their valley. The shooting location of the video was identified in accordance with all the members of the team. This means that the place had to be meaningful to all of them and elicit emotions. In other words, local imagery reflects also young adults’ sense of belonging and familiarity, their beliefs about domestic destinations along with memories and emotions. The narrative in the video transforms the physical land into a meaningful “good place”.

The following quotes are explanatory examples:

“The main reason we chose the Non Valley as the filming location is that it is an inspirational place full of breathtaking views and wonderful landscapes. The most important thing for us was to represent its natural beauty without trying to advertise it”. (Video team n. 4)

“We believe that the Non Valley is a good place and it has a potential value as an attractive tourist destination. Its particular landscape with apple trees must be respected by tourists visiting our place”. (Video team n. 4)

“This place is particularly meaningful for our group because all of us were born there and have an emotional attachment to it”. (Video team n. 4)

In some cases, participants described a “good place” by linking the meaning of the place and its function with their personal preferences and expression of themselves.

See the next quotes about a “good place” where participants like to “hang out” or “escape”:

“The places in the video were meaningful for all of us because they are our favourite spots in the city and we usually hang out there”. (Video team n.9)

“What we have represented in the video reflects our own perspective of the place as it has always been our cradle. It also reminds us of our childhood. We have learned to appreciate our home as an escape from the boring and monotonous daily-routine”. (Video team n. 6)

The imagery of the city of Trento and its cultural environment reflects another type of bond that young adults have with “good places”. In this case, the research participants identified themselves as insiders of Trento because of the significant lifetime experienced in the city and with peers encountered during their higher education studies.

The following quotes are explanatory examples:

“Trento is particularly meaningful to us. It is where we go to university. We spend our everyday lives in Trento and it has become a second home to us”. (Video team n. 10)

“Living away from home has allowed each of us to grow and become much more independent”. (Video team n. 10)

“The fact that Trento is the place where we each shared this experience of facing challenges, learning from them and growing as a person is one of the main reasons why Trento holds a special space in our hearts”. (Video team n. 10)

These examples highlight different people-and-place bonding and imagery evoked in young people by “good places”. In turn, this imagery and perceptions positively affect ethnocentric views on domestic destinations. On the one

hand, rootedness results from being born or growing up in a place. Sense of belonging is featured as a profound emotional attachment to the home country fed by “childhood memories” and “attachment to beloved people”. The bond to a place here represents a bond to the local community of friends as well.

On the other hand, rootedness results from meaningful life experiences that young people enjoyed in that place and shared with others. Sense of belonging is featured by depicting this place as “a second home”. This place evokes “shared memories and experiences”, “personal meanings associated with that experience”, and “personal development and transformative opportunities” generated by getting out of the comfort zone and their “cradles”. In line with previous studies (Della Lucia et al. 2021), the role of tourism managerial education valuing human and destination values has been found particularly significant in building and transforming sense of place. Due to staycation and domestic tourism, the Covid-19 pandemic has influenced youth’s perceptions about their “second homes” also through negative emotions generated by sense of separation from a “good place” where they enjoy living and develop, as human beings and future tourism manager.

Research limitations. This exploratory study is not free from limitations. First, the research investigates young adults’ perceptions on “good places” and domestic tourism in the post-Covid-19 pandemic era which may limit the generalization of results. Second, the projective technique of videography does not allow to generalize results as well because it is an interpretative research method. In addition, the quality of the videos is not always of a high standard because participants filmed the videos manually and were not experts in videomaking. As Belk and Kozinets’ (2005:138) pointed out about videography, “the type of knowledge produced can be experiential and emotional” compared to other research methods. Further research is needed to investigate the interconnections between a “good place”, tourism ethnocentrism and domestic management. Also, the use of mixed method techniques is also highly recommended.

Managerial implications. This research contributes to our understanding of “good places” seen and experienced by young adults and their connection with tourism ethnocentrism. Preliminary insights are promising from both the theoretical and managerial viewpoint. This research has shown that places, and “good places”, still matter in tourism. And they also matter for young tourists despite the recent emphasis on Metaverse which has led to the downplaying of the relevance of place. Further understanding of “good places”, place attachment and familiarity feeds an urgent and relevant debate on values-based changes in placemaking and (domestic) destination management. Tourism management researchers can further reflect on the meaning of sense of place and what emotions “good places” evoke in different tourism market segments.

From a practical point of view, youth tourists’ imagery, beliefs and emotion associated with “good places” offer destination management organization, tourism marketers and managers some suggestions to improve destination management and marketing by targeting domestic tourism segments and leveraging tourism ethnocentrism. First, the affective and cognitive elements linked to young tourists’ mental elaboration of “good places” may be used to positively influence young adults to engage in travelling in their country. These elements can be leveraged in the communication of selected local values and offerings thus increasing place attachment and familiarity and bringing the destination closer to potential tourists. Second, the comparison of young tourists’ imaginary of domestic destinations featured in self-made videos with destination promotional videos, may highlight significant gaps in the destination branding model (Govers and Go, 2009) targeting different market segments, e.g. young tourists’ perceived place image is skewed because of different individual interpretations of the projected images, situational influences or biased word-of-mouth. Understanding this gap offers significant insight for assessing how important this market segment is (or will be) for domestic tourism and actively design, manage and market tourism ethnocentrism targeting youth tourists.

Originality of the paper. This exploratory study contributes to shedding light on an under-researched tourist segment with reference to domestic tourism and ethnocentrism by taking the perspective of “good places” that evokes place attachment and familiarity with a specific setting. This research topic is investigated by adopting a qualitative visual method that leverages co-created self-made media products and reflective reports to provide new and surprising experiential and emotional insights about the phenomenon. Participatory videography was found particularly appropriate to explore co-researchers’ views and narratives about “good places” they consider also destinations’. Findings offer interesting insights into the possible role of locals and young adults in stimulating to adopt their perspective when considering domestic destinations.

Keywords: good place; young tourists; tourism ethnocentrism; domestic tourism; videography; tourism management

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Dynamic capabilities in the internationalisation process: A study on fintech startups

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Framing of the research. *This study focuses on the role of dynamic capabilities (DCs) in the internationalisation process of fintech startups, which operate in a rapidly expanding industry exhibiting substantial growth and development.*

Fintech companies have captured a third of global banking revenues since 2005 and are expected to continue growing at a significant rate (Statista, 2023). They have rapidly emerged in various countries (Block et al., 2018) and must expand beyond their home markets to scale up (McKinsey, 2022). However, startups face difficulties in financing (Giaretta and Chesini, 2021), capital-related decisions (Nofsinger and Wang, 2011), technology-intensive requirements (Haddad and Hornuf, 2019), and competition from traditional banking institutions and big fintech companies (Statista, 2023). Startups that are international entrepreneurship in nature, are riskier (Buccieri et al., 2020; Sharma et al., 2020) due to longer business distance from geographical, physical, and institutional points of view (Eriksson et al., 2014; Vahlne and Jonsson, 2017). Innovation is crucial for international entrepreneurship (Mitgwe, 2006), which requires time, capital (Ries, 2011), and the ability to respond and adapt to international market conditions (Buccieri et al., 2020).

Dynamic capabilities enable a firm to reconfigure, renew and create resources (Teece et al., 1997), perpetrating entrepreneurial strategic activities (Nayak et al., 2020) and building resilience in international backgrounds (Pitelis and Teece, 2018). Dynamic capabilities are important for the internationalization and sustained success of fintech companies that are entrepreneurial start-ups in nature (Luo, 2000), which are empowered by international orientations (Weerawardena et al., 2007). Knowledge capability upgrading positively enhances adaptive capabilities and helps financial companies achieve performance benefits while internationalizing (Sadeghi et al., 2022). There is a debate on whether knowledge can be categorized as a certain dynamic capability, but the study proposes to distinguish knowledge sources and implementations for classification (Meanwhile, Zámorský et al., 2022). The effects of time, speed, and degree of internationalization on dynamic capabilities are mediated by different variables, including innovation (Weerawardena et al., 2015), opportunity recognition (Wu et al., 2016) and capitalization capabilities, R&D intensity (Chakrabarty and Wang, 2012), and organizational reconfiguring capabilities. Successful firms develop dynamic capabilities that enable rapid internationalization and capability creation and upgrading (Sadeghi et al., 2022). The positioning exercise (Sapienza et al., 2006), environmental dynamism (Buccieri et al., 2020), and network capability development (Torkkeli et al., 2018) also moderate the effects of dynamic capabilities on firm survival and growth (Jantunen et al., 2005).

A global mindset with a clear marketing orientation for companies with international business is considered an essential ingredient (Cadogan et al., 1995; İpek, 2020) in developing dynamic capabilities (Barreto, 2010; Wang and Ahmed, 2007), which can provide firms with a special knowledge of foreign markets (Hoque, 2020; Wright et al., 2007). Relevant research in international business studies has shifted from static correlation on macro industrial variables to a cognitive approach (Nayak et al., 2020; Sadeghi, 2019) of opportunity exploration and exploitation (Hsieh, 2019; Zucchera, 2021). Cognitive capabilities can be collective, creating an interactive system in companies to ensure the formation and development of certain dynamic capabilities (Easterby-Smith and Prieto, 2008). Individual executives such as managers in international business have an important role in management and shaping the ecosystem through special strategic operations (Bouquet, 2005; Helfat and Peteraf, 2015). Managers need dynamic capabilities to identify, forecast, mitigate, and manage the disorders in their everyday operations (Sniazhko, 2019). Relevant studies categorize these dynamic capabilities into personal (Eriksson et al., 2014), inter-organizational (Blomqvist and Levy, 2006), and intra-organizational capabilities (Weerawardena and Mort, 2006). However, international business managers have

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difficulties understanding the types of uncertainty in their businesses and developing appropriate strategies to deal with it effectively while internationalising (Sharma et al., 2020).

The research on fintech startups and their dynamic capabilities is in the exploration stage, with a focus on regional studies. The development of dynamic capabilities, such as innovation capabilities, are transforming the financial landscape globally (Muthukannan and Gozman, 2019), allowing fintech startups to reconfigure traditional banking scenarios (Gallego-Gomez and De-Pablos-Heredero, 2020) and spur innovations in the financial industry (Oshodin et al., 2019). Ambidextrous innovation (Buccieri et al., 2020), separating exploratory units from traditional exploitative ones (O'Reilly and Tushman, 2004), contributes to the internationalisation of fintech startups (Hsieh et al., 2019). Fintech companies leverage dynamic innovation capabilities in a business ecosystem with stakeholders, such as technology developers, government, financial customers, and traditional financial institutions (Lee and Shin, 2018), to access resources and exploit opportunities, thereby transforming the status quo of the ecosystem dynamics in financial markets (Alaassar, 2022). Incubators and competitors in the same cluster are two special actors to consider (Haddad and Hornuf, 2019), as larger geographical clusters with incubators attract more new fintech startups, reducing the risk of failure but increasing the likelihood of being acquired (Gazel and Schwienbacher, 2021).

Purpose of the paper. Fintech companies have evolved beyond the hype stage and are now significant players in the financial industry (Lee and Shin, 2018), with both startups and large technology companies like Google, Amazon, Facebook, Apple, and Alibaba offering their services (Statista, 2023a). While established companies have ample resources to leverage their technological capabilities, startups face difficulties in financing (Giaretta and Chesini, 2021), capital-related decisions (Nofsinger and Wang, 2011), technology requirements (Haddad and Hornuf, 2019), and competition from traditional banking institutions and big fintech companies. To address the intense competition in the international marketplace, especially under pandemic-induced uncertainty, dynamic capabilities (DCs) allow firms to reconfigure, renew, and create resources (Teece et al., 1997), promoting entrepreneurial strategic activities (Nayak et al., 2020). Although the validity of DCs as one of the most promising theoretical developments in resilience building, especially for relatively fragile startups, and in addressing the origins of a firm's competitive advantage in both national and international contexts (Pitelis and Teece, 2018) has been thoroughly investigated in academic management literature, no previous studies have analyzed DCs in relation to the internationalization processes of a strongly evolving sector, such as that of fintech startups. The objective of this explorative study is to investigate the DCs' deployment by startups in the fintech sector in their internationalization process. Specifically, we pose the following research question:

RQ. How are DCs deployed by fintech startups in their internationalisation process?

Methodology. To achieve our research objective, we adopted an exploratory approach based on a qualitative multiple-case study analysis (Yin, 2009; Eisenhardt and Graebner, 2007) on fintech startups. We carried out interviews with startups' founders and managers, and other actors involved in the internationalization processes of these firms. According to Eisenhardt and Graebner (2007), the multiple-case study approach is appropriate to build theoretical constructs and propositions, as case studies emphasize the richness of the context in which the phenomena occur. We used a theoretical sampling approach (Eisenhardt, 1989; Yin, 2009) to identify possible cases of fintech startups to analyze through databases, newspaper articles and LinkedIn platform. Among the requirements of the key informants to be involved in this research, they must be founders of fintech startups or have had managerial experiences in such industry. In total, 11 startups' key informants were available to participate in the study. Moreover, to broaden our investigation perspective, we have also involved in this study professionals operating in innovation hubs, startup accelerators and governmental agencies who have supported the internationalisation of fintech startups. In total, we conducted 19 semi-structured interviews with key informants to investigate how they deploy dynamic capabilities in the internationalization process of fintech startups.

The interviews focused on the following main topics: (1) the internationalization process and the level of international commitment of the startup; (2) startups' key capabilities to access and grow in international markets. These topics lay the foundations in the assumption that startups have to face a scarcity of resources. The semi-structured interviews were conducted in virtual mode, i.e. by video call via Microsoft Teams, Google Meet or Zoom, between January 2021 and January 2023 and lasted about an hour. The interviews were recorded and fully transcribed verbatim. The body of transcripts of the 18 semi-structured interviews conducted for this study represent the material which was analyzed by the researchers.

Preliminary findings. Our research focus is on the role of the dynamic capabilities of fintech startup' entrepreneurs in internationalization processes.

The preliminary results of this study show that in the internationalization process of fintech startups, DCs allow entrepreneurs to identify opportunities and reconfigure their business to adapt to the new market. For example, in order to effectively launch the startup's internationalization process, the entrepreneur needs some local actors, such as a country manager to be recruited, who has in-depth knowledge of the culture and the market to be accessed. These local partners play a key role also in the following phase of the internationalization process, which consists in the elaboration of a market access strategy and in the creation of new commercial and institutional agreements. Therefore, it is necessary for the entrepreneur to demonstrate the ability to access a local network to create effective partnerships for the fintech startup and to establish interpersonal relationships with key players for business development in the international market.

For these networking purposes, the key informants involved in this study revealed that the role of digital channels is crucial. In particular, the LinkedIn platform is used by all the interviewed professionals, especially in the early stages of the internationalization process of fintech startups, to identify key players and establish a connection via chat, which turns into a long-term relationship. LinkedIn, in fact, represents the first step in establishing interpersonal relationships which will be strengthened by the interlocutors on the occasion of physical events, such as trade fairs in which startups participate both for networking purposes and for market monitoring, to develop an updated perspective with respect to the fintech industry trends.

Furthermore, trade fairs are a useful marketing tool not only for the promotion of the product/service of the firm, but also for educating partners and other organizations regarding the potential of the startup's offer. In this vein, our study highlights that the fintech sector presents increasingly technologically advanced solutions which need to be communicated effectively to both insiders and end consumers. For this purpose, social media are the most useful digital marketing tools - for example, through platforms such as Instagram, fintech startups have the opportunity to illustrate the characteristics of their products/services by adopting a clear and simple language to inform consumers about the usage they can do with the fintech product/service.

In general terms, with this explorative research, we identify the barriers in the internationalization of fintech startups.

On one hand, as barriers to internationalization we identified:

- (1) the lack of communication of the fintech product/service to both intermediaries and consumers;
- (2) the legal barriers of the country being accessed;
- (3) the limited knowledge of the local market due to the psychic distance.

On the other hand, the objectives that the internationalization strategies of fintech startups aim to achieve are:

- (1) the formation of an international network with key actors, such as international organizations, partners, institutional actors, etc.;
- (2) an increase in the brand strength of the fintech startups internationally;
- (3) the growth of the fintech startup.

To achieve these objectives of the fintech startups' internationalization strategies, we investigated how DCs can help fintech companies' internationalization in the following areas:

- (1) DCs have their agility to be naturally innovative in the fintech industry, since it is a technology and knowledge intensive one. Fintech startups have their innate affinity to adapt themselves to digitalisation or they are born to be digitalised, which permits innovative DCs to perform as effective internationalization strategies;
- (2) followed by aforementioned points, fintech startups are found flexible in resource exploitation and exploration. This binary seeming exclusive relationship can be mobilized dynamically by fintech companies who can leverage their already existing time-saving resources exploitation at maximum level to save limited resources and invest it into potential complementarity exploration while internationalizing.
- (3) DCs in key actors selecting and networking, especially the local stakeholders, are exceptionally valid for fintech startups conducting crucial internationalization steps such as market access approaches and the operational compliance.

Research limitations. Dynamic capabilities are crucial in companies' internationalisation, as well as extensive and complicated. Our study has some limitations as we adopted a qualitative approach based on the case study to analyse a single industry, the fintech industry. Future research could also analyse the internationalisation of startups in other innovative industries to verify any differences in how they deployed dynamic capabilities during their internationalisation process.

Managerial implications. Illustrated by the findings of this study, it can be confirmed that DCs have significant managerial implications for fintech startups' internationalization strategies. Under the resource allocation view, companies need to allocate resources in a dynamic way by exploiting their inherent strengths and exploring potential complementarity of resources. The fintech industry has one certain entry threshold as a knowledge and technology intensive industry. Fintech companies offer intangible service much more than tangible cross border goods. It is beneficial especially when conducting their internationalisation process thanks to the effectiveness and borderless extensibility. Companies' exploiting and exploring capabilities are often considered mutually exclusive in traditional industries. Fintech companies can leverage their already existing time-saving resources exploitation at maximum level and make full use of this "curve crossing" time saved from resource exploitation by applying their dynamic capabilities to explore potential complementarity in order to enhance their international business performance. Relevant potential complementarity of internationalisation can sit in the formation of the "human sense" in business that technology can not reach so far. This requires a strategic approach to resource allocation that prioritizes investment in areas that can generate sustainable competitive advantage. Under the organizational structure view supported by DCs, companies can adopt an organizational structure that enables a systemic organizational structure to elaborate market access strategies, create new commercial and institutional agreements and gain in-depth societal and cultural market knowledge. This may involve offering competitive compensation packages, creating a culture of learning and development, and providing opportunities for career growth to enhance inter- and intra-organisational structures. Under the business relationship view, fintech companies who have successful internationalisation business performances are able to leverage partnerships and collaborations to access resources and capabilities that they may not have in-house. This involves partnering with other fintech companies, traditional financial institutions, technology

companies and even local non-economic stakeholders or actors to share knowledge and expertise. Once this talent pool is created, more resources can easily and efficiently be generalised by resource cycling, mobilizing and sharing with the hope to break the barriers in the internationalisation process. This process is also a process of adapting and learning, in which we witnessed how fintech companies strengthen their mindset to embrace experimentation, failure, and continuous improvement.

Originality of the paper. Despite the extensive research on dynamic capabilities in the international business literature, there is a paucity of studies that examine the role of dynamic capabilities in the internationalization processes of rapidly-evolving sectors, such as fintech startups. In order to fill this gap, in this exploratory study we presented preliminary findings on how entrepreneurial dynamic capabilities are deployed by fintech startups to approach foreign markets.

Keywords: dynamic capabilities; fintech; internationalization; startups

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Digitalisation projects in leading industrial district firms: a case of missing local connections? An explorative study

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Framing of the research. *It has been widely recognized the role of leading industrial district (ID) firms in the evolution of the industrial district itself and of local connected firms (Ingstrup, 2014; Hervás-Oliver, 2022). Leading ID firms tend to involve local suppliers of production inputs, establish technological collaborations with local firms and knowledge providers and interact with local customers (Hervás-Oliver, 2022). Over time leading ID firms have opened their network to business relationships with partners outside the ID to gain access to valuable resources and market opportunities (Albors-Garrigos & Hervás-Oliver, 2019). This local/global interplay has become increasingly relevant over time and has been subject to an intense scientific and policy-oriented debate both from the ID/cluster and firm perspectives (Grandinetti, 2011).*

One recent emerging pattern affecting the evolution of IDs and clusters is represented by the diffusion of digital technologies (DTs), with a great role played by Industry 4.0 (I4.0)-related digital resources (Bellandi et al., 2019; Hervás-Oliver, 2021). DTs provide opportunities to make production and organisational processes more efficient, to innovate the product/service offering and to improve communication and coordination with operational units/subsidiaries, partner organisations and customer firms based in distant locations. While the cooperation of leading ID firms with local firms has been investigated in depth in the literature (Albino et al., 1998; Camuffo & Grandinetti, 2011), the degree of involvement of local firms and other actors in digitalisation process undertaken by leading ID firms is still largely unexplored. Some studies point out the emergence of parallel cooperative relationships, where large ID firms tend to collaborate with national and global IT providers (Albors-Garrigos & Hervás-Oliver, 2019), while instead small ID firms undertake projects with the advice and support of small IT consultants (Mersico et al., 2022). These initial studies seem to suggest that advanced digitalisation processes could lead to further fragmentation in IDs/clusters, with the development of distinct digital trajectories further weakening local technological linkages and the role of proximity in knowledge exchanges.

Purpose of the paper. *We argue that a better understanding of the nature and mechanisms of cooperation in digitalisation processes between leading ID firms and co-localised actors could provide useful insights over the evolution and strength of ID networks and relationships. This type of analysis could further expand recent contributions on digitalization of IDs/clusters contexts (Bettiol et al., 2020; Albors-Garrigos & Hervás-Oliver, 2019). Therefore, this paper aims to address the following research question (RQ):*

How do leading ID firms undertake and organise digitalisation processes?

To address this RQ a qualitative methodology developing an exploratory case study is adopted. The leading ID firm under investigation is Biesse Group, a large company based in the Pesaro furniture ID and with a leading position in the global mechatronic - woodworking machineries - sector. Over the recent years Biesse has undertaken various digitalisation projects related to I4.0 technological setting and other advanced IT contexts. The examination of Biesse case study is conducted using the Actor-Resource-Activities (ARA) analytical framework as proposed by the Business Network perspective (Håkansson & Snehota, 1995), in line with previous studies concerning intra and inter-organisational dimensions of project-related innovation (Pagano et al., 2021; Havenvid et al., 2017).

Theoretical background. *The ongoing digital transformation is reshaping firms and industries through the diffusion of new DTs (Hervás-Oliver, 2021). Within traditional IDs, which are characterised by a strong manufacturing specialisation, DTs, especially advanced ones related to the I4.0 paradigm (Hervás-Oliver, 2021), can be perceived both as opportunities and threats (Bellandi et al., 2019) by ID firms, as they require relevant adjustments in existing processes.*

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While the geographic dimension of IDs might appear outdated in the context of digital transformation (Götz, 2020), previous studies (Götz & Jankowska, 2017) highlight how the intrinsic attributes of the district model - including cooperation, knowledge sharing and interaction processes - may favour the adoption of advanced DTs. Indeed, IDs hold the potential to vehicle business DTs (Götz & Jankowska, 2017; Grashof et al., 2019) as this transformation is “inherently embedded in a co-evolution of manufacturing processes, production systems, corporate strategies and social environment” (Götz, 2020: 58).

This kind of technological and organisational upgrading within ID may take different shapes in terms of initiatives, business partnerships, and projects promoted by both firms and institutions (Pagano et al., 2021). Studies have shown how change processes related to DTs commonly happen through projects (Baier et al., 2022), often stimulated by suppliers or IT partners (Pagano et al., 2021).

Within traditional IDs, large and medium-sized firms with required competencies are keener to exploit DTs in their processes (Bettiol et al., 2020; Ingstrup, 2014; Pagano et al., 2021). Leading firms in local networks have R&D functions and stronger absorptive capacity (Hervás-Oliver, 2022), which allow them to legitimise technologies, coordinate local networks, and influence the technological trajectory of the local ID (Hervás-Oliver, 2021; Ingstrup, 2014; Leick & Gretzinger, 2020). Leading firms often rely on technologies that are outside the district “thematic boundaries”, as innovation requires both the exploitation of local knowledge - what the literature has described as local buzz (Bathelt et al., 2004) - and the exploration of distant knowledge (Hervás-Oliver, 2021; Albors-Garrigos & Hervás-Oliver, 2019; Boschma & Ter Wal, 2007) - that is establishing global pipelines (Bathelt et al., 2004).

While the behaviour of leading firms within IDs, as well as their role of gatekeepers and orchestrators in innovation processes have been extensively explored in the literature (Bettiol et al., 2020; Hervás-Oliver, 2022; Albino et al., 1998), we argue that there is still a gap concerning the analysis of the development of their digitalisation processes in terms of main mechanisms, resources and partnering actors, inside and outside the ID/cluster.

Methodology. The methodology is qualitative and based on an exploratory case study. The case study methodology appears suitable to address the RQ that is processual in nature, with the objective to disentangle the main components of DTs adoption processes both at the company and ID level (Hervás-Oliver et al., 2018). The case under investigation is Biesse, a leading firm in the mechatronic industrial district in Pesaro, central Italy.

The Biesse case is analysed following the development of nine projects concerning DTs adoption over the last seven years (see Figure 1), starting from a “pilot” project in 2015. These projects represent the milestones of Biesse’s digital transformation journey. The selection of the projects has been possible thanks to the knowledge of the company gained during the last five years in the context of an ongoing research project, focussed on Digital Servitization strategy in Biesse Group.

For the specific purpose of this paper, data has been collected through three main sources: participant observation, direct interviews, and documental analysis. Information from the different sources have been triangulated.

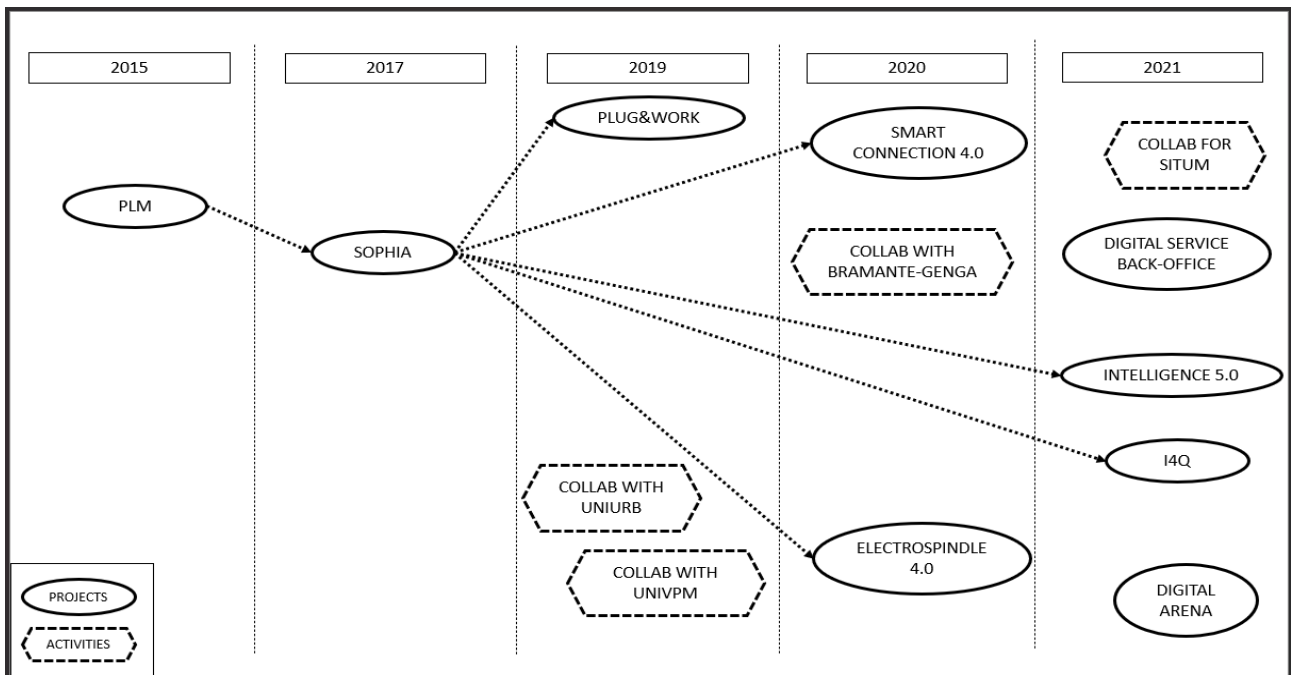
Data has been analysed following the ARA framework. For each project we analysed how the company engaged in relationships with actors inside and outside the ID, the main resources (both organisational and physical resources) and set of activities involved in the relationships. Approaching the RQ through ARA has already been proved effective in catching the complexity of the issue under investigation (Pagano et al., 2021; Pagani & Pardo, 2017).

Results. Biesse is a leading firm in its sector, with a strong orientation to innovation. The company registered over 200 patents and received recognition for its innovation capability in product and process technologies. In the last 10 years the company pursued an innovative path linked to a digital transformation process. Following a project-based approach, several initiatives took place over time (see Figure 1).

One of the first projects on digitalisation regards the implementation of a Product Lifecycle Management (PLM) technology to handle information and processes at every stage of the product/service lifecycle within the global supply chain. The project, started in 2015, was based on a collaboration with a distant actor, Siemens, which was chosen because of previous collaborations, advanced technological capabilities, and the opportunity to obtain an open solution. The goal was to optimise processes that in many cases were hybrid and unstructured, reduce errors and response times of inadequate systems, and provide information about products to all stakeholders within the company.

In 2017, exploiting the opportunities emerging from the I4.0 national plan and the PLM technology, Biesse officially started the SOPHIA project, a Digital Servitization strategy based on the Industrial Internet of Things (IIoT). SOPHIA is a digital platform enabling customers to adopt a range of services to simplify and rationalise work management. It was realised in partnership with the consultancy firm Accenture, selected for its long-term experience with innovative projects and the ability to contribute on both the technological and business dimensions. Microsoft was involved in the project as the supplier of cloud and route-engine systems, while a few local customers in the furniture sector took part in the pilot sessions of SOPHIA. This project represented a deep change in Biesse’s business model toward services and implied an internal reorganisation of roles and functions: a Service Innovation Unit was set up, as well as a sales team dedicated to services, new professional roles emerged as the Digital Marketing Manager and the Service Innovation Manager. SOPHIA allowed the social recognition of Biesse as a digitally transformed and I4.0 company and it accelerated its digital transformation process, triggering the emergence of collateral projects - also with new actors - within a wider business network.

Fig. 1: Main projects activated within the digital transformation path of Biesse



Source: Authors own elaboration

Among them, Biesse took part in the Plug & Work project in 2019, which connects eight leading firms in the woodworking sector between Italy and Germany to develop a common language for communication between machineries from different producers. Competences of each firm were shared in the project, coordinated by a German and a European sectoral association, and supported by producers in the UMATI (Universal Machine Tool Interface) league. During the same year, the digital transformation process of Biesse was reinforced by the collaboration with local universities. On the one hand, training activities on digital themes were settled with the University of Urbino. On the other hand, three Ph.D. students from the University of Urbino and the Marche Polytechnic University started collaborating with Biesse on digital and innovation research projects. Biesse thus strengthened existing relationships with universities in relation to its digitalisation process.

The year 2020 has been crucial in this process. Two new projects linked to SOPHIA were deployed. First, with the aim of increasing competences on the IIoT and supporting SMEs to adopt it, a joint project between Biesse and Orchestra arose - the Smart Connection 4.0 project - aimed at providing an integrated hardware and software solution to connect SOPHIA with the ERP system available by the customer. Orchestra is an innovative start-up from the Torino Polytechnic University. Second, a partnership was signed between Biesse, the Marche Region, the Marche Polytechnic University, La Sapienza University, and EN4 (a start-up from the Umbria Region) to join forces in the digital innovation process of the territory. The project named Electrospindle 4.0 involved the realisation of an interconnected electrospindle embedded in a digital productive process, from the supply chain to the final user. Concurrently, a new Organisational Unit was launched within Biesse, the Innovation Lab, which combines local and foreign resources. In particular, the Lab, meant as an innovation accelerator oriented toward Open Innovation, is made of Biesse, the AdlerInlight Technology Observatory in Israel, and Manifattura, a local innovative consultancy start-up. Manifattura, whose CEO already collaborated with Biesse on innovation projects via his previous career role, offers innovation and change management capabilities to drive an open innovation approach in the manufacturing sector. The new partnership with AlderInlight further contributes to open to international collaborations, aiming to achieve new innovation models. The effort of Biesse to achieve a territorial digital transformation was endorsed by the collaboration activated with a local high school, the Bramante-Genga, through which the firm and the institution train young students to become innovative woodworkers with a strong digital awareness.

The push to digitalisation of Biesse was further promoted in 2021, when it joined a project within the Horizon 2020 program named I4Q (Industrial Data Services for Quality Control in Smart Manufacturing), involving 24 actors from more than 10 European nations to control quality in smart production systems using IIoT. This project sprung from the interconnection opportunities given by the IIoT technology of SOPHIA on the one side, and the open innovation model realised within the Innovation Lab on the other. Contextually, a new project linked to the local territory started under the name of Intelligence 5.0. It consists of a partnership between Biesse, the Marche Region and the Marche Polytechnic University, with the goal to develop advanced IIoT solutions and collaborative sensors, therefore contributing to the generation of the so-called 'smart factories'. Such collaboration is the result of open innovation efforts initiated within the Innovation Lab and the expertise on IIoT technologies acquired via the SOPHIA project. In this scenario of 'diffused' digitalisation, Biesse continued the collaboration with local universities and companies by joining the SITUM project, aimed at promoting joint activities in the areas of innovation and internationalisation.

Finally, two more projects fostered the digital transformation of Biesse, which is still ongoing. One is the digitalisation of service back-office, originated by the partnership with two distant actors, Atlantic and Salesforce, and based on the co-design and development of a CRM platform to digitalise internal processes related to sales, marketing and communication, field service, and technical assistance. Here, partners were selected according to their global competences and the great experience in digitalisation processes. Also, Salesforce was already a partner of Biesse, with whom the CRM solution of the company was co-designed in 2008. The other one is the Digital Arena project, namely the web platform for integrated communication with stakeholders, through which it is possible to organise online events, live demo, training sessions. The Digital Arena was developed in partnership with Acanto, a local web marketing agency, with whom Biesse has a long-lasting business relationship. The role of Biesse IT department in these projects was crucial, in the light of its strong technical competences allowing the company to undertake internal activities and engage with key providers of digital solutions.

Preliminary discussions, conclusions and limitations of the research. The analysis of the digitalisation projects deployed by Biesse in the last seven years allows us to gain a preliminary understanding of the undertaking of such projects by leading ID firms and of the degree of involvement of local ID actors. The initial key insights are filtered through the three dimensions of the ARA framework (Håkansson & Snehota, 1995).

With regard to the actor dimension, it emerges how DTs-related projects are pushing towards distant-to-the-district contexts through the establishment of formalised relationships with external actors (Hervás-Oliver, 2021; Albors-Garrigos & Hervás-Oliver, 2019; Boschma & Ter Wal, 2007), such as business partners, consultancy agencies, and IT providers. These external actors are chosen in the light of previously established relationships (Havenvid et al., 2017) or for the specific expertise and knowledge on DTs-related projects. In some cases, as in the Plug & Work project, external actors are embedded in the project itself, as Biesse takes part in European projects focussed on innovation of the woodworking sector. At the same time, the formal involvement of few selected local actors takes place through ad hoc activities and formal collaborations (Mersico et al., 2022), as in the case of research activities undertaken in collaboration with local universities, the pilot testing of SOPHIA involving selected local ID firms, or the projects activated with Acanto and Manifattura.

Concerning the activity dimension, the analysis points out an interconnection among the projects implemented: the development of specific skills and knowledge within one project allows subsequent projects to be based on the newly created knowledge and technology (Havenvid et al., 2017). Moreover, inter and intra-organisational activities connected to DTs-related projects can be identified. From an inter-organisational perspective, Biesse shows the effort of a leading firm to develop activities with engaged local actors, such as universities and high schools, with whom a digitalisation-related knowledge dissemination process started. Internally, inter-organisational activities impacted the structure of the company, leading to an organisational reconfiguration (Cenamor et al., 2017).

Finally, in terms of resources, the case of Biesse highlights the need to access both internal and external ones. On the one hand, Biesse collected highly specialised resources from external actors, both close and distant in space, chosen for their particular know-how. On the other hand, building and reinforcing internal resources demonstrated paramount to embarking on and pursuing a digital transformation (Yeow et al., 2018). In Biesse, the leadership of the IT department, its strategic prominent role, and its deep knowledge facilitated the digital transition. The same is true for the Service Innovation Unit in the SOPHIA project that, with the key support of Accenture, developed internal resources related to digitalisation and IIoT, which allowed triggering new projects such as Plug & Work or Smart Connection 4.0.

These preliminary results represent a starting point as the research is still in progress. The future research steps concern further collection of data at the project level and an effort in conceptually developing a link between the digitalisation process and the project level, and the intra and inter-organisational dimensions of the evolution of leading ID firms, with the goal of contributing to the recent debate on digitalisation of IDs/clusters and ID/cluster firms (Bettiol et al., 2020; Albors-Garrigos & Hervás-Oliver, 2019) and more in general on knowledge development and exchange in IDs/clusters (Belussi & Sedita, 2012).

Managerial implications. At the managerial level, the explored case study presents some preliminary insights for industrial firms undertaking a digitalization journey. The adopted ARA framework reveals criticalities and strengthens of adopting DTs in terms of actors, resources, and activities. When considering the former, business relationships assume a crucial role to allow digitalisation projects' realisation; however, firms should be able to activate relationships on a double level, i.e., close and far from the district. Partners should be selected not only based on mutual trust and geographical proximity, but also considering their set of digital knowledge, the ability of growing together, and the potential added value they can bring to the final customer. In relation to activities, managers should demonstrate the ability to simultaneously orchestrate multiple projects with different partners, along with the internal monitoring of organisational activities. Finally, concerning resources, a dual effort of firms is asked in the attempt to successfully develop a digital transition: acquire new resources from the market in a continuous way, and deploy a learning-based approach aimed at internalising such resources with time and experience.

Originality of the paper. This research, though at its preliminary stage, presents elements of originality both in the investigated topic and in the adopted theoretical framework. Indeed, the research topic is original in the aim of exploring the role of leading ID firms in undertaking digitalization processes, with a focus on the link such firms have with the surrounding industrial context. Original is also the adoption of the ARA framework to explore this topic, which allows to highlight implications of digitalisation projects with a detailed and fine-grained lens.

Keywords: *industrial district, leading firm, digitalisation, ARA framework*

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Il diritto all'uguaglianza nelle strategie europee e nazionali. Un'indagine sul livello di allineamento delle cooperative italiane

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Inquadramento della ricerca. L'attenzione ai diritti umani è un tema al centro, da ormai molti anni, delle discussioni dell'Unione Europea. Nel 2012 e, successivamente, nel 2015, l'UE ha adottato il quadro strategico sui diritti umani e la democrazia volto a stabilire principi, obiettivi e priorità, tutti volti a migliorare l'efficacia e la coerenza della politica dell'UE in questi settori. Negli ultimi anni, però, causa l'inasprimento dei conflitti e l'emergere di nuovi rischi, i diritti umani sono stati seriamente messi in discussione. Nel 2020, l'UE ha emanato il nuovo piano d'azione sui diritti umani e la democrazia 2020-2024, che definisce prioritario rafforzare l'impegno dell'Unione a promuovere attivamente l'attuazione a livello globale dei principi guida delle Nazioni Unite su imprese e diritti umani e di altre linee guida internazionali pertinenti, quali le linee guida OCSE destinate alle imprese multinazionali. In questo contesto, nasce la direttiva 2022/2464 (sulla rendicontazione di sostenibilità) sottolinea il dovere di diligenza delle imprese ai fini della sostenibilità che invita le imprese ad attuare processi di attenuazione degli impatti negativi sui diritti umani e degli impatti ambientali negativi, ad integrare la sostenibilità nei loro sistemi di governo e di gestione, e ad inquadrare le decisioni aziendali in termini di diritti umani, impatto climatico e ambientale. All'interno della sfera dei diritti umani, le imprese sono tenute ad adottare una strategia in materia di diritti umani, basandosi sulle norme internazionali esistenti, ossia i Principi Guida delle Nazioni Unite su imprese e diritti umani, e la norma OCSE in materia di condotta d'impresa responsabile.

Tra i diritti umani, il diritto all'uguaglianza (Titolo III della Carta dei diritti fondamentali dell'EU / Art. 3 della Costituzione) merita particolare attenzione. Si parla di uguaglianza quando ci si riferisce, tra le altre, alla non discriminazione, in tutte le sue forme, alla diversità culturale, religiosa e linguistica, ai diritti del minore e degli anziani, alla parità tra donne e uomini, e all'inserimento delle persone con disabilità. La rilevanza di questi temi è provata anche dal loro inserimento sia all'interno del PNRR (Piano Nazionale di Ripresa e Resilienza) del 2021, che denomina la missione M5 "inclusione e coesione", sia nell'Agenda 2030 dove il tema dell'uguaglianza è fortemente presente. Citiamo, ad esempio, l'SDG 5, che si pone come obiettivo quello di raggiungere l'uguaglianza di genere, l'SDG 8, che punta ad ottenere una crescita economica inclusiva, garantendo un lavoro dignitoso per tutti, o l'SDG 10, che mira a ridurre la disparità nei redditi e nelle opportunità, promuovendo l'inclusione sociale, economica e politica di tutti. Se si sposta l'attenzione a livello italiano, l'inquadramento legislativo è complesso e in continuo aggiornamento. Citiamo, oltre alla sopracitata Costituzione, la legge 125/1991 sulle pari opportunità e azioni positive, il Codice delle Pari Opportunità (D.Lgs. 198/2006) e la legge 162/2021, che aggiorna tale codice. Infine, la UNI PDR 125:2022, la prassi di riferimento che definisce le linee guida sul sistema di gestione per la parità di genere.

Da questa premessa normativa emerge, quanto più, che, per quanto riguarda il diritto all'uguaglianza e, più in generale, i diritti umani, i diversi attori si trovano di fronte una spinta istituzionale significativa (Di Maggio and Powell, 1983; Scott, 1987; Scott, 2008). Qualsiasi sia la sua declinazione, per il suo raggiungimento, le imprese, sappiamo, hanno un ruolo fondamentale. Esse, quale strumento principale per la creazione di posti di lavoro, dovrebbero offrire condizioni lavorative dignitose attraverso tutta la catena del valore, soprattutto per i gruppi svantaggiati, ridistribuendo in modo più equo gli stipendi fra i propri dipendenti. Esse sono anche chiamate ad adottare politiche interne e procedimenti che garantiscano gli stessi diritti ed opportunità lavorative alle donne rispetto alla componente maschile, e ad investire esternamente in programmi di emancipazione economica per donne e ragazze, incentivando così la crescita economica e lo sviluppo sociale. Sebbene ci sia ancora molto da fare, le imprese stanno adottando sempre più questo orientamento strategico. Esistono però società che hanno, per natura, un fine mutualistico e non lucrativo: le società cooperative. Una "cooperativa" è un'organizzazione incentrata sulle persone che, fornendo beni e servizi, genera profitti (Heras-Saizarbitoria, 2014). Secondo i principi cooperativi a cui questo tipo di

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organizzazioni devono aderire e promulgati dall'Alleanza Internazionale delle Cooperative (ICA), le cooperative si caratterizzano per natura per controllo democratico da parte dei soci e per una libera adesione (senza alcuna discriminazione sessuale, sociale, razziale, politica e religiosa) da parte di tutti coloro che sono aperti alle responsabilità che tale adesione comporta. Le cooperative dovrebbero, secondo i principi ICA, investire anche nell'istruzione e nella formazione per i loro membri, consentendo di contribuire in modo più efficace allo sviluppo sostenibile dell'organizzazione. Le cooperative tendono, quindi, naturalmente ad operare per lo sviluppo sostenibile delle loro comunità (Giagnocavo; 2011). In questo senso, il naturale orientamento alla sostenibilità dovrebbe sottendere una attenzione e un impegno verso la dimensione sociale della stessa.

Obiettivo del paper. Obiettivo del paper è comprendere quale sia la situazione attuale e quali sono gli orientamenti delle cooperative rispetto alle tematiche dei diritti umani e, in particolare, del diritto all'uguaglianza. Attraverso una ricerca esplorativa condotta su 1744 cooperative, lo studio risponde alle seguenti domande di ricerca: cosa stanno facendo le cooperative italiane per garantire il diritto di uguaglianza? Quali sono i margini di miglioramento?

Dato il forte orientamento sociale di questi attori, è fondamentale poter fare una ampia riflessione su come il sistema cooperativo si stia muovendo nei confronti delle sfide della sostenibilità e delle varie trasformazioni ad esse associate. L'Italia vuole pienamente allinearsi a questa visione strategica (della direttiva sopracitata, delle linee guida OCSE, ecc.), perché tale prospettiva costituisce un'opportunità per riallineare la ripresa e i nostri percorsi di crescita al quadro europeo. Le imprese sono chiamate ad essere protagoniste di questa evoluzione e, tra di esse, c'è ampio spazio per il sistema delle cooperative, da sempre orientato ad un'economia solidale e sostenibile. Il paper vuole quindi: (1) fornire un assessment sullo stato attuale delle cooperative dal punto di vista della sostenibilità sociale, letta attraverso la dimensione del diritto all'uguaglianza, (2) affermarsi come una guida per tutte quelle cooperative che non hanno ancora declinato il proprio contributo al tema e (3) mostrare al sistema cooperativo i propri margini di miglioramento in termini di diritto all'uguaglianza e, più in generale, di impegno verso la sostenibilità sociale.

Metodologia. Per rispondere agli obiettivi sopracitati, è stata svolta un'indagine di tipo quali-quantitativo che ha visto la somministrazione di un questionario. Il campione delle cooperative di riferimento è stato individuato cercando di raggiungere più realtà possibili. Per questo motivo, è stata individuata la Confederazione Cooperative Italiane (Confcooperative), la principale organizzazione di rappresentanza del mondo cooperativo e delle imprese sociali italiane. Confcooperative ha, da anni, in atto un percorso strategico nel campo della sostenibilità che sta progressivamente diventando più profondo e capillare, e che mira ad orientare e supportare le cooperative e imprese aderenti. Il questionario (Appendice), utilizzato per indagare come le cooperative si stiano muovendo nei confronti della sostenibilità, è stato articolato in 3 macro sezioni: (i) intergenerazionalità e parità di genere; (ii) lavoro dignitoso e welfare; (iii) impegno per l'inclusione e la parità. Al fine di indagare in profondità la situazione attuale delle cooperative rispetto alle tematiche dei diritti umani analizzate nella ricerca, nella terza sezione, si è inclusa una domanda a risposta aperta, così da permettere un'analisi di tipo qualitativo.

Il questionario è stato pre-testato con il supporto di tre cooperative, di diverse dimensioni. Questo ha permesso di ottenere un feedback sulla completezza del questionario e quindi di riscrivere le domande se necessario per evitare eventuali discrepanze. Il questionario è stato somministrato nel 2020 e le risposte sono state raccolte attraverso una piattaforma online. L'anonimato degli intervistati è stato garantito, come consigliato da Nederhof (1985). Il questionario è stato somministrato a 13.789 cooperative e imprese sociali. Complessivamente, 1.744 hanno fornito risposte complete al questionario, con un tasso di risposta pari al 13%. Osservando la dimensione dei rispondenti, il campione è rappresentato dal 4% di cooperative di grandi dimensioni¹, dall'81% di piccole e di medie dimensioni² e dal 15% di micro³.

Allo scopo della ricerca è quindi stata quindi condotta una prima analisi sulle domande a risposta chiusa che consentisse di fornire un overview del contesto cooperativo in Italia. Una seconda analisi si è focalizzata sui contenuti della domanda a risposta aperta allo scopo di scendere nel dettaglio dei progetti e delle iniziative che le cooperative identificano come prioritari rispetto al diritto all'uguaglianza. Secondo un approccio induttivo, i ricercatori hanno quindi individuato gruppi di iniziative omogenee e le hanno classificate in categorie allo scopo di dettagliare i contenuti scoprendone obiettivi, attori chiave, destinatari o beneficiari e strumenti adottati.

I risultati che seguono, in questo senso, forniscono una lettura quali-quantitativa del fenomeno indagato.

Risultati. I risultati che seguono presentano il dettaglio dello stato della situazione delle cooperative italiane rispetto al diritto all'uguaglianza. Questa prima parte permette di delineare il reale quadro di implementazione di pratiche e azioni, attuali e future, relative al raggiungimento di tali diritti.

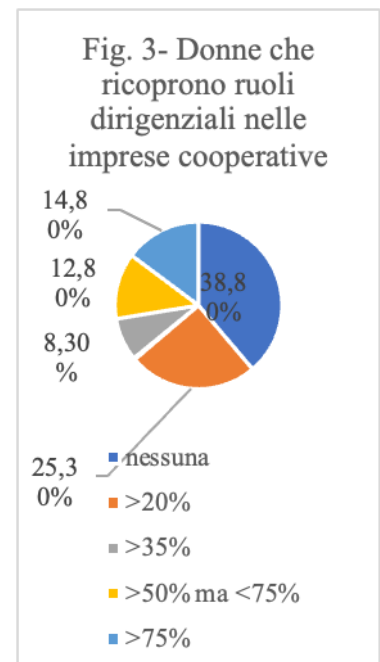
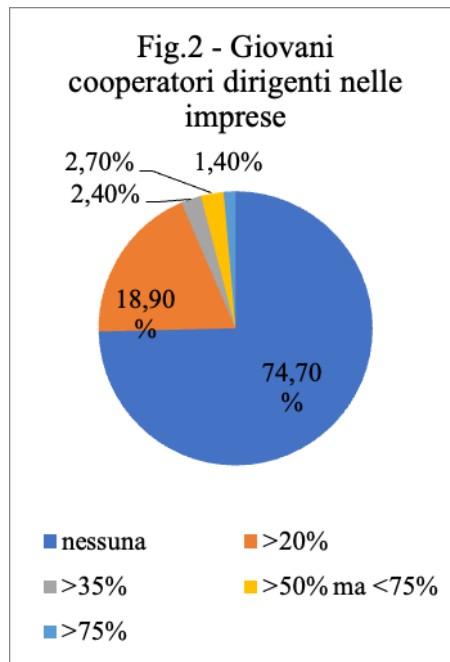
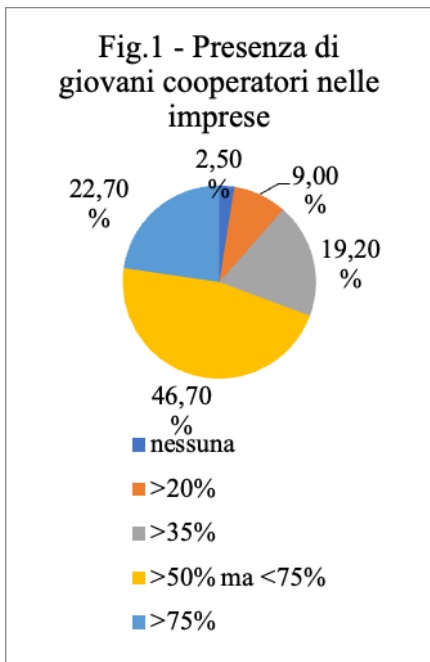
In primis, l'inclusione e la valorizzazione dei giovani e delle donne è un tema cruciale. Come si evince dalla figura 1, le cooperative con una significativa componente giovanile sono solamente il 2,5%. All'estremo opposto, quasi il 23% del campione dichiara di non avere giovani. Con riferimento al numero di giovani che occupano posizioni dirigenziali, in $\frac{3}{4}$ delle cooperative non vi è nessuna figura (Figura 2). Questo trend cambia quando si guarda al numero di donne

¹ Occupano oltre 250 occupanti, il cui fatturato annuo supera i 50 milioni di euro oppure il cui totale di bilancio annuo supera i 43 milioni di euro

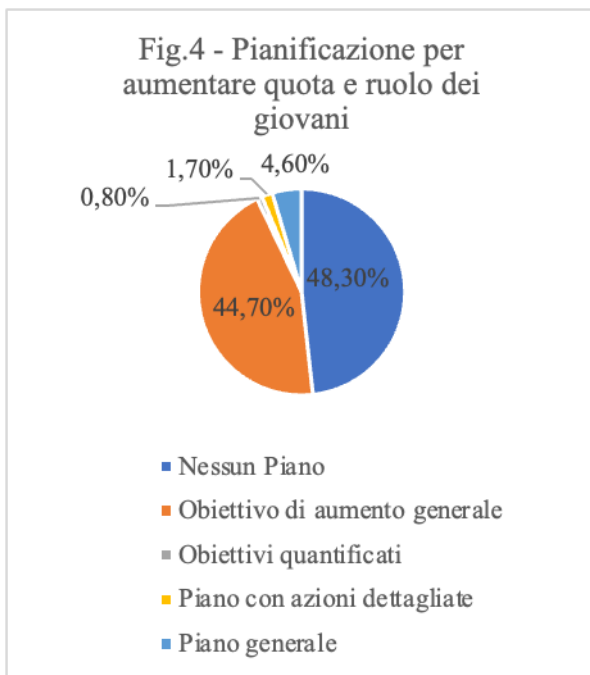
² occupano meno di 250 persone, il cui fatturato annuo non supera i 50 milioni di EUR oppure il cui totale di bilancio annuo non supera i 43 milioni di euro

³ occupano meno di 10 persone, il cui fatturato annuo non supera i 2 milioni di EUR oppure il cui totale di bilancio annuo non supera i 2 milioni di euro

dirigenti, con un 27,6% delle cooperative in cui vi è una prevalenza di tali figure e con un 14,8% che arriva ad averne più dei ¾. Anche in questo caso, la classe prevalente, rimane comunque quella in cui non vi è nessuna donna dirigente (Figura 3).

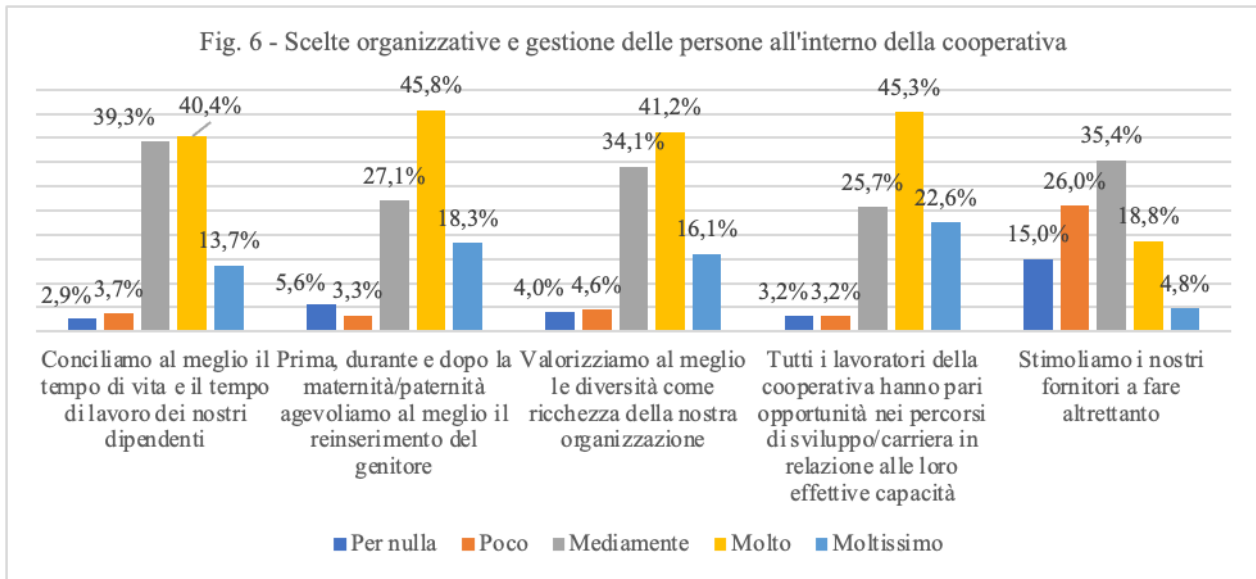


A questi dati che fotografano la situazione delle cooperative, se ne aggiungono alcuni di pianificazione (Figura 4 e 5). L'individuazione di obiettivi di aumento generale di queste componenti è più diffusa: se nel caso dei giovani, arriva fino al 44,7%, nel caso della parità di genere è leggermente inferiore, con un 35,5%.



Il lavoro dignitoso è un altro tema rilevante con riferimento all'uguaglianza. Tra le varie domande poste nella seconda sezione del questionario, merita attenzione quella relativa alle scelte organizzative e alla gestione delle persone all'interno della cooperativa e della catena di fornitura. Si ricorda, a tal proposito, che la direttiva 2022/2464 sottolinea l'importanza dell'attenzione al rispetto dei diritti umani secondo una prospettiva sia interna che esterna all'organizzazione. Come si evince dalla figura 6, c'è una forte attenzione delle cooperative con riferimento alla dimensione interna. Se il 40,4% del campione (705 cooperative) dichiara di essere molto attento a sviluppare un corretto work-life balance per i dipendenti, il 45,8% si impegna molto nella gestione della maternità/paternità, e il 41,2% è attento nel valorizzare le diversità all'interno della cooperativa, facendone un punto di forza. I dati mostrano, però, che questo livello interno di attenzione non è pari per quanto riguarda la dimensione esterna: solamente il 4,8%,

84 cooperative su 1744, afferma di stimolare i fornitori ad un'etica gestione dei lavoratori. Una quota significativa, il 41%, dichiara invece di non farlo per nulla o poco. È forte quindi il segnale di come l'impegno alla gestione delle risorse umane, che appare ancora circoscritto all'interno cooperativa stessa, sia da estendere alle rispettive sfere di influenza, cominciando dalla catena di fornitura.



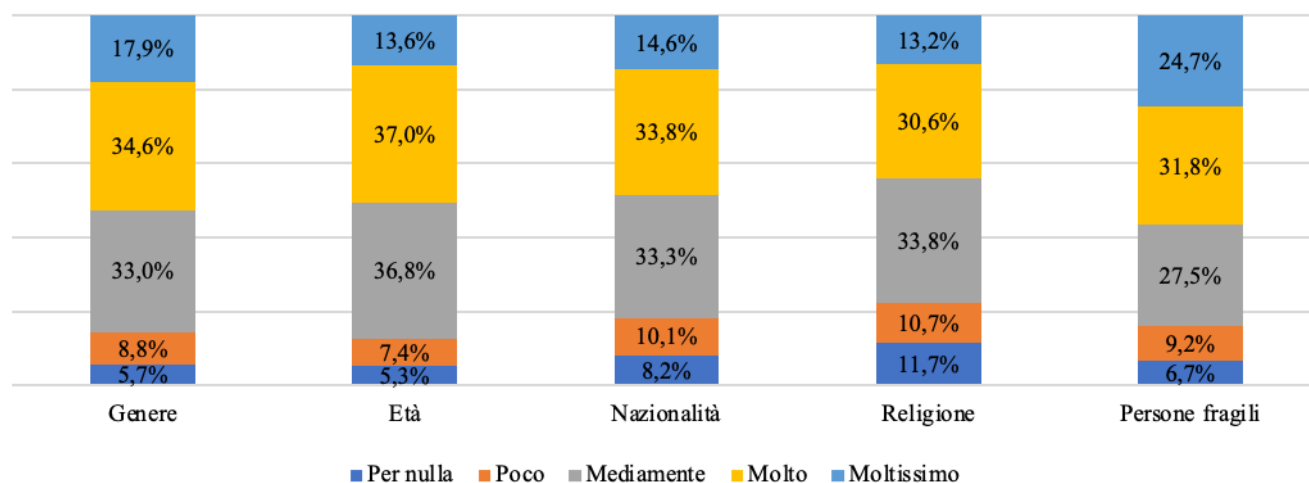
Con riferimento alla terza sezione del questionario, emergono situazioni interessanti. Per quanto riguarda la parità di genere, al fine di capire nel dettaglio il significato attribuito a tale diritto dalle cooperative, si è chiesto se ci fossero dei piani specifici per migliorarne la qualità. La tabella 1 mostra che, per tutti i piani quali, ad esempio, la parità nei processi decisionali, o la sensibilizzazione e formazione del personale rispetto a tali tematiche, la maggioranza del campione dichiara di avere un impegno nella media. Tra le iniziative indagate, merita attenzione quella relativa alla conciliazione degli impegni lavorativi con la vita privati, con il 36,9% e il 17,1% di cooperative che dichiarano un impegno, rispettivamente, forte e fortissimo.

Tab. 1: Avete dei piani specifici per migliorare la parità di genere. Indicare con quale informazione siete d'accordo con le seguenti affermazioni

	Per nulla	Poco	Mediamente	Molto	Moltissimo	Totale
Pari opportunità nel processo decisionale relativo alle posizioni lavorative messe a concorso	14,5%	10,1%	32,2%	28,3%	14,9%	100%
Promozione delle pari opportunità nello sviluppo professionale	9,2%	8,4%	31,8%	33,5%	17,1%	100%
Organizzazione del lavoro orientata a favorire la conciliazione tra gli impegni professionali e la vita privata	7,5%	6,7%	31,7%	36,9%	17,4%	100%
Individuazione dei fenomeni di violenza di genere all'interno dell'organizzazione con messa in mora dei responsabili e tutela delle vittime	18,2%	10,0%	25,6%	27,7%	18,5%	100%
Sensibilizzazione di tutto il personale relativamente ai temi delle pari opportunità	12,7%	11,5%	32,3%	28,1%	15,4%	100%

Focalizzandosi sull'inclusione e la parità – sull'uguaglianza – in termini più ampi, ed in linea con le domande della sezione 2, è stato chiesto al campione, che livello di impegno avesse la loro cooperativa in termini di valorizzazione delle diversità. I risultati (Figura 7) mostrano come, in aggiunta alla parità di genere, le cooperative dichiarano di impegnarsi molto (31,8%) e moltissimo (24,7%) nell'inclusione delle persone fragili. In generale, si può affermare che emerge una significativa volontà delle cooperative di essere attente a questi temi con circa l'80% delle cooperative che dimostra di impegnarsi, almeno mediamente, in tutte le categorie.

Fig.7 - L'impegno della cooperativa in termini di valorizzazione della sostenibilità



Per comprendere più in profondità come le cooperative si impegnano per il raggiungimento del diritto all'uguaglianza, in tutte le sue forme, sono state raccolte le descrizioni di alcune iniziative di inclusione e di pari opportunità svolte dalle cooperative. L'analisi condotta ha consentito di individuare l'insieme delle azioni attraverso cui le cooperative gestiscono e valorizzano le disuguaglianze. L'analisi ha portato in particolare all'identificazione di due principali categorie di azioni, quali quelle relative alla (1) dimensione organizzativa interna e alla (2) dimensione sociale esterna. Tali categorie identificano la capacità della cooperativa di impattare all'interno o all'esterno della propria organizzazione.

Per ognuna delle due dimensioni sono quindi stati individuati due livelli di sub-categorie di cui il primo finalizzato ad identificare i temi di azione ed il secondo finalizzato ad identificare le singole azioni implementate (fig. 8).

LA DIMENSIONE ORGANIZZATIVA INTERNA

Oltre il 50% delle azioni mappate afferiscono alla dimensione organizzativa dell'impresa e sono relative ai temi "parità", "governance" e "flessibilità".

La parità

Il diritto è l'uguaglianza è stato individuato da alcune cooperative in una parità letta a 360° senza distinzione o priorità tra le diversità legate al sesso, la razza, l'orientamento sessuale o religioso e la cultura. La parità è stata definita embedded ovvero pienamente incorporata nei principi e nel modus operandi della cooperativa. In questo senso non è stato identificato nessun particolare progetto finalizzato a tutelare la parità perché già pienamente integrata a livello organizzativo:

"Dovendo organizzare il comparto delle risorse umane secondo criteri di titoli richiesti dagli accreditamenti,

l'unico elemento che gioca a favore o sfavore di una nuova assunzione è il possesso dei requisiti richiesti, il sesso, l'orientamento sessuale, la religione e la provenienza non hanno mai costituito un elemento di scelta e men che meno di discriminare"

(Cooperativa di medie dimensioni attiva nel settore sociale)

Altre cooperative che hanno interpretato il diritto all'uguaglianza attraverso un concetto di parità generalizzato, hanno invece dichiarato di utilizzare l'organizzazione di eventi, seminari e momenti di formazione e sensibilizzazione come strumenti per aumentare la consapevolezza dei propri dipendenti sui temi della diversità e per facilitare la gestione della stessa nella loro organizzazione, in particolare:

"Organizziamo corsi di formazione interni con cadenza bimestrale su temi relativi a tecniche di gestione dei conflitti e delle obiezioni, a tecniche di comunicazione efficace e alla promozione del dialogo interculturale"

(Cooperativa di medie dimensioni attiva nel settore della formazione)

La governance

All'interno della dimensione organizzativa alcune cooperative hanno identificato nel modello di governance adottato la propria strategia per gestire e valorizzare le disuguaglianze presenti. L'adesione ai principi dello standard

SA 8000 relativo al rispetto dei diritti umani universalmente riconosciuti è stato più volte identificato come strumento e come garanzia della propria attenzione e rispetto delle disuguaglianze:

“La cooperativa è certificata SA8000 dal 2012 ed è molto attenta all'inclusione e alle pari opportunità e più precisamente; nell'accesso al lavoro; nella retribuzione; nelle prestazioni lavorative e nella carriera”

(Cooperativa di medie dimensioni attiva nel settore della salute)

All'interno delle imprese che hanno identificato nel proprio modello di governance la strategia per la gestione delle disuguaglianze, alcune hanno parlato di processi decisionali condivisi. In particolare il coinvolgimento di tutti i dipendenti costituisce l'elemento di forza di questo gruppo di cooperative. Il processo decisionale descritto può considerare la partecipazione di tutti i dipendenti al CdA (dichiarato soprattutto dalle piccole cooperative) o può essere il risultato di un esercizio di ascolto costante dei propri dipendenti allo scopo di includere tutte le prospettive dell'organizzazione:

“Ogni settimana Presidente e vicepresidente dedicano un'ora ai singoli dipendenti per richieste o altro, una volta al mese viene organizzata la riunione con tutti i dipendenti per aggiornarli sulla situazione della cooperativa, infine le assemblee per il bilancio sociale sono aperte a tutti”

(Cooperativa di piccole dimensioni attiva nella cura degli spazi verdi)

Flessibilità

La flessibilità lavorativa è lo strumento attraverso cui le cooperative principalmente assicurano che le singole esigenze legate alla “diversità” siano rispettate e che i propri dipendenti non siano esclusi per una rigidità strutturale. Le cooperative individuano due principali tipologie di esigenze che portano i dipendenti a chiedere variazioni sull'organizzazione ordinaria del lavoro. Le esigenze familiari quali nuove nascite, cura dei propri cari o di altro tipo portano i dipendenti a riorganizzare la propria vita lavorativa e la flessibilità garantita dalla cooperativa consente di annullare le differenze e continuare a svolgere il proprio operato in linea con nuove esigenze:

“In caso di maternità si mettono in atto tutte le modalità che possano agevolare il rapporto lavoro e famiglia”

(Cooperativa di medie dimensioni attiva nel settore agricolo)

La flessibilità lavorativa tutela le differenze anche quando sono legate a temporanee o minoritarie esigenze culturali. Le cooperative assicurano il rispetto delle diversità attraverso la ri-modulazione di orari e turni durante il periodo di ramadam, l'attenzione alle abitudini alimentari dei vari gruppi religiosi allo scopo di rendere i pasti un momento di aggregazione per tutti e la possibilità di indossare l'abbigliamento che rende a proprio agio i dipendenti:

“Nella RSA di un ente religioso cattolico lavora una operatrice musulmana con velo. A volte ciò è difficilmente accettato per il retaggio culturale degli assistiti anziani del territorio”

(Cooperativa di medie dimensioni attiva nei servizi socio-assistenziali)

Empowerment

Le iniziative di empowerment messi in piedi dalla cooperativa per includere giovani, fragili e donne passano attraverso processi finalizzati a potenziare il capitale umano attraverso una formazione mirata o attraverso l'inserimento lavorativo, all'interno della propria organizzazione, di soggetti fuori dal mercato del lavoro.

I processi di formazione finalizzati alla crescita professionale sono rivolti, la gran parte delle volte, a personale strutturato della cooperativa. Lo strumento di formazione è utilizzato come strategia per aumentare la responsabilità a giovani dipendenti che non hanno ancora compreso il proprio potenziale o a donne al rientro dalla maternità:

“viene stimolato in ogni dipendente, di tutti i generi, la possibilità di acquisire nuove competenze. In particolare, il Cda propone iniziative di formazione volte a dare incarichi e responsabilità a giovani e donne”

(Cooperativa di medie dimensioni attiva nei servizi ambientali)

Altre iniziative di empowerment sempre rivolte alla dimensione interna della cooperativa riguardano l'assunzione di nuovo personale a valle di processi di formazione mirati. I soggetti destinatari di tali percorsi formativi sono principalmente quelli identificati come fragili perché appartenenti a categorie socialmente emarginate quali extra-comunitari, ex-detenuati, ex-dipendenti o donne che hanno subito violenza. La definizione dei processi di formazione parte da attività di assessment finalizzate a potenziare i soggetti individuati:

“la cooperativa preferisce avvalersi dell'impiego di mediatori culturali per individuare la formazione necessaria all'inserimento lavorativo”

(Cooperativa di grandi dimensioni attiva nei servizi di pulizia)

DIMENSIONE SOCIALE ESTERNA

Il 45% delle azioni mappate ha la capacità di fornire un contributo alla promozione e gestione delle diversità all'esterno del contesto cooperativo. Tali azioni sono state raggruppate in tre aree omogenee quali: “partnership”, “servizi offerti” ed “empowerment”

Partnership

Le cooperative hanno individuato tra i progetti speciali finalizzati a promuovere, gestire e valorizzare l'inclusione, l'importanza delle partnership con attori o reti locali che hanno potenziato la loro singola capacità di azione. I progetti presentati hanno mostrato attenzione ai più vari temi, ma soprattutto hanno messo in luce l'importanza di alcuni attori locali che sono stati individuati in modo trasversale da tutte le cooperative. In particolare sono stati individuati: servizi sociali, le comunità montane, gli enti amministrativi comunali, le agenzie di mediazione, le imprese private, enti di ricerca, sindacati, enti amministrativi regionali, scuole e la Commissione Europea.

Tra i progetti finalizzati all'inserimento lavorativo di soggetti fragili presso enti, organizzazioni o realtà diverse dalla cooperativa vengono spesso individuate capacità artigianali che consentono l'indipendenza economica di chi ne prende parte e vengono stimulate iniziative imprenditoriali:

“Insieme ad una impresa locale abbiamo avviato l'inserimento lavorativo di donne fragili in progetto di circolarità e laboratorio sartoriale”

(Cooperativa di medie dimensioni attiva nel settore della formazione)

Altre partnership sono state indicate come funzionali per lo sviluppo di progetti di inclusione sociale finalizzati ad avvicinare la comunità di cittadini ad un gruppo minoritario di diversa etnia, a promuovere i diritti LGBT, a favorire la comunicazione tra soggetti provenienti da diverse aree del mondo o lo sviluppo del linguaggio:

“lavoriamo con le scuole per creare prodotti che rendano accessibile l'informazione e la lettura per l'infanzia, pensati soprattutto per bambini con difficoltà di comunicazione e bambini stranieri”

(Cooperativa di piccole dimensioni attiva nel settore della comunicazione)

Servizi offerti

Il gruppo di iniziative identificate all'interno della voce servizi offerti fa principalmente riferimento all'organizzazione di eventi finalizzati all'inclusione sociale o alla sensibilizzazione su tematiche specifiche destinati alle comunità di cittadini su cui la cooperativa opera.

Tra gli eventi di inclusione sociale è importante il riferimento di molte cooperative al tema della disabilità. La cultura e gli spettacoli sono spesso il veicolo attraverso cui il messaggio di uguaglianza è trasferito alle comunità.

Gli eventi organizzati possono portare alla trattazione di più argomenti che caratterizzano la diversità e l'esclusione sociale:

“lo spettacolo è focalizzato sul tema degli stermini razziali. Attraverso il linguaggio della danza e della recitazione, attori e ballerini professionisti si esibiscono a fianco di comparse composte da persone fragili e l'obiettivo del progetto è quello di portare avanti valori e conoscenze pulite”

(Cooperativa di piccole dimensioni attiva nel settore della cultura)

Allo stesso modo le cooperative hanno indicato l'adesione e l'organizzazione di giornate focalizzate sulla sensibilizzazione delle comunità su temi specifici relativi alle diversità:

“abbiamo organizzato una giornata di sensibilizzazione promossa per i soci e aperta al pubblico in collaborazione con altre realtà del Terzo Settore del territorio di riferimento sul tema dell'inclusione con animazione, giochi e attività”

(Cooperativa di medie dimensioni attiva nel settore culturale)

Empowerment

L'empowerment, raccontato dalle cooperative, attraverso le proprie iniziative finalizzate ad avere un impatto all'esterno della propria organizzazione, è fortemente legato al concetto di formazione. Gran parte delle iniziative di formazione ha lo scopo di potenziare gli individui fragili (donne vittime di violenza, donne con minori a carico, migranti, ...) per renderli più sicuri di loro stessi (corsi di autodifesa) o per renderli idonei al mercato del lavoro. Questi tipi di percorso si caratterizzano per una minore strutturazione del processo; non vi è quindi un diretto e certo inserimento lavorativo:

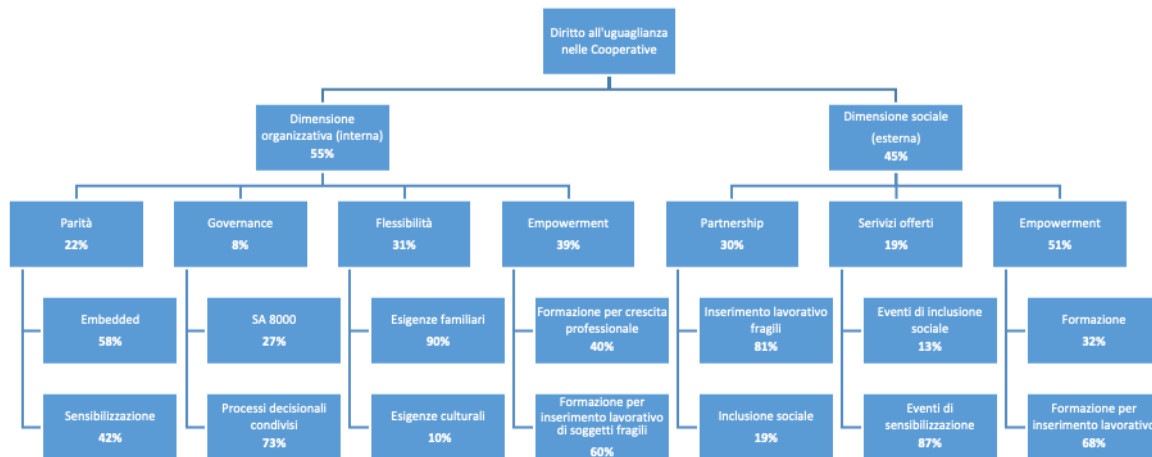
“Effettuiamo corsi di formazione professionale finalizzati anche all'inclusione di giovani e ragazzi/e in condizioni di svantaggio sociale, anche segnalati dai servizi sociali istituzionali” (Cooperativa di piccole dimensioni attiva nel settore della formazione)

La formazione finalizzata all'inserimento lavorativo in contesti esterni alla cooperativa invece si basa sulla definizione di percorsi di formazione concordati che mirano a rendere il soggetto fragile formato per uno specifico tipo di mansione:

“forniamo corsi di formazione in olivicoltura, sartoria, cameriere di sala ed agricoltura rivolti a soggetti svantaggiati con inserimento lavorativo nelle aziende del territorio”

(Cooperativa di piccole dimensioni attiva nel settore dell'agricoltura)

Figura 8 - I risultati



Limiti della ricerca. L'analisi condotta presenta dei limiti che costituiscono spunti e obiettivi per il miglioramento della ricerca.

In primo luogo, metodologicamente, la costruzione del questionario ha risposto maggiormente a logiche di indagine investigativa finalizzata a preparare il terreno ad una più strutturata ricerca. In questo senso, sul breve periodo è prevista una analisi più dettagliata e metodologicamente strutturata della ricerca.

L'analisi ha inoltre preso in considerazione una sola confederazione di cooperative. L'analisi comparata dei risultati mostrati con altre confederazioni di cooperative potrebbe fornire risultati interessanti. È infatti opportuno sottolineare che le confederazioni sono il risultato di un processo storico e culturale di adesione di cooperative che sponano una specifica linea politica. In questo senso non è da escludere che altre unioni di cooperative possano essersi orientate su iniziative e progetti differenti.

Infine, un'altra criticità è legata al numero di fonti analizzate. La ricerca è attualmente priva di una triangolazione di dati che potrebbe rafforzare il quadro disegnato. L'analisi dei sistemi di reportistica redatti, dei canali web e social delle singole cooperative, e ulteriori informazioni raccolte per mezzo intervista, potrebbero integrare e completare il quadro in modo più esaustivo.

Implicazioni manageriali. Le implicazioni manageriali che possono essere dedotte dall'analisi condotta sono principalmente applicabili al mondo cooperativo o possono fornire una guida per la definizione di policy CSR di altre tipologie di imprese.

In un contesto italiano, ma soprattutto, europeo, in continua evoluzione per quanto riguarda queste tematiche e le normative sul tema, le cooperative potrebbero aver bisogno di un quadro di riferimento più chiaro e di "spunti" pratici da chi ha già avviato il proprio percorso. L'introduzione di iniziative di questo tipo può costituire un processo di miglioramento che, se monitorato, può costituire un tema importante per la comunicazione verso l'esterno e per la rendicontazione del proprio impegno. Il sample analizzato suggerisce che le cooperative, e più in generale le organizzazioni, possono fare molto, sia nella dimensione organizzativa sia in quella sociale, per fornire il proprio contributo.

La ricerca mostra come l'attenzione ai temi dell'uguaglianza necessiti sia una integrazione formale e formalizzata all'interno dei propri sistemi di governance, anche stravolgendoli, sia della creazione di reti territoriali con altri partner strategici attivi sui temi o che possano fungere da facilitatori. In quest'ottica, i dati informano che le azioni messe in campo nella dimensione interna sono più numerose rispetto a quelle nella dimensione esterna. Questo elemento prova, da un lato, la scarsa consapevolezza del proprio potenziale impatto sull'esterno e, dall'altro l'adeguatezza dei piani d'azione europei in materia di diritti umani, che invitano gli attori ad agire lungo tutta la catena di fornitura e non "limitare" le azioni all'interno dei loro confini. Pertanto, se lo studio dimostra che le cooperative si stanno organizzando per allinearsi a questa visione, solo poco più del 20% dichiara un impegno forte o fortissimo (fig.6). Le azioni descritte vogliono essere un primo spunto di riflessione per i manager e soci che mirano all'implementazione di un percorso strategico rispettoso dei diritti umani.

Originalità del paper. Il significativo numero di risposte ottenute con il questionario costituisce un elemento distintivo della ricerca, permettendo di delineare un quadro esaustivo del contesto cooperativo e mettendo in luce l'interesse delle cooperative a partecipare ad indagini mirate sul tema.

Inoltre, secondo la conoscenza degli autori sono pochi o assenti i contributi scientifici che analizzano in modo qualitativo, su così larga scala, le iniziative e le pratiche adottate dalle cooperative sul tema.

Molte cooperative infatti individuano la piccola dimensione (in realtà spesso superiore ai 10 dipendenti) nella causa di una mancanza o carenza di iniziative.

In linea generale, sono molteplici i contesti pubblici e privati che possono focalizzare l'attenzione sui temi dell'uguaglianza anche, semplicemente, ripensando la modalità di erogazione dei propri servizi o di gestire il proprio core-business. Le organizzazioni dovrebbero considerare la capacità di contribuire al tema attraverso specifiche

azioni, e, ove possibile, attraverso la formalizzazione di routine in grado di integrare in modo ufficiale e sistematico tali impegni.

Le azioni individuate sono infatti troppo spesso il risultato di processi informali che rischiano di perdersi in periodi di crisi, di contrazione della cooperativa o dell'organizzazione o nel momento di un cambio dei vertici aziendali. L'assenza di una formalizzazione, rende ancora più rari i casi in cui tali iniziative sono monitorate nel loro impatto, interno ed esterno. L'applicazione di sistemi di monitoraggio, anche non strettamente connessi alle iniziative implementate, potrà contribuire alla loro potenziale crescita.

Parole chiave: uguaglianza; inclusione; sistema cooperativo; diritti umani.

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Appendice

Questionario.

SEZIONE 1. INTERGENERAZIONALITÀ E PARITÀ DI GENERE.

- A) Quanti sono i giovani (under 35) che oggi lavorano nella cooperativa (%)
- Non sono presenti under 35
 - La presenza di under 35 non è prevalente ma è comunque rilevante (>20%)
 - La presenza di under 35 non è prevalente ma è comunque molto rilevante (>35%)
 - La presenza di under 35 è prevalente (>50% ma <75%)
 - La presenza di under 35 è fortemente maggioritaria (>75%)
- B) Quanti di loro hanno un ruolo dirigenziale (% su ruoli chiave)
- Nessuno
 - >20%
 - >35%
 - >50% ma <75%
 - >75%
- C) Quante sono le donne che ricoprono ruoli dirigenziali (% su ruoli chiave)
- Nessuno
 - >20%
 - >35%
 - >50% ma <75%
 - >75%
- D) Avete obiettivi e piani per aumentare la quota di giovani e/o di donne
- Quota giovani
- Nessun Piano
 - Obiettivo di aumento generale
 - Obiettivo quantificato
 - Piano generale
 - Piano con azioni dettagliate
- Quota donne
- Nessun Piano
 - Obiettivo di aumento generale
 - Obiettivo quantificato
 - Piano generale
 - Piano con azioni dettagliate

SEZIONE 2: LAVORO DIGNITOSO E WELFARE

- A) La cooperativa ha messo in campo specifici programmi per migliorare la qualità del lavoro dei propri dipendenti
- Nulla di specifico
 - Impegno generale
 - Programmi soprattutto connessi alla pandemia
 - Abbiamo da sempre programmi specifici
 - Programmi specifici di cui verifichiamo l'impatto
- B) Quanto misurate la soddisfazione dei vostri lavoratori
- Nessuna misurazione
 - Misurazioni qualitative e sporadiche
 - Misurazioni quali/quantitative non sistematiche
 - Misurazioni sistematiche quali/quantitative
 - Svolgiamo indagini di clima periodicamente
- C) Con riferimento alle scelte organizzative e alla gestione delle persone all'interno della vostra cooperativa e nella gestione della catena di fornitura siete d'accordo con le seguenti affermazioni?
- Conciliamo al meglio il tempo di vita e il tempo di lavoro dei nostri dipendenti
- Per nulla
 - Poco
 - Mediamente
 - Molto
 - Moltissimo
- Prima, durante e dopo la maternità/paternità agevoliamo al meglio il reinserimento del genitore
- Per nulla
 - Poco
 - Mediamente
 - Molto
 - Moltissimo
- Valorizziamo al meglio le diversità come ricchezza della nostra organizzazione
- Per nulla
 - Poco
 - Mediamente
 - Molto
 - Moltissimo
- Tutti i lavoratori della cooperativa hanno pari opportunità nei percorsi di sviluppo/cARRIERA in relazione alle loro effettive capacità

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Stimoliamo i nostri fornitori a fare altrettanto

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

D) Con riferimento al welfare aziendale all'interno della vostra cooperativa con quale affermazione siete d'accordo?

Esiste una policy di welfare aziendale?

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

I dipendenti possono disporre di un pacchetto di benefit sociosanitari

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Esistono spazi dedicati al benessere personale (palestra biblioteca, spazi collettivi)

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Esiste un asilo nido

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Vengono incentivate forme di volontariato aziendale

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

SEZIONE 3. IMPEGNO PER L'INCLUSIONE E LA PARITÀ

A) Quanto reputate che la vostra cooperativa si impegni in termini di valorizzazione delle diversità

Genere

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Età

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Nazionalità

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Religione

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Persone fragili

- Per nulla

- Poco
- Mediamente
- Molto
- Moltissimo

B) Avete dei piani specifici per migliorare la parità di genere. Indicare con quale informazione siete d'accordo con le seguenti affermazioni:

Pari opportunità nel processo decisionale relativo alle posizioni lavorative messe a concorso

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Promozione delle pari opportunità nello sviluppo professionale

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Organizzazione del lavoro orientata a favorire la conciliazione tra gli impegni professionali e la vita privata

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Individuazione dei fenomeni di violenza di genere all'interno dell'organizzazione con messa in mora dei responsabili e tutela delle vittime

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

Sensibilizzazione di tutto il personale relativamente ai temi delle pari opportunità

- Per nulla
- Poco
- Mediamente
- Molto
- Moltissimo

C) Indicare brevemente un'iniziativa significativa nell'ambito dell'inclusione e delle pari opportunità

Verso un rinnovato modello di leadership. Un'analisi qualitativa.

PAOLO ROSSI*

Inquadramento della ricerca. *La vulnerabilità del genere umano, in un mondo globalizzato e interconnesso, è emersa chiaramente a seguito della pandemia da Covid-19, confermando in maniera epidemiologica le responsabilità dell'uomo nei confronti della biodiversità, spesso ai confini più remoti del globo dove si pensava che un potenziale problema sarebbe rimasto confinato (IUCN, 2020). L'esistenza di tanti centri e tante periferie ha favorito una diffusione a grappoli del virus, per cluster simultanei (Fauci et al. 2007), influenzando delicati equilibri in tutto il mondo, con un impatto reale che si osserverà realmente solo nei prossimi anni, soprattutto a danno di popolazioni residenti nelle aree rurali (KWS, 2018), dove milioni di bambini hanno perso oltre metà delle lezioni in presenza, trovandosi quasi un anno in ritardo rispetto al punto scolastico nel quale dovrebbero essere.*

Al contempo, la pandemia ha generato un forte impatto negativo sul benessere dei lavoratori e, di conseguenza, sulle loro performance. Il lavoro a distanza è stato integrato in molte attività e molti manager hanno dovuto apprendere come supportare e motivare i propri collaboratori per preservare il loro stato di salute mentale: flessibilità, autonomia e fiducia sono termini che hanno acquisito un nuovo e più profondo significato per ogni tipologia di business, nel tentativo di ridurre il senso di solitudine e isolamento venutosi improvvisamente a creare (Stick, 2020; Whitlaw, 2020). Molti manager si sono dovuti dedicare all'organizzazione del lavoro dei propri dipendenti, a discapito della propria leadership riconosciuta in presenza, apprendendo rapidamente l'uso di strumenti di comunicazione e modalità di coordinamento prima mai sperimentate, con il risultato di generare un importante paradosso di maggiore apparente autonomia e, al contempo, un aumento di stress personale con conseguente riduzione della produttività (Luciano, 2016; Kirchner et al., 2021).

L'azienda a responsabilità limitata del XX secolo era specializzata, statica e non aveva necessità di individuare di continuo nuove strategie di posizionamento o focalizzarsi su tematiche, oggi imprescindibili, quali sostenibilità ed etica (Hammonds, 2003; Seers, 2008), ma la rivoluzione digitale e la globalizzazione di fine secolo hanno concentrato il potere economico e finanziario in mano a pochi, che hanno alimentato rendite di tipo speculativo (Zamagni, 2020), e la crisi del 2008 ha evidenziato l'interconnessione di ogni forma di ecosistema, sociale, ambientale, finanziario e istituzionale (Wilson, 2004; Bruni, 2015).

Alcuni autori considerano innovazione e reputazione driver odierni fondamentali per un business di successo nel lungo periodo, quali tematiche che devono ritrovare un loro più profondo significato nell'orientare manager e leader in contesti sempre più poliedrici, al fine di generare un impatto positivo per l'intera collettività, bilanciando interessi di shareholder e stakeholder, dando vita a forme di neo-isomorfismo organizzativo capaci di ridisegnare modelli di business socialmente orientati in grado di affrontare e superare ogni crisi, presente e futura (Radicchi, 2014; Hildebrand et al., 2022). Gli attuali modelli, però, non rispondono più in maniera pertinente e completa alle esigenze di un futuro incerto come quello che, anche a causa del conflitto bellico in corso in Ucraina, costringerà molti Paesi a considerare nuove operazioni di austerità, provocando ulteriori disagi a livello sociale (Sherburn, 2021): l'uomo deve tornare a essere posto al centro di una crescita economica sostenibile e lo sviluppo integrale deve essere anteposto alla sola sostenibilità economica, orientando le imprese ai principi del bene comune con interesse generale (Le Crosnier, 2009; Maggi, 2021).

Le imprese possiedono una responsabilità imprenditoriale (Biggeri et al., 2021) e, sempre più, le relazioni hanno acquisito il valore di bene relazionale, fondativo di ben-essere collettivo (Paglione, 2014): collaboratività, inclusività e complessità sono le parole chiave delle nuove teorie di leadership, ma anche resilienza e anti fragilità dovranno esservi incluse, a seguito della pandemia che ha recentemente obbligato tutti a rivedere i propri riferimenti concettuali (Thompson et al., 2020). Le imprese di un domani molto prossimo dovranno essere guidate con sempre rinnovata motivazione, orientando positivamente il capitale umano a disposizione (Marocci, 2018; Benmira et al., 2020), incorporando una mission sociale che fornirà nuove opportunità di partecipazione, garantendo il raggiungimento per l'impresa di vera efficienza, di tipo economico quanto sociale (Boniolo, 2021; Storr et al., 2022).

Compito del leader sarà sempre più quello di dare valore al valore delle risorse umane nel loro complesso (Argiolas, 2014), come hanno fatto a metà del Novecento imprenditori socialmente orientati quali Olivetti, Borsalino e Leumann (Landoli, 2021) e, ancor prima di loro, verso le metà dell'Ottocento, alcuni visionari che hanno condizionato in senso positivo il proprio ecosistema socio-imprenditoriale (Ricciardi, 2014) dando vita, nella Torino dell'epoca, a

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modelli imprenditoriali la cui mission sociale poneva al centro gli ultimi, con il risultato di originare business socialmente orientati oggi ancora prosperi, che hanno affrontato e superato con successo la recente pandemia e numerose precedenti crisi locali, in diverse periferie del mondo.

Obiettivo del paper. Numerosi contributi scientifici evidenziano che, in relazione al periodo storico, gli elementi distintivi alla base dei principali modelli di business differiscono e, conseguentemente, anche l'approccio alla leadership tende a mutare a seguito della sua contestualizzazione: in altri termini, vi è generale accordo sul fatto che i modelli di business e gli stili di leadership siano dinamici e tendano a incorporare "il qui ed ora" del momento storico. In tal senso, gli studiosi tendono a individuare nuovi modelli da proporre e nuovi stili a cui ispirarsi per poter meglio rispondere alle esigenze del periodo storico in cui si è radicati. A parere di chi scrive, tale sforzo intellettuale potrebbe non essere necessario poiché, spesso, potrebbe essere sufficiente uno sguardo al passato per trarre ispirazione e proporre modelli di business e stili di leadership non nuovi, ma rinnovati, attualizzati e adattati alle esigenze contemporanee. Il presente lavoro si inserisce in tale dibattito sempre attuale nel tentativo, da un lato, di comprendere e delineare l'evoluzione dei modelli di business e dei modelli di leadership e, dall'altro lato, di individuare tra i tanti modelli del passato quello che, più degli altri, potrebbe essere adeguato a rispondere alle esigenze dei tempi correnti, in quanto guidato da specifici valori, carismi e virtù.

Nello specifico, si intende contribuire al significativo impegno di ricerca, ancorché non esaustiva, di precedenti autori che hanno indagato su carismi e virtù posseduti da fondatori di Organizzazioni carismatiche, leader visionari - in grado di conciliare libertà e partecipazione, diversità e appartenenza per la vita, fiducia nel prossimo e attenzione alla sostenibilità (Cicchese, 2019; Longhitano, 2019) - permettendo a coloro che li hanno seguiti di assimilare, diventando il proprio sogno (Nayar, 2013) la visione originaria del fondatore stesso (Sartori, 1997). In linea con ciò, si sono approfondite alcune tematiche rimaste inesplorate, quali lo studio delle caratteristiche intrinseche di un determinato ecosistema sociale e le peculiarità di innovazione e visione imprenditoriale che hanno dato origine a specifici modelli di business, quali strumenti a cui oggi potrebbe attingere un leader socialmente orientato per guidare la propria impresa in un mondo denso di vulnerabilità e incertezza, guardando innanzi con coraggio e seguendo la propria via, la propria visione, con cuore e passione, intelligenze e competenze, per il bene proprio e dell'umanità (Radcliffe 2004; Orobator 2022).

Le domande di ricerca che hanno ispirato il presente lavoro sono, pertanto, le seguenti:

RQ1 Esiste un modello di leadership sviluppatasi nel passato che possa risultare adeguata alle esigenze attuali?

Se sì, RQ2 Quali sono le determinanti di questo modello e come agiscono?

RQ3 In che modo possono contribuire a sviluppare nuovi modelli di business sostenibili?

Per individuare una valida risposta ai quesiti di ricerca proposti, poiché a oggi non esistono studi simili in letteratura, si è deciso di intraprendere un'analisi esplorativa. Nello specifico, il presente lavoro analizza in profondità le Organizzazioni fondate dai Santi Sociali della Torino del 1800: l'Istituto Missioni Consolata fondato dal beato Giuseppe Allamano nel 1901, la Congregazione di San Giuseppe fondata dal beato Giuseppe Murialdo nel 1873, la Società Salesiana di San Giovanni Bosco fondata da san Giovanni Bosco nel 1859 e la Congregazione delle suore di San Giuseppe Benedetto Cottolengo fondata da San Giuseppe Benedetto Cottolengo nel 1830. Attraverso la metodologia del multiple case study è stato possibile analizzare un'elevata quantità di fonti primarie e fonti secondarie di dati e, successivamente, effettuare una cross case analysis che ha permesso di rilevare comunanze e difformità tra i diversi casi.

Metodologia. La metodologia del case study ha assunto sempre più importanza e rilevanza tra i ricercatori, ancorché il disegno e il contenuto del medesimo cambi molto da un caso all'altro e, normalmente, la scelta della metodologia rifletta la domanda di ricerca. La situazione presa in esame nel presente studio - le Organizzazioni fondate dai Santi Sociali - può rappresentare un caso rivelatore di un fenomeno poco indagato in precedenza, consentendo di investigare attività svolte all'interno delle stesse che rientrano nella "quotidianità", esercitate ripetutamente senza però essere oggetto di esplicitazione: per far ciò è, pertanto, necessario captare e comprendere a fondo le peculiarità del contesto in cui esse operano (Mabry, 2008).

Includendo la ricerca più casi, si parla di multiple case study, con l'obiettivo di individuare similitudini e fenomeni in contrasto. Ciò implica normalmente un maggior dispendio di tempo dedicato alla ricerca ma, al contempo, fornisce una risposta maggiormente rappresentativa (Gerring, 2004). Il case study considerato ha incluso l'analisi di una ricca varietà di fonti di dati tra cui interviste, dati di archivio, risultati di indagini, video e fotografie: le interviste hanno rappresentato una fonte primaria di raccolta dei dati, attraverso la predisposizione di un protocollo di intervista semi-strutturata redatta sulla base della letteratura e degli approfondimenti trovati in merito al case study. La cross-case analysis, metodologia che prevede l'esplorazione approfondita delle somiglianze e delle differenze tra i casi, al fine di supportare la generalizzazione empirica e le previsioni teoriche, ha permesso di passare in rassegna le proxy più comuni individuate, identificando il case study come uno strumento utile a generare materiale adeguato per una successiva discussione intorno a un problema concreto (Solberg et al., 2006): a tal fine, è risultata fondamentale la chiara identificazione iniziale del contesto, che nel caso specifico è l'ecosistema di Torino del 1800.

Il Protocollo di intervista si è composto delle seguenti parti, aventi l'obiettivo di guidare l'intervistato lungo un percorso che da una narrazione personale portasse a una visione d'insieme della sua Organizzazione e del suo orientamento verso il futuro. Innanzitutto, si è cercato di mettere l'intervistato a proprio agio permettendogli di raccontare qualcosa di sé stesso, della sua storia personale e familiare e delle motivazioni che l'hanno incoraggiato/a entrare nella Congregazione o nell'Istituto. In seguito, si è cercato di approfondire, insieme, quale fosse il carisma ispiratore del fondatore, sulla base del quale lui/lei, e molti altri in seguito, hanno scelto proprio quella particolare

Congregazione/quell'Istituto per la vita. A partire da alcune considerazioni sull'attualità della proposta dell'Organizzazione, si è cercato di approfondire come questa si sia evoluta nel tempo e come sia organizzata ancora oggi, intervallo domande a carattere personale con alcune più strutturali e di insieme. Successivamente, si è approfondito il modello economico alla base della sostenibilità attuale della Congregazione/dell'Istituto e quale fosse il modello di leadership riconosciuta dell'Organizzazione. Infine, si è cercato di allargare lo sguardo rispetto alla società odierna, nella quale la Congregazione/l'Istituto opera, rispetto a una rinnovata proposta di senso per i giovani.

Risultati. I risultati dello studio hanno evidenziato alcune Tematiche ricorrenti di carattere organizzativo-gestionale e di orientamento socio-imprenditoriale.

Le tematiche ricorrenti sono state, a loro volta, classificate in base a una logica corrispondente a quanto segue: tematiche specifiche della tipologia di Organizzazione prese in esame (Carisma, Attenzione ai poveri, Emergenza educativa), tematiche organizzativo-gestionali (Governance, Innovazione, Sostenibilità, Dimensione missionaria e laicale), tematiche di orientamento socio-imprenditoriale (Visione imprenditoriale, Visione socialmente orientata, Ricerca di senso). Mentre le prime prendono in considerazione alcune peculiarità alla base della mission stessa delle Congregazioni/Istituti, le seconde comprendono aspetti più legati al proprio modello organizzativo e al proprio ecosistema. Infine, le terze indagano su come tale modello di business socialmente orientato possa essere stato così longevo e ancora attuale, comprendendo alcune proposte di senso anche per il futuro.

Fig. 1: Tematiche ricorrenti e alcune relative citazioni esemplificative emerse dalle interviste

CARATTERE ORGANIZZATIVO GESTIONALE	SPECIFICITÀ DI CONGREGAZIONI / ISTITUTI	ORIENTAMENTO SOCIO-IMPRENDITORIALE
<p>Governance</p> <p>La fatica della discontinuità nel servizio di autorità (IMC)</p>	<p>Carisma</p> <p>Non si può diventare santi se prima non si è soddisfatti come uomini (SSGC)</p>	<p>Visione imprenditoriale</p> <p>Don Bosco è un unico marchio con diversificazione del rischio (SDB)</p>
<p>Innovazione</p> <p>Sistema binario per la gestione di comunità e Opere, rispettando i tempi di ciascuno e la reciproca libertà del perseguimento dell'obiettivo (CSI)</p>	<p>Attenzione ai poveri</p> <p>Ciascuno di noi è il locandiere che permette di mantenere aperta la locanda dove il buon samaritano, che è Cristo, può affidarci i suoi poveri (SSGC)</p>	<p>Ricerca di senso</p> <p>Non sono i discorsi che convincono, ma le esperienze significative della vita (IMC)</p>

Da tali tematiche è stato possibile estrapolare alcuni costrutti generali, che hanno originato una matrice basata su quattro dimensioni principali: Ecosistema, Organizzazione, Leadership e Sostenibilità.

La matrice pone in evidenza, per ciascuna dimensione principale individuata alla base del carisma di ciascuna Organizzazione, alcuni elementi considerati di particolare importanza, suddivisi in categorie positive (+), negative (-) e alcune sulle quali soffermarsi con attenzione (!). Infine, ciascuna dimensione è esplicitata e riassunta da una frase esemplificativa (indicata nella matrice tra parentesi).

Fig. 2: Matrice dimensionale

<p>ECOSISTEMA (la persona al centro)</p> <p>vocazione personale ed esperienza (+) disumanizzazione e nuove periferie (!) fragilità e solitudine (!)</p>	<p>ORGANIZZAZIONE (il valore dell'ambiente)</p> <p>corresponsabilità e sinodalità (+) fiducia e reciprocità (+) flessibilità e sistema binario (!) discontinuità e visioni limitate (-)</p>
<p>LEADERSHIP (orientare, non seguire)</p> <p>semplicità e trasparenza evangelica (+) capacità di relazione (+) attitudine organizzativa (+) conoscenza, analisi e conseguenze (-)</p>	<p>SOSTENIBILITÀ (dalla necessità le risposte)</p> <p>visione globale (+) condivisione e ordine di valori (+) poveri e professionalità oltre lo standard (!)</p>

Si sono quindi analizzati gli elementi peculiari delle Tematiche organizzativo-gestionali, mettendole a sistema con le Tematiche di orientamento socio-imprenditoriale e al proprio Ecosistema di riferimento. L'analisi di alcune sotto-dimensioni specifiche di ciascuna dimensione ha permesso di osservare come lo sviluppo di modelli di business socialmente orientati possa essere condizionato da fattori internamente influenzabili, come il livello di innovazione, e da fattori esterni, come l'orientamento sociale, presenti in ogni specifico ecosistema. Mentre il primo è, a sua volta, funzionale al livello di formazione fruibile, il secondo necessita di un vero e proprio mutamento di mentalità che, una volta innescato, permetterà ai processi avviati di accelerare producendo il cambiamento sistemico dell'intero ecosistema.

Fig. 3: Relazione tra tematiche ricorrenti ed ecosistema di riferimento



Dalla ricerca condotta emerge quale personale contributo alla letteratura e spunto di riflessione per futuri possibili approfondimenti sul tema, come la nascita e l'evoluzione di modelli di business socialmente orientati sia funzione di fattori internamente influenzabili - come il livello di innovazione - e fattori esterni - come l'orientamento sociale - di un determinato ecosistema. Mentre il livello di innovazione è certamente funzione del grado di formazione e del numero di leader presenti nell'ecosistema, l'orientamento sociale è favorito da un cambiamento di mentalità che necessita di una determinata maturazione per poter essere considerato sistemico. Inoltre, il fattore tempo assume un ruolo rilevante nel sistema, con un andamento decrescente di rilievo all'aumentare del processo di cambiamento sistemico che coinvolge l'intero ecosistema: in sostanza, a un certo punto il sistema reagirà sempre più velocemente, influenzando a vicenda i soggetti attivi nel medesimo, come nel caso della crescita esponenziale delle Società Benefit di cui si è preso atto nell'ultimo periodo storico.

Limiti della ricerca. La letteratura esaminata non evidenzia con sufficiente riflessione, se non per il fenomeno relativamente recente delle Benefit Corporation, le caratteristiche di carisma personale, responsabilità sociale e visione imprenditoriale socialmente orientata che i nuovi leader dovranno possedere per guidare Paesi, imprese e collettività fuori da crisi che, inevitabilmente e senza preavviso, si presenteranno: cambiamento climatico, pandemia e guerra sono le direttrici di una tempesta perfetta che hanno stimolato una profonda riflessione su come, proprio con tali difficoltà all'orizzonte, alcune Organizzazioni abbiano utilizzato tali elementi di forte criticità quali fonte di stimolo per innovarsi, identificare nuove finalità di beneficio comune da perseguire ed evolvere promuovendo un cambiamento di pensiero, e azione, in tutti i membri dell'Organizzazione stessa, con una rinnovata strategia di sostenibilità da perseguire insieme.

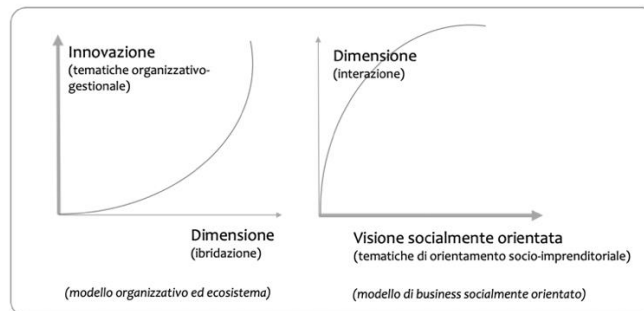
Implicazioni manageriali. Il presupposto di partenza è che alla base del modello organizzativo socialmente orientato delle Organizzazioni prese in considerazione - tematiche specifiche della tipologia di Organizzazioni considerate - vi siano gli elementi peculiari della propria mission, che nella fattispecie comprendono i soggetti destinatari del proprio intervento (l'attenzione ai poveri) considerati all'interno del fenomeno in espansione rilevato (l'emergenza educativa) al quale essi cercano di dare risposta attraverso le proprie peculiarità (il carisma): come già descritto, il carisma è una cosa viva che si adatta alle necessità del tempo, per rispondere alle fragilità incarnate dai poveri - di qualunque tipo esse siano - e che, nel tempo in cui viviamo, si esplicano in difficoltà non solo economiche ma anche affettive, sociali ed educative. Più l'Organizzazione è diffusa e più ampia è la risposta che viene chiamata a dare a tali bisogni, maggiore è il numero di soggetti raggiunti e più ampio è il numero di Opere realizzate. Ovviamente, tale crescita non può essere indefinita ma, anzi, in quanto le Congregazioni operano in aree geografiche ben definite, a un certo punto si satura rallentandone l'espansione: in termini grafici, esso può essere rappresentato graficamente da un'onda - come quella generata da un sasso gettato in uno stagno - parziale che, man mano che si espande, diminuisce la sua intensità.

Tra le tematiche organizzativo-gestionali prese in considerazione, considerando le tematiche della sostenibilità come imprescindibili per la sopravvivenza dell'Ente, la dimensione missionaria e laicale come peculiare di ciascuna Organizzazione presa in considerazione e la Governance come un elemento codificato da norme di diritto canonico, risulta che l'unico elemento variabile - tra quelli presi in esame - è l'innovazione: essa può esplicarsi in molte forme come, per esempio, l'introduzione del sistema binario per la gestione differenziata di Opere e Comunità o la riorganizzazione di singole Opere riunite in una unica più complessa, come un polo culturale missionario, per offrire una proposta più completa a chi desidera avvicinarsi a tale esperienza. Qualunque sia l'elemento di innovazione e rottura con il passato, l'evidenza dimostra che una maggior innovazione, di carattere o finalità sociale, non può che generare benefici positivi per l'Organizzazione stessa, la sua sostenibilità e il suo modello organizzativo. Graficamente, possiamo posizionare l'innovazione sull'asse delle ordinate e ipotizzarne un andamento crescente positivo all'aumentare della dimensione dell'Ente, a causa di una maggior ibridazione da parte di membri religiosi e laici - come affermato anche nell'importanza espressa della dimensione missionaria e laicale - oltre che da una maggiore creatività che, man mano che aumenta, porta a un cambiamento sistemico dei processi creativi.

Le tematiche di orientamento socio-imprenditoriale analizzate sono fortemente caratterizzate da una visione imprenditoriale socialmente orientata delle stesse. Pur mantenendo come caposaldo, al centro di ogni intervento, la persona e un suo bisogno da soddisfare, ciò può manifestarsi da parte delle Organizzazioni esaminate con un coraggio che, normalmente, solo un imprenditore visionario può possedere, attraverso un'intuizione di qualcosa in cui spesso solo lui, prima di tutti gli altri, crede: una risposta da offrire al mercato - sia esso anche solo sociale - attraverso un

nuovo servizio o una nuova proposta può determinare il successo di una nuova Opera - che permette magari, anche, di diversificare il rischio del non essere capace a innovare - e restituire ai giovani una risposta alla ricerca di senso che la nostra società indugia a soddisfare. Più saranno le proposte, più si potranno attrarre nuovi giovani, nuove risorse e nuovi talenti, da valorizzare e far crescere, per il futuro di sé stessi e del sistema all'interno del quale essi con-vivono e operano. A livello grafico, si potrebbe posizionare una visione di imprenditoria socialmente orientata sull'asse delle ascisse e considerare che, all'aumentare della dimensione dell'ecosistema di riferimento - e del numero di persone che in esso interagiscono - corrisponde una maggiore possibilità di nascita e sviluppo di nuove idee imprenditoriali socialmente orientate.

Fig. 4: Relazione tra fattori variabili



Lo studio e l'approfondimento delle determinanti individuate in modelli di leadership socialmente orientati sviluppatasi in passato, e ancora rispondenti alle attuali esigenze di nuovi modelli di business più sostenibili, potrebbe fornire, a livello teorico, un valido supporto per la formazione di futuri leader socialmente orientati, spesso già naturalmente presenti nelle aree periferiche del mondo, dove Organizzazioni quali quelle esaminate hanno dato vita a Opere sostenibili nel tempo, basate su modelli di business social driven oriented, capaci di generare un vero cambiamento sociale sistemico. Nella pratica, ciò potrebbe contribuire a modificare consolidati equilibri del rapporto centro-periferie a favore di queste ultime dove, spesso, sono già presenti elementi di innovazione e orientamento sociale capaci di umanizzare valori e professionalità, per andare oltre quanto richiesto per il raggiungimento del trade-off economico di impresa, ri-ponendo al centro di ogni processo economico la centralità della persona.

Originalità del paper. Dalla ricerca condotta emerge come la nascita e l'evoluzione di modelli di business socialmente orientati sia funzione di fattori internamente influenzabili - come il livello di innovazione - e fattori esterni - come l'orientamento sociale - di un determinato ecosistema. Il livello di innovazione è certamente funzione del livello di formazione e del numero di leader presenti nell'ecosistema, mentre l'orientamento sociale è generato da un cambiamento di mentalità che necessita di una determinata maturazione per poter essere considerato sistemico. Inoltre, il fattore tempo assume un ruolo rilevante nel sistema, con un andamento decrescente di importanza all'aumentare del processo di cambiamento sistemico che coinvolge l'intero ecosistema: in sostanza, a un certo punto il sistema reagirà sempre più velocemente, influenzando a vicenda i soggetti attivi, come nel caso della crescita esponenziale delle Società Benefit di cui si è preso atto negli ultimi mesi del presente anno.

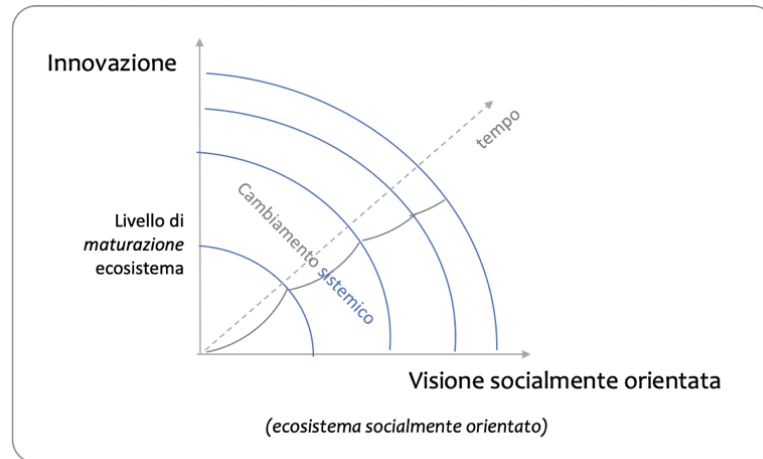
Mentre in passato pochi Centri fungevano da catalizzatore per tutti i soggetti orientati verso un determinato approccio al business, lo spostamento dell'equilibrio centro-periferia e la nascita di molteplici periferie - secondo un modello poliedrico - rendono complessa la generalizzazione di quanto sopra esposto. Tuttavia, un rinnovato equilibrio centro-periferie a favore di queste ultime, dove spesso sono naturalmente presenti elementi di innovazione e orientamento sociale capaci di umanizzare valori e professionalità, si ritiene sia da considerarsi un fattore di successo per imprese socialmente orientate che, attraverso nuovi modelli di business, sapranno riporre al centro dei medesimi le persone, in un mondo sempre più interconnesso e in affanno di visione profetica, colmando quel vuoto di sussidiarietà che lascerà sempre spazio a modelli di business social driven oriented, come avevano intuito oltre duecento anni fa i leader delle Organizzazioni esaminate.

Il lavoro di ricerca condotto ha permesso di individuare similitudini e divergenze dei diversi modelli di leadership delle Organizzazioni prese in esame, evidenziandone costrutti comuni e differenze: come sopra illustrato, lo stile di leadership, il modello organizzativo e l'ecosistema di riferimento sono le tre direttrici su cui si è indagato, che ogni Organizzazione ha sempre tenuto in debita considerazione per garantire la sostenibilità, in ogni periferia e nel corso di numerose crisi, del proprio modello di business socialmente orientato.

In ogni contesto studiato, le interviste condotte e lo studio delle fonti a disposizione hanno evidenziato l'importanza e il valore della trasmissione della storia delle proprie origini e del carisma iniziale del fondatore alle generazioni future, per non farsi orientare da logiche solo efficientistiche o burocraticistiche, nel tentativo di generare solo sostenibilità economica, per rispondere alle principali domande di senso sull'esistenza, per le quali le Opere promosse nelle diverse periferie del mondo dovrebbero essere una conseguenza di tale quesito e non la risposta stessa.

La visualizzazione grafica di quanto sopra esposto non è semplice, ma si potrebbe azzardarne una semplificazione, per esempio, attraverso il lancio di tanti sassi contemporaneamente nel medesimo stagno, con onde che, in base alla dimensione del sasso e alla distanza, si intersecano l'un l'altra.

Fig. 5: Influenze interne ed esterne sull'ecosistema di riferimento



Parole chiave: *carisma, leadership, innovazione, periferie, ecosistema socialmente orientato*

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Organizzazioni ibride per lo sviluppo regionale: strategie di cambiamento regionale

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Inquadramento della ricerca. In risposta alle cruciali sfide ambientali e sociali, le organizzazioni aziendali sono sempre più chiamate ad avere un ruolo positivo nella società e contribuire al benessere delle persone e del pianeta (Ferraro et al., 2015; George et al., 2016; Kibler and Muñoz, 2020). In particolare, il fenomeno delle Organizzazioni Ibride sta attirando interesse per il suo potenziale di istituzionalizzare l'impegno pro-sociale delle organizzazioni aziendali (Battilana and Dorado, 2010; Pache and Santos, 2013).

Nelle Organizzazioni Ibride convivono molteplici logiche istituzionali, ovvero la logica commerciale della generazione di ricavi e la logica sociale della generazione di impatto sociale (Besharov and Smith, 2014). Attraverso lo stesso modello organizzativo, dunque, le Organizzazioni Ibride perseguono contemporaneamente obiettivi finanziari e sociali, mirando a raggiungere lo sviluppo sostenibile ed al contempo massimizzando la redditività (Battilana et al., 2022).

Grazie alla loro capacità di navigare la complessità organizzativa e i trade-offs socio-finanziari (Battilana et al., 2022; Besharov and Smith, 2014), le organizzazioni ibride possono affrontare efficacemente le esigenze sociali delle comunità locali o i problemi ambientali delle aree rurali, senza rinunciare alla sostenibilità finanziaria (Doherty et al., 2014; Hestad, Tåbara and Thornton, 2020). Per questo motivo, le Organizzazioni Ibride possono diventare agenti di cambiamento positivo all'interno dei sistemi regionali (Rinkinen et al., 2016; Roundy, 2017), stimolare lo sviluppo economico delle comunità locali e delle aree rurali (Grillitsch, 2019; Wu et al., 2017) e garantirne il benessere sociale ed ambientale (Truffer and Coenen, 2012).

Tuttavia, non si conosce molto sulla relazione tra organizzazioni ibride e sviluppo regionale. La letteratura ha teorizzato approcci imprenditoriali per i percorsi di sviluppo regionale (Fritsch and Mueller, 2004; Grillitsch, 2019; Grillitsch et al., 2022; Wirth et al., 2023), ma solo pochi studi hanno indagato empiricamente come le organizzazioni ibride contribuiscano allo sviluppo regionale attraverso specifiche strategie di cambiamento (Steinerowski and Steinerowska-Streb, 2012).

Obiettivo del paper. Per colmare questa lacuna, questo studio adotta la prospettiva della Teoria della Strutturazione (Giddens, 1984), che evidenzia la relazione interdipendente tra agenti e strutture. Secondo il concetto di "dualità della struttura" (Sewell Jr, 1992), la struttura sociale plasma e limita l'azione degli agenti, fornendo regole, norme e istituzioni che ne guidano e regolano il comportamento. Tuttavia, gli agenti - individui e i gruppi - sono in grado di sfidare e modellare le strutture esistenti attraverso le loro azioni, portando così al cambiamento sociale.

Il presente studio approfondisce la seconda parte del concetto di dualità della struttura, analizzando il ruolo svolto dagli agenti nella trasformazione delle strutture sociali, al fine di apportare un cambiamento positivo per lo sviluppo regionale. In particolare, il quadro teorico di Giddens e postula l'esistenza di tre tipi di strutture - ossia "significazione", "dominazione" e "legittimazione" - che possono essere trasformate dalle azioni degli agenti.

Le strutture di "significazione" sono di tipo culturale ed interpretativo della realtà, influenzano la comprensione collettiva e la comunicazione (Stones, 2017; Staber and Sydow, 2002). L'integrazione dello sviluppo regionale a questo livello promuove un cambiamento nei valori e nelle credenze condivise, sostenendo così lo sviluppo regionale (Huggins and Thompson, 2019).

Le strutture di "legittimazione" stabiliscono regole normative e forniscono linee guida operative (Staber and Sydow, 2002). Integrando lo sviluppo regionale a livello di legittimazione, le organizzazioni implementano pratiche specifiche per creare valore sociale o ambientale (James and Halkier, 2016).

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Le strutture di “dominazione” concedono autorità e risorse e operano a livello di gestione strategica (Staber and Sydow, 2002; Jarzabkowski, 2008). A questo livello, si assegnano risorse finanziarie e materiali e si definiscono relazioni di potere formali, garantendo un'implementazione di successo (Pike et al., 2016).

Il presente studio mira a comprendere come le Organizzazioni Ibride agiscano come agenti di cambiamento positivo per lo sviluppo regionale, tramite l'implementazione di azioni che creano valore sociale o ambientale per le comunità locali. Al fine di facilitare la costruzione della teoria, viene proposto il quadro concettuale di Figura 1, che incrocia gli aspetti di ricerca di questa indagine – valore di sostenibilità e strutture – per identificare tre possibili strategie di cambiamento per lo sviluppo regionale. Analizzando le azioni di cambiamento attuate da un campione di quattro Organizzazioni Ibride localizzate in centro Italia, l'obiettivo della ricerca è di indagare come le Organizzazioni Ibride creino valore di sostenibilità - sociale o ambientale - per lo sviluppo regionale attraverso la trasformazione di una delle tre strutture di significazione, legittimazione e dominazione. La Figura 1 illustra tre strategie di cambiamento distinte che sono il risultato dell'aggregazione di azioni di cambiamento che impattano sulla stessa struttura.

Fig. 1: Quadro concettuale delle strategie di cambiamento delle Organizzazioni Ibride per lo sviluppo regionale

STRUTTURE (dello sviluppo regionale)	VALORE DI SOSTENIBILITA' (per lo sviluppo regionale)	
	Valore sociale per le comunità locali	Valore ambientale per le comunità locali
1 Significazione – Processo di conferimento di senso, cultura, credenze e valori alla base dello sviluppo regionale	Strategia di cambiamento 1	
2 Legittimazione - Creazione di norme, procedure e pratiche esplicite che sottendono lo sviluppo regionale	Strategia di cambiamento 2	
3 Domination – Autorizzare comportamenti e allocazione di risorse che sostengono lo sviluppo regionale	Strategia di cambiamento 3	

Metodologia. Per selezionare le Organizzazioni Ibride che operano in una specifica macroregione italiana è stata condotta una selezione mirata seguendo le indicazioni di Etikan et al. (2016). L'Italia è stata scelta come campo d'indagine poiché è altamente popolata da organizzazioni aziendali con scopi pro-sociali (Ferrigno and Cucino, 2021), è il primo paese europeo ad aver introdotto lo status giuridico di Benefit Corporation nel 2016 (Clark and Babson, 2012), e ha una forte e duratura tradizione di imprese con scopi pro-sociali (Perrini et al., 2006). La selezione è avvenuta nel gennaio 2020, seguendo tre fasi: raccolta delle comunicazioni stampa contenenti parole chiave nel titolo come "missione pro-sociale", "sociale e commerciale", "persone, pianeta e profitti", esclusione delle imprese non a scopo di lucro o senza uno scopo pro-sociale evidente dopo l'osservazione dei loro siti web e selezione di quattro organizzazioni ibride della stessa macroregione italiana, diverse per settore e dimensioni dei dipendenti.

Raccolta dati. Gli autori hanno utilizzato dati da tre fonti distinte: (a) tre round di interviste semi-strutturate con CEO ed esecutivi delle Organizzazioni Ibride selezionate durante il periodo febbraio 2020 - settembre 2020, febbraio 2021 - dicembre 2021 e gennaio 2022 - ottobre 2022; (b) osservazioni partecipanti tra marzo 2021 e ottobre 2022; e (c) materiali archivistici, come articoli online, articoli di giornale, contenuti mediatici e rapporti.

Analisi dei dati. In primo luogo, gli autori hanno utilizzato l'analisi dei contenuti per comprendere i dati provenienti da diverse fonti e hanno organizzato i dati in modo cronologico. In secondo luogo, gli autori hanno isolato ciascuna “azione di cambiamento” intrapresa dalle Organizzazioni Ibride. Ciascuna azione di cambiamento è stata analizzata separatamente da due dei quattro autori. In terzo luogo, gli autori hanno esaminato le azioni di cambiamento e hanno concordato sulla loro codifica. Gli autori hanno garantito risultati affidabili attraverso la triangolazione dei dati provenienti da diverse fonti e ottenendo un feedback dettagliato sia da soggetti interni che esterni all'analisi per migliorare la validità delle loro interpretazioni.

Risultati.

Azioni di Cambiamento

Per "azione di cambiamento" si intende qualsiasi intervento da parte delle Organizzazioni Ibride selezionate che influisce sui processi in corso di un'entità socialmente strutturata (Hult and Lennung, 1980), purché abbia implicazioni per lo sviluppo regionale. I risultati suggeriscono la presenza di 38 azioni di cambiamento attuate dalle Organizzazioni Ibride analizzate. Queste azioni si concentrano prevalentemente sugli stakeholder interni, come i dipendenti, ma riguardano anche gli stakeholder esterni, compresi i fornitori. In particolare, quattro azioni coinvolgono i dipendenti, mentre sei azioni coinvolgono i fornitori o i collaboratori esterni. Inoltre, otto azioni si rivolgono ai cittadini, quattro azioni coinvolgono altre imprese, due azioni coinvolgono i comuni e due azioni coinvolgono organizzazioni non profit. Infine, due azioni si concentrano sui prodotti delle imprese, mentre sei azioni si concentrano sui progetti delle imprese.

Strategie di Cambiamento

I risultati suggeriscono che le Organizzazioni Ibride possono contribuire allo sviluppo regionale (1) “guidando”, (2) “realizzando” o (3) “orchestrando” il cambiamento per lo sviluppo regionale. Più concretamente, la strategia “guidare il cambiamento” si riferisce alla capacità delle Organizzazioni Ibride di plasmare positivamente la cultura, i valori e le logiche istituzionali di altri agenti che operano nella stessa area locale, contribuendo così allo sviluppo

regionale influenzando altre azioni; la strategia "realizzazione del cambiamento" si riferisce all'implementazione diretta da parte delle Organizzazioni Ibride di azioni che apportano un cambiamento positivo per lo sviluppo regionale, come programmi ambientali, procedure di reclutamento o iniziative sociali locali; la strategia "orchestrare il cambiamento" si riferisce all'allocazione da parte delle Organizzazioni Ibride di risorse finanziarie, umane o materiali per raggiungere lo sviluppo regionale, mirando a implementare sinergie con altri agenti. Attraverso queste strategie, le Organizzazioni Ibride apportano un contributo significativo allo sviluppo regionale (Steinerowski and Steinerowska-Streb, 2012).

Strategia 1: Guidare il cambiamento per lo sviluppo regionale

La strategia di guida del cambiamento si riferisce alla capacità delle Organizzazioni Ibride di plasmare la cultura, i valori e le logiche istituzionali degli altri agenti operanti nella stessa area locale. In questo modo, le Organizzazioni Ibride possono contribuire allo sviluppo regionale influenzando positivamente le azioni di questi agenti. Essenzialmente, la strategia "guidare il cambiamento" si concentra sulla capacità delle Organizzazioni Ibride di agire come agenti di cambiamento plasmando il comportamento e le decisioni degli altri attori nell'area locale. Questa strategia può essere altamente efficace nel creare un ambiente collaborativo e di supporto per raggiungere obiettivi comuni legati allo sviluppo regionale. Promuovendo i metodi di lavoro artigianali e la diffusione della cultura locale, le Organizzazioni Ibride possono generare un impatto sociale positivo sui territori locali. In particolare, le Organizzazioni Ibride possono guidare un cambiamento culturale che porta a un cambiamento nei valori e nelle assunzioni condivise verso i valori sociali ed ambientali.

I valori condivisi creano un ambiente caratterizzato da una cultura di fiducia condivisa e di meccanismi di apprendimento collettivo, che a loro volta facilitano la cooperazione tra le imprese in una regione (Maskell and Malmberg, 1999). Quando le imprese in una regione condividono valori comuni, è più probabile che sviluppino un senso di scopo condiviso e stabiliscano relazioni di rispetto e fiducia reciproca. Questi valori condivisi e la fiducia reciproca creano una base per la cooperazione e la collaborazione tra le imprese, portando allo sviluppo di meccanismi di apprendimento collettivo che consentono la condivisione di conoscenze e migliori pratiche. In definitiva, questo può portare a una comunità imprenditoriale regionale più coesa e produttiva, che ha il potenziale per migliorare la competitività della regione (Boschma, 2004).

Inoltre, le Organizzazioni Ibride possono contribuire alla preservazione del patrimonio locale, delle tradizioni culturali e della conoscenza, che viene sempre più riconosciuto come componente importante dello sviluppo sostenibile (UNESCO, 2015). Promuovendo e preservando la cultura locale, le Organizzazioni Ibride possono anche attirare visitatori e turisti, stimolare l'economia locale e creare opportunità di lavoro. Pertanto, promuovendo metodi di lavoro artigianali e la cultura locale, le Organizzazioni Ibride possono generare un impatto sociale positivo sui territori locali, favorire un senso di identità del luogo tra la popolazione locale e contribuire alla preservazione del patrimonio locale.

Questo approccio considera i luoghi come parti costitutive delle Organizzazioni Ibride, non solo come i siti in cui operano o cercano di avere un impatto sociale. In altre parole, i "territori locali", vengono intesi come più di semplici posizioni geografiche. Essi si sviluppano all'incrocio di posizioni e hanno significati simbolici e conseguenze materiali (Gieryn, 2000).

Strategia 2: Realizzare il cambiamento per lo sviluppo regionale

La strategia di realizzazione del cambiamento si riferisce all'implementazione diretta di azioni da parte delle Organizzazioni Ibride che portano un cambiamento positivo per lo sviluppo regionale. Queste azioni possono includere programmi ambientali, procedure di reclutamento e iniziative sociali locali, tra gli altri. Essenzialmente, la strategia di "realizzazione del cambiamento" si concentra sull'implementazione diretta di iniziative pratiche che migliorano la qualità della vita nella regione in cui operano le Organizzazioni Ibride. Ciò comporta l'integrazione di obiettivi e programmi sociali, nonché considerazioni etiche, in tutti i processi decisionali, in tutte le politiche e le azioni (Carroll, 1991). Le Organizzazioni Ibride spesso stabiliscono strategie collaborative con altre organizzazioni locali, come aziende, comuni o partner senza scopo di lucro, per sviluppare programmi che supportano la comunità.

In linea con Bode et al., (2019), questo studio mostra come le partnership tra aziende e organizzazioni non profit possano essere un potente motore di cambiamento sociale. Lavorando con scuole o università, le Organizzazioni Ibride possono investire in programmi di formazione professionale e supportare iniziative locali di istruzione e formazione per migliorare le competenze e l'occupabilità della forza lavoro locale.

Le Organizzazioni Ibride danno anche priorità alle considerazioni etiche e alla responsabilità sociale, che vengono sempre più riconosciute come elemento chiave dello sviluppo sostenibile (Carroll, 1991). Adottando obiettivi e programmi sociali, le Organizzazioni Ibride possono sostenere la comunità locale, promuovere la coesione sociale e contribuire al raggiungimento degli obiettivi di sviluppo sostenibile. Pertanto, le Organizzazioni Ibride possono dare un contributo significativo al cambiamento sociale mediante l'implementazione di azioni concrete che supportano la comunità locale e promuovono la responsabilità sociale. Inoltre, stabilendo strategie e partenariati collaborativi con altre organizzazioni locali, le Organizzazioni Ibride possono sfruttare le loro risorse per guidare un cambiamento positivo e raggiungere gli obiettivi di sviluppo sostenibile.

Strategia 3: Orchestrare il cambiamento per lo sviluppo regionale

La strategia dell'orchestrare il cambiamento è un processo attraverso il quale le Organizzazioni Ibride allocano risorse finanziarie, umane o materiali per raggiungere obiettivi di sviluppo regionale. Ciò può comportare la strategia diretta di azioni di cambiamento o la collaborazione con altri agenti per implementare sinergie. Il focus principale di questa strategia è quello di allocare efficacemente le risorse per guidare cambiamenti positivi nella regione in cui l'Organizzazione Ibride operano. Adottando questo approccio, le Organizzazioni Ibride possono allineare strategicamente la loro pianificazione con obiettivi a lungo termine, con risultati sostenibili e positivi per la regione. Pertanto, la strategia "orchestrare il cambiamento" svolge un ruolo cruciale nel facilitare l'uso efficace delle risorse per raggiungere un cambiamento duraturo nelle comunità servite. In particolare, dopo aver affrontato le questioni culturali e di valore e aver dimostrato la fattibilità degli interventi a sostegno delle comunità locali, queste organizzazioni mobilitano risorse umane e finanziarie per raggiungere lo sviluppo regionale. Questo approccio coinvolge l'integrazione di varie risorse, tra cui le persone, le risorse finanziarie e le strutture organizzative, per raggiungere obiettivi di sviluppo sostenibile.

Inoltre, questo studio mostra come le Organizzazioni Ibride operino spesso in aree rurali, con l'obiettivo principale di creare valore a lungo termine per la comunità. Per raggiungere questo obiettivo, sfruttano le loro reti e mobilitano risorse per migliorare la qualità della vita della popolazione locale. In particolare, le Organizzazioni Ibride si concentrano sugli obiettivi di sviluppo sostenibile e integrano considerazioni sociali ed ambientali nei loro modelli di business.

Le Organizzazioni Ibride mobilitano le risorse umane creando opportunità per il talento locale e promuovendo programmi di capacità (Bacq and Janssen, 2011). In particolare, allocano risorse finanziarie per creare attività commerciali locali, sostenere iniziative locali e promuovere l'uso di materiali e pratiche sostenibili (Mair and Marti, 2006); riducono anche l'uso di materie prime rare e implementano strumenti di monitoraggio delle prestazioni ambientali per garantire il successo delle loro iniziative. Pertanto, le Organizzazioni Ibride hanno il potenziale per creare valore a lungo termine per le comunità locali, mobilitando strategicamente risorse e integrando considerazioni sociali ed ambientali nei loro modelli di business.

Limiti della ricerca. Questa ricerca presenta diversi limiti che dovrebbero essere presi in considerazione. In primo luogo, lo studio include solo le prospettive delle imprese stesse e non quelle di altri stakeholder come i clienti o i fornitori. L'inclusione dei punti di vista di questi gruppi potrebbe fornire una comprensione più completa del fenomeno investigato. Inoltre, l'uso di un approccio qualitativo e la piccola dimensione del campione di soli quattro casi di Organizzazioni Ibride potrebbero limitare la generalizzazione dei risultati. Studi futuri potrebbero affrontare questa limitazione utilizzando un approccio misto e includendo un numero maggiore di partecipanti. Inoltre, la ricerca futura potrebbe estendere l'analisi a una scala più ampia, in particolare a livello nazionale in Italia.

Un'altra limitazione dello studio è la sua dimensione geografica. Le Organizzazioni Ibride analizzate hanno sede in Italia, il che potrebbe non essere rappresentativo di altri paesi o regioni. Tuttavia, diversi autori hanno dimostrato l'importanza dello studio dell'Italia come paese interessante dal punto di vista dello sviluppo regionale (Bellandi et al., 2021; Bellandi and Santini, 2019). Studi futuri in contesti simili potrebbero essere condotti per convalidare i risultati attuali.

Infine, è importante notare che lo studio è stato condotto in un punto specifico nel tempo e che i risultati potrebbero non essere applicabili in futuro poiché l'ambiente aziendale è in costante evoluzione. Proiezioni longitudinali potrebbero essere impiegate in studi futuri per monitorare l'evoluzione del fenomeno nel tempo e garantire la rilevanza continua dei risultati.

Implicazioni manageriali. Lo studio ha implicazioni pratiche per i responsabili delle politiche e per i professionisti su come sfruttare efficacemente il potere dell'innovazione sociale per guidare uno sviluppo regionale sostenibile. In primo luogo, questo studio può aiutare i responsabili delle politiche e i manager a comprendere come sfruttare efficacemente il potere delle organizzazioni ibride come agenti di cambiamento e può anche aiutare le comunità e le regioni a identificare aree in cui possono utilizzare queste strategie di cambiamento per raggiungere i loro obiettivi di sviluppo. In secondo luogo, i manager dovrebbero essere formati sui concetti di responsabilità e sviluppo regionale (Laranja et al., 2008). In terzo luogo, le imprese dovrebbero integrare gli obiettivi di sviluppo regionale nella loro strategia aziendale per sostenere la comunità, ciò può comportare benefici economici in termini di reputazione e accesso a risorse locali qualificate (Asheim et al., 2011). Infine, i responsabili delle politiche dovrebbero coinvolgere maggiormente le imprese nella dinamica dello sviluppo regionale per incoraggiare la loro partecipazione alle strategie di sviluppo della comunità.

Originalità del paper. Questo studio risponde alla richiesta di Kibler e Muñoz di "ripensare al ruolo che l'azione prosociale innovativa può svolgere nelle regioni" (Kibler e Muñoz, 2020, p. 1317), sottolineando il potenziale delle imprese a base territoriale nel promuovere la sostenibilità sociale ed ecologica nelle comunità locali (Shrivastava and Kennelly, 2013). Più in dettaglio, questo studio mira a comprendere meglio come le azioni di cambiamento attuate dalle Organizzazioni Ibride (1) creino valore sociale o ambientale per le comunità locali e le aree rurali e (2) trasformino le strutture sociali (Roundy, 2017; Smith and Stevens, 2010), ovvero i pattern ricorrenti e le regolarità nelle pratiche e nelle attività sociali (Merton, 1968).

Per colmare questa lacuna, lo studio adotta la prospettiva della teoria della strutturazione (Giddens, 1984), che evidenzia la relazione interdipendente tra agenti e strutture. Attraverso un'analisi qualitativa dell'impatto di 38 azioni di cambiamento sulle strutture sociali di significazione, dominazione e legittimazione e sulla creazione di valore sociale

o ambientale, viene costruita una matrice 2x3 per identificare tre alternative strategie di cambiamento per lo sviluppo regionale.

Parole chiave: organizzazioni ibride; sviluppo regionale; teoria della strutturazione; strategie di cambiamento

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Social capital ed economia circolare: rafforzare il legame per lo sviluppo dei territori

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Inquadramento della ricerca. Il dibattito accademico ha ampiamente discusso sull'importanza delle relazioni intrattenute dalle imprese locali per lo sviluppo del territorio di appartenenza. La vicinanza geografica tra le imprese contribuisce a creare obiettivi e valori condivisi, favorisce lo scambio di conoscenze e di risorse, sostenendo l'innovazione e generando vantaggi competitivi (Porter, 1990; Presutti et al., 2017; Cavallo et al., 2020; Bressanelli et al., 2022). Allo stesso modo, la qualità del contesto socio-culturale è stata descritta come driver strategico per la generazione di conoscenze specifiche. Il territorio è un bacino di competenze, conoscenze e tradizioni che lo rendono unico nel suo genere, genera meccanismi di interazioni sociali e reti di relazioni interpersonali (Garofali, 1991; Magnaghi, 2012; D'Auria, 2014) che sostengono la competitività delle imprese e del territorio stesso (Vaccà, 1993; Rullani, 1999; Becattini, 2000; Leydesdorff, 2000; Golinelli, 2002). Ricadute importanti sono state poi individuate anche a livello emotivo. Il forte senso di appartenenza delle imprese al territorio (García-Villaverde et al., 2017), l'importanza dei legami informali, basati sull'amicizia (Vuorinen e Kurki, 2012), il ruolo della fiducia, sono considerate risorse strategiche che sostengono le relazioni tra le imprese, lo scambio di informazioni, il trasferimento di conoscenze tacite, la riduzione dei costi di controllo delle operazioni, limitando anche comportamenti opportunistici (Landry et al., 2002; García-Villaverde et al., 2017; De Chiara, 2012).

Tutti questi elementi sono racchiusi nel concetto di social capital, tradizionalmente definito come le connessioni tra gli individui alle reti sociali e alle norme di reciprocità e di affidabilità che ne derivano (Putnam, 2000). Utilizzato per descrivere l'insieme di norme e relazioni sociali incorporate nella struttura sociale che consentono alle persone di coordinare l'azione per raggiungere gli obiettivi desiderati (World Bank, 1985), in una prospettiva manageriale, il social capital descrive l'insieme delle norme e delle reti che facilitano processi di cooperazione e azioni coordinate (Putnam et al., 1993). Esso si compone di una dimensione strutturale, una relazionale ed una cognitiva (García-Villaverde et al., 2017), che descrivono, rispettivamente, le forme di interazione sociale, le relazioni di fiducia e la cultura condivisa, che hanno la finalità di creare risorse che possono essere utilizzate per il bene dell'individuo e di un'intera collettività (Dakhli e De Clercq, 2004).

Il concetto di social capital acquista dunque una rilevanza strategica nei processi di interazione e cooperazione (Akçomak e Ter Weel, 2009) essendo in grado di agire sull'innovazione delle imprese (Thompson, 2018) e sullo sviluppo dei territori. Si è affermato che le interazioni basate sulla fiducia, facilitano la comunicazione, l'inclusione sociale e un senso di appartenenza condiviso, generando un ambiente favorevole che consente di avvicinare e condividere la conoscenza all'interno della rete e di accedere più facilmente alle reti esterne (Kilpatrick et al., 2021). Inoltre, si è evidenziato che la crescente complessità ed i relativi costi dell'innovazione richiedono sempre più crescenti livelli di cooperazione e condivisione, laddove il social capital ha anche la capacità di funzionare da sostituto di altre risorse (Parker, 2018), non disponibili nella comunità di appartenenza (Eriksson e Rataj, 2019).

Stretti legami tra imprese e sistema locale possono sostenere l'innovazione di tipo sostenibile (Perrini e Tencati, 2008; Nogueira et al., 2019; Bernardi et al., 2022), ed il social capital può stimolare il coinvolgimento anche delle PMI nei percorsi di sviluppo sostenibile (Stam e Van De Ven, 2019; Dentoni et al., 2021). In particolare, con riferimento all'economia circolare, l'approccio dell'industrial symbiosis – un sotto-insieme dell'ecologia industriale – descrive il coinvolgimento di industrie tradizionalmente separate che, in un approccio collettivo alla costruzione del vantaggio competitivo, si scambiano materiali, energia, acqua e/o sottoprodotti (Chertow, 2000). Tale approccio è considerato una strategia chiave a sostegno della transizione verso l'economia circolare (European Commission, 2015; Baldassarre et al., 2019; Domenech et al., 2019; Lüdeke-Freund et al., 2019) e richiama l'importanza strategica della complessa interazione all'interno di una rete di stakeholder, ciascuno con identità specifiche e individuali, che contribuisce alla co-creazione di un ecosistema di valore condiviso (Merz et al., 2009; Pera et al., 2016).

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L'economia circolare rappresenta dunque un ambito di studio interessante per analizzare l'importanza del social capital per lo sviluppo di modelli di business circolari (Aldieri et al., 2021; Tseng et al., 2022), conseguendo benefici economici, ambientali e sociali a livello micro, meso e macro (Averina et al., 2022).

Obiettivo del paper. *La relazione tra social capital e innovazione, all'interno di modelli di business circolari, rappresenta il contesto della presente ricerca.*

In letteratura il social capital è chiamato in causa nei processi innovativi, in quanto sottolinea i vantaggi che imprenditori ed attori locali, appartenenti ad un'intensa rete collaborativa, possono conseguire in termini di acquisizione di nuove conoscenze, di opportunità e di tecnologie (Doh e Acs, 2010). Le relazioni consentono di avvicinare diversi attori sociali ed economici, permettendo loro di interagire e lavorare insieme, al fine di integrare le loro conoscenze (Pagano et al., 2018, Iacobucci e Perugini, 2021).

Accogliendo le tesi della relazione tra social capital ed innovazione, il presente lavoro intende indagare il ruolo del social capital nell'ambito delle innovazioni dell'economia circolare, mettendo in risalto, in linea con alcuni studi, come le pratiche di apprendimento collaborativo (Dovey, 2009) e l'esistenza di forti legami di fiducia (Thompson, 2018) influiscono sulle attività innovative. Il dibattito ha sottolineato ampiamente che il senso di fiducia e di appartenenza, contribuiscono alla formazione di partnership (Eriksson e Rataj, 2019), avvicinando attori e imprese apparentemente distanti tra di loro, che collaborano alla produzione di innovazione; così come ha evidenziato che le imprese difficilmente innovano in isolamento, ma necessitano di interagire e cooperare con altri attori economici e sociali, valorizzando anche le conoscenze e le risorse già presenti nel territorio in cui sono ubicate (Porto Gómez et al., 2016) e traendo vantaggio dalle opportunità che il territorio può offrire (Suchek et al., 2021). La costruzione di nuove interazioni tra imprese profondamente legate al loro territorio, da cui traggono ispirazione e fonti di vantaggio (Soderstrom e Weber, 2020), e la riscoperta del radicamento locale possono delinearci come strategie efficaci e innovative per creare e condividere valori (Mair et al., 2016), con positivi effetti economici, sociali e ambientali (Attig e Brockman, 2017).

La prospettiva di ricerca utilizzata in questo lavoro accoglie questo approccio, nel tentativo di delineare l'importanza del radicamento locale e del social capital per lo sviluppo di modelli dell'economia circolare e nel migliorare la performance economica, sociale ed ambientale delle imprese e dei sistemi locali.

Il modello dell'economia circolare è descritto come un modello alternativo all'economia lineare. Esso mira ad affrontare le questioni ambientali assicurando la crescita economica; è un modello nel quale i componenti ed i materiali mantengono il loro valore e vengono riciclati, rigenerati o riassorbiti dall'ambiente naturale (Inigo e Blok, 2019). Nell'economia circolare, relazioni forti tra gli attori attivano un'azione collettiva che consente di affrontare questioni di interesse comune (Zhuang et al., 2021; Triguero et al., 2022). Korhonen et al. (2018), sostengono che integrare i valori del social capital all'interno di un'economia circolare, può garantire un'economia della condivisione ed assicurare decisioni democratiche e partecipative (Padilla-Rivera et al., 2020). Il social capital influisce inoltre sui processi organizzativi e contribuisce ad aumentare l'efficacia e l'efficienza dei processi per abilitare le pratiche circolari. Esso è considerato il vero "collante relazionale" (McGrath e Sparks, 2005), come pure si è indagato sugli effetti positivi prodotti sui territori, attraverso la creazione di nuovi posti di lavoro, nuove opportunità di business che sostengono lo sviluppo economico regionale (Stam e Spigel, 2018), ed al tempo stesso quello ambientale, assicurando la transizione green dei territori, e lo sviluppo sociale, migliorando la qualità di vita.

In linea con questi studi, il paper intende analizzare la relazione tra i modelli di business circolari ed il social capital- inteso nel legame che l'impresa ha con il proprio territorio e con gli altri attori del sistema locale- ed indagare i possibili effetti sui territori. Seguendo questa prospettiva di studio, saranno considerate due domande di ricerca (RQs):

(RQ1) Il social capital è determinante nelle imprese che adottano modelli di business circolari?

(RQ2) Quali vantaggi la relazione tra social capital ed economia circolare produce per il sistema locale?

Metodologia. *La ricerca condotta si è sviluppata in due fasi: dapprima è stata condotta una review della letteratura per la formulazione di un quadro teorico attraverso il quale osservare le evidenze empiriche; successivamente, è stata condotta un'analisi su un campione di imprese. In dettaglio, sulla base di quanto emerso dalla revisione della letteratura, è stato proposto un framework teorico per l'interpretazione dei legami tra social capital ed economia circolare, indentificando gli aspetti che saranno indagati nell'indagine empirica.*

L'osservazione delle evidenze empiriche è stata condotta su 51 imprese che hanno adottato pratiche di economia circolare in Italia, il campione è prevalentemente composto da imprese di piccole e medie dimensioni al fine di essere maggiormente rappresentativo rispetto al tessuto imprenditoriale italiano composto prevalentemente da piccole e medie imprese. L'indagine è stata condotta su dati secondari tratti dalla piattaforma italiana dell'economia circolare <https://economiecircolare.com/atlante/> e consultando i siti web delle aziende nel periodo di riferimento maggio - dicembre 2022.

L'indagine sul legame tra social capital e innovazione circolare ha riguardato i seguenti aspetti (Tab.I):

Block A – Innovazione e territorio. Questa sezione intende indagare quanto l'innovazione circolare è legata al territorio e nasce dalla realtà locale di riferimento dell'impresa che adotta pratiche circolari, mettendo in evidenza la capacità della stessa di cogliere le opportunità territoriali;

Block B – Innovazione e collaborazione con attori territoriali. Questa sezione si basa sull'individuazione della presenza di collaborazioni con attori locali per lo sviluppo dell'innovazione circolare;

Block C - Social capital e sviluppo del territorio. In questa sezione si intende analizzare la presenza di specifici vantaggi, riscontrati dalle imprese indagate, per il sistema locale, derivanti dell'innovazione circolare prodotta valorizzando il social capital.

Tab. 1: Elementi oggetto di indagine

Relazione	Aspetti indagati
<i>Blocco A – Innovazione e territorio</i>	<i>Descrizione del territorio</i> <i>Descrizione delle specificità territoriali</i> <i>Descrizione dell'innovazione circolare sulla base delle specificità del territorio</i> <i>Descrizione dei valori e della cultura industriale del territorio</i> <i>Descrizione di comportamenti responsabili derivati dall'esistenza di un forte legame tra l'impresa ed il sistema locale</i>
<i>Blocco B – Innovazione e collaborazione con attori territoriali</i>	<i>Descrizione delle collaborazioni con partner territoriali</i> <i>Tipologia di partner</i> <i>Dichiarazione di vantaggi generati dalle collaborazioni</i> <i>Dichiarazione di vantaggi economici</i> <i>Dichiarazione di vantaggi ottenuti dall'implementazione di pratiche di economia circolare</i>
<i>Blocco C - Social capital e sviluppo del territorio</i>	<i>Dichiarazione di vantaggi per l'implementazione di comportamenti responsabili</i> <i>Descrizione di vantaggi per il territorio derivati da comportamenti responsabili</i> <i>Dichiarazione di implementazione di pratiche di innovazione circolare finalizzate al benessere del sistema locale</i> <i>Dichiarazione di vantaggi derivati dall'implementazione di pratiche di innovazione circolare per il sistema locale</i>

Fonte: Elaborazione degli autori

Risultati. *Dall'analisi svolta sul campione di imprese circolari, seguendo il framework derivato dalla review della letteratura, emerge una chiara influenza del social capital nell'avvio e nello sviluppo di imprese circolari. Come detto, la scelta di un set di imprese che adottano un business model circolare deriva dalla volontà di indagare le ricadute del social capital sulla capacità innovativa delle stesse, aspetto fondamentale per la realizzazione di un modello di business circolare. Ponendo, quindi, le imprese circolari come realtà altamente innovative, si definisce il legame tra social capital e innovazione sulla base dell'influenza territoriale in tali imprese.*

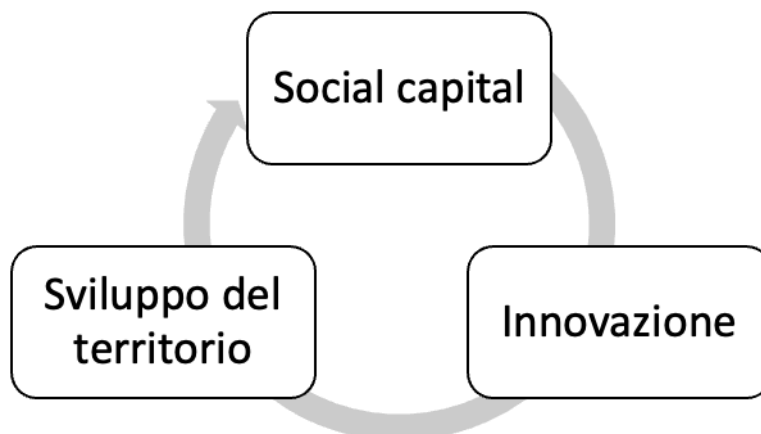
In accordo con il framework proposto, l'analisi di questa relazione verte su tre macroaree: territorio, partner, sviluppo. Con riferimento al territorio, gli indicatori utilizzati per determinare il legame tra il territorio e l'impresa riguardano principalmente la comunicazione che la stessa impresa fa rispetto all'importanza del territorio e dell'influenza di quest'ultimo nell'output dell'impresa. Come si evince dal framework questi sono: la descrizione del territorio, descrizione delle specificità produttive locali, descrizione dei valori o della cultura del territorio, la realizzazione di un'idea imprenditoriale che nasce dalle specificità territoriali. Nel campione analizzato il legame col territorio è stato così descritto: il 43% delle imprese descrive il territorio in cui operano, il 31% ne descrive le specificità produttive e la stessa percentuale ne descrive i valori o la cultura. Poco più della metà, il 51%, definisce le peculiarità territoriali parte caratterizzante della loro idea, mentre il 53% dichiara che l'implementazione di comportamenti socialmente responsabili deriva dal forte legame con il territorio. Infine, circa il 50% del campione totale dichiara di aver adottato comportamenti socialmente responsabili in virtù del forte legame col territorio e delle relazioni con partner locali. A sostegno di quanto sopra, si riportano alcune citazioni di imprese tra quelle esaminate: "Infatti, il laboratorio, che si insedia nel Cilento, in un'area a forte valenza paesaggistico-naturalista con buone potenzialità di sviluppo integrato, contribuisce alla diversificazione dell'economia rurale e coniuga aspetti di tradizione (tessitura con telaio manuale) a innovazione tecnologica, come l'uso di stampante 3D, per la realizzazione di prodotti d'arredo e accessori di moda"; "FILAB s.r.l. è nata nel 1998 nella Piana di Paestum, la Terra dei Miti"; "un laboratorio di ricerca e sviluppo in cosmesi naturale, che con i suoi prodotti cerca di raccontare l'anima di una terra, il Cilento"; "iniziative in grado di ricostruire e valorizzare le radici culturali e identitarie del proprio territorio tramite la conoscenza dell'agricoltura, delle tradizioni e della storia locale".

Con riferimento all'importanza del ruolo dei partner territoriali, la condizione ricercata in quest'area è la collaborazione con attori del territorio, partner radicati nella medesima area dell'impresa esaminata e i vantaggi che ne derivano. La frequenza di queste collaborazioni con le realtà circolari del campione analizzato è molto alta, pari, cioè, al 71%, evidente segno di stretta correlazione tra i due fattori. Sebbene non indagato in questo studio, ma obiettivo di futuri lavori nonché monito per la ricerca, risulta molto interessante la fattispecie in cui la collaborazione nasca dalle fondamenta di legami personali pregressi degli attori coinvolti e che proprio in funzione di ciò si dia vita all'attività circolare. Alcuni esempi di affermazioni che sono state ricondotti a tali aspetti sono: "Tra le attività della società vi è stata anche la collaborazione con l'azienda Gaia GB Agricola (Montoro, AV)"; "I colori del Mediterraneo - Tingere con le piante" è un'associazione nata come spin-off Accademico dell'Università degli Studi di Salerno che opera nel settore della green economy e dell'economia circolare".

Infine lo sviluppo è l'ultima macroarea in cui si collocano tutti i vantaggi, diretti e indiretti, per gli attori coinvolti e per l'intera realtà territoriale. Gli elementi di indagine individuati, limitati anche dalla scelta di una desk research, sono: le conseguenze dell'implementazione di comportamenti socialmente responsabili ovvero la produzione di benessere per il sistema locale. Questi elementi evidenziano l'impatto del social capital nello sviluppo del territorio generando vantaggi per tutti gli attori territoriali. In dettaglio, il 92% delle imprese dichiara di aver contribuito alla produzione di benessere per il sistema locale, confermando gli effetti positivi dell'innovazione circolare sullo sviluppo del territorio. Alcuni esempi concreti sono: "De Matteis ha ridotto il proprio impatto attraverso l'installazione di un impianto di cogenerazione in grado di produrre più dell'80% dell'energia necessaria"; "Lavandula ha ridotto al minimo la quota di rifiuti non differenziabili, eliminato quasi del tutto l'utilizzo della plastica, ha scelto l'utilizzo di energia elettrica prodotta al 100% da fonti rinnovabili"; "Ammàno è una realtà in cui ogni aspetto della vita quotidiana e professionale sarà volto alla valorizzazione del territorio calabrese, delle sue tradizioni e del suo potenziale, in un'ottica di un basso impatto ambientale"; "diffondendo all'interno dell'azienda la cultura del rispetto e della prevenzione dell'inquinamento ambientale; sensibilizzando, coinvolgendo e motivando i propri lavoratori e fornitori al rispetto dell'ambiente e del territorio in cui operano".

Il legame riscontrato tra realtà innovative, ovvero le imprese circolari, e il social capital pone quest'ultimo all'interno di un circolo virtuoso generatore di innovazione e sviluppo del territorio (figura 1).

Fig. 1: Il circolo virtuoso generato dal social capital; fonte: elaborazione degli autori



Limiti della ricerca. Il paper intende analizzare la relazione tra il social capital e l'innovazione, all'interno di modelli di business circolari, nonché i possibili effetti sulla transizione green dei territori.

Lo studio è stato condotto esaminando dati secondari tratti dalle imprese considerate per la composizione del campione; pertanto, gli autori si ripromettono di approfondire l'indagine coinvolgendo gli imprenditori in maniera diretta, soprattutto al fine di osservare aspetti di natura immateriale, come l'importanza della componente emotiva quale collante tra impresa e territorio e quale motore per l'implementazione di pratiche per lo sviluppo sostenibile (Vuorinen e Kurki, 2012; García-Villaverde et al., 2017), e l'importanza della fiducia nelle relazioni tra gli attori che operano e collaborano nell'ambito di un medesimo territorio (Dakhli e De Clercq, 2004).

Inoltre, un altro aspetto che ci si ripromette di approfondire riguarda la soddisfazione nel collaborare con gli attori locali, così come l'importanza del social capital nelle diverse tipologie di modelli di business circolari (come la sharing economy o la resource recovery) (Aldieri et al., 2021; Tseng et al., 2022).

Implicazioni manageriali. Il presente lavoro offre un duplice contributo, proponendo implicazioni teoriche e manageriali. In primo luogo, lo studio ha consentito la definizione di un framework teorico costruito sui legami tra social capital e l'economia circolare. La definizione di un framework per l'interpretazione dell'importanza del social capital per le imprese che operano in termini di innovazione si ritiene possa rappresentare un utile strumento per la valutazione di pratiche e la definizione di iniziative che mirano allo sviluppo sostenibile del territorio.

In dettaglio, i risultati hanno confermato l'importanza del ruolo del territorio quale attore, supportando il riconoscimento del patrimonio territoriale come valore e vantaggio competitivo per il sistemi locali, e confermando l'importanza del valore territoriale quale elemento su cui puntare per dar vita all'interazione e alla cooperazione tra i

diversi attori (pubblici e privati), e allo sviluppo locale sostenibile (Magnaghi, 2012), anche grazie a forme di riqualificazione territoriale (D'Auria, 2014), e considerando aspetti di natura immateriale, di cui si evidenzia la necessità di ulteriori indagini (Dakhli e De Clercq, 2004). Ciò consente anche l'identificazione di implicazioni di policy, vale a dire l'importanza del ruolo delle istituzioni locali nell'indirizzare e promuovere lo sviluppo di pratiche green, attraverso la collaborazione tra diverse categorie di attori locali, come già suggerito da Leydesdorff (2000), che vedeva nella collaborazione tra imprese, istituzioni ed enti di ricerca la chiave per uno sviluppo basato sull'innovazione.

Con riferimento alle implicazioni manageriali, lo studio ha evidenziato quanto il social capital possa incidere sulla scelta di avviare imprese circolari, ma soprattutto l'importanza della consapevolezza delle imprese nel puntare sul capitale sociale anche nel ripensamento di supply chain in ottica circolare. I risultati hanno anche evidenziato che nell'ambito dell'implementazione di pratiche circolari, l'esistenza di relazioni stabili con imprese e stakeholder locali consente la produzione di valore non solo per l'impresa e per gli attori direttamente coinvolti, ma per l'intera comunità circostante (Pucci et al., 2020). Le imprese circolari sono infatti in grado di svolgere un ruolo significativo nelle comunità e per le economie locali, attraverso la realizzazione di processi e cambiamenti che hanno come obiettivo quello di poter contribuire alla riduzione dei danni ambientali e supportare sistemi circolari (Suchek et al., 2021; Triguero et al., 2022), affinché si possa garantire benessere collettivo.

In sintesi, le stabili relazioni tra imprese e diversi stakeholders possono dare origine a pratiche innovative di successo partendo proprio dall'individuazione di specificità territoriali, al fine di produrre valore sia per le imprese che per i territori stessi (Nogueira et al., 2019).

Parole chiave: social capital; economia circolare; risorse locali; territorio; collaborazione

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La collaborazione locale come driver all'innovazione sostenibile: uno studio esplorativo sugli attori chiave nel settore agroalimentare

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Inquadramento della ricerca. *La partnership, ovvero la creazione e la gestione di relazioni con altri attori al fine di raggiungere uno scopo prefissato, è al centro dell'Agenda 2030 dell'ONU per il raggiungimento di un mondo più sostenibile (Battaglia et al., 2020). Anche il settore privato, incluso quello agroalimentare, è chiamato a contribuire agli obiettivi di sviluppo sostenibile (SDGs) in linea con i propri obiettivi di business. Nell'ambito del settore privato, il settore agroalimentare, ovvero l'insieme di attività orientate alla produzione, trasformazione e distribuzione di prodotti alimentari rappresenta il 9% del prodotto interno lordo dell'Unione Europea ed ha un significativo potenziale nel contribuire agli obiettivi di sviluppo sostenibile delle Nazioni Unite. Molti degli obiettivi sono infatti direttamente collegati alla catena del valore agroalimentare, come la lotta alla fame (SDG 1), la qualità della nutrizione (SDG 2), l'occupazione e la crescita economica (SDG 8).*

La Commissione Europea, attraverso la Direzione Generale per la Ricerca e l'Innovazione ha infatti sottolineato l'importanza di identificare linee di finanziamento che possano facilitare l'innovazione del settore e che siano facilmente accessibili da parte delle imprese agro-alimentari a prescindere dalla loro dimensione (Verbeek et al., 2019).

In questo contesto, il contributo alla sostenibilità da parte del settore agro-alimentare non può prescindere però da una innovazione dello stesso. Secondo la strategia europea Farm to Fork, il settore dovrebbe considerare i problemi legati all'impatto generato nei processi sopra descritti e introdurre pratiche e innovazioni finalizzate a ridurre la propria impronta ecologica.

Negli ultimi anni, la ricerca e lo sviluppo nel settore agricolo stanno diventando una questione cruciale, soprattutto per rispondere alle crescenti esigenze del mercato globale e, in generale, per lo sviluppo dell'innovazione rurale (Passarelli et al., 2023). Tuttavia, secondo le analisi condotte a scala comunitaria, il settore agroalimentare si caratterizza per difficoltà nella crescita economica e strutturale, per frammentazione, e per una bassa propensione alla diffusione di nuove tecnologie a causa della bassa spesa dedicata all'innovazione. La scarsa competitività e scarsa propensione all'investimento in R&D è legato appunto alla piccola dimensione delle imprese del settore in Europa. Il 99% delle imprese agro-alimentari sono infatti identificate come piccole imprese e meno del 50% di esse ha investito nell'innovazione negli ultimi 3 anni (Verbeek et al., 2019).

L'innovazione, in questo quadro, è definita dalla letteratura come l'introduzione di pratiche e tecnologie in grado di ridurre l'impatto dell'impresa e, a larga scala, del settore sulle tre dimensioni della sostenibilità ovvero ambiente, società ed economia (Imaz and Eizagirre, 2020; Varadarajan, 2017).

In linea con queste premesse risulta strategico capire quali possano essere i driver in grado di condurre le imprese agro-alimentari ad una evoluzione che rispecchi ed integri gli obiettivi globali di sviluppo sostenibile. In particolare, considerata la piccola e media dimensione delle imprese del settore, secondo l'IFAD è fondamentale investire nella creazione di partenariati pubblici e privati per rafforzare la rete, sostenere la finanza agroalimentare e l'accesso alle risorse economiche (IFAD, 2015).

Obiettivo del paper. *L'obiettivo del paper è quello di identificare la combinazione ottimale di relazioni che permettono alle aziende operanti nel settore agroalimentare di generare innovazione sostenibile.*

Per rispondere alla domanda la ricerca ha analizzato le relazioni di oltre 71 imprese operanti nel settore agroalimentare prendendo in considerazione le relazioni costruite allo scopo di introdurre pratiche di sostenibilità e la loro capacità di accedere a fondi dedicati all'innovazione. Più in dettaglio, attraverso una Qualitative Comparative Analysis, la ricerca mira ad individuare la combinazione ottimale di relazioni sistematiche che le aziende operanti nel campo agroalimentare devono attivare per produrre innovazioni sostenibili. I risultati consentono quindi di delineare il migliore network possibile per una impresa operante nel settore agroalimentare che la conducano ad una evoluzione basata sull'innovazione e la sostenibilità.

I risultati sono inquadrati all'interno del framework "Attore-Rete" (Actor Network Theory, ANT) che ha come scopo proprio quello di analizzare dinamiche ricorrenti tra attori facenti parte di uno stesso network (Doak and

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Karadimitriou, 2007) e portare evidenze che aiutino a capire gli elementi di successo e/o di fallimento di un network nel raggiungimento di un obiettivo comune (Tatnal and Gilding, 1999). In linea con lo scopo più alto della ANT, il contributo proposto vuole delineare implicazioni che possano guidare manager e policy maker nella strutturazione di network più efficaci nel settore agro-alimentare. Lo scopo della teoria è infatti studiare i processi dinamici mediante i quali le reti di relazioni si formano, si spostano e hanno effetto (o meno) (Rydin e Tate, 2016). In altre parole, l'Actor-Network-Theory (ANT) (Callon, 1986; Latour, 1987) è stato identificato come il quadro generale a supporto per la comprensione dell'efficacia delle relazioni nelle iniziative dedicate all'innovazione sostenibile.

Metodologia. Per rispondere alla nostra domanda di ricerca, è stata utilizzata la QCA. In particolare, tre ragioni ci hanno spinto a utilizzare la metodologia QCA. In primo luogo, questa metodologia ci permette di analizzare le relazioni causali tra configurazioni o combinazioni di risorse (relazioni) e un risultato di interesse (innovazione sostenibile) (Ragin 2008; Schneider e Wagemann 2012). In secondo luogo, la QCA ha ricevuto una crescente attenzione da parte degli studiosi di management (Cucino et al., 2021; Sperber e Linder 2018) e di innovazione (Cucino et al., 2023; Yang et al., 2023). Infine, l'obiettivo di questa metodologia non è quello di dimostrare l'esistenza e l'entità di una relazione causale tra due variabili come nella statistica inferenziale, ma piuttosto di rivelare modelli che supportino l'esistenza di tale relazione causale (Schneider e Wagemann 2010).

Nel nostro studio abbiamo utilizzato una tecnica specifica di QCA denominata fuzzy set qualitative comparative analysis (fsQCA). La fsQCA adotta la logica fuzzy per ampliare le possibilità offerte dalla QCA dicotomica. In questo modo, è possibile esprimere l'appartenenza a un insieme in un intervallo di valori compreso tra 0 e 1, ottenendo così una scala di appartenenza (Ragin 2000).

Per la nostra analisi, abbiamo preso in considerazione 71 imprese italiane di differenti dimensioni e distribuite su tutto il territorio italiano. La selezione dell'Italia come contesto di riferimento è motivata dalla sua comprovata leadership nella produzione agricola (Pino et al., 2017; Proietti et al., 2016; Rossi et al., 2020). Le imprese sono state selezionate perché inserite all'interno di un network nazionale che intende monitorare i progressi dei settori produttivi italiani rispetto ai temi della sostenibilità. A ciascuna di queste aziende è stato somministrato un questionario in italiano che mira ad individuare le relazioni e i loro risultati in termini di innovazione sostenibile.

La metodologia QCA inizia con la procedura di calibrazione. Attraverso questa procedura, abbiamo operazionalizzato i dati raccolti come punteggi che permettono di definire l'appartenenza o meno della condizione a un gruppo predefinito. Abbiamo effettuato la trasformazione dei dati in punteggi utilizzando la calibrazione diretta proposta da Ragin (2008). La Tabella 1 mostra tale calibrazione dei dati.

Tab. 1: Calibrazione

Risultato/condizioni	Descrizione	Calibrazione
Risultato: innovazione sostenibile	Variabile dicotomica: risultati in termini di innovazione sostenibile	Si -> 1 No ->
Condizioni		
Università	Variabile dicotomica: relazioni stabili con università ed enti di ricerca	Relazioni stabili -> 1 Relazioni non stabili - 0
Istituzioni locali	Variabile dicotomica: relazioni stabili con istituzioni locali (es. Comune)	Relazioni stabili -> 1 Relazioni non stabili -> 0
Istituzioni nazionali	Variabile dicotomica: relazioni stabili con istituzioni nazionali	Relazioni stabili -> 1 Relazioni non stabili -> 0
Associazioni	Variabile dicotomica: relazioni stabili con istituzioni associazioni non profit	Relazioni stabili -> 1 Relazioni non stabili -> 0
Cooperative	Variabile dicotomica: relazioni stabili con cooperative	Relazioni stabili -> 1 Relazioni non stabili -> 0
Altre organizzazioni non profit	Variabile dicotomica: relazioni stabili con altre organizzazioni non profit	Relazioni stabili -> 1 Relazioni non stabili -> 0

La fsQCA prevede diverse fasi (Ragin 2006); la prima consiste nella costruzione di una tabella di verità, una matrice con righe di $2k$ dove k è il numero di condizioni casuali utilizzate nell'analisi. Ogni riga della tabella è associata a una combinazione di attributi. La tabella di verità riporta tutte le possibili combinazioni logiche di condizioni e il risultato associato a ciascuna configurazione. Ogni riga della tabella di verità rappresenta una delle combinazioni logicamente possibili di condizioni, compresi i casi per i quali non esistono prove empiriche (Schneider e Wagemann 2012). La seconda fase riduce il numero di righe della tabella della verità considerando due condizioni, una soglia di frequenza e una di coerenza. Seguendo Ragin (2008), abbiamo applicato una soglia di frequenza pari a 1 e una soglia di coerenza pari a 0,8, rispettivamente. La terza fase utilizza un algoritmo basato sull'algebra booleana per semplificare la tabella di verità. Nel nostro studio, abbiamo utilizzato l'algoritmo di Quine-McCluskey (utilizzato nel pacchetto software fsQCA 3.0) per minimizzare logicamente le dichiarazioni di sufficienza, semplificare la complessità e ottenere una risposta più parsimoniosa (Schneider e Wagemann 2012).

Risultati.

Analisi delle condizioni necessarie. Questo tipo di analisi ci permette di determinare se alcune delle condizioni causali analizzate possono essere considerate come condizioni necessarie per il verificarsi di un determinato risultato. In altre parole, l'analisi verifica se la presenza di una condizione è necessaria per garantire l'output, ossia, nel nostro caso: l'innovazione sostenibile. Una condizione è necessaria per il risultato se tutti i casi che presentano la condizione presentano anche il risultato e non ci sono casi che presentano il risultato e non presentano la condizione (Schneider e Wagemann 2012). In linea con questo ragionamento, consideriamo condizione necessaria quella con una consistenza superiore a 0,9 (Schneider e Wagemann 2010). La consistenza misura quanto l'evidenza empirica supporta l'esistenza di una relazione tra la configurazione e il risultato (Ragin 2006). La Tabella 2 mostra l'analisi delle condizioni necessarie considerando sia la presenza di una condizione che la sua assenza. Poiché la consistenza per ogni condizione è inferiore alla soglia di 0,9, possiamo affermare che la nostra analisi mostra che nessuna delle condizioni da sola è necessaria per determinare l'output "innovazione sostenibile".

Tab. 2: analisi delle condizioni necessarie

Risultato: innovazione		
	coerenza	copertura
Istituzioni locali	0.76	0.61
~ Istituzioni locali	0.23	0.43
Istituzioni nazionali	0.23	0.42
~ Istituzioni nazionali	0.76	0.75
Università	0.72	0.75
~ Università	0.27	0.32
Associazioni	0.67	0.68
~ Associazioni	0.19	0.30
Cooperative	0.67	0.68
~ Cooperative	0.32	0.43
Altro	0.38	0.79
~ Altro	0.61	0.46

Analisi delle condizioni sufficienti. La metodologia fsQCA prevede l'analisi delle condizioni sufficienti. Come evidenziato da Schneider e Wagemann (2012), una condizione è sufficiente per il risultato se tutti i casi che presentano la condizione presentano anche il risultato, ma ci sono anche casi che presentano il risultato ma non la condizione. In questo modo, l'analisi delle condizioni sufficienti identifica tutte le condizioni che sono sufficienti per il verificarsi del risultato. Per il nostro studio, consideriamo una soglia di frequenza di 1,0 e una soglia di coerenza di 0,80, entrambe coerenti con Kraus et al. (2018). Il modello utilizzato per la nostra analisi contiene quattro condizioni:

Innovazione sostenibile=f(relazioni con Istituzioni locali, Istituzioni nazionali, Università, Associazioni, Cooperative, Altro)

Il metodo fsQCA consente di analizzare le combinazioni - ovvero le configurazioni - delle condizioni che portano al verificarsi del risultato di interesse, ovvero risultati in termini di innovazione sostenibile. La Tabella 3 mostra i risultati della nostra analisi.

Tab. 3: Risultati

	Copertura grezza	Copertura unica	Consistenza
Istituzioni locali* ~ Istituzioni nazionali*Università*Associazioni*Cooperative*Altro	0.21	0.21	0.86
Copertura della soluzione:0.21			
Coerenza della soluzione: 0.84			

In particolare, mostra come l'uso della soluzione intermedia permetta di identificare una configurazione sufficiente (Cucino et al., 2021; Rihoux e De Meur; 2009) per ottenere risultati in termini di innovazione sostenibile: la combinazione delle relazioni tra istituzioni locali, università, associazioni, cooperative ed altre organizzazioni no profit. In altre parole, attraverso la collaborazione sistematica tra gli attori locali del settore agroalimentare, le organizzazioni riescono ad innovare in modo sostenibile.

Inoltre, seguendo Ragin (2008), è stata anche riportata la copertura grezza e la copertura singola. La copertura grezza si riferisce al numero di casi che presentano il risultato di imprese agricole che producono innovazione sociale in una determinata configurazione diviso per il numero totale di risultati di innovazione sociale. La copertura singola, d'altra parte, indica la proporzione di casi di imprese agro-alimentari che producono innovazione sociale coperti unicamente da una determinata configurazione. Ciò significa che nessun'altra configurazione copre questi casi. Come visibile nel nostro caso, le due misure hanno lo stesso valore perché c'è solo un percorso di soluzione.

Studi precedenti hanno suggerito come il successo a lungo termine delle organizzazioni dipende dalla capacità delle imprese di creare valore per un'ampia gamma di stakeholder (Berman et al., 1999; Ogden e Watson, 1999; Ruf et al., 2001). Più concretamente, questo studio contribuisce agli studi relativi alla teoria ANT mostrando come le reti e le relazioni tra gli attori diventano l'oggetto principale del vantaggio competitivo per le organizzazioni che intendono soddisfare i principali stakeholder (Huang e Chang, 2008; Tallman et al., 2004; Pallotti e Lomi, 2011). Di conseguenza, l'esistenza di relazioni sociali gioca un ruolo cruciale nel raggiungimento di performance competitive da parte di diversi tipi di imprese (Granovetter, 1985; Uzzi, 1996; Prato, 2018).

Inoltre, questo studio contribuisce agli studi sulla prossimità geografica mostrando come le interazioni spazialmente vicine (cioè locali) tra le imprese sono di grande valore per la performance innovativa delle PMI (Doran et al., 2012) e l'uso sistematico di reti locali sono particolarmente importanti per le imprese che non possono impegnarsi in frequenti interazioni di rete a distanza. In questo contesto, diversi autori analizzano come la rete di relazioni sociali consente alle organizzazioni di accedere a risorse strategiche per accrescere il proprio vantaggio competitivo (Pallotti e Lomi, 2011) e di produrre norme relazionali, come la fiducia e l'impegno (Granovetter, 1985) e di contribuire allo scambio di conoscenze e risorse tacite attraverso interazioni (serendipiche) faccia a faccia. Per questo motivo, l'aspetto della prossimità spaziale è riconosciuto come un fattore importante della struttura e del funzionamento della rete (Capello e Faggian, 2005; Westlund e Bolton, 2003).

Limiti della ricerca. *I limiti della ricerca sono legati all'assenza di triangolazione dei dati raccolti. La naturale prosecuzione della ricerca prevede infatti l'approfondimento dell'evoluzione dei network identificati come "efficaci" attraverso dati secondari o attraverso interviste mirate. L'osservazione relativa all'acquisizione di eventuali brevetti potrebbe, ad esempio rendere il quadro più chiaro o, in alternativa, l'analisi delle performance ambientali dell'impresa legate alle pratiche introdotte grazie all'utilizzo di fondi dedicati all'innovazione potrebbe fornire una quantificazione dell'impatto generato su lungo periodo. Inoltre, la ricerca ha preso in analisi un solo settore. È quindi opportuno immaginare l'applicazione del medesimo modello ad imprese operanti in diversi settori allo scopo di osservare l'esistenza delle medesime dinamiche osservate.*

In linea con il quadro teorico utilizzato, inoltre, future ricerche potrebbero integrare l'analisi integrando ulteriori variabili non umane relative alla relazione tra gli attori (es. utilizzo di chat per la gestione del network, la presenza di riunioni periodiche, ecc.) o relative alla dimensione individuale delle imprese (es. sistemi di reporting di sostenibilità; adesione a sistemi di certificazioni, ecc.).

Implicazioni manageriali. *Il contributo proposto ha l'obiettivo di delineare implicazioni pratiche che possono aiutare manager e policy maker nel settore agro-alimentare a comprendere l'importanza delle connessioni. La teoria ANT mette in evidenza l'importanza delle connessioni tra le entità e come queste connessioni possono influenzare il successo o il fallimento di una rete. Manager e policy maker dovrebbero quindi prestare attenzione alla struttura e alla qualità delle connessioni all'interno delle reti agro-alimentari.*

Questo studio potrebbe aiutare i manager a riconoscere la fluidità delle relazioni. Infatti, la teoria ANT sottolinea che le relazioni tra le entità possono cambiare nel tempo. Manager e policy maker dovrebbero essere consapevoli di questo e essere pronti ad adattarsi alle modifiche delle relazioni all'interno della rete agro-alimentare.

Ulteriore contributo di questo studio è quello di promuovere la fiducia e la trasparenza tra le relazioni. Lo studio infatti sottolinea l'importanza della fiducia tra le entità e della trasparenza nelle relazioni. Manager e policy maker dovrebbero promuovere questi valori all'interno delle reti agro-alimentari per favorire una collaborazione più efficace.

Infine, è importante fornire un maggiore sostegno manageriale ed imprenditoriale al comparto agro-alimentare, soprattutto nei contesti dove la frammentazione fondiaria è elevata e le imprese agricole sono di piccole dimensioni e i contesti rurali di paesi in via di sviluppo, affinché possano avere accesso a servizi, informazioni, workshop e corsi di formazione, che aumentino la probabilità di stringere relazioni con altri attori, in un processo di innovazione aperta (Bellandi e Caloffi, 2010).

Inoltre, è importante sottolineare l'importanza della creazione di reti tra le imprese e tra queste ultime e le istituzioni locali. Come afferma Saxenian (1994), le imprese che collaborano e creano reti di relazioni tra loro e con le istituzioni locali, hanno maggiori possibilità di successo nell'innovazione e nello sviluppo economico.

Altro punto importante è la necessità di rafforzare la collaborazione tra università e imprese, al fine di creare un legame tra ricerca e sviluppo nel settore agro-alimentare. Come sottolineato da Etzkowitz e Leydesdorff (1995), la collaborazione tra università e imprese è un'importante fonte di innovazione e sviluppo.

In sintesi, manager e policy maker possono utilizzare queste informazioni per sviluppare strategie che favoriscano la creazione di reti più efficaci e resilienti nel settore agro-alimentare

Originalità del paper. *Lo studio vede come principale elemento di originalità l'utilizzo di una metodologia che consente di individuare la combinazione di relazioni sistematiche che facilitano le imprese ad introdurre innovazioni sostenibili. L'applicazione della QCA per lo studio di relazioni costituisce lo strumento ideale attraverso cui fornire quelle evidenze che l'Actor-Network Theory cerca fin dal suo sviluppo teorico (Latour, 2005). In termini di originalità quindi la combinazione dello strumento analitico QCA e del quadro teorico consente di mettere in luce l'importanza dei legami tra attori umani e non umani nella costruzione della realtà sociale e consente di dare loro un volto in termini di ruolo sociale svolto. Secondo l'ANT, gli attori (persone, oggetti, idee, tecnologie, etc.) non agiscono individualmente, ma sono in costante interazione e formano una rete di attori interconnessi, che influenzano reciprocamente le loro azioni e le loro relazioni.*

In questo senso, la ricerca ha considerato non solo gli attori umani coinvolti nel processo di introduzione di innovazioni sostenibili, ma anche quelli non umani, come ad esempio le tecnologie e le infrastrutture che facilitano

l'introduzione di innovazioni sostenibili. L'innovazione sostenibile, quale output esplorato nella ricerca, è, come suggerito dalla teoria, il risultato dell'efficace relazione tra i soggetti coinvolti nel network che, collaborando, allargano il proprio potere relativo e le proprie potenzialità rispetto ad uno scopo prefissato. Inoltre, l'ANT riconosce l'importanza di considerare l'attore stesso come una costruzione sociale, il risultato di un insieme di relazioni con altri attori. Questo implica che gli attori non hanno un'identità fissa e immutabile, ma possono mutare nel tempo in base alle loro relazioni con gli altri attori della rete. In questo modo, l'Actor-Network Theory può fornire un utile supporto alle imprese che intendono introdurre innovazioni sostenibili, aiutandole a comprendere e gestire le relazioni tra gli attori coinvolti e a creare una rete di attori interconnessi e collaborativi. In sintesi, l'utilizzo dell'Actor-Network Theory rappresenta un ulteriore elemento di originalità della ricerca, che si propone di fornire alle imprese gli strumenti necessari per individuare e gestire le relazioni tra gli attori coinvolti nel processo di introduzione di innovazioni sostenibili.

Parole chiave: collaborazione locale; innovazione sostenibile; relazioni; Actor-Network Theory;

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The new kitchens - mapping and description

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Framing of the research. *The COVID-19 pandemic had a significant impact on the restaurant and food delivery industry. Restaurants, pubs and nightclubs were among the first to be closed due to lockdowns and restrictions imposed to limit the spread of the virus. Even restaurants that were able to stay open saw a drop in revenue due to capacity restrictions and reduced consumer demand. (Souza et al., 2022)*

The need for social distancing and increased health and hygiene concerns have also led to a change in consumption behaviour. There has been an increase in home deliveries and a greater adoption of take-away and take-away dining options. While some restaurants have had to close, others have had to quickly adapt to these new modes of service. (Norris et al., 2021)

Not all categories of restaurants have been affected in the same way by the recent pandemic, in fact of the three most common types, which can be described as follows, by size and type of service offered (Cognizant, 2009):

- *Quick Service Restaurants: or QSRs, are a type of restaurant characterized by rapid product preparation, usually taking less than ten minutes from the time of ordering. This type of restaurant is designed to meet the needs of time-poor customers, such as travelling workers or people queuing for a quick lunch. The target customers of these restaurants are generalists, but they mainly appeal to young individuals or people with tight schedules.*
- *Casual Diners / Family Restaurants: are a type of restaurant that combines some of the features of Quick Service Restaurants (QSRs) with table service. They usually have quick order preparation, inheriting much of the operations from QSRs, but also offer a more traditional dining experience with table service. These restaurants are mainly aimed at families with young children or informal dinners with many guests. The menu offered is often large and varied and includes options for the whole family, including children's options. The accompaniment and condiment options are often customizable to meet the needs of individual customers.*
- *Full-Service Restaurants: or FSR, are a type of restaurant characterized by fuller table service and a more formal atmosphere than other restaurant categories. They offer more elaborate dining rooms and "mise en place" so that customers can enjoy a more complete dining experience. Preparation is generally slower and more elaborate than in the previously described categories such as QSRs or Casual Diners. These restaurants are the oldest type of restaurants, often family-run. Their target clientele is wide and varied and includes families, couples, groups of friends and business travelers. Full-Service Restaurants are also often associated with special events such as weddings, birthdays, business dinners and other occasions. In general, they offer more flexibility and a wider range of options to meet customers' needs than restaurants in other categories.*

Those in the QSR category, and to some extent Casual Diners, were more resilient to the impact of COVID19 due mainly to their propensity for Take Away and Food Delivery. Determined, for the most part, by the more simplified types of operations required for food preparation.

In addition, changes in consumer behavior have also led to an increase in the adoption of online food delivery platforms, such as UberEats, Deliveroo, Glovo, JustEat. (Ahuja et al., 2022) These platforms allowed restaurants to continue serving customers even when they could not accommodate them within their premises. (Muangmee et al., 2021) If during the pandemic period, the delivery channel was necessary for the continuity of the restaurants. Even after the alleviation of restrictions, it remained constant, establishing itself as one of the most used sales channels.

Travel restrictions and the need to avoid crowds have also led to an increase in demand for home cooking. (Gerritsen et al., 2021) This has given rise to the growth of so-called 'Dark Kitchens' that are virtual restaurants physically located within existing kitchens that use home delivery and delivery through online platforms to reach their customers. (Rinaldi et al., 2022) These restaurants are based on a business model that allows them to eliminate location and equipment costs, focusing only on food production and delivery. (Seghezzi and Mangiaracina, 2020)

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So far, we have referred to Dark Kitchens as a generic term to define new kitchen layouts dedicated to delivery, but within this macro set, we can precisely define at least three categories. It is therefore possible to subdivide catering types according to room configuration, type of service and location inside or outside a conventional restaurant. (Choudhary, 2019; Osservatorio Food Service, 2020; Shapiro, 2023)

- i) Dark Kitchen: The simplest and least impactful formula for small catering operators involves the partition of an area of the existing restaurant kitchen into a separate unit, dedicated exclusively to the production and management of food delivery. This management is particularly effective when the activity is in a high-density area with flows concentrated in a small portion of time, since it does not create conflict with the production dedicated to table service, exponentially increasing the restaurateur's possibility of reaching his customers. This solution also includes take-away.*
- ii) Ghost Kitchen: Restaurant model in which a single operator runs a remote kitchen-lab, within which he develops one or more brands exclusively dedicated to food delivery or take-away that fall solely under his management. The preparation takes place within a premises with no public administration and no signage. The different brands generally refer to alternative products, developed based on the analysis of consumption data of the area within which it operates. Generally, each of the brands refers to a different ethnic offer to guarantee a superior depth of offer and an optimization of work cycles.*
- iii) Cloud Kitchen: Restaurant model in which several operators share a kitchen and many of the operating costs. It is, to all intents and purposes, a co-working model for catering, where a company provides several operators with a pre-equipped space with sufficient equipment and technical facilities to start up their own home delivery catering brand. ("Virtual Kitchen the Digital Catering in Food Delivery") Within the area there will be from two to more caterers, each managing their own assigned unit and with no entrepreneurial or operational ties between them. Some aggregators and Food Delivery platforms create Cloud Kitchens on their own to be rented to restaurateurs who undertake to produce exclusively for them, constraining the development of the restaurateur's brand and not allowing them to operate in full entrepreneurial freedom. It requires a minimum start-up time. (Shapiro, 2023)*

Those described above are the three main models developed in the post-pandemic period; it is not mandatory that a specific catering company should adopt only one of them. They can be adopted simultaneously in different areas, even in the same city, and can also be mixed, as needed.

Purpose of the paper. *What has not yet been clarified by the existing literature, however, is which model is most widely adopted by the three main restaurant sectors, divided by type of service offered to the customer, namely Quick Service Restaurants, Casual Diners and Full-Service Restaurants, (Cognizant, 2009) and it is important to address the correct type of kitchen to the correct type of service offered by a restaurant brand.*

In this article, we aim to report on the investigations carried out to understand how restaurants, with many sales through the delivery channel, adapted their production processes to the significant increase in sales in this channel, which occurred during the pandemic period.

The most important question is to understand which catering sectors have adopted at least one of the Dark Kitchen models and to identify, for each of the three sectors, which kitchen model(s) is/are most widely used.

This research is potentially relevant, as the current literature is not sufficiently complete to accurately classify which are the new production processes in home catering, a sector that is gaining importance very quickly and will be increasingly relevant in the future.

It may present a novel character in that no research seems to exist to determine which process is most widely used in the various catering sectors. This is useful both as a basis for subsequent scientific research and as a point of reference for all companies wishing to develop their own home ordering capabilities.

Methodology. *This study utilized a mixed-methods research design that incorporated both inductive and deductive approaches to observe, via a non-participant observer methodology (Ostrower, 1998), and collect primary data (Hox and Boeijs, 2005) on the use of food delivery by restaurants. The inductive approach involved open-ended observation and data collection (Kyngäs, 2020), while the deductive approach involved structured observation and data collection (Hyde, 2000). The study was conducted observing food delivery apps and through direct interview with food companies. The sample size included observable restaurants that were open during the study period, which was from October 1, 2022, to February 28, 2023.*

The data collection process involved two stages. In the first stage, the inductive approach was used to observe and document the use of food delivery by restaurants. This involved open-ended observations of the types of food delivery services used by each restaurant, such as Uber Eats, Glovo, JustEat and Deliveroo.

In the second stage, the deductive approach was used to collect structured data on the use of food delivery by restaurants. This involved observing each restaurant and documenting whether they were using food delivery services, and if so, which services they were using.

The data were analyzed using qualitative methods. The data collected in the inductive stage were analyzed using content analysis to identify common themes and patterns in the types of food delivery services used by restaurants.

The study was conducted by applying all possible ethical standards for research involving human beings. In fact, no personal information about restaurants or their owners was collected or shared, and the study in no way involved intervention or manipulation that would harm the restaurants or their customers.

In addition, the direct and personal collection of data through the most common food delivery applications available made it possible to eliminate any bias that might be caused by some differences in classification of types of kitchens, which interview subjects may have due to differences in vision, experiences and perspectives. (Lowe and Zemliansky, 2011)

Results. We expect to find precisely how many companies use Dark Kitchens, how many Ghost Kitchens and how many Cloud Kitchens. In addition, the aim is to break down the number of companies found, into the three main catering sectors, so that we can create a matrix that is easy to understand to determine which of the chosen organizational models is most frequently used and by which sector.

The matrix will be useful to be able to formulate hypotheses on the reasons why these models are adopted, as we expect to find a close correlation between the characteristics of the types of kitchens and the main characteristics of the catering service modes.

At present, the results are not yet fully defined, as it would be necessary to look at other companies in the restaurant industry to get a broader pool of restaurant numbers and product differentiation. The research is still ongoing precisely because it is hoped to observe other companies in the industry to increase the number of cases considered.

Thirty-six restaurants were considered at the time, divided between QSRs, Casual Diners, and FSRs. Only restaurants that do food delivery, and only restaurants that use some sort of separate or outsourced kitchen were targeted to narrow down to only those that have the potential to develop new kitchen models to speed up orders and increase revenue through this channel. Of the thirty-six companies considered, thirty-five were taken from the sample of companies operating in northern Italy, while one was an American company, which was interviewed and visited personally, in order to serve as a benchmark for the categorization of all the others.

Already from data collection, there is a strong imbalance between QSR and Casual Diners restaurants and Full-Service restaurants, as the first two categories mentioned are usually more likely to place home orders.

Tab. 1: Classification of restaurants in restaurant categories.

QSR	Bao Lab; FOORBAN; 85Pizza Ghost; Nutribees; Delivery Valley; Bendito Burrito; Milanese House; Meraki Pita; The Urban Kebab; Dirty Burger; mila's sandwiches; Hot Dog Nation; French Tacos Club; Scandal Burgers;Pescaria; I Love Poke; Scomposto; Butcher's Burger; MamiPoke; Corner Bistro; Spazio Sushi - Poke e Onigiri; Lime Thai; Poke Shop; Susheria;Pinseria SB; Whimsy Kitchen; Bun Burger; I Love Poke; The Egg
Casual Diners	Calavera;Taqueria Guadalupe; It's Just Wings; Maggiano's Specialities; Casa Quesadillas; Pizza Zero;
FSR	Amici Miei

Upon analysis, it became apparent that most foodservice operators are primarily employing Ghost Kitchen and Cloud Kitchen models to run their businesses, with only a small number of operators using the Dark Kitchen model as their main approach. From this inductive analysis, an initial result already emerges, where among all restaurant categories, QSR makes extensive use of food delivery and relocated kitchens, Casual Diners, make use of them but in a very limited way while FSRs are not interested in having delivery chains.

Tab. 2: Counting which operators, from which sector, use dark kitchen

	Ghost Kitchen	Dark Kitchen	Cloud Kitchen	Total
QSR	16	-	12	28
Casual Diners	2	3	1	6
FSR	-	-	1	1
Sum	18	3	14	35

Based on the data presented in the table, and from an inductive point of view, it can be concluded that the Quick Service Restaurants have the highest number of Ghost Kitchens and Cloud Kitchens with a total of 28 kitchens. On the other hand, Casual Dining and Full-Service Restaurants have very limited presence in Ghost Kitchens and Cloud Kitchens with only 1 kitchen each. This suggests that the trend of ghost kitchens and cloud kitchens is primarily being adopted by Quick Service Restaurants. It is also interesting to note that Dark Kitchens are much less popular, with only 3 kitchens in total used only by Casual Diners restaurants that have Virtual Brands - Brands specially created for delivery -. Overall, this data suggests that ghost kitchens and cloud kitchens are becoming an increasingly popular way for Quick Service Restaurants to expand their reach and compete in the market.

These inductive results are derived from the data collection and reflect the trends and patterns observed in the firms. It turns out that in the four categorizations provided, Restaurants tend to use Ghost Kitchens the most, with

Cloud Kitchens following soon after, while Dark Kitchens are used much less. These results fill the gap in the literature, where there is currently no clarification of the categories nor a study exploring which of these is used the most.

The reason why the restaurants using the innovative production models described above are mainly QSR restaurants, known for their fast service and affordable prices, is because of the high volume of home food sales they have, for which they need to decentralize production for delivery from the eat-in, to avoid concentrating too much flow within a restaurant. These restaurants prioritize efficiency and speed to meet the demands of a growing delivery market, which makes them ideal for testing and implementing new production methods.

In contrast, FSR restaurants have no need or motivation to create a separate, alternative production unit for home delivery alone, as they focus primarily on on-site service, taking care of everything from production to customer care.

In any case, further research is needed to understand the factors behind these trends and the potential impact on the restaurant industry and what the impact is on consumers.

All types offer advantages especially to QSR restaurants, but there are some reasons why cloud and ghost kitchens may be preferred to dark kitchens.

They are a fully equipped commercial kitchen designed exclusively for delivery and take-out orders. It operates as a separate entity from the main restaurant and generally has a more limited menu and does not have mail room for on-site dining. Ghost and cloud kitchens are often located in urban areas where real estate costs are lower and allow restaurants to expand their reach without investing in a new physical location.

On the other hand, dark kitchens are kitchens embedded within existing restaurants, this can help restaurants save on overhead costs such as rent and utilities, allowing them to prepare food for delivery and takeout.

Another reason why ghost and cloud kitchens may be preferred over dark kitchens is that they offer more control over the food preparation process. In this way, in fact, the restaurant has full control over the kitchen alone and can ensure that the food is prepared according to its specific standards, without having to worry about room management and contamination from it.

Research limitations. *The research on dark kitchen categorization is an essential contribution to understanding the fast-growing and rapidly evolving dark kitchen industry. However, there are several limitations that researchers and readers should acknowledge.*

A fundamental limitation of the study is both the small sample size and the geographic scope of data collection, part of the study results may not be fully representative of the entire global dark kitchen sector. The data may reflect some of the characteristics of the selected sample of dark kitchens within a particular region or country. Therefore, generalizing the results to a larger population may be difficult.

One limitation of the study is the framework of categories used, which may not be exhaustive or comprehensive enough to capture all possible facets of dark kitchens. The latter are particularly dynamic and the characteristics are constantly evolving, which may lead to the emergence of new categories or subcategories that may not be included in the current framework. It is possible that other schemes give slightly different results, but this cannot affect the results and conclusions of the study.

Another drawback of the study is that some of its assumptions are based on secondary data sources, such as apps and websites. These sources provide a general picture of the state of dark kitchens, although they may not be entirely accurate or up to date. Also, it is possible that not all dark kitchens in each location are covered by these sources, which may make it difficult for the study to draw reliable results.

In conclusion, research on the categorization of dark kitchens provides valuable insights into the structure and organization of the sector. However, researchers and readers should be aware of the limitations of the study, including the small sample size and limited geographical scope of the data collected, the limitations of the categorization framework used, the reliance on secondary data sources, and the lack of qualitative data on the experiences and perspectives of dark kitchen operators and customers. Addressing these limitations in future research could improve understanding of the dark kitchen sector, its associated complexities and help inform policies and practices that promote its growth and sustainability.

Management implications. *The emergence of new types of kitchens is indicative of the rapidly evolving foodservice industry, which is increasingly reliant on technological and operational innovation. Researchers have an important role to play in exploring the impact of these innovations on various aspects of the industry, from work organization to consumer behavior.*

One area of research that of particular interest may be the impact of new kitchen models on the organization of operations within restaurants. Dark kitchens, ghost kitchens, and cloud kitchens all require different operational structures and may involve different levels of automation. Researchers could then explore how these differences affect the characteristics of work in the industry, including work requirements and conditions.

Another research area of high interest is the changing nature of food consumption and the diminishing boundaries between traditional food service channels. Dark kitchens, ghost kitchens, and cloud kitchens all operate in the digital space and rely heavily on online ordering and delivery platforms. This raises questions about the impact of these trends on consumer behavior, social interaction, and cultural norms related to food. In future research, it is possible to explore how these changes affect food choices, eating habits and the social meaning of shared meals.

The development of new cooking models also highlights the importance of agility and adaptability in the restaurant industry, especially in times of crisis. The recent pandemic had a significant impact on the industry, and companies that were able to adapt quickly to market conditions that changed very quickly were more successful in weathering the

storm. It may also be interesting to study how the emergence of new kitchen models affects industry competition, innovation, and the ability of companies to respond adapt to the changing market.

Another key benefit of outsourced kitchens is the ability to expand reach and reduce overhead. Dark kitchens, ghost kitchens, and cloud kitchens offer companies the opportunity to operate in smaller spaces and with fewer staff, or otherwise trained differently due to the absence of the room, while still offering a wide variety of dishes for online ordering. This can enable businesses to serve more customers, creating economies of scale, particularly by going after the segment of customers who prefer to order food from the comfort of home.

These new kitchen models, which offer faster delivery times and greater convenience, can also benefit customers through reduced order times.

In conclusion, the emergence of new types of kitchens is indicative of the growing importance of technological and operational innovation in the foodservice industry. It thus becomes increasingly crucial, however, to explore the impact of these innovations on various aspects of the industry, including work organization, consumer behavior, and industry competition. While in part these new kitchen models offer many benefits to businesses and consumers, they may also offer challenges in terms of food safety and quality control due to the increased workload and the distance of the restaurant from customers' view. Addressing these challenges will be essential to ensure the sustainability and success of these new kitchen models in the years to come.

Originality of the paper. The paper on dark kitchen categorization represents an important contribution to the existing literature on the food industry. By providing a comprehensive framework for categorizing dark kitchens based on their primary business model, the paper enables a deeper understanding of this new and rapidly evolving phenomenon. This framework considers the unique characteristics and operational models of each type of dark kitchen, allowing for a more nuanced analysis of the factors that have contributed to their growth and popularity.

One of the main strengths of this paper is its ability to bring out the increased use of these kitchens as a new business model in the food industry. The paper recognizes how changing consumer preferences, technological advances, and the rise of delivery platforms have played a significant role in the increased use of dark kitchens. By analyzing the different categories of these, the paper provides insights into the factors that have made this business model so attractive to foodservice players.

The paper also offers a detailed examination of the potential advantages and disadvantages of adopting the dark kitchens model. The framework for determination allows for an analysis of the unique characteristics and operating models of each type of dark kitchen, highlighting potential advantages and disadvantages such as increased efficiency, flexibility, control over the quality of food produced, and the potential for development for the delivery industry in general.

The biggest potential disadvantage of dark kitchens is the lack of transparency and oversight, which can lead to concerns about food safety and quality control. Because food is prepared at a different location than where it is consumed, and undergoes transportation with conditions that are often uncontrollable, there may be a lack of oversight and regulation as there is in traditional catering, where dishes are consumed a very short distance from where they are produced.

In addition, companies may have to ensure that quality control standards are maintained across multiple locations or platforms, which can be challenging from an operational perspective, as increased fragmentation can lead to operator inattention or a lack of time and personnel for control.

However, dark kitchens potentially offer more advantages than disadvantages, such as reduced overhead costs and the ability to offer a greater variety of dishes. By operating in smaller spaces and with lower staffing requirements, companies can serve more customers cost-effectively, taking advantage of economies of scale.

Overall, this analysis on the categorization of which operators, from which sectors, use the dark kitchen model provides a valuable contribution to the food industry literature, offering a comprehensive framework for understanding about this new business model and for companies to understand which model is best suited to their goals and objectives. The paper recognizes the unique characteristics and operating models of each type of dark kitchen and in part analyzes the potential advantages and disadvantages of this trend, placing greater emphasis on correctly targeting each dark, ghost and cloud kitchen model to the correct food service industry, categorized into QSRs, Casual diners and FSRs. In doing so, the paper offers insights into the factors that have contributed to the growth of dark kitchens and food delivery in general and what the potential implications might be for the food industry and the economy as a whole.

Keywords: dark kitchen; cloud kitchen; ghost kitchen; food service; restaurant; food safety; consumer behavior; management; food delivery; food app; QSR.

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The role of consumers in Logistics and Supply Chain Management research: a systematic literature review

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Framing of the research. *The advent of the internet followed by the increased use of mobile technologies, the rapid development of omni-channel supply chains and the wide span of information available to consumers, have shifted the positioning of the academic literature about logistics and supply chain management towards more consumer-oriented practices. Indeed, technology hold a crucial role in informing, networking and empowering consumers, which are increasingly recognized as key stakeholders and active players in the value creation processes (Ta et al., 2015; Kirchoff et al., 2019).*

In the early logistics and supply chain management (LSCM) literature, consumers have been recognized by scholars as key actors of supply chains (Stolze et al., 2016); in fact, foundational definitions of supply chain management (SCM) specifically included the ultimate consumer as a key entity to supply chains (Mentzer et al., 2001; Cooper et al., 1997). However, end consumers have largely been considered as “passive recipients” of logistics and supply chain decisions and outputs (Ho and Tang, 2009; Ta et al., 2015), and the supply chain-consumer relationship has been under-investigated (Ta et al., 2018; Abbey et al., 2019; Simpson et al., 2019).

Scholars have recently put an emphasis on the need to focus the SCM debate on consumers (Esper and Peinkofer, 2017). Consumers’ behavior, perceptions and attitudes are increasingly based on and impacted by logistics and supply chain management outcomes and they are thus strategic inputs that need to be incorporated in the LSCM research for creating efficient and effective SCM processes (Frankel et al., 2008; Griffis et al., 2012). One of the gaps emerged from the literature is the need towards a more consumer-centric mindset in the logistics and supply chain management studies, thus fostering and emphasizing the dialogue and integration between the LSCM and the marketing roots (Esper et al., 2020). Still in the last decade, Mentzer et al. (2008) stated that supply chains had to be designed and managed taking customers in mind. Consumer issues have become so vital that they must be central to how contemporary logistics networks and integrated supply chains are managed, even for firms further upstream (Esper et al., 2020).

Consumers behaviors and insights should be deeply analyzed in order to understand how they impact every core logistics and supply chain management processes, including those further upstream, and on the other way around to investigate how LSCM activities and outcomes shape consumer behaviors and perceptions.

Purpose of the paper. *The purpose of the review analysis is to explore the LSCM literature and to provide a broad understanding of how the role of consumers has been studied in the literature, investigating in detail the approached themes, the theories and methodologies used to frame the analyses and thus providing a basis for the knowledge advancement. Thus, the research aims at addressing the following research questions:*

RQ1. How has the role of consumers been studied by LSCM scholars?

RQ2. Which are the principal themes approached when the role of consumers is analyzed in the LSCM literature?

RQ3. Which are the main theories and methodologies do scholars adopt?

By answering the research questions, the current study seeks to make several contributions. First, by reviewing the studies published over years in eleven of the top logistics and supply chain management journals, a comprehensive overview of the state of the art is provided, which stands as a starting point to advance research. Second, the research field is contextualized, providing an overview of the key themes about consumers in the LSCM domain. Third, the most frequently used theories and research methodologies to address the topic are identified. This mapping process of the theories currently used allows for a better understanding from which perspective the topic has been examined (Swanson et al., 2018) and allows to identify other possible theories to foster knowledge, as well as for the research methods.

Methodology. *The current study combines a systematic literature review and a bibliometric analysis to answer the research questions. The systematic review is a well-established method for contributing to knowledge development, by the means of synthesizing and analyzing the state of the art, thus identifying relevant issues and opportunities for future*

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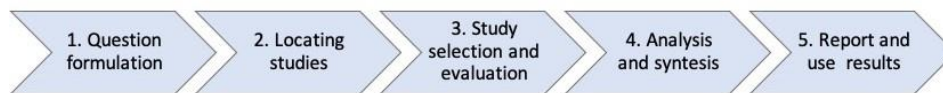
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research (Tranfield et al., 2003). What makes the difference in the systematic reviews with respect to the narrative literature reviews are the four main principles on which it is built on: transparency allowing maximum replicability; inclusivity of studies and sources; explanatory nature of the synthesis of the data collected; and, heuristic outputs of the analysis, consisting of suggestions and guides that don't provide a detailed solution to a specific problem but need to be contextualized by managers' expertise (Denyer and Tranfield, 2009). Due to the narrow scope of the study and the manageable dataset (Donthu et al., 2021), the systematic literature review was deemed as an appropriate method for investigating theories and methodologies used by scholars to study consumers in the LSCM domain.

To ensure rigor and validity of the analysis (Tranfield et al., 2003), the structured literature review is conducted by following the guidelines outlined by Denyer and Tranfield (2009), which recommend five main steps to follow (see Figure 1): 1) question formulation, 2) locating studies, 3) study selection and evaluation, 4) data analysis and synthesis, 5) reporting and using the results.

Supporting the systematic review with a bibliometric analysis aims at strengthening the advancement of theory. Indeed, the two review methodologies are complementary (Donthu et al., 2021) and, hence, they both can coexist in a single review article (Mukherjee et al., 2022). While the systematic review relies on a qualitative approach, the bibliometric analysis relies upon the application of quantitative techniques (Broadus, 1987; Aria and Cuccurullo, 2017). Moreover, the bibliometric analysis produces a systematic review, easing transparency and reproducibility of the processes (Aria and Cuccurullo, 2017). In the current research a rigorous bibliometric analysis is performed following Donthu et al. (2021).

Fig. 1: Research steps



The locating studies step aims at selecting all the available publications relevant for the research questions, thus ensuring an exhaustive coverage of the literature (Denyer and Tranfield, 2009). The search was firstly performed using the Scopus database, which is one of the wider databases of peer-reviewed scientific journals. Subsequently, a further search was performed in the Web of Science database, thus ensuring a cross-check between the two databases in order not to neglect important contributions for the analysis. Indeed, while Scopus has a broader coverage of sources than Web of Science, the latter provides access to older sources (Farooque et al., 2019).

The leading journals in logistics and supply chain management that bounded the search were selected according to journals publishing high-quality logistics and supply chain management research, journals well represented in previous logistics and SCM literature reviews, and highly ranked journals according to the 2021 Association of Business Schools (ABS) Journal Guide (Chartered Association of Business Schools, 2021), as suggested in Swanson et al. (2018). Accordingly, a sample of eleven top journals in the field was identified (including e.g., JBL, IJPDLM, IJLM, SCM, to mention a few).

Once identified the relevant LSCM journals, a comprehensive search was conducted by using the following title, abstract and/or keywords search query: ("supply chain*" OR "supply chain management" OR "logistics" OR "logistics management") AND ("consumer*" OR "end-consumer*" OR "end-customer*" OR "ultimate customer*" OR "end-user*" OR "final customer*" OR "b2c").

The articles' search was not bounded in time, to facilitate the acquisition of all relevant contributions and to capture a comprehensive representation of the topic. However, to narrow the scope of the literature, the document type was restricted to research articles in order to obtain only peer-reviewed documents (Kotzab et al., 2023), and just papers published in the English language were considered.

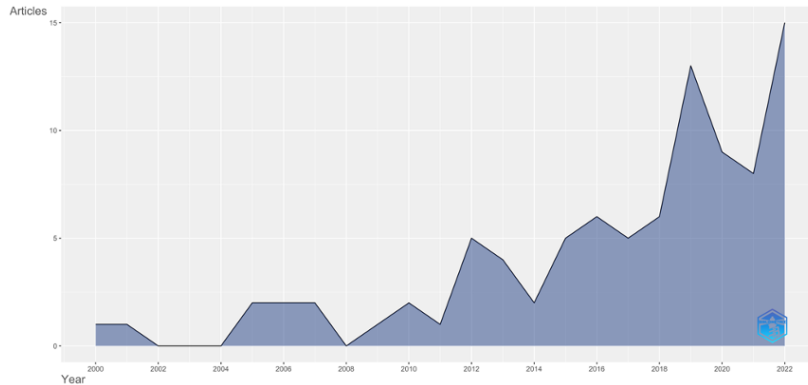
The final search yielded a number of 510 articles from the Scopus database, while a total of 536 papers were obtained from the search on Web of Science. By removing all the duplicates, the initial sample was composed by 637 academic articles. To ensure data accuracy and relevancy, several screening processes were conducted by examining each article individually to ensure fit with the research objective (Wang et al., 2017). At first, the articles' title and abstract were carefully read and evaluated with respect to the research questions. A further, much detailed, screening process was conducted on the remaining articles thorough a full-text review, in order to identify the studies more suitable for the scope of the research.

Moreover, the following inclusion criteria was applied: only empirical papers that focused on consumers as unit of analysis within the logistics and supply chain management domain were included in the review (Esper and Peinkofer, 2017). Thus, empirical approaches such as the collection and analysis of primary and secondary data, the use of surveys, case studies, interviews and experiments were considered for the review, while non-empirical approaches such as mathematical modeling and conceptual papers were excluded (Carter and Liane Easton, 2011). Furthermore, to be consistent with the scope of the analysis, all the studies that focused mainly on suppliers, manufacturers, retailers, third-party logistics as unit of analysis were not considered.

The screening processes resulted in a final sample of 90 research papers consistent with the aim of the review, published between 2000 and 2022. The bibliometric analysis is conducted by the use of an open-source tool called bibliometrix, developed in the R-language (Aria and Cuccurullo, 2017). The findings of the bibliometric analysis serve as a "starting point and complementary partner" (Mukherjee et al., 2022) to other review methods, to provide an overview of the sample of articles.

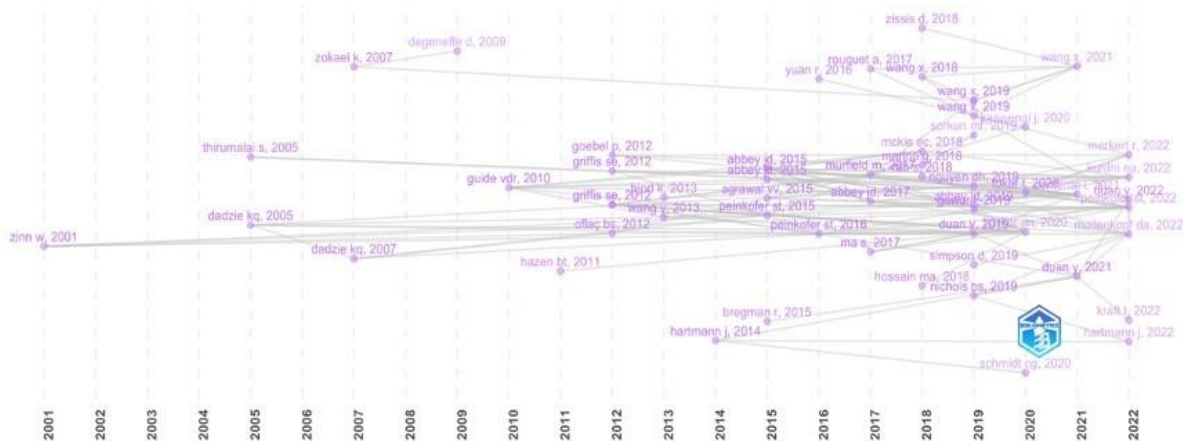
Results. Several outputs emerged from the performance analysis and science mapping techniques for bibliometric analysis. Figure 2 shows the growing interest of the scientific community among the theme as represented by the evolution in the number of publications over the 22-year period. Starting from 2000 and for the following 11 years, few studies investigated consumers in the logistics and supply chain management research field. However, since 2012 the scientific production has considerably increased, by reaching its peaks in 2019 and 2022.

Fig. 2: Annual scientific production



Furthermore, by employing the science mapping analysis, it is possible to generate a historical view of the evolution of the discipline through the analysis of the connections between the 90 documents in the sample over time. Figure 3 shows the historiographic map, i.e., the chronological citation network of the documents included in the sample. Each node represents a document, and each connection between two nodes represents a direct citation relationship between the two documents. What the map offers is a picture of how the discipline evolved, by highlighting the connections between the studies in the sample and the papers' dependences.

Fig. 3: Historiograph

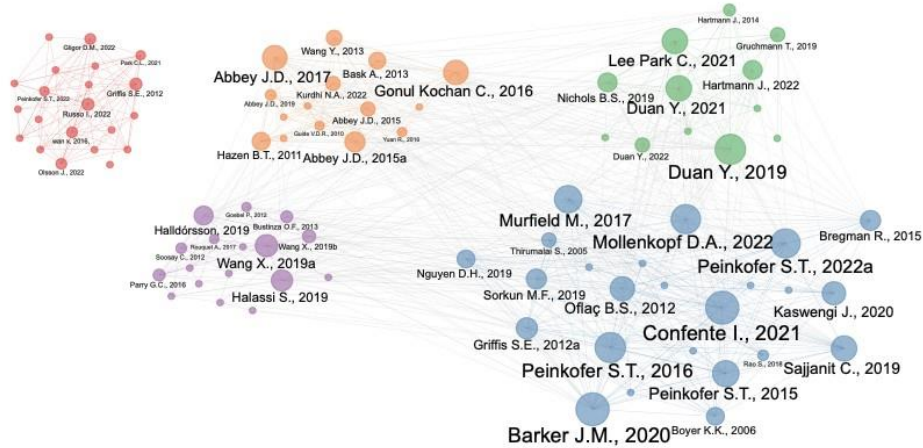


The historiograph highlights the overall evolution of the theme in the literature, what emerges is that the first contribution in the sampled articles is the one of Zinn and Liu (2001), which gave origin to the research field by investigating consumers' response to stockouts. This research represented the first attempt in approaching consumers from a supply chain management perspective. Several years later further contributions investigated the theme of logistics customer service (Dadzie et al., 2005; Thirumalai and Sinha, 2005). The research of Dadzie et al. (2005) inspired lots of researches from 2012 onwards, as proven by the several linkages that branch out from it. The discipline subsequently evolved by approaching the products' cannibalization issue (Guide and Li, 2010), consumers' response to service failures (Oflaç et al., 2012) and reverse logistics (Hazen et al., 2011; Griffiths et al., 2012). Wang et al. (2013) started investigating consumers' intentions towards remanufactured products in closed-loop supply chain. The most prolific period started in 2015 with the study conducted by Peinkofer et al. (2015) on the impact of price promotions on consumers' response to stockouts, and the publications of Abbey et al. (2015a), Abbey et al. (2015b), Agrawal et al. (2015) focused on closed-loop supply chain and remanufactured products, which inspired lots of subsequent analysis. Even more recently, the environmental and circular issues were combined with the investigation of the impact of information disclosure (Duan et al., 2021; Peinkofer and Jin, 2022), the relevance of supply chain transparency and visibility (Duan et al., 2022; Kraft et al., 2022; Mollenkopf et al., 2022) and the perception of consumers as prosumers, hence co-producers of value (Halassi et al., 2018; Halldórsson et al., 2019; Gligor and Maloni, 2022).

Figure 4 depicts the output of the bibliographic coupling, which is a science mapping technique stating that two articles that share common references are similar in their content. Indeed, the strength of the bibliographic coupling of

two articles is defined as the number of references that the articles have in common (Aria and Cuccurullo, 2017). Thus, the bibliographic coupling analysis allowed to divide the sampled articles in five main thematic clusters, which can be recognizable by the main focus on: a) online retailing, b) closed-loop supply chain, c) sustainable supply chain management practices and supply chain transparency, d) value co-production/co-creation and last-mile logistics, e) logistics customer service.

Fig. 4: Bibliographic coupling



The complementary systematic analysis allowed for an in-depth review of the sampled articles focusing on both theories and methodologies adopted by scholars to investigate consumers related issues in the LSCM domain.

The content analysis of the 90 articles in the sample uncovered 49 articles (54.4 per cent) that explicitly uses at least one formal theory (Gligor et al., 2019) to study consumers in the LSCM domain. The analysis pointed out that some articles are based upon only a single theory (e.g., Hartmann et al., 2022), while some others used more than one theory (e.g., Barker and Brau, 2020). Therefore, as in Brown and Dant (2009) and Clifford Defee et al. (2010), the current research relies on the incidence of theory as unit of analysis, thus allowing multiple classifications of individual articles (in the case in which more than one theory is used). A total of 51 unique theories were identified in the sample, resulting in 75 theoretical incidents. Table 1 provides a detailed list of the 10 theories, with respective frequencies (absolute and cumulative), that account for the 45.3% of the total theoretical incidents found in the sample, i.e., those theories utilized more than once in the sample of articles considered for the analysis.

Tab. 1: Most frequently utilized theories

Theory	Frequency	%	Cumulative % of theoretical incidents
Expectation-disconfirmation theory	7	9.3	9.3
Signaling theory	6	8.0	17.3
Service-dominant logic theory	5	6.7	24.0
Attribution theory	3	4.0	28.0
Theory of perceived risk	3	4.0	32.0
Diffusion of innovation theory	2	2.7	34.7
Procedural justice theory	2	2.7	37.3
Theory of planned behaviour	2	2.7	40.0
Theory of reasoned action	2	2.7	42.7
Transaction cost theory	2	2.7	45.3

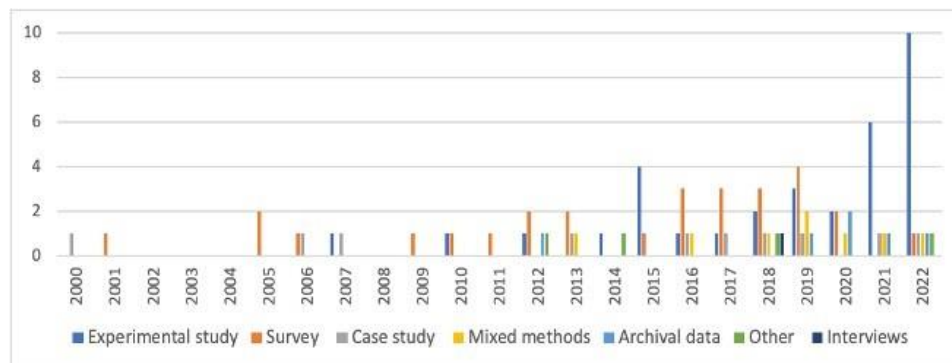
The research methodologies applied in each of the 90 articles of the sample have been identified and categorized according to the classes proposed by Clifford Defee et al. (2010). Six categories have been considered, plus an “other” category that collects all the methodologies that did not fit in the other groups. Table 2 summarize the findings. What emerges from the analysis of the research methods is that the most widely used methodologies are experimental study, counting for 36.7% of the sample, and survey data (31.1%). The less explored methods are mixed methods and archival data. Hardly used are the interviews, applied only once in the sample, consistently with the unit of analysis of the research, i.e., consumers.

Tab. 2: Research methods

Research methods	Frequency	%
Experimental study	33	36.7
Survey	28	31.1
Case study	10	11.1
Mixed methods	8	8.9
Archival data	6	6.7
Other	4	4.4
Interviews	1	1.1
Total	90	

Figure 5 provides a detailed view of the application of the seven categories of methodologies over time. Till 2011 few methodologies have been adopted, mainly surveys and case studies. Starting from 2012, where the literature about the topic started to grow, diverse methodologies have been experienced. The graph shows an exponential increase in the last ten years in the use of experimental studies. Archival data and mixed methods, even if less adopted, have been increasingly adopted as research methods in the last five years. As regard surveys and case studies, their use remained almost constant in the overall timeframe.

Fig. 5: Research methods over time



Theoretical implications. The current research proposes to deepen the understanding of the past research to be a first step for knowledge advancement and future development of the discipline (Esper et al., 2020).

A big picture of the state of the art is provided thanks to the bibliometric analysis, which allowed the authors to present the intellectual foundations and the historical evolution of the topic, thus addressing the first and the second research questions. Moreover, the systematic review shed light on the main theories and methodologies used in the logistics and supply chain management field to study consumers, as intended in the third research question. A noteworthy contribution is that, as resulted from the review, the theories mostly used to study consumers in the logistics and supply chain domain does not coincide with those identified as being mostly used in the logistics and supply chain management literature, according to Gligor et al. (2019). Indeed, the theories mostly used to study consumers as unit of analysis are those belonging to the psychological and microeconomic domain; while, the sociological and consumer choice theories, are still underused. Furthermore, the analysis of theories revealed that some studies relied upon more than just one theory, thus highlighting the existence of a complementarity relation between different theories (e.g., signaling theory and attribution theory; commodity theory and prospect theory; diffusion of innovation theory and theory of reasoned action). These complementarities could inspire future research. Finally, as resulted from the analysis of the methodologies applied to study consumers, experimental studies and surveys are the most common methods. The suggestion is thus to advance the use of the less utilized methodologies, one above all analyzing archival data.

Managerial implications. Although this type of research is primarily intended for providing scholars with a review of the state of the art to foster future research, there are implications for managers too. Due to the growing importance of the role of consumers in the logistics and supply chain management field, there is an urgent need at the managerial level to include consumer behaviors and related activities within supply chain strategies and operations. Based on that, future studies should attract the interest of managers to facilitate consumers' involvement in the supply chain processes and decision-making processes, hence, incentivizing managers-consumers collaborations. Furthermore, the current study offers insights on the key themes on which managers should invest to engage consumers and thus achieving a competitive advantage.

Originality of the paper. At the best of the authors' knowledge, this is the first literature review combining a systematic analysis and a bibliometric analysis focusing on consumers in the logistics and supply chain management field. The two complementary methodologies allowed for a quantitative study of the publications in the sample, emphasizing the bibliographic and thematic characteristics of the sample, and further allowed for a more in-depth

analysis shedding light on the theories and methodologies used by SCM scholars to study consumers in the field of research. Moreover, this research offers insights into the patterns in the LSCM literature studying consumers' behavior and related activities and suggests promising research directions.

Research limitations. Even though the study aimed at conducting a comprehensive and rigorous analysis, it has some limitations. The subjectivity of the systematic literature has been reduced thanks to the more objective bibliometric analysis, however, a certain degree of discretion remained in the analysis. First, the analysis was limited to eleven logistics and supply chain management journals which, even though are the leading journals in the LSCM domain, they are not the only feasible outlets for LSCM scholars to publish in. Thus, future research should extend the scope of the research by considering a wider basket of logistics and supply chain management journals. Moreover, the classification of the research methodologies suffers of a subjectivity issue related to the utilized categorization. Furthermore, the themes approached when studying consumers in LSCM, have been identified relying on a content analysis, which coding process could be revised in future research. Lastly, the search query and the research in keywords, title, abstract has been conducted according to previous literature. This could be a limitation that future research could address.

Keywords: Systematic literature review; consumer; supply chain management; logistics management; bibliometric analysis

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Blockchain technology as an actant for value co-creation in the healthcare ecosystem

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Framing of the research. According to Akaka and Vargo (2014) and Huang and Rust (2017), technology is an essential component of service because it alters how service is managed, innovated, and provided. This is one of the main reasons why technology is so important in the service industry. Initially, technology framed in service-dominant (S-D) logic was meant as an operant resource that could act on other resources to co-create value (Akaka and Vargo, 2014). It is possible to achieve value co-creation via resource integration, namely by properly combining a number of different - and complementary - resources.

Vargo and Lusch (2008) asserted that according to S-D logic value is always co-created by integrating resources among various stakeholders for the mutual benefit of all parties involved. The beneficiary is the one who consistently and exclusively makes the phenomenologically and unmistakably one-of-a-kind determination of value. The beneficiary is the one who operates within a particular setting and makes use of a specific set of resources, including technology. To determine the significance of the interdependence of actors and their social relations, the “value in a social context” model (Edvardsson et al., 2011) is applied. This model was developed by Edvardsson, et al. (2011), value in social context places an emphasis on understanding resources as social constructions and conducts an in-depth analysis of the effects of social forces on the co-creation of value as well as how value is perceived. In line with this, technology is conceptualized as a component of service systems because these systems are meant to be “value-co-creation configurations of people, technology, and value propositions connecting internal and external service systems and shared information (for example, language, laws, measures, and methods)” (Maglio and Spohrer, 2008). In other words, technology is a part of service systems because it shapes a value proposition.

Among its multiple use and goals, technology makes it easier for people to share information one another, and it can also pave the way for new kinds of collaborative forms of value creation (Bredback and Maglio, 2016). In addition, Sundbo and Gallouj (2000) - even before S-D logic stressed the relevance of technology as a support for resource integration - discovered that technological advances have the potential to adapt and evolve dynamic patterns among multiple actors through the facilitation of communication.

The focus on multiple actors shaped service dynamics and was increasingly furthered in S-D logic through the metaphor of the service ecosystem, as when dealing with ways for providing services this notion was brought up for discussion as a consequence of the interactions that took place between the various service systems (Peters, 2016). Service ecosystems are referred to as “relatively self-contained, self-adjusting systems of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange,” according to the definition provided by Vargo and Lusch (2016). The service ecosystem perspective focuses attention on the role of institutions as shared norms or “rules of the game” (Williamson, 2000), in the process of value co-creation.

An additional benefit of understanding a service ecosystem is that it sheds light on the relationship between technologies and institutions that influence each other. According to Lusch and Nambisan (2015), technology enables the creation of a network among various actors, thereby balancing the tension between the implementation of an architecture of participation based on a shared worldview and the cognitive distance between them. This tension is caused by the fact that technology enables the creation of a network among various actors. Additionally, technology can be defined as a collection of practices and procedures that increase visibility in value co-creation activities (Akaka and Vargo, 2014; Lusch and Nambisan, 2015).

According to this point of view, technology becomes an active agent in the service ecosystem due to the fact that it acts as an intermediary of knowledge, facilitating connections between resources and skills, and overcoming boundaries that exist within the ecosystem (Lusch and Nambisan, 2015). Recent studies have focused on the role of intermediaries as a category of actors that foster interactions at both the actor-to-actor (A2A) level and the many-to-many level (Mele and Russo-Spena, 2015). Russo-Spena and Mele highlighted the fact that the emergence of new actions and practices can be seen as a result of the incorporation of new technologies that played the role of a mediator. This statement is confirmed in multiple ways, since technology play this active role by serving as a facilitator for interaction between a number of different actors, which allows for the connection and combination of resources and

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practices. From this perspective, technology was seen as both a resource and an artifact that could help humans perform their actions in a more efficient manner. This is a fundamental tenet of this perspective. There is an immediate and pressing need for reflection on the role that newly developed technologies play in emerging of the service ecosystem as well as changes in the behavior of the actors that comprise the ecosystem. To this extent, in line with previous studies (e.g., Pohlmann and Kaartemo, 2017; Russo-Spena and Mele, 2020), we draw on the tenets of actor-network theory (ANT) in order to gain an understanding of how the development of technology enables “human evolution” in terms of the complex interplay between “tools, language, and intelligence” (Gibson, 1991). According to the actor-network theory (ANT), technology and society are not two separate spheres but rather influence one another as they are mutually constitutive (Callon and Latour, 1992). In other words, technology and society are not independent of one another.

According to Callon (1990), human beings and non-human entities, both of which are thought of as agents, are connected through networks that serve as the foundation of their social relationship and are mediated by intermediaries. These networks form the basis of their social relationship. The process of mutual definition and adjustment was set in motion by the intermediaries, which ultimately resulted in the formulation of the concept of translation. The word “Translation” served as the impetus for beginning this process. In order to have a complete understanding of this concept, it would be needed “a translator, something that is translated, and a medium in which the translator is inscribed” (Callon, 1990, p. 143). According to the findings of the study that was carried out by Callon and colleagues (1986), the degree to which transactions are irreversible is dependent on “the extent to which it is possible to go back and the extent to which it shapes and determines subsequent translations.” According to Callon and Latour (1992), networks are complex processes that involve the linking of various actors and intermediaries on the basis of the convergence of interests shared by all parties involved. These interests are shared by all parties involved in the process. The translation concept, which involves the formation of a body of allies between human and non-human actors, is what leads to the actor-network interactions that occur as a result. The translation is concerned with the mechanisms of power (Law, 1992): it is not concerned that the larger the organization is, the greater its power; rather, ANT scholars analyze how, through the stabilization and reproducibility of the interactions, the effects generated, such as size, result in power becoming “macrosocial” (Law, 1992). The translation is concerned with the mechanisms of power because it is not concerned that the larger the organization is, the greater its power is. According to this point of view, knowledge is the result of an organized network that is composed of a wide variety of different types of materials.

The S-D logic lens emphasizes the role of technology as an operant resource, a part of the service system, and influences other resources, the service ecosystem as an agent of human activities, changing their knowledge and skills. ANT scholars argued that technology has a primary role in influencing direct social construction, resulting in a macro-social effect. This view highlights a lack of understanding of the social aspects of technology from the S-D logic perspective. For this aim, we focused our study to expand the axioms of S-D logic (resources, value co-creation, service ecosystem) including the key concepts (actant, actor-network) of ANT theory to investigate a specific technology blockchain in healthcare ecosystem. The purpose is to underline the importance of social aspects in expanding value co-creation in the healthcare ecosystem.

Blockchain is a distributed ledger that can record transactions promptly, in a way that can be verified, and in a way that is permanent is what is meant when people talk about “blockchain technology.” According to Treiblmaier (2019), blockchain technology is considered to be a disruptive technology. Blockchain technology can be defined as a distributed ledger that records transactions in an efficient, verifiable, and permanent manner. According to Saberi et al. (2019), a transaction is added to the blockchain in the form of a new block using a predetermined timestamp after it has received majority approval from all nodes. The consensus mechanism, which consists of a set of rules, is responsible for making this addition. By linking the transactions along the chain in the appropriate chronological order, this function protects the transactions and guarantees that their integrity is preserved. Several authors (Abeyratne and Monfared, 2016, Dutta et al., 2020) identified the opportunities of blockchain applications by basing their findings on the primary characteristics of the underlying technology, which include decentralization, immutability, transparency, and process integration. Recent studies (Papanikolaou et al., 2023; Papadonikolaki et al., 2023) contribute to the literature by conceptualizing the blockchain ecosystem to emphasize the link between blockchain and the architecture of an ecosystem embracing the technology attributes. The healthcare industry is a complex network of crucial actors and the recent health crisis raised attention to improve service quality (Russo-Spena and Mele, 2020). Other scholars (Russo Spena et al., 2023; Mačiulienė and Skaržauskienė, 2021) examined the results of traceability and immutability features to increase collaboration and actors’ engagement. The majority of contributions have demonstrated a focus on technical benefits, such as reducing transaction costs, frauds, and errors (Spanò et al., 2023), but additional effort is required to understand how blockchain could affect people’s behavior (Massaro, 2021).

Purpose of the paper. On the basis of these two points of view, we arrived at the conclusion that it was necessary to conduct research into the potential for blockchain technology to act as an actant in the process of value co-creation within the healthcare ecosystem. Within the context of the healthcare system, the application of blockchain technology presents a significant opportunity for effecting change. Over recent years, the potential of technologies such as blockchain is completely transforming the healthcare ecosystem. Building on a S-D logic approach and actor-network theory, the need to overcome the firm boundary and include a social approach to value co-creation is increased as a result of the decentralized infrastructure that is underpinned by blockchain technology. The purpose of this research is to make a contribution by advancing the role of blockchain technology as an actant to shape value co-creation and service ecosystems.

Methodology. *In order to investigate how the integration of blockchain technology into the healthcare ecosystem could lead to an increase in value co-creation, we opted for a qualitative research approach. According to (Pinch & Bijker, 1984), there is a need for a symmetrical explanation that treats successful and failed blockchain implementation for exploring the value co-creation process in the healthcare ecosystem. Our goal is to investigate the combination of the main axioms of S-D logic with the key concepts of ANT theory. Given this goal, we assumed that the success of technology may not be suitable to explain the value co-creation process. The process of our research was broken down into two stages. To begin, we investigated of two separate case studies, each covering a period of two years of observations to achieve more solid consideration, despite the newness of blockchain. In order to engage in interpretative observations for our research, we based it on the perceptions derived from the personal experiences of blockchain providers (Gehman et al., 2018).*

Second, in order to carry out the data coding and analysis, we utilized the Gioia method (Gioia, 2004). This was done in order to provide a response to the research question of how blockchain could improve the social interactions between actors, value co-creation, and service ecosystems in the process of shaping the future of the organization. The method made the investigation of the meaning beyond the facts and events possible, allowing for further interpretation. (Gioia, 2014) suggests that the Gioia method could be useful in helping to ground the emergent theory in the informant's understanding of their own experience. When using this methodology, all of the findings and conceptualizations are initially founded on the interviewer's observation of the processes and structures that socially construct the phenomena; these observations are referred to as first-order findings. This method of conducting research makes it possible to assume a solid methodological posture and achieve a closer correspondence between empirical observations and theory.

Because of the nature of your studies is exploratory, we chose two distinct nonprofit associations, one based in Switzerland and one based in Italy, due to the prominent roles they play in developing a blockchain healthcare ecosystem among the members of the associations. One of these associations is located in Switzerland, and the other is located in Italy.

The associations have been formed with the intention of fostering communication and collaboration within the healthcare ecosystem in order to speed up the process of developing a blockchain solution. These two businesses stood out among the others potential units of analysis because of the parallels we found between their missions and organizational charts. In-depth and semi-structured interviews with the respondents, including the company's founders and managers, were carried out by our team between November 2021 and February 2023. We asked broad questions defined according to the literature review such as, "What are the motivations that guided the choice to use blockchain?" as an example. What exactly were the outcomes that were discovered? Who are the most important players, and what are the main steps in the process? What are some of the challenges associated with implementing blockchain technology? The goal is to concentrate on the perceptions and actions of the actors that emerge from the data in order to socially reconstruct the knowledge that they have of reality (Walsham, 2006). Each of the interviews was recorded, and then the recordings were transcribed word for word. In addition, secondary data have been consulted on a consistent basis in order to collect any new information that may have become available (Bell and Bryman, 2007). In the second step, we implemented the Gioia method (Gioia, 2021) to obtain a systematic representation and adequately represent the opinions of blockchain associations as well as the implications those opinions have for the companies that are involved.). Each of the interviews was recorded, and then the recordings were transcribed verbatim.

We are in a spotless state of mind when we approach the data analysis. Following the coding of the interview and the reporting of the first-order categories that were derived from the interviews, we combined these first-order categories into second-order categories. According to Gioia (2014), the researchers' exploratory work served as the basis for the development of the abstract and creative second-order categories. These categories provided a deeper insight into the interviewers' experience. Each researcher separately coded the data from their interviews and then verified the validity of the other researchers interviews to reduce subjectivity bias.

The final stage of the research process is the configuration of the data structure, which aims to provide a comprehensive understanding of all of the themes and the ways in which they are connected. Then, we presented a grounded theory that elucidated the concepts as well as the interrelationships between them that are responsible for explaining phenomena (Corley and Gioia, 2011). According to Gioia (2021), the data structure places an emphasis on the relationship and the dynamics between the emergent concepts that are used to describe the phenomenon.

Results. *We compared the central tenets of S-D logic, which include value co-creation, ecosystems, and actors' roles as resource integrators, with the fundamental ideas that underpin ANT theory, which include translation, actor-network, and actant. The S-D logic is comprised of the following: value co-creation, ecosystems, and actors' roles as resource integrators. After that, we did some research on the role that blockchain technology plays as an actor, and as a result, we were able to provide some novel insights that can be used to boost the understanding of value that is co-created within the ecosystem of blockchain technology and through its use in healthcare. According to Gummesson and Mele (2010), the process of value co-creation invariably involves several different actors from different backgrounds coming together to form networks.*

Because of the myriad of different ways in which these networks interact with one another, resource integration is made possible by them. If everything goes according to plan, blockchain will produce the necessary infrastructure to support the varied interests of actors and to make it easier to share data. Patients could monitor who can access their data, co-creating value and increasing the efficiency of datasets (Hermes et al., 2023). Decentralization promotes trust

among patients, physicians, and caregivers based on the real-time tracking of patient health status (Hermes et al., 2020). Decentralization ensures the integrity of data and enables service interactions among patients, physicians, and caregivers. These stakeholders will each derive a mutual benefit from their participation in blockchain because blockchain will provide the infrastructure they require to protect their interests. They find answers to problems by having an all-encompassing perspective of the ecosystem as a whole and developing solutions that are tailored to the requirements of the organisms that comprise the ecosystem. Because of this discovery, the idea of value co-creation has been refined to the point where it now takes into account the concept of translation as a fundamental driver for maintaining interactions between the various stakeholders within a decentralized infrastructure.

An objective that serves the best interests of both parties must have as its primary motivating force the interests of the allies and their mutual dependence on one another. The idea of value co-creation as a process that benefits both parties equally is something that needs to be acknowledged by every organization. The successful implementation of blockchain has produced results that demonstrate the necessity of expanding data integration in order to manage equality for inputs in accordance with a mutually shared process of value co-creation. In addition, patients are able to exercise control over their data if there is a representative of the patients' interests serving on the board of directors. Because there is a need to strike a balance between the interests of various relevant social groups, blockchain could provide a solution to this problem by addressing it with its operational model and the transparency with which it makes decisions. The monitoring of priorities and interests using blockchain technology could also help healthcare actors in better aligning their own interests with the benefits they aimed for. Blockchain technology generates an infrastructure that is not biased toward any particular ecosystem in order to solve problems.

Its ecosystem, which is based on digital trust, guarantees the governance of mutual purposes by actors who are interdependent on one another. This comprehension needs to be based on the formulation of the idea of mutual benefits as well as the elaboration of the intentions. In the second scenario, the expansion of the solution was not determined just by value co-creation, despite the fact that the process of value co-creation is connected to the characteristics of decentralization and shared information that are associated with blockchain technology. This is because value co-creation cannot occur without the interests of the allies. This was because there was an unbalance between the individual's contribution and the mutual benefits that were shared with each other. According to the ANT theory, the phrase "relevant social group" is utilized to refer to organizations or institutions that are made of organized groups of different individuals. The most important requirement is that all of the members of a particular social group share the same set of meanings that are attached to a particular artifact, which in this instance is the advantage that is associated with blockchain technology. This is the most important requirement.

In the healthcare ecosystem, how the value is derived from the shared data and how new value co-creation could be attributed is more related to transparency and visibility features. On the other hand, in case of not achieving the aimed goals, the primary benefits are related to data anonymity in order to preserve the interest and competitive advantages of the single firm. In addition, blockchain might not be useful for engaging external stakeholders because they do not see a mutual benefit for their participation in the form of data integration. This is a potential drawback of the technology. There is not purposed to align interests by overcoming the information asymmetry, which is considered a key basis for a company's competitive advantages. This is because there is no purpose to doing so. This perspective brings to light the absence of social value co-creation, which elevates the problem without taking into consideration the benefits to others. In addition to this, the participants who are included in the blockchain have different relevance according to the ownership of data and their influence on other actors. The actors who are truly essential to the development of this method of creating value for both parties together are not involved. In spite of the fact that the underlying infrastructure is blockchain-agnostic, the presence of this feature does not inspire trust in the ecosystem. This is due to the fact that the transparency of the system is viewed more as a drawback (requiring additional controls and sanctions) than an advantage. When there is no shared value associated with the blockchain solution, increased actor participation may be possible if rules are developed that improve decentralized governance and transparency.

Research limitations. The purpose of this study was to investigate the potential role that blockchain technology could play as an agent within the healthcare ecosystem by applying S-D logic and ANT perspectives. The findings cannot be generalized in any way because of this direct consequence of the situation, as well as because of being derived from two cases, thus further confirmation may be achieved with additional analyses. On the other hand, prospective research has the potential to increase the breadth of coverage of the case studies that are investigated.

Managerial implications This work has focused on highlighting the role of blockchain as an actant in the healthcare ecosystem. Based on the principal axioms of S-D logic (actors as resource integrators, value co-creation and service ecosystem) combined with the key concepts of ANT theory (actant, actor-network), the discussion does not simply refer to data integration, coordination and decentralized governance but involves the emergence of a mutual and shared value among diverse actors to enhance the value co-creation process. The role of Blockchain emerges as an actant to impose the blockchain feature (transparency, coordination, data integration, decentralized governance) as values for members' co-evolution. Data integration addresses the new role of blockchain as an actant to balance the input shared by each participant with the benefits received. The need for equality in the coordination process foster the development of use cases guided by mutual interests. The governance mechanisms frame the neutrality of blockchain infrastructure to support a digital trust ecosystem based on the representation of each actor to achieve a mutual beneficial purpose. The study contributes to further research on S-D logic to reshape the value co-creation process considering mutual benefits and aligned interests of actors and their social relevance. Exploring further mechanism to

balance their input and benefits contributions incentivize actor's virtuous behavior and rules for improve ecosystem governance.

Originality of the paper. *To the best of the authors' knowledge, there have been no studies that have investigated an understanding of blockchain implementation that is founded on the primary axioms of S-D logic combined with the fundamental concepts of ANT theory. This is the case despite the fact that there have been a number of studies that have investigated various aspects of blockchain implementation. In this study, a case study of both a successful and unsuccessful implementation of blockchain technology is investigated as a potential actant. For the purpose of enhancing value co-creation within a healthcare ecosystem, the objective is to place an emphasis on social and shared value co-creation, with the goal of striking a balance between the respective mutual benefits of relevant social groups. As a result of this research, we achieved a better understanding of how the blockchain technology has the potential to integrate mutual and shared value co-creation that occurs within the service ecosystem.*

Keywords: technology; value co-creation; service ecosystem; blockchain; actant; healthcare

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Hospitals in rural areas: what differences in the patient populations and perception of the service quality?

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Framing of the research. Many researchers and scholars in the management field investigate the importance of collecting, understanding and valuing local perspective and interactions/networks in local or rural areas (Drucker, 1995; Lai and Nepal; Petheram and Campbell, 2010). They underline that local communities have diverse cultures, social norms, symbols, values, knowledge, and practices compared to non-local areas, for their sense of place and the acknowledge of being 'at the edge of the empire' for remoteness and accessibility issues (Gashi Nulleshi and Tillmar 2022).

Wilson and colleagues (2009) report in their study the main definition used to define "local areas" or "rural areas", that we embrace as territories "not included in metropolitan statistical areas" (Mueller et al., 2004) or a community in which "there are some commercial activities", but not immediate access to services (Crandall and Weber, 2005). For local communities, the literature stresses the presence of several barriers and difficulties in these areas (Macintyre et al., 1993; Levy et al., 2017; McGowan et al., 2021; Gashi Nulleshi and Tillmar 2022, Pelletier et al., 2020):

- Cultural opportunities (e.g., policies, social events, religious and organizations, community group, physical activities);
- Distance and transportation that represent/cause logistical difficulties and limit access to basic services (e.g., education and training; health, welfare services and emergency services; employment and workplace) (Crandall and Weber, 2005; Khan et al., 2020);
- Infrastructure and facilities (Khan, 2023);
- Digital technologies, connections and quality of broadband that support linkages, communication and interactions among citizens and stakeholder (Khan, 2023) and enable telemedicine, virtual consultations, remote visits and monitoring (Ferrè et al., 2021; Bosa et al., 2022).

In our work, we consider healthcare sector since several authors have explained that disparities in health outcome and health inequalities are more evident in rural areas (Hulme et al., 2022; Schopfer 2021; Harrington et al., 2020; Iglehart 2018). In fact, the centralization in urban areas of some complex and highly specialized healthcare services (for example in oncologic care, which was necessary for reaching the minimum threshold of volumes that assures more positive outcomes), has produced equity implications and increased the barriers in access to optimal care for residents of rural areas (Stitzenberg et al., 2009). Recently, Rasi-Heikkinen and Airola (2023) reported several potential gaps in health opportunities and outcomes, in relation to the availability, quality and costs of health services in rural areas.

The distinction between high-specialized hospitals (second level), medium-level hospitals (first level) and basic hospital (proximity) has been also introduced in Italy, for producing better outcomes, by the Ministerial Decree no. 70/2015. The proximity hospitals should serve a population between 80,000 and 150,000 inhabitants. They are characterized by basic emergency services, and a limited number of specialties, such as Medicine, General Surgery, Orthopaedics and Traumatology. The mission of the proximity hospitals is to promote the widespread provision of services and a greater equality of access, particularly in remote and rural areas, while fully respecting the proximity principle. The hospitals of the first level serve populations around 150,000-300,000 people, present first level emergency departments and have a higher number of specialties for addressing more complex health conditions if compared to the proximity hospitals. The second level hospitals serve populations of around 600,000-1,200,000 individuals, provide second level emergency services, and have a higher number of high-specialized services for addressing high-complex health conditions. The proximity and first level hospitals often serve rural and remote areas, which are characterized by low density of inhabitants, which produces a shrinkage of public services, as well as

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difficulties in accessing to the workplace (Vainieri and Nuti 2022), as confirmed by the international literature about the remote areas (Crandall and Weber, 2005; Khan et al., 2020).

In addition to the variations related to the healthcare services provision, we also considered the variability introduced by the people's characteristics. Some scholars underline that rural individuals may define "health" differently from their urban peers on the basis of their personal health-related beliefs, attitudes values and knowledge (Gessert et al., 2015). Thus, considering the community-based participatory approach and the importance of active and willing involvement of healthcare services' users, we focused on the users' perception of healthcare services. In particular, our study regards the individuals' experience and satisfaction with hospitalization. The patient experience of healthcare services is a key indicator of quality and outcome, and a key aspect to manage for practitioners. As stated by Berry (2019, pag. 79), "in no other service is managing the "customer experience" more important than in healthcare" (Berry, 2019). In fact, measuring patient experience and satisfaction for identifying the determinants of service quality is a key activity for organizations (Tremblay et al., 2015), since allows to identify and reducing gaps (i) between management perception of customers' expectations and service quality specifications; (ii) between service quality specifications and actual service delivery; (iii) between service delivery and external communications to the customer (Baron et al., 2018).

The Patient-Reported Experience Measures (PREMs) are the most used tools to collect users' voice. It allows to capture the patient's point of view about what happened during the experience with the healthcare services (Kingsley and Patel, 2017). With regard to the hospitalization, the key the standard dimensions of experience are access to the hospital, relationship with professionals, hospital comfort, emotional and informational support, together with satisfaction and overall evaluation of the hospitalization (Coulter et al., 2009). PREMs serve the purpose of managing, monitoring and improving patients' experience with health services as measuring, and evaluating and reorganizing services from patient feedback means promoting the evolution in health systems towards a more patient-centred care (Nuti et al., 2017; De Rosis et al., 2022). The patients' point of view may contribute to making available to healthcare policymakers, managers and practitioners pertinent and useful information for patients and providers. Patients' contribution is increasingly crucial in the service improvement, redesign of healthcare services and co-creation health (Verhoef et al., 2009; McColl-Kennedy et al., 2012; Levy et al., 2017; Pennucci et al., 2022). Their engagement in the service quality evaluation is a key aspect of value co-creation (Fusco et al., 2022) and can increase the people perception of their role and their feeling of being empowered, with a particular reference to the rural areas (Munoz 2013).

However, also patient experience and satisfaction can be affected by the institutional characteristics of providers and the service they provide. Murante and colleagues (2014) underlined the differences between patients admitted in medical and surgical wards: the first are generally older and more likely to suffer from chronic conditions, than those in surgical departments. They also differ in terms of propensity of 'leaving against medical advice' (PLHAMA) that is associated with patient satisfaction (Murante et al., 2014), and with other dimensions of performance, such as outcomes (30-day mortality) (Grillo et al., 2018).

A very interesting finding of these authors (Murante et al., 2014; Grillo et al., 2018) is that this latter association is significant for surgical admissions, whereas it is not for medical ones. Thus, in medical pathways, hospitalization may represent a specific stage of a complex, multi-provider pathway, and should be investigated separately. This is particularly important, considering that proximity and first level hospitals in rural areas mainly provide at least two kinds of services, namely medicine and general surgery, which, however, provide basic level of services and address low-complex health conditions if compared with first and second levels hospitals.

Purpose of the paper. Given these premises, our aim is to investigate:

- (i) whether and how much the characteristics of patients discharged by hospitals located in rural areas are consistent with, or differ from, the expected characteristics of patients in these areas, as identified by the regulatory acts.
- (ii) whether and how much the characteristics of patients who provide their feedback on experience with care provided by hospitals located in rural areas are consistent with, or differ from, the characteristics of patients discharged from the same hospitals.
- (iii) what additional information the patients provide reporting their experience with care in hospitals located in rural areas.

These research questions consider the specific mission and institutional characteristics of hospitals in rural areas, within the Italian healthcare system, as anticipated into the premises of this research work.

Methodology.

Research Setting

Our research regards the regional healthcare system of Tuscany Region (Italy).

In 2018, Tuscany Region joined the Patient-Reported Experience Measures PREMs Observatory (De Rosis et al., 2020; De Rosis et al., 2019). The Observatory collects and reports both quantitative and qualitative patient-reported data on the experience with hospitalization. In the period 2018 to 2022, nearly 260,000 patients discharged from public Tuscany hospitals were contacted to answer the questionnaire on hospitalization experience and more than 76,000 patients provided their feedback.

We first identified hospitals in rural areas, on the base of the Regional Government Resolution no. 32/2014 (Annex B3), the National Decree of the Ministry of Health no. 70/2015, and the data from the Performance Evaluation System (PES) of Tuscany Region for the number of beds for ordinary hospitalization (updated at the 2022) (Table 1).

The first step of research was devoted to the identification of the rural areas and relative healthcare providers in Tuscany. Based on the Regional Government Resolution no. 32/2014, we first identified the municipalities in the inner areas of six provincial areas of the Tuscany Region, namely Lucca, Livorno, Siena, Arezzo, Grosseto and Florence (Giunta Regionale, delibera no. 32/2014). This resolution categorized municipalities in rural areas into 'degrees of remoteness', based on the measurement of the distance between the area and the closer attraction pole: from intermediate periphery (20-40 minutes) to the periphery (40-75 minutes) to the ultra-periphery (>75 minutes). The attraction poles are areas with at least the presence of the following three kind and levels of services: (i) high schools and second-degree educational centres or more, (ii) emergency departments and services in hospitals (DEA) or more, and (iii) train stations with medium-high number and level of regional trains or more. These three services are among the nine criteria used for calculating the indicator on the level of services' provision of the Italian Ministries of Health, Education, Culture and Istat. As shown in the Table 1, according to this categorization, each province presents one or more hospitals located in a rural area, for a total of seven hospitals in remote areas.

The second step was the selection of hospitals on the base of the DM 70/2015. Following its hospitals' classification, we considered proximity and first level hospitals.

The third step was the computing on the number of beds for ordinary hospitalization, using data from the PES of the Management and Healthcare Laboratory (<https://performance.santannapisa.it/pes/start/start.php>).

Tab. 1. Hospitals located in rural areas of Tuscany Region

Provinces	Rural Hospitals	Categorization from Reg. Gov. Resolution no. 32/2014	Categorization from DM 70/2015	Number of beds (Ordinary Adm. 2022)
Lucca	Santa Croce Hospital (Castelnuovo di Garfagnana)	Periphery	Base/Proximity	51
Livorno	Civile Elba Hospital (Portoferraio)	Ultra-periphery	Base	57
Siena	Ospedali riuniti della Valdichiana	Intermediate periphery	Base	120
Arezzo	Civile Bibbiena Hospital - Casentino	Periphery	Base/Proximity Proximity	48
	Sansepolcro Hospital (Valtiberina)	Periphery		43
Grosseto	Sant'Andrea Hospital (Massa Marittima)	Periphery	Proximity	54
Florence	Borgo San Lorenzo Hospital	Periphery	Base/Proximity	99

Finally, we focused our analysis on the ordinary hospitalization in medical departments, because, as anticipated, the patient experience is affected by the hospital ward of hospitalization and is significantly different in medical and surgical departments (Murante et al., 2014).

Data collection

In the first step of our research, we intend to use the regional hospital administrative database on hospital discharge (SDO), for extracting the main characteristics of patients discharged from hospitals located in local areas (i.e., sex, age, education).

In the second step, we intend to use the data collected via PREMs Observatory, both socio-demographic characteristics (i.e., sex, age, education) and patient-reported experience. The PREMs questionnaire collects the patients' perception of experience and satisfaction with the hospitalization service. The questionnaire consists of closed-ended questions and 5 narrative sections who follow the hospitalization experience from admission to discharge (the full questionnaire is available in De Rosi et al., 2020). The questionnaire investigates the following issues detailed in the Table 2:

- Emotional support
- Engagement
- Informative support
- Technical aspects and Hospital comfort
- Satisfaction with hospitalization

Tab. 2. Aspects of the experience investigated by the PREMs questionnaire: dimensions and items.

Aspect	Items investigated
Emotional support	Management of fears and anxieties – doctors
	Management of fears and anxieties – nurses
	Pain management
	Respect and dignity – doctors
	Respect and dignity – nurses
Informative support	Respect and dignity - staff
	Clarity information – doctors
	Clarity information – nurses
	Discharge Communication on Selfcare
Engagement	Discharge Communication on Therapy
	Patient’s involvement
Technical aspects and Hospital comfort	Information to relatives
	Teamwork
	Silence
Satisfaction	Cleaning
	Overall evaluation
	Willingness to recommend

The data for this study refer to the period December 2021 - December 2022 and are related only to patients discharged from medicine departments in the rural hospitals.

Data analysis

For the analysis, we used SAS and STATA statistical software.

Primarily, we intend to analyze the characteristics of patients discharge from medical departments and compare them to the characteristics of patients that the rural hospital should care, according to the regulatory acts.

Second, the analysis will be aimed at comparing data from administrative data - SDO and data collected through PREMs survey, to identify differences among these two populations.

In both cases, we will use matching methodologies, such as the Coarsened Exact Matching procedure, to match the observations from the two databased, thus identifying the more similar records between the two datasets. Age, sex, and educational level were considered as variables for matching the records. The matched dataset has been used to verifying if the characteristics of all the discharged patients recorded in the administrative data for rural hospitals and the ones who replied to the PREMs questionnaire are significantly different.

Then, for the analysis of experiential aspects we will use observations from the PREMs questionnaire to identify the level of satisfaction and the key aspects characterizing the experience with care in rural hospitals. To this end, we will first perform descriptive analyses of each PREMs item (i.e., mean, standard deviation, distribution). We will perform different test, both parametric and non-parametric, according to the distribution of observations we will find.

Results. The study is still ongoing.

Table 3 reports the number of PREMs questionnaires that we used for this study, considering only the medicine department of the hospitals in rural areas for the period December 2021 – December 2022. In the period considered, we will exclude the Ospedali Riuniti della Valdichiana for the low number of responses.

Tab. 3: Number of PREMs questionnaire per hospital

Rural Hospitals	Number of questionnaires
Santa Croce Hospital (Castelnuovo di Garfagnana)	132
Civile Elba Hospital (Portoferraio)	231
Ospedali riuniti della Valdichiana	20
Civile Bibbiena Hospital - Casentino	182
Sansepolcro Hospital (Valtiberina)	144
Sant’Andrea Hospital (Massa Marittima)	45
Borgo San Lorenzo Hospital	149

We expect to find some differences in the population served by rural hospitals if compared to the population defined by the regulatory acts. For examples, hospitals in touristic rural areas could have younger and healthier patients. We expect to find additional differences in the population served by rural hospitals and those who decided to participate in the PREMs survey. Since this latter is fully digital, it could inhibit or least the participation of older and fragile people (Pennucci et al., 2020), despite the most important population of patients in rural areas is represented by the elderly people. This could affect the perception of experience reported by patients, since younger, more educated, and healthier individuals report more severe evaluations (Murante et al., 2014).

Nevertheless, we expect to find a more positive perception of the relational aspects of the hospital stay in rural areas, due to the sense of the place we mentioned above, but also a more critical evaluation of technical aspects in the rural hospitals due to the perception of remoteness and challenging assess to excellence and innovation that characterizes the rural areas (Gashi Nulleshi and Tillmar 2022).

Finally, Italy presents inter- and intra-regional avoidable variation in the quality of services and outcome produced in healthcare (De Belvis et al., 2022; Vola et al., 2022), which affects equity in the healthcare services' provision. Thus, we intend to compare the data of the Tuscan region with data of another Italian region (i.e., Veneto Region) that joined the PREMs Observatory.

Research limitations. We report some limitations that open roads for future studies.

First, our work is focused only on an Italian Region. Future studies could investigate intra-regional differences in other Italian regions since the conditions and circumstances change from territory to territory.

Second, additional analyses could be done at the level of each single provincial area, in order to go in depth into local roots of the differences that emerged from the first analysis.

Third, in this study we used only a quantitative approach, but further studies could consider qualitative methods (e.g., interviews, focus group, ethnography) to collect more data about people's sense-making, shared understandings and contextual situations and so interpreting these preliminary results with the contribution of local people.

Managerial implications. We expect to provide insights in relation to different matters.

First, our findings will have implication on the aspects that healthcare organization have to take into account when dealing with local areas, communities and people. The patients' perception can provide valuable information on the quality of care provided, and, therefore, the unmet needs and expectations of people cared in rural hospitals. As suggested by Pelletier and colleagues (2020), understanding the needs of who faces increased barriers to health care is the starting point to address health inequities (O'Mara-Eves et al., 2013; Wallerstein and Duran, 2006).

Other implications can regard the opportunities of involvement of elderly, alone and/or more fragile people in the remote areas. Thus, is extremely important to investigate the levers of participation of the different targets of people, also considering the role of local communities (Longo and Barsanti, 2021). This is true also with regard to the methodologies and process for increasing a wider people engagement in co-assessment initiatives.

Finally, our results can provide preliminary evidence on whether and how much healthcare organizations are rooted in the communities where they are located, by considering their values, norms, expectations. This is a core aspect to consider for increasingly connecting the excellence of the public healthcare service from the urban and central organizations to the periphery of the system (Vainieri and Nuti, 2022).

Originality of the paper.

The methods used to conduct the study contributes to its originality, since the source of data (i.e., PREMs Observatory) is unique and, prospectively, it allows to combine qualitative and quantitative methods in a unique way.

Finally, this research has managerial and policy implications and provides preliminary recommendations, which could be a valuable contribution to the field.

Keywords Rural areas; patient-reported experience; healthcare; community-based participatory approach

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The role of familiness on the digital transformation processes: highlights from wine SMEs

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Abstract

This study examines the role of familiness on the digital transformation processes of low-tech SMEs operating in the South Italy. By adopting a multiple case studies approach on nine family-owned wine SMEs, the study offers a better understanding of the main factors-individual, process and organization- that influence the adoption and the implementation of digital technologies relevant for the operativity of these organizations. The findings have important implications for those businesses engaged in innovation paths related to digital transformation, with the aim at improving business processes, gaining operation efficiencies, reducing costs and supporting existing and potential relationships. Specifically, the factors identified could help family-owned SMEs to manage their digital transition, in the lens of the inevitable reconfiguration of their strategic and organizational models.

Framing of the research. *The study responds to Basly and Hammouda (2020)'s call for research based on family businesses and digital entrepreneurship by presenting empirical evidence from the specific context of Small and Medium Enterprises (SMEs) and providing useful insights for both academics and practitioners. This is because the existing research regarding the digitization paths of this typology of firms is still scarcely explored even if, in the current scenario, family SMEs that intends to remain competitive cannot postpone this challenge, by adapting their business model to the pressing challenges related to the digitalization, which concretely imposes to deep reshape the company from its vision to strategies, practices, organizational structures, internal processes, capabilities and competences, and culture (Fitzgerald et al., 2014; Gurbaxani and Dunkle, 2019). Indeed, the adoption and implementation of innovative digital technologies, such as big data, artificial intelligence (AI), Internet of things (IoTs), blockchain, cloud computing, virtual and augmented reality just to list some of the main recent innovations (Arnold et al., 2016; Nambisan, 2017), involve diverse business processes, products and services' proposals, and new types of customer experiences (Nambisan et al., 2019). Digital technologies require building new digital assets, skills and competences, and capabilities (i.e., digital agility, digital networking capability and digital data analytics capabilities) (Verhoef et al., 2021) and the adequate design of new learning processes within the organizations. Certainly, this implies that entrepreneurs have to acquire a new and diffuse digital mindset, a new digital approach based on different motivations, behaviours, routines, competences and organizational capabilities that support them to navigate information-dense digital environments (Nambisan et al., 2019) and to implement digital technologies and applications that increasingly transform products/services and production processes (Basly and Hammouda, 2020).*

The transition towards the digitalization of activities and processes, involving changes in different firms' areas, could be very complex in the family-owned SMEs, which have to evolve, maintaining their flexibility and agility, for applying innovative digital business models as well as being open to the development and adoption of new digital technologies, infrastructures and platforms (i.e., social media, cloud computing, online communities, etc.) (Riswanto, 2021) in their socio-economic contexts. Specifically, these organizations, oriented to exploit business opportunities related to data-driven value creation, have to face continuous challenges in their evolutionary paths, addressed by digital initiatives and projects.

However, main challenges and/or barriers referring to the specific characteristics of family-owned SMEs can effectively influence the orientation toward digital transformation adoption. In particular, family-owned SMEs show high ability but low willingness to innovate (Chrisman et al., 2014), usually due to different factors, such as financial (insufficient funding), legal (regulatory concerns), technological (legacy technology limitation), and human factors (Ano and Bent, 2021); long-term orientation; the obsolescence of their business models; conservativeness of traditional practices and approaches; prioritization of non-economic goals over economic goals; preference of incremental innovations over radical and disruptive ones, and human resources, that could lower the openness towards innovative

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solutions (Bennedsen et al., 2007; De Massis et al., 2013). In other terms, the characteristics above mentioned can effectively represent factors that may limit and/or impede the exploitation of further growth opportunities related to digital transformation and to the successful development and experimentation of digital ways of doing business that can create and capture more value for the firm (Nambisan et al., 2017; Ano and Bent, 2021).

The specificities mentioned above can be concretely extended to family-owned SMEs operating in the wine context, which represent the sample selected for the empirical analysis of this research. In particular, this study has selected the wine industry because it is increasingly assuming relevant economic role in many countries (Galati et al., 2017; Rossi et al., 2012), and it exhibits an incredible technological shift over the last few decades (Giuliani et al. 2010,). It has recently manifested structural industrial and market changes, which have affected competitive dynamics, supply relationships and consumer behaviours (Fait and Iazzi, 2008), by determining deep changes at business and environment levels as well as at entrepreneurial processes level (Rossi et al., 2012; Bernetti et al., 2006).

The paper develops an empirical analysis focused on the family-owned winery SMEs operating in South Italy. Italy is the first largest wine-producing country (Mediobanca Research Area, 2022) and the second wine exporting nation (International Organization of Vin and Wine, 2019), with significant employment relevance and socioeconomic impacts (Broccardo and Zicari, 2020a). Italian wineries are mainly represented by family small businesses with long-term, outstanding traditions and the wine they produce embodies values, symbols, and traditions, which together express the family's mindset (Broccardo and Zicari, 2020b; Contà et al., 2015).

Purpose of the paper. With these premises and the intent to fill the gap existing in literature, the objective of this research is to examine the role assumed by familiness on the digital transformation processes of SMEs operating in the wine industry. Specifically, the following research questions are investigated: What are the main dimensions of family-owned SMEs that influence digital transformation processes? What is the role of familiness in the digital transformation of wine SMEs?

Methodology. The analysis is circumscribed to Sicily, one of the most important Italian wine regions with a variety of terroirs, favorable climatic conditions, experience and entrepreneurial spirit, traditional methods and techniques, that have contributed to a huge diversity of grape and wine styles. With 98.992 hectares, Sicily is "the first Italian wine-growing region by vineyard area, and the tenth in the world, even if it is the fourth Italian region for overall production with a yield per hectare lower than many other regions" (www.assovinisicilia.it). Additionally, Sicily ranks first in Italy for organic vineyard area, with an extension of 26.241 hectares, equal to 27% of the organic vineyard area of Italy, which amounts to 117.378 hectares (Unicredit-Nomisma, 2022). Regional exports recorded a strong rebound (+16.8%) compared to the collapse of 2020 and recorded an increase of 20.7% compared to 2016 (Unicredit-Nomisma, 2022). In term of quality, the Sicilian wines are confirmed also for 2021: the incidence of Dop wines is in line with the national average (40% Sicily; 43% Italy), the incidence of IGP wines is higher in Sicily compared to the national average (34% Sicily; 26% Italy) (Unicredit-Nomisma, 2022).

Generally, wine producers are small-sized companies (Zanni et al., 2009; Presenza et al., 2016), usually family owned- and-managed (Chirico and Nordqvist, 2010) and rarely listed on national or international financial markets. The relationship between family and wine product is extremely strong and the wine is the result of territorial values, symbols, and traditions (Abbate and Cinici, 2014). Recently, Sicilian wine sector is increasingly characterized by complex and dynamic processes of structural changes in the vineyard, in the cellar and in the communication activities. Numerous SMEs have been committed in the definition and implementation of projects oriented to improve quality production within a sustainable perspective, to develop profitable export processes, and to experiment and implement innovative technologies (Unicredit-Nomisma, 2022).

The study uses multiple case study method, which is considered suitable for developing theories on phenomena where little is known about their dynamics, especially referring to the context where they occur (Yin, 2003). The research uses a multiple case study approach because it allows comparing the results of each case with the other ones to reveal similar patterns and, consequently, to confirm emerging concepts (Davis and Eisenhardt, 2011). Additionally, with this approach it is possible to obtain more generalizable and robust evidence than a single-case study, allowing for further theory extensions (Davis et al., 2007). Different reasons led to this research approach. Firstly, the topic here considered is complex and less investigated, hence calling for the theory-building (Eisenhardt, 1989). Secondly, this approach allows for a close correspondence between theory and data (Glaser and Strauss, 1967). Thereby, this study follows Eisenhardt's (1989) approach for theory building, as well as the guidelines proposed by Yin (1984). It adopts an exploratory, qualitative research design to investigate the phenomenon in detail since no prior empirical research is available (Eisenhardt, 1989). In this respect, this study performs semi-structured interviews with the entrepreneurs of nine Sicilian winery family-owned SMEs.

We selected the winery family-owned SMEs based on two main criteria: being localized in Sicily and being at least in the second-generation stage. The informants were determined by snowballing, that is, the researchers identified the family-owned SMEs members to be interviewed based on information achieved from 'Le Donne del Vino', an association founded in 1988 with the aim of promoting knowledge and culture of Italian wineries. We contacted the identified companies, telephonically or via e-mail, by illustrating the focus of our analysis. Through this activity we were able to interview six family-owned SMEs. In order to achieve variance in the sample, that also allows to exceed a possible gender-related bias, the interviewees were asked to provide additional names outside the association. This further activity permitted to reach three more interviewed. The nine interviews allowed the authors to have a deep representation of the state-of-the-art, thus addressing our two research questions. Data was collected between November 2022 and January 2023.

Results. *Based on the empirical evidence, findings show how familiness influence the digital transformation of family-owned SMEs and highlight three main dimensions - individual, process and organization - relevant for the introduction and use of digital technologies in the productive and innovative activities of these organizations.*

The findings of this study are collected into two groups: the role of familiness in the digital transformation process and the main factors influencing digital transformation strategy and process of the selected family-owned SMEs.

Regarding the first group, the empirical analysis underlines the role that familiness assumes in the definition and implementation of digital transformation processes, by facing inevitable challenges determined by digital technologies adoption and by the necessity to preserve the firm's sustainability within a context of increasing uncertainty and of possible business crisis.

In particular, the organizations here investigated highlighted the different generational perspective that explains the exploitation of digital opportunities and, consequently, the development of digital transformation projects. In many cases, the entrepreneurial bridging, the period during which older generations manage the operations while younger ones implement innovative ideas, represented an interesting opportunity for inter-generation collaborations oriented to the experimentation and exploitation of novel activities, methods of productions and forms of communications. On the other hand, findings revealed that if the economic and decision-making power is concentrated in the hand of a senior family member, this could translate in a more rigid operational structures and in less decisional independence in operative process. This is particularly true when the family owner is skeptical towards digital technologies and the firms' operativity requires the adhesion and the engagement in digital initiatives, at least temporarily and in a fashion timely. When family members seem reluctant to invest with their own money, because of uncertainty, public funding could be a persuasive argument for pursuing concrete digital advancements.

Concerning the second group of results, this study highlights the different factors - individual, process and organization - that can influence digital transformation processes in family-owned SMEs operating in the traditional contexts. It shows that these factors can differently act as "barriers" or "facilitators" for adopting advanced digital technologies within the organizations involving activities, processes, and resources and, in general, for facing the challenges related to the digital transformation initiatives by efficaciously addressing efforts, investments, and achieving long-term objectives. At the individual level, digital transformation processes allow to distinguish between production skills - related to production processes - and those related to commercialization, marketing, and communication competences. In relation to the processes, during the interviews, most of the times it emerged that Sicilian SME wineries realized the urgency for digital transformation, but a strategic orientation and a consequent strategic formulation for digitalization is still absent in most of cases. However, they are more likely to evolve stepwise following digital technologies advancements in most of their organizational processes. The third aspect of digital transformation of Sicilian family wineries was related to the organizational aspects. Even if all of our sampled firms are actively involved in digital transformation processes, little has been made so far in organizational terms, and no one is actually introducing a business model innovation.

Research limitations. *This research has some limitations that provide potential opportunities for future research directions. Firstly, the theoretical insights here advanced are substantial rooted in the investigation of diverse case studies. Hence, scholars could consider research projects for the generalization of the findings by developing and performing other empirical investigations that are based on different methodological approaches (i.e., longitudinal case studies across diverse industry, surveys ad hoc, etc.) and innovative ways for collecting and analyzing data. Secondly, other limitations are linked to the sectorial and regional dimensions. In fact, the case studies here selected are representative of the phenomenon under investigation within the wine sector. However, as a future research direction, other studies in family-owned low-tech SMEs adopting digital transformation processes in different sectors, as different empirical settings, might strengthen the findings proposed by this study. In addition, this study focuses on the family-owned low-tech SMEs operating in Sicily. Therefore, involving family-owned low-tech SMEs operating in different geographical areas, with different historical, economic, cultural conditions, could be fruitful for additional investigations able to improve the existing literature at the intersection of the digital transformation and family involvement.*

Managerial implications. *The present study supports family-owned low-tech SMEs oriented to consider the innovation paths related to the adoption and implementation of digital transformation and, consequently, to apply digital technologies with the aim at improving business processes, gaining operational efficiency, reducing costs, and supporting different interactions and relationships with customers (existing and potential). The factors here underlined can be useful for firms that intend to start an inevitable digital transition, even if this has relevant implications and determines a consistent reconfiguration of strategic and organizational models by requiring the development of diverse professional competences and capabilities, often acquired from external sources, or developed within the organization through adequate learning mechanisms and processes. In this perspective, family-owned SMEs have to consider that the efficacious introduction, adoption and use of digital technologies (blockchain, big data, artificial intelligence, etc.) in their activities and in their processes needs necessarily innovative skills and competences by activating a coevolution process between skills and competences, innovation and digital technologies (Ciarli et al., 2021). However, in this challenge perspective, family-owned low-tech SMEs are pressing called for an innovative cultural approach oriented to sustain the radical change of the organization by activating paths towards the digital configuration in the present as well as in the future.*

Originality of the paper. *This study contributes to the field of family SMEs in at least two ways. From one side, it highlights the role of familiness assumed in the digital transformation processes and activities; from the other, it*

initiates to deepen the knowledge regarding the principal dimensions that influence family-owned SMEs in their activities and projects oriented to the adoption of digital technologies within their boundaries.

Keywords: digital transformation; familiness; SME; wine industry; digital transformation factors

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Passing on Self-Compassion: Analysis of Succession Success Drivers in Family-Owned Small Businesses

AHMAD RAZA BILAL* ZESHAN AHMED• TAHIRA IRAM▲ TEHREEM FATIMA**

Framing of the Research *Female successors demonstrate strong loyalty and respect for their parent firms (Belchior and Lyons, 2021). They are recognized because of their family business in their social circles. This is why female successors are concerned about the stability and longevity of their family business. Every family business passes through the highs and lows of its life cycle (Mbedzi and Simatele, 2022). An accurate cognitive approach and psychological well-being (self-compassion) of a female successor may help smooth business operations, even during economic unrest (Neff Kristin, 2022). Stability in the family business's operations and growth owing to the successor's self-compassion may increase the longevity of the family business. However, the literature shows a scarcity of studies on the relationship between the successor's self-compassion and the success of F-OSB. So, the R.Q.1; whether a female successor's compassion has a significant relationship with the succession success of F-OSB.*

Self-compassion was assessed in two ways: inward and outwards. Inward compassion refers to an individual's attention towards self-understanding, self-appraisal, and self-love. In contrast, outward compassion involves maintaining care for others and building quality relationships with peers/managers/predecessors (Boellinghaus et al., 2014). Female successors with inward compassion prioritize their psychological well-being, inner strength, and physical health (Boellinghaus et al., 2014). They might consider that knowledge or educational attainment might improve business decision making (Dias and Davila Jr, 2018). Rational decision-making due to education may increase the self-compassion of the successor to polish their entrepreneurial capabilities, and it may increase the likelihood of a firm's stability (Bonesso et al., 2018). However, the literature is silent on the role of female successors' education in improving self-compassion and succession success in F-OSBs. So, the R.Q.2; whether a female successor's education moderates the relationship between self-compassion and the succession success of F-OSB.

The outward compassion of a successor may instigate him to build strong relationships and minimize conflicts among family members and units to work for the betterment of their family business. Teamwork of family members due to strong bonds and trust may increase the family firm's performance and preserve its longevity (Galadanchi and Bakar, 2017). But, how a successor's strong relationship with the predecessor instigates her self-compassion to increase growth and stability across generations is still silent. So, R.Q.3; whether the predecessor-successor relationship moderates the relationship between the female successor's self-compassion and the succession success of F-OSB. Predecessors have a strong affection and extra care for their successors. They prefer the successor's comfort and underestimate the need for their successor's education (Elsaid et al., 2016). They think they can teach their successors more than any college or university. That's why successors of family businesses are less likely to get an education up to the post-graduate level (Barbera et al., 2015). However, the literature is silent to answer whether a strong relationship between predecessor and successor may help the F-OSB to preserve their longevity across generations during an economic slowdown or the female successor's education. So the R.Q.4; whether the predecessor-successor relationship is more influential for a successful succession transition or the female successor's education?

Purpose of the paper. *COVID-19 has put the survival of family businesses at risk (Kraus et al., 2020). Rius (2013) revealed that 90% of the world's firms are family-owned. Similar to other economies, Malaysia's economy is also based on family owned small businesses (F-OSB). F-OSBs contribute to Malaysia's GDP by 39%, exports by 25%, and employment by 47.8% (Mohamad et al., 2021). Klynveld Peat Marwick Goerdeler (KPMG), an international firm, surveyed the impact of COVID-19 on F-OSBs. They reported a 69% drop in revenue, a slump of 8.56% in employment, a significant decrease in employees' working hours, and a close-down of 14% of family businesses in Malaysia (KPMG, 2022). KPMG also reported that 83% of family businesses faced a decline in sales and profitability during the during-and-post-pandemic period.*

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Economic unrest after the pandemic has increased the likelihood of business failure (De Massis and Rondi, 2020). Such a complicated situation has damaged the F-OSB successor's cognitive and rational decision-making approach (Kollmann et al., 2019). Day-to-day losses or difficulty in meeting break-even have raised psychological issues among successors. These issues not only increase self-compassion, but also influence the performance and longevity of the family business. A short life span of F-OSBs (succession failure) is a hot debate in family business literature and a matter of deep concern for economies (Wijayanti et al., 2021). This matter becomes more significant when it moves around the F-OSB's succession transition and the self-compassion of female successors. Male and female successors may play an equally vital role in transacting the F-OSB into subsequent generations (Ahmad et al., 2022). However, female successors confront a higher level of self-compassion than males.

The erratic growth of family-owned small businesses (F-OSB) for an unprecedented period led to self-compassion among female successors. Therefore, this study examines the relationship between a female successor's self-compassion and succession success by focusing on moderating the role of the predecessor-successor relationship and a female successor's education. We also compared the influence of the predecessor-successor relationship and successor's education on the success of F-OSB.

Methodology. *This study used a cross-sectional approach. Primary data were collected from female Malaysian F-OSB successors. We targeted female successors designated as CEO, chairmen, or managing directors of F-OSB. The reasons for this selection are as follows: 1) they have a small social circle compared to their male counterparts, are less likely to share their business issues, and face self-compassion. 2) they have authority in strategic decision-making and may significantly influence the succession transition (Strike et al., 2018). This study targets the retail sector to obtain better insights (Knight et al., 2020).*

The authors tracked the list of F-OSBs from the SME Corporation in three districts: Kuala Lumpur, Labuan, and Johor Bahru. The researchers imposed a few filter questions to target the exact F-OSB: 1) F-OSB must be five years old, 2) two or more family members are involved in the operations of F-OSB, 3) successor possesses shareholdings of 50% or more, and 4) F-OSB should have employees between 5-30. A total of 469 female successors voluntarily participated in this study. However, 342 responses were received, a response rate of 73%. Thirteen questionnaires were discarded due to incomplete or inconsistent responses. The final sample size was 329 patients.

In this study, 82% of the participants were male and 69% were middle-aged (i.e., between 40-60 years old). 62% belonged to the 2nd, 23% to the 3rd, and 8% to the 4th generation. This study used PLS-SEM with Smart-PLS software for the data analysis. There are a few reasons for using the PLS-SEM. 1) It is second-generation software capable of dealing with data multicollinearity issues. 2) Despite the low number of responses, it provides reliable and valid results. 3) PLS-SEM deals with formative and reflective measurement constructs (Sarstedt and Cheah, 2019).

Results. *The results of the direct relationship between the exogenous and endogenous constructs. The successor's mindfulness (H1a: $\beta = 0.082$ and $t = 4.116$) has a positive association with succession success. The successor's self-isolation (H2a: $\beta = -0.079$ and $t = 3.649$) has a negative association with succession success. The successor's self-judgment (H3a: $\beta = 0.111$ and $t = 4.013$) has a positive association with succession success. Predecessor-successor relationship (H5: $\beta = 0.169$ and $t = 9.644$) has a positive association with succession success. At the same time, the successor's education (H6: $\beta = 0.657$ and $t = 38.842$) has a positive association with the succession success of the F-OSB.*

The moderating mechanism explains how the direct effect of self-compassion (mindfulness, self-isolation, self-judgment) on succession success changes when the moderating variables' predecessor-successor relationship and successor's education increases in standard deviation. The simple slope analysis in the figures below was employed to evaluate the moderating effect. The results show that predecessor-successor relationship interaction (H1b: $\beta = -0.018$ and $t = n.s$) has a non-significant moderating impact on the relationship between mindfulness and succession success of F-OSB. The predecessor-successor relationship moderate non-significantly (H2b: $\beta = 0.018$ and $t = n.s$) in the relationship between self-isolation and succession success. While the predecessor-successor relationship moderates (H3b: $\beta = -0.111$ and $t = 4.660$) negatively the relationship between self-judgment and succession success of F-OSB.

The successor's education interaction (H1c: $\beta = 0.129$ and $t = 5.510$) significantly affects the relationship between mindfulness and succession success. The successor's education is moderate negative (H2c: $\beta = -0.078$ and $t = 3.770$) in the relationship between self-isolation and succession success. The successor's education moderates positive (H3c: $\beta = 0.030$ and $t = 1.370$) the relationship between self-judgment and succession success. In addition, education does not moderate (H4: $\beta = 0.027$ and $t = n.s$) the relationship between the predecessor-successor relationship and succession success. The R^2 values for the endogenous variables indicate that the proposed theoretical model explains 78.5% of the variance in succession success, exhibiting good model predictability.

We compared whether a predecessor-successor relationship or a female successor's education is more influential on the self-compassion and succession success of F-OSB. The T-values of the moderating effect of the female successor's education and the predecessor-successor relationship demonstrate that a female successor's education has a greater significant influence on increasing the likelihood of succession success than the predecessor-successor relationship.

The results concluded that mindfulness, self-judgment, predecessor-successor relationship, and education of female successors have a positive relationship, while self-isolation has a negative association with the success of F-OSB. The predecessor-successor relationship does not moderate the association of mindfulness and self-isolation with succession success, but self-judgment does. However, the female successor's education moderates the association of mindfulness and self-isolation with succession success, but not the association of self-judgment and the predecessor-successor

relationship with succession success of F-OSB. Furthermore, a female successor's education has a greater impact on succession success than the strong relationship between the predecessor and successor. Post-graduate level education increases the female successor's mindfulness and decreases her self-isolation; thus, it contributes to the transaction of the F-OSB into subsequent generations. Moreover, this study reveals that the female successor's education attainment up to the post-graduation level may play a more significant role in the succession transition during an economic downturn than her strong relationship with her predecessor. Our findings indicate that despite lavishing female successors with affection and extra care, predecessors should emphasize their high-level educational attainment.

Our study offers three contributions. First, the present study contributes to the literature by examining the direct link between a successor's self-compassion and the succession success of F-OSBs. In addition, this study investigates a novel moderating mechanism of female successor's education and the predecessor-successor relationship between self-compassion and the succession success of F-OSB. Family business literature emphasizes the successor's education and maintenance of relationship quality. But literature is silent to guide which factor helps the female successors more for succession success, particularly when her business is passing through a complicated situation (Kubiček & Machek, 2019). Second, we apply the self-control theory to evaluate the female successor's self-compassion role theoretically and empirically in F-OSB (Rauthmann, 2020). We utilize the moderating mechanism of the successor's education and predecessor-successor relationship to explain the relationship between self-compassion and succession success. Third, our results are helpful for the members of F-OSBs and urge the policymakers to introduce successors' psychological wellbeing programs nationwide. This study advises that predecessors should consider educating their female successors rather than providing them support with a strong relationship.

Limitation. This study investigated three constructs of self-compassion; however, future research should examine the remaining three constructs. We focused on only three districts in Malaysia; however, the remaining ten districts should also be examined to generalize the results. In this study, the data were collected during the endemic phase; however, post-endemic studies should compare these results. In addition, a comparative study should be performed between Muslim and non-Muslim developed and developing countries. There is a need to induce different moderating and mediating mechanisms between exogenous and endogenous variables. For instance, financial literacy, self-enhancement, and business experience can be potential moderators and mediating variables, such as value congruence and willingness to lead.

Theoretical Implications. The results of this study have several theoretical implications. First, self-compassion, self-judgment, self-isolation, and mindfulness may increase the likelihood of successful F-OSB succession. Second, this study found that female successors who isolated themselves from their social circles may increase the possibility of succession failure. However, successors with high mindfulness and self-judgemental traits may anticipate future obstacles and take proactive measures to successfully transact their F-OSB into subsequent generations. This study indicated that a postgraduate female successor could manage her self-compassion traits and may transact their F-OSB into successive generations. However, the predecessor's affection and support towards her successor may not help her deal with her self-compassion during stressful situations and lead the F-OSB to subsequent generations.

We can extrapolate from self-control theory that female successors become more self-judgmental when they fail to meet their goals. They developed their skills and took advantage of their education to pass on their F-OSB to the next generation. However, the dynamic role played by their predecessors is somewhat muted for succession transition. Self-control theory also explains how insufficient effort or a female successor's failure to restrain her desires results in self-isolation. Self-isolation contributes to business failure in subsequent generations. The predecessor may not have been able to help her overcome her self-isolation. Nevertheless, a highly educated female successor may be able to rationalize the situation and return to her business to ensure its success. Self-control theory helps explain why female successors with high mindfulness visualize and rationalize their future. A mindful female successor develops strategies to overcome future hazards, which may result in successful succession. However, a post-graduate female successor may rationalize her priorities without her predecessor's support, bring about a work-life balance, and become able to preserve the longevity of their F-OSB.

Management Implications. In the during-and-post COVID period, F-OSBs face a higher drop in revenues and profitability. This drop trend may be due to seasonal or economic instability, or stability changes. For instance, a prolonged decline in sales and profitability during COVID-19 or any complex situation causes successors to feel depressed. Therefore, the concept of self-compassion was selected for in-depth investigation. This study suggests that predecessors and family members should not leave female successors alone to handle financial or non-financial crises. Thus, their support may preserve the longevity of F-OSB. Moreover, this study suggests that predecessors should emphasize the education of female successors and let them use the cognitive skills that were polished during their educational attainment. A well-educated female successor not only deals with compassion traits but also turns him mature, groomed, and trained enough to transact F-OSB into subsequent generations.

The pandemic hurts F-OSB's financial position and raises psychological issues. This study implies that vaccination and the financial packages provided by the government are not sufficient for family businesses' performance and survival across generations. Still, psychological support, training, entrepreneurial courses, and workshops should also be part of during and post COVID treatments. Therefore, a post-recovery programme must be proposed to increase the growth and profitability of family enterprises. Governments should activate entrepreneurial support and educational programs through virtual gatherings. Officials should listen to their problems and allocate problem-solving committees at the district level.

Originality. *Intertwining the conservation of self-control theory, this paper extends novel insights into the above-stated association is provided through the moderating role of the predecessor-successor relationship and the female successor's education. This paper will benefit business founders, family business successors and researchers.*

Keywords: *Self-compassion, Succession success, Family-owned small business, female successor's education, Predecessor-successor relationship, Smart-PLS*

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Visible adoption into the family firm dynamics: how does it shape local roots? A single-case study

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Objectives. *The recent increasing immigration flow is affecting most developed countries (Castles, Haas and Miller, 2015) and is generating relevant changes in society, labor market, and families compositions. Most studies have focused on samples of first- or second-generation immigrant youth, while less attention has been paid to international adoption which may be considered as a “quiet” migration process (Lovelock, 2000; Weil, 1984). As its practical and legal institution means the movement of children from their birth country to adoptive parents’ one. Between 2004 and 2019, nearly 169.000 children were placed in international adoptions into European countries (Selman, 2019). In the last few decades, Italy was the first receiving European country for number of foreign minors authorized to enter for adoption purposes (Commission for Inter-country Adoptions, 2019). Most adoptions are transracial and entail the placement of a child from a different ethnic group into families with a majority ethnic background (Baden et al., 2012). Nowadays, an increasing number of international transracial adoptees are navigating through emerging adulthood and enter into world work. As a result of this phenomenon, organizations and firms are increasingly called to adequate and renew their management styles and strategies to manage ethnic diversity (Duchek et al., 2020).*

This phenomenon of silent migration is slowly changing the structure of host families, of the social contexts affected by this trend, and organizations in general. This aspect has often been underexplored by both the psychosocial literature and management literature, where, for example, family businesses undoubtedly undergo a change in their family, cultural and managerial structure. Thus, family businesses are witnessing transformative facts despite the lack of attention of scholars as well as the psychosocial literature that largely overlooked. For instance, scholars argue that ethnic diversity within firms enhances organizational performance (Ely et al., 2012) (Herring, 2009), concurs to create a positive firm image (Kim, 2006), promotes small business venturing (Boudreaux, 2020), and when ensured also in the board, it reduces the likelihood of large-scale discrimination lawsuits given their propensity to advocate for underrepresented groups in the workplace (Abebe & Dadanlar, 2019), and enhances stakeholder management (Fernandez & Thams, 2019).

On the other hand, psychosocial literature was primarily focused on the impact of ethnic diversity on family relationships and adoptees’ ethnic identity development. Research findings emphasize the importance of whether or not racial and ethnic differences are acknowledged. Within adoptive families, giving value to the adopted child’s racial and ethnic heritage as a vital component of the family urges parents’ enculturation regarding the child’s birth culture (Anderson et al., 2015) which turned out to promote the adopted child’s ethnic identity development. In fact, shaping the ethnic identity is a highly complex task for transnationally adopted children, as their ethnic identity is often different from that of adoptive family members (Lee, 2003) and parents’ cultural socialization could serve as a crucial factor in triggering adoptees’ exploration of their ethnic identity, which has proved crucial predictor of their psychological well-being (Castle et al., 2011; Ferrari et al., 2015, 2017). Recent studies (Ferrari et al., 2019; 2021) focused on which contextual factors are able to contribute to developing the ethnic identity among intercountry adoptees, suggest the importance to consider the role played by social contextual feedback regarding intercountry adoptees’ ethnic differences, especially when are negative and discriminatory.

However, how the adoptees’ racial and ethnic differences may be related and influence the social context acknowledgement and acceptance of their ethnic difference have not been explicitly examined.

In fact, the impact of a change in the family structure, however, produces effects not only within the family as a natural organization, but also externally at the social level as a result of the bidirectional influence between the family and the surrounding social context. This aspect generates “welcoming” areas and more “resistant” area to this

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phenomenon because they are rooted in closed contexts and little inserted in international exchanges. In this direction, the local roots where the family and the family business operate can undergo more or less marked transformations that would deserve specific attention from scholars. Over time, following Granovetter's theorization (1985), family business scholars have recognized the significance of the context to the family business, building upon the theory of embeddedness the significance of local relationships to and from the family business to the context. Local relationships are based on trust, the exchange of information (Uzzi, 1997), and provide firms with a unique opportunity to establish long-term relationships with local stakeholders in order to convey a perception of credibility, preserve the firm's reputation, and ensure a competitive advantage (Upton et al., 2001). In other words, businesses appear to be the result of their local context and history, which transform a geographical region into a social space with its own values, languages, beliefs, culture, and tradition (Granovetter, 1985).

Due to the social and geographical proximity, economic ties in such a social space are not solely motivated by a desire to pursue good economic and financial results, but also to embody mutual trust, knowledge sharing, and positive outcomes for all local actors in terms of legitimization, friendship, and social inclusion (Ben Letaifa & Rabeau, 2013) especially in closed and small geographical context. This happens above all for micro and small businesses, which are frequently managed by families who do not take decisions without taking into account the context in which they are embedded (Wallace, 2002) because they are habitually aligned to the local expectations (Alsos et al., 2014). In line with this is the awareness that the link of the family business with its local roots takes on a huge thought.

To our knowledge, however, the attention of scholars towards the role of local roots for the family business has focused above all on how these have an effect or not towards their propensity to internationalize, neglecting how they can influence the internal dynamics within the family business. In fact, while the literature has primarily focused on evaluating the external behavior of the family business to loosen its local roots towards internationalization strategies, little has been done to analyze how this can occur through a change in the family structure. In particular, what happens when a family firm experiences a change in the family structure with the peculiar entry of a new family member through adoption, in particular a visible adoption, is entirely unexplored. At the same time, this topic is increasingly relevant to the unprecedented changes that the worldwide social structure has been living because of the immigrant flows, due to the fact that there is a common consensus that family businesses have a strong connection to their home region and local roots (Bird & Wennberg, 2014) with a reluctance to broaden their visions (Fernández & Nieto, 2005; Fernández & Nieto, 2006). Scholars have argued that family firms often have to strive with the tension whether to stick to their local roots (Block & Spiegel, 2013; De Massis et al., 2018) due above all with the fear to break their traditional oriented strategy, embracing a conservative behaviors (Gómez-Mejía et al., 2007; Kotlar et al., 2018).

If family businesses are important bridge-builders between local and global environments (Baù et al., 2021), the composition of the family structure formed by individuals by different origin resulting in a multicultural family represents an intriguing scenario to analyze in terms of the family business's tendency to remain or not rooted in its local roots. In fact, family business possesses a unique structure that simultaneously manages the internal family dynamic and the financial affairs, involving different generations. The current Italian economic situation reveals that a majority of business companies are family-run, which means that family firms bear a significant impact on the economic and social development of our country. It is also evident that Italian firms are based on a delicate balance between family and business, which may be challenged especially when adoption comes in. Facing ethnic differences, which gives visibility to the history of adoption, represents one of the crucial challenges for transracial adolescent adoptees, for dynamic in the family that runs a business, and also in the relational context where the family business works and has its local roots. Based on these reflections, this study aims to investigate how visible adoption impacts family firms' dynamic and local roots in a closed-minded geographical context of the south of Italy. Due to the novelty of the research aim, we adopt a single-case approach that is exploratory in nature and can help us to uncover interesting insights and new emerging themes.

Methodology. We adopted a qualitative method through an inductive and interpretive approach, employing a single case study (Eisenhardt & Graebner, 2007; Karra et al., 2006; Yin, 2008), that allows an in-depth investigation of a contemporary phenomenon within its real-life context (Koporcic et al., 2019; Pettigrew, 2014; Yin, 2008). We carried out family research assuming a multiformat perspective and collecting data from all family members; as a consequence our unit of analysis was the family.

A qualitative research design is particularly relevant to organization and management studies because allows 'understanding the dynamics present within single settings' (Eisenhardt, 1989, p. 533) and it is particularly appropriate for family business studies (De Massis & Kotlar, 2014) to penetrate the veil of the family and avoid gathering data that is not useful (Litz, 1997). To fully understand the organizational phenomena associated with family involvement in and/or influence on business as well as their antecedents and consequences, scholars need to combine multiple perspectives and navigate multiple levels of analysis. In this respect, the case study design appears to be a well-suited methodology, as it (i) copes with the situation in which there are manifold variables of interest that are embedded in the context of investigation and (ii) relies on multiple sources of evidence, with data needing to converge in a triangulation fashion (Yin, 2013). Moreover, to our knowledge, there are no studies that investigate the effects of visible adoptions in family firms to challenge local roots. Thus, an exploratory approach is needed, and the single-case study constitutes a suitable theory-building approach that is deeply embedded in empirical data, in fact gathering data through interviews and combining it with factual information allows to produce theory that is accurate, interesting, and testable (Eisenhardt & Graebner, 2007). Finally, the case selected, which is a micro firm located in a small village in the center of Sardinia (Italy) that has experienced a visible adoption of an adolescent adoptee, is in line with Patton's

suggestions (1990: 273), which underline that the “logic and power of purposeful sampling lies in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research”.

Data Gathering

In the present research we assume a multi-instrument approach in order to go into depth into the representations of adoptive family's members. Semi-structured interviews and two graphic instruments were used. Besides, we relied on a combination of primary and secondary data sources. For primary data, in-depth semi-structured interviews were conducted via Teams following an interview protocol divided into two parts (Legard et al., 2003). The interviews were conducted in Italian, audio-recorded and transcribed verbatim by the authors, as authorised in advance by the interviewees who signed an informed consent form. Specifically, in the second quarter of 2020, we conducted five in-depth semi-structured interviews with members of the chosen family firm, each of which lasted 50 minutes on average. Assuming a family perspective, based on a multi-informant approach, in our study, we collected data from all family members: the emerging adult adoptee, mother, father, sister and brother. The emerging adult adoptee was born in Ghana, arrived in Italy when he was 14 years and was adopted when he was 18 years. Interviewing several informants avoided the bias of personal perceptions and minimized the possibility of distortions to the researchers. In fact, as Stake (1995) has pointed out, each interviewee should be treated as having their own story to tell. The interview questions, intended to encourage interviewees to freely discuss their experiences and personal viewpoints, avoided technical terms from the academic literature. Additionally, we used two psychological instruments: the Family Life Space (Gozzoli & Tamanza, 1998) and the OSIO (Schubert & Otten, 2002). The first is a graphic and projective instrument which allows to understand the representation of the family and working universe. This symbolic drawing allows to investigate the quality of personal relationships with family, friends, and the local community, by using graphical signs inside or outside a circle that represents the family life space. The second propose three graphical items for describe to the level of identification between two considered groups (in our case, the family and firm group). Each item consists of seven pictures of two increasingly overlapping circles, labeled “Self” and “Family”, “Self” and “Firm”, “Firm” and “Family”. OSIO is a subjective perception of the self in the intergroup situation. It allowed us to deepen our knowledge on the overlap of self and ingroups, and the extent of family and business relationships are overlapping.

Data Analysis

After the interviews were transcribed, five independent coders read through the interviews and they scanned them for emergent themes that appeared important to answer the research question (Reay & Zhang, 2014). A content analysis was conducted without using software such as NVivo in order to avoid biases in Cohen's kappa (Kim et al., 2016), which calculates reliability at the character level and was thus unsuitable for our study's higher unit of analysis (e.g. sentence and paragraph). We thus conducted the content analysis by combining the nomothetic approach advocated by Eisenhardt (1989) and the Gioia methodology (Gioia et al., 2013). The analysis based on the Gioia methodology ended with the creation of a graphic representation of the data to show how the raw data were processed into themes from first-order concepts to second-order themes and, in turn, to aggregate dimensions. First-order coding involved examining what was said during the interviews and generating items. The outcome of that process was squared to identify several themes based on theoretical orientations and drawn from the interview material itself. We later used those themes to develop subthemes and units of meaning. Second-order coding, as recommended by Gioia et al. (2013), required aggregating the items from the first step at different levels of abstraction (Thiétart, 2014). During the analysis, we iteratively switched between qualitative evidence and extant theory (Denzin & Lincoln, 2000; Silverman, 2001). This permitted us to use extant insights to extend theory, by revealing stimulating new insights. Finally, as the theoretical framework grew more explicit, we compared it further with literature to highlight similarities and differences from prior research, strengthening internal validity and refining constructs and relationships. The theoretical logic is thus typically a blend of arguments from case evidence, prior research, and stand-alone logic (Eisenhardt & Graebner, 2007).

Findings. Results of interviews' in depth-analysis underlie that visible adoption exerts profound influence on three main levels: family, firm, and local.

Family level

Concerning the family level, the visible adoption affects family equilibrium and family embeddedness in terms of:

- Acknowledgement of the ethnic diversity

The owning family demonstrates a natural proclivity towards the acceptance of ethnic diversity. All family members agreed in valuing the ethnic diversity as a relevant resource for the family and the firm. Exemplary quotes are the following: “For us the skin color is not a problem: it's a value, a source of mutual enrichment” (father); “Dad did the right thing (...) welcoming him [referred to the adoptee] and protecting him” (sister);

- Ethnic diversity as stress moderator

Ethnic diversity is a stress reliever in family relationships. An interesting extract is: “He [referred to the adoptee] has a different perception of time than ours. Let's say he is calmer in everything. We must remind him that the times must be respected. (...) however this is a gift of him. Whenever we are nervous, he has the power to calm and reduce stress on a family level.” (mother).

Firm level

Regarding the firm level, the visible adoption influences the firm in terms of:

- *Implicit and intuitive Diversity Management*
Diversity is managed involuntarily without the adoption of formal Diversity Management practices, as follows: “(...) it was a matter of time. Everyone would have accepted it and did it. No strategy or forcing. Initially it was not easy, we also lost customers, but my father preferred to think of him [referred to the adoptee] rather than the firm.” (brother).
- *Ethnic diversity as entrepreneurial accelerator*
Adoption represents an essential entrepreneurial accelerator. A meaningful quote is the following: “He [referred to the adoptee] came here with nothing. He could neither read nor write nor count. (...) We thought of teaching him a trade. (...) adoption has certainly accelerated and concretized some business ideas that we already had and today we find ourselves with a new branch of our family firm in which he spends his efforts, investing towards his future.” (mother).

Local level

Referring to the local level, the visible adoption influences the territory in terms of:

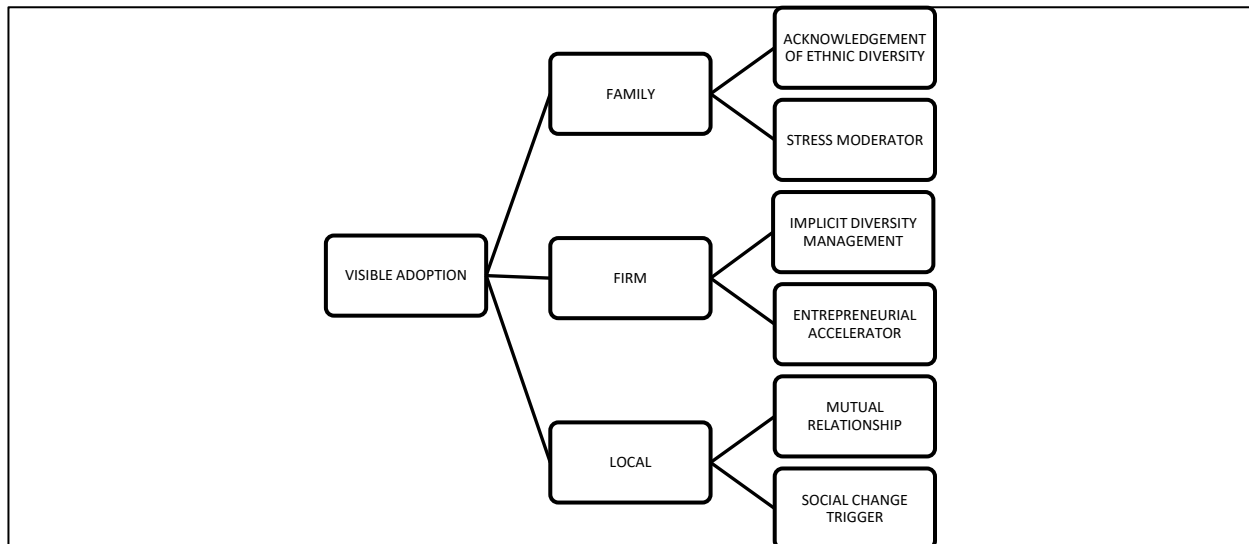
- *Mutual relationship*
A dense network of relationships is established between the adoptee and the local territory, as follows: “Initially, he [referred to the adoptee] was viewed with suspicion (...) there was some resistance against him. But he hasn’t lost his smile and now has many friends”. (brother).
- *Social change trigger*
Adoption represents a relevant driver that changes local culture, enhancing inclusivity. An interesting extract is the following: “(...) Now it is nice to see that all citizens appreciate him [referred to the adoptee]. (...) they changed their way of seeing certain things that have always seemed normal to us. (...) today they even come to the bar and explicitly ask for his cappuccino because it’s better than mine [laugh].” (father).

Finally, in the Family Life Space, family members drew symbols referring to adoptive event showing that this event is crucial for family members; adopted person and their family members adds relevant element concerning the firm inside the circle suggesting that they perceive a positive belongingness and closeness between family and firm’s contexts.

At the same time, the OSIO tool shows a high level of self-categorization in both family and firm systems and a strong overlapping between family and firm, even if at a different extent among family members due to their role within the firm.

Figure 1 synthesizes findings and shows the effects of visible adoption on the three emerged levels.

Fig. 1: Effects of visible adoption



Specifically, adoption not only changes the family structure and deeply affecting the family functioning, but produces also profound effects on the family business management and on the local roots, habits and equilibrium. What is most striking is the action of moderator of stress both in the family and in the firm, as well as the entrepreneurial behavior dictated by the desire to offer an opportunity to the adoptee which takes the form of an evolution of the firm growth. Moreover, visible adoption acts as a driver to promote social change within the local context, by producing open-minding thinking and enhancing social capital.

Findings contribute, first, to visible adoption literature opening a new niche of research; second, to family business studies by introducing the understudied event of visible adoption, as a situation that creates a rupture in family

dynamics and, thus, impacts family business management and behavior; and third, to local embeddedness studies, invoking the role of visible adoption in changing closed minding and resistance toward diversity. Many adoptive families are multicultural in nature and have a number of resources that could expand beyond the family boundaries and - through the family firm - fertilize the surrounding context in the direction of spreading a more inclusive culture.

Practical implications. This study highlights the potential effects that can be generated by the inclusion of adopted young in the ownership and management of the family business. The phenomenon of adoptions, particularly those visible, is growing and it is expected that the considerable migratory flow of the last twenty years will lead to the proliferation of situations similar to the case analyzed. The results, therefore, would seem to suggest effective food for thought to family entrepreneurs and consultants to evaluate the evolutionary potential of companies and the social changes of the territory, as a result of the phenomenon of adoptions.

Limitations of the research. The main drawbacks can be identified in the exploratory approach adopted, that, however, is motivated by the fact that to our knowledge no studies have already deepened the topic, and in the need of a longitudinal approach to investigate if and how the effects of visible adoption tend to change in a large timespan. Further studies could be enlarged the sample to understand if findings can be generalized, and repeat the same analysis within the sample firm to explore potential changes.

Originality. This study was driven by the interest in investigating the mechanisms that are activated within family businesses as a response to the phenomenon of visible adoption. To our knowledge, this is a understudied topic, thus, we believe that this research is particularly original both in management studies and psychological studies.

Keywords family firms, visible adoption, family embeddedness, local embeddedness, case study

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Does corporate sustainability impact SMEs' competitiveness? A meta-analytic review

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Framing of the research. *Corporate sustainability has been a topic of intense study interest among practitioners and academics in national and global contexts throughout the past several decades. The continuous ecological imbalances and disasters, such as environmental pollution and climate change, fast resource shortages, and global warming, contribute to the urgency of this study topic. Manufacturers' operational activities have often been identified as one of the key contributors to the worldwide environmental catastrophe (Wong and colleagues, 2013; Afum et al., 2020). Within the business setting, sustainability indicates that a company's success is characterized by financial variables such as profits and return on investment, as well as environmental and social issues, without sacrificing its ability to meet future needs (Gardberg and Fombrun, 2006; Dyllick and Hockerts, 2002). Sustainability practices that are eco-sound include utilizing ecologically friendly development, raw materials, packaging, dissemination, and even recycling after a product's life span. It outlines environmentally friendly measures used throughout the production process. These practices include recycling, environmental conservation, waste management and reduction, regulatory compliance, and pollution control (Jabbour et al., 2015; Neves et al., 2014).*

As a result, a genuinely sustainable organization must meet economic, environmental, and social objectives all at the same time (Elkington, 1998). According to Adams et al. (2016), corporate sustainability is a process guided by principles rather than a coherent notion, a modern phenomenon that affects all businesses. Both large and small companies can participate in corporate sustainability; however, small and medium-sized enterprises SMEs will innovate in sustainability completely differently (Bos-Brouwers, 2010; Sen, 2014). Therefore, it is essential to notice that sustainability occurs at the organizational level across economic, environmental, and social activities, such as new product innovation, business processes, and supply chain management procedures (Adams et al., 2016). Social integrity, environmental integrity, and economic prosperity are the three pillars underpinning sustainability (Bansal, 2005; Rishi, Jauhari, and Joshi, 2015), also termed as the Triple bottom line (3Ps-People, Planet, and Profit) (Elkington, 1997)

Social sustainability represents the humanitarian side of the business, emphasizing justice in access and opportunity and relating to issues of poverty, economic inequality, education, and health (Aggerholm, Andersen, and Thomsen, 2011; Yong et al., 2020). The social dimension of sustainability encompasses issues such as job creation, education, and employee general well-being. Environmental sustainability denotes the strategic choice to include environmental goals in a firm's tactical, functional, and innovative actions by "reducing production waste and emissions through three taxonomies, namely, pollution control, pollution prevention, and product stewardship" (Masocha, 2018, p.3). The economic-oriented sustainability involves how a firm preempts matters such as profitability, product quality and safety, customer satisfaction, and supply chain management in their dealings with suppliers, customers, and stakeholders in the marketplace (Yusoff and Adamu, 2016). SMEs' competitiveness involves the firm's ability to meet its profitability, efficiency, and growth needs in a given period (Baeshen, Soomro, and Bhutto, 2021). Scholars revealed that these sustainability principles in terms of financial and human resources management, organizational structure, environmental management status, technological approach, manufacturing activity, external cooperation, and innovativeness influence SMEs' environmental strategy alternatives and, consequently, their competitiveness (Denicolai, Zucchella and Magnani 2021). The modern economy emphasizes the need for sustainable transformation as a critical engine of innovation and company renewal, particularly for SMEs.

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Purpose of the paper. *SMEs play a critical economic role in many nations, especially in developing economies-in the areas of innovation, employment, GDP contribution, entrepreneurial skills, etc. However, empirical research on the concept of corporate sustainability in the context of SMEs is limited (Masocha, 2018; Wu et al., 2017). According to Klewitz and Hansen's (2014) extensive systematic literature review, we still lack a clear picture concerning corporate sustainability in SMEs since a few preceding research has examined this systematically. Even the earlier literature reviews that have been conducted (e.g., Del Bro and Junquera, 2003; Klewitz and Hansen, 2014; Walker et al., 2008) appear to be commentaries and qualitative, not quantitative, summaries. Furthermore, notwithstanding the widespread agreement that corporate sustainability adoption can improve SMEs' innovation, financial, and non-financial performance, empirical findings on the relationship between these outcomes are inconclusive and contradictory, with some studies reporting positive relationships (Baeshen, Soomro, and Bhutto, 2021; Ardyan, 2017), some no significant relationships (Malesios, Dey, and Abdelaziz, 2020; Jayeola, 2015), and others negative relationships (Brink, 2021; Jové-Llopis ad Segarra-Blasco, 2018). Moreover, the empirical studies are fragmented across contexts, cultures, countries, and disciplines. These research lacunas render it daunting to understand comprehensively how and to what degree corporate sustainability influences the competitiveness of SMEs and the boundary-spanning conditions (moderators) that facilitate or impede the success of corporate sustainability strategies by SMEs. Nevertheless, missing till today in this stream of research is a meta-analysis that calibrates and synthesizes the fragmented studies to clarify the contradictory and anecdotal findings.*

Followingly, we adopt meta-analysis, which is "a quantitative, formal, and epidemiological study design that is used to systematically combine and assess the results of previous scientific studies to derive conclusions about that body of research" (Haidich, 2010, p.12), to quantify and summarize the disparities and commonalities of the extant literature on the corporate sustainability-SMEs competitiveness relationships while exploring the contingencies that may account for between-study variance. More specifically, drawing on the Resource-based view RBV of the firm that assumes that a company may get a competitive advantage by combining resources, which are Valuable, Rare, Inimitable, and Organization (VRIO) (Barney 1991) and the stakeholder theory that posits that organizations thrive and prosper by pleasing several stakeholder groups, including consumers, employees, investors, suppliers, media, governments, and rivals (Clement, 2005; Donaldson & Preston, 1995), we seek to answer the following two research questions: 1) To what extent does corporate sustainability influence SMEs' financial and non-financial competitiveness? 2) What contextual and methodological moderators account for heterogeneities in this focal relationship? Our intended contribution is threefold. First, we contribute to recent literature on sustainable-oriented innovation by examining the extent to which corporate sustainability-economic-oriented, social-oriented, and environmental-oriented innovation practices impact SMEs' competitiveness across the extant literature. Second, we test boundary-spanning conditions, namely contextual moderators (i.e., sector, (agriculture, manufacturing vs. service), economic development (developing vs. developed), global sustainable competitiveness index (high GSCI vs. low GSCI), and culture (high vs. low individualism). Third, we consider methodological factors (i.e., sample size (small vs. large) and publication status (published vs. non-published) that may account for between-study variance in this focal relationship, as well.

Methodology. Following the conventional methods of secondary data analysis, we conducted a bibliographic keyword search to select articles that examined the relationship between GM and firm performance from 1980 to 2022 (March) in well-known internationally recognized business and management databases: Web of Science, Scopus, EBSCO, Google Scholar, ABI Proquest, and Emerald Insight. We searched by entering the undermentioned keywords in the title, abstract, and keywords field in the databases by using the Boolean operations such as "OR, AND, NOT: corporate sustainability (e.g., "social sustainability," "ecological innovation," "eco-innovation," "green innovation," "environmental innovation," "sustainable innovations," "sustainable oriented innovations," "economic-oriented innovations," "economic sustainability," "environmental sustainability" "sustainability in SMEs," etc.): SMEs' competitiveness: (e.g., "SMEs performance," innovation performance, "customer performance," "environmental performance," "firm performance," "competitive advantage," "financial performance," "marketing performance," "non-financial performance, etc.). Articles were included in the analysis based on the following criteria: (1) English language, full-text online scholarly articles that examined at least one dimension of corporate sustainability (e.g., economic-oriented, social-oriented, and environmental-oriented) in relation to SMEs' competitiveness; (2) the study had to be quantitatively manipulated; that is, the study provides coefficient metric or enough statistical information to facilitate the computation of correlation coefficients; and (3) studies without correlation coefficients provided r-variants (F-test, T-test, regression, etc.) that can be converted to r-coefficients.

A total of 4356 articles were generated from the initial search, but we filtered these papers against different elements such as scholarly articles, year, and English language. We also removed the duplicate papers and non-quantitatively analyzed papers. After the inclusion and exclusion phases, 112 studies in 115 independent scholarly articles were identified, with 166125 observations and 101 effect sizes. The meta-analysis metric that has been employed is the Pearson correlation coefficient metric. The correlation coefficients were either picked directly from the study or computed through the r-variants (Hunter and Schmidt, 2004). Subsequently, we adjusted the effect sizes for reliability to correct for attenuation arising from random measurement error (Hunter and Schmidt, 2004). Using a random effects model, we tested publication bias, which indicates that positive results are easier to publish when compared to negative ones using the conventional method known as the funnel plot and Fail-safe N, but we found no publication bias issues. Finally, the significance of the moderator analysis was examined via subgroup analysis using QB. Our results are shown in the next section.

Results. Our first analysis provides the findings of the overall or aggregate effect of corporate sustainability on overall SMEs' competitiveness and the relative effects of the dimensions of corporate sustainability-social-oriented, economic-oriented, and environmental-oriented sustainable innovations. First and foremost, our results show that the average strength of the aggregate effect sizes is significantly small-moderate (.20-0.53), according to the criteria suggested by Cohen (1988), where an effect size of .20 is interpreted as small; .50 equates to a medium effect, and effect size larger than 0.80 is deemed as large effects.

In particular, we found that the overall impact of corporate sustainability on the overall competitiveness of SMEs is positively and significantly moderate ($r = .41$; $CI = .46$; $.53$) since the confidence interval does not include zero. The Fail-safe N discloses that 11067 primary studies are required to render this finding non-significant. This finding, in line with the stakeholder theory, implies that sustainable-oriented innovations can positively enhance the sustainable competitive advantage of SMEs in the short and long run., highlighting the importance of implementing sustainability actions in a firm's strategic initiatives as these initiatives can please stakeholders by stimulating their interest and patronage of a firm's products and services (Baeshen, Soomro, and Bhutto, 2021; Ardyan, 2017). Concerning the aggregate impact of the sub-dimensions of corporate sustainability, our results demonstrate that environmental-oriented sustainable innovations have the largest impact on SMEs' competitiveness ($r = .34$), followed by social-oriented innovations ($r = .32$), with economic-oriented innovations scoring the least impact on SMEs' competitiveness ($r = .20$), and the $QB = 15.49$; $p = .001$, indicating that the mean difference is significant. This result means that SMEs' commitment to environmental sustainability by reducing production waste and emissions through the taxonomies of product stewardship, pollution prevention, and pollution control (Masocha, 2018) can significantly enhance their profitability, efficiency, and growth even more than their commitment to social sustainability and economic sustainability. Moreover, vis-à-vis the disaggregate SMEs' competitiveness indicators, our findings show that the impact of corporate sustainability (all dimensions) on non-financial competitiveness is the largest ($r = .40$) compared to the financial competitiveness ($r = .38$), and the $QB = 54.63$; $p = .001$, which means that the mean difference is significant. This finding demonstrates that the sustainable-oriented innovations of SMEs impact non-financial performance more than financial performance aspects (Martins, 2022). Thus, corporate sustainability initiatives have a higher probability of enhancing the non-financial efficiency and effectiveness of firms than financial growth and efficiency (Denicolai, Zucchella, and Magnani 2021)

The study's second objective focuses on analyzing the contextual and method moderators explored in the study. Concerning the moderator analysis of the contextual factors, our first finding reveals that the sector of operation significantly influences corporate sustainable innovations performance, such that it is larger in the SMEs involved in manufacturing ($r = .50$) than those in the service ($r = .32$) and in the agriculture sector ($r = .12$). Moreover, the Global Sustainability Competitive Index (GSCI) of a country (i.e., natural capital, resource efficiency & intensity, intellectual capital, governance efficiency, and social cohesion) plays a significant moderating role in the corporate sustainability-SMEs' competitiveness relationships, indicating that SMEs in countries with low GSCI perform better ($r = .47$) than those in countries with high GSCI ($r = .36$). This finding highlights that the orientation of countries with low GSCI towards sustainable development can be observed as an important contribution to sustainable competitiveness. This implies that the function of government as a political entrepreneur in the process of promoting environmentally innovative technologies in developing economies.

Also, culture (individualism) has a significant moderating effect on corporate sustainability performance, such that SMEs operating in high individualistic cultures perform better in GM ($r = .48$) than those in a low individualistic culture ($r = .40$), which agrees with the literature that individualistic cultures are more likely to protect the environment, due to the belief that positive attitudes associated with the environment, are driven by selfish reasons, like enhancing social status (Morren and Grinstein, 2016). However, some scholars believe that collectivist cultures (i.e., those that are greatly unified in groups (Gallego-Alvarez and Ortas, 2017) are more likely to be connected to better environmental performance, as they are inclined to care about others and the well-being of society (Morren and Grinstein, 2016). Also, our analysis reveals a significant difference in the performance of SMEs operating in countries with high human development index (HDI) and those with low HDI, such that SMEs in countries with high-level HDI present larger effect sizes ($r = .48$, $p < .001$) than those with low-level HDI ($r = .40$, $p < .001$). This implies that structural differences in countries regarding income level, GDP, education, innovation, etc., can account for SMEs' performance differences. This result could also be spurred by the fact that developed economies have to adopt a more stringent carbon tax based on their concerns about industrial competitiveness, which, in turn, can stimulate firm efficiency and productivity.

Vis-à-vis the methodological moderators, we found that publication status accounts for between-study variance in such wise that effect sizes in the published studies produce larger effect sizes ($r = .41$, $p < .001$) than those in unpublished studies ($r = .29$, $p < .001$), which means that the publication status of an article can account for between-study variance (i.e., heterogeneities). Lastly, for sample size, it was found that those studies with large sample sizes present larger effect sizes ($r = .33$, $p < .001$) than those with small sample sizes ($r = .29$, $p < .001$), indicating that large sample sizes produce more accurate and reliable results than small sample sizes.

Research limitations. The findings and the potential limitations of this meta-analytic review offer insightful directions and suggestions for future research in this research stream. First and foremost, our meta-analysis was based only on bi-variate analysis without examining the causal effects. Future studies can employ meta-structural equation modelling to account for mediators. For instance, future studies could examine causal effects with eco-capability, supply chain management capability, organizational capability, and intellectual capital as mediators using METASEM. Moreover, we adopted a quantitative approach of meta-analytic review, which excludes studies that were analyzed

qualitatively. Thus, we suggest that future meta-analytic review employs a qualitative meta-analysis (QMA) approach, as advocated by Combs, Crook, and Rauch (2019), to integrate the qualitative studies. Again, our analysis of the moderating factors excludes many other important factors that could be examined. For instance, for the contextual factors, future studies could provide analysis of the moderation effects of other factors like competitive dynamism, firm age, industry intensity, type of firm (profit versus non-profit), nature of business (B2B vs. B2C), etc., as moderators. Likewise, the analysis of methodological factors could verify those examined in this study while investigating other factors like study design (experimental vs. survey), theory usage (theoretical vs. atheoretical studies), study type (cross-sectional vs. longitudinal), and year of publication, among others, to help explain the between-study variance in the corporate sustainability performance results. Again, we have examined the impact of corporate sustainability on SMEs' competitiveness. However, future studies could advance our understanding regarding the relationship between corporate sustainability and consumer behavioral outcomes like willingness to pay more, word of mouth, purchase intention, and actual purchase behavior. It can also be noticed that we examined only the triple-bottom-line of sustainability-social, economic, and environmental innovations of SMEs. But as we are aware, there are other dimensions of sustainability like product-oriented sustainable innovations, market-oriented sustainable innovations, organizational-oriented sustainable innovations, and process-oriented sustainable innovations (Klewitz and Hansen, 2014). To this end, we recommend that future meta-analyses examine how each of these sustainable innovations can influence SMEs' performance. Finally, we limited our analysis to a particular context, SMEs, which opens the avenue for future researchers to include large enterprises to allow for cross-context comparative analysis. Notwithstanding these shortcomings, we believe that our aggregate findings on the corporate sustainability-SMEs competitiveness relationships add some nuances to the ongoing debate and discussion of the potential value of corporate sustainable innovations to firms and clarifies the mixed results to provide some theoretical consistency and coherency on the phenomenon.

Managerial implications. We believe this meta-analytic review's findings could significantly inform managerial activities and initiatives concerning corporate sustainability and SMEs' competitiveness. First, our finding emphasizes the importance of implementing and adopting corporate sustainability initiatives and programmes in SMEs' strategic orientations and strategies. The investment pays off and is worthwhile, and thus, SMEs, with their limited resources, can integrate corporate sustainability activities into their strategic orientation to enhance their competitive position in today's pro-environmental business setting. Thus, our results that corporate sustainability-social-oriented, economic-oriented, and environmental-oriented-have a positive and significant impact on the overall, financial, and non-financial competitiveness of SMEs-defy all odds to highlight the potency of corporate sustainability on firm competitiveness and superior performance. It is also interesting to note that corporate sustainability positively and significantly relates to corporate profitability despite the cost of implementing environmental-sustainable initiatives. These findings demonstrate that although corporate sustainability engagements may sometimes suffer from perceived greenwashing and financial constraints, their performance gains far exceed the cost associated with the investment, demonstrating that a SMEs' ethical, ecological, and faithful environmental, economic, and social conduct can garner consumers' trust and patronage of its products and services, which in turn, can enhance competitive advantage over time.

Second, our aggregate results show that the expected mean effect is $r=.41$, which is considered for a practical purpose (Cohen, 1988). However, managers need to consider the relationship's moderate or medium effect. Because of the medium nature of the average effect, managers must not view corporate sustainability as a short-term strategy but as a medium-term or long-term strategy. Moreover, findings impliedly show, in addition to the expected mean effect ($r=.41$), that the relative strength of corporate sustainability on enterprise varies (e.g., environmental-oriented sustainability > social-oriented sustainability > economic-oriented sustainability)-a finding that has key implications for SMEs in terms of their strategic orientation and resource allocations. For instance, SMEs should invest more in environmental-oriented sustainability innovations in their strategic and sustainability initiatives since it impacts firm competitiveness the most. Lastly, SM managers will also need to take into consideration the moderating factors like sector, culture, and GSCI of their countries. For instance, those in the manufacturing sector can strongly implement strategies more as well as those in the low-GSCI as the little environmental sustainability efforts can stimulate competitiveness in terms of profitability, efficiency, and growth over time.

Originality of the paper. Empirical research on the corporate sustainability-SME competitiveness relationships has been in the limelight of scientific research in the innovation and sustainability literature in the past few decades. However, because of the problem of 'perceived greenwashing,' which can affect people's patronage of an organization's products and services, coupled with the inconclusive and contradictory results of the phenomenon, it is not really certain whether corporate sustainability investment pays off for SMEs or not. Moreover, because studies are scattered across contexts, cultures, and disciplines, we have a limited understanding of the contextual and method factors that may influence findings and account for heterogeneities. Our meta-analysis, which integrates RBV of the firm, stakeholder, and institutional theories, makes the first pioneering effort to integrate the findings across the extant literature to establish the extent to which corporate sustainability influences the competitiveness of SMEs. A meta-analysis advances knowledge in this research stream by providing more definitive conclusions (Combs et al., 2011; Fern and Moroe, 1996) than qualitative reviews (Phan et al., 2018). Followingly, our meta-analytic review provides evidence to support corporate sustainability's positive and significant impact on SMEs' competitiveness, indicating that the investment is worthwhile. Hence, SMEs can invest in this by adopting green business models, green chemistry, green messages, circular economy, eco-friendly technologies, socio-environmental technologies, etc., to achieve sustainable competitive advantage.

Keywords: *Corporate sustainability; SMEs competitiveness; sustainable innovations, meta-analysis*

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Tematiche ESG ed impresa familiare: un focus sugli assetti di governance delle imprese familiari quotate

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Inquadramento della ricerca. *Le imprese familiari sono sempre più al centro dei sistemi economici di tutto il mondo (De Massis et al, 2018).*

Tale tipologia di imprese, tanto peculiare quanto disomogenea, oltre ad essere protagonista del mondo imprenditoriale ha generato, grazie alla sua natura multidisciplinare, una costante e crescente attenzione da parte della comunità scientifica internazionale che, negli anni, ha analizzato in profondità il fenomeno, evidenziandone prerogative e peculiarità (Rovelli et al, 2021).

Uno dei focus principali su cui si è concentrata la ricerca, in special modo negli ultimi dieci anni, è quello relativo al rapporto tra impresa familiare e sostenibilità.

Tale connubio risulta quanto mai affascinante per gli studiosi di management perché da un lato risponde alla sempre crescente esigenza di indagare, migliorare ed implementare l'approccio sostenibile delle imprese mentre dall'altro individua in quella familiare una tipologia di impresa perfetta per tale analisi (Rees & Rodionova, 2015); tale assunto nasce dal presupposto per il quale l'impresa familiare risulta essere particolarmente propensa ad adottare strategie sostenibili in ragione della correlazione che vede la reputazione della famiglia proprietaria indissolubilmente legata a quella dell'impresa che possiede e, nella maggior parte dei casi, gestisce in prima persona (Habbershon & Williams, 1999; Chua et al, 1999).

Pertanto, in quest'ottica ma soprattutto in questo specifico periodo storico, uno dei temi relativi alla sostenibilità delle imprese che più calamita l'attenzione degli studiosi è quello riguardante l'applicazione di criteri ESG (Clementino & Perkins, 2021). Il classico tema della "responsabilità sociale d'impresa", infatti, negli ultimi anni si è evoluto in approcci più strategici e mirati attraverso i quali attuare politiche finalizzate alla sostenibilità (Lorenzo & Rojas, 2021); tra questi vi è indubbiamente quello relativo ai criteri ESG, i quali prevedono tre dimensioni interdipendenti: economica, ambientale e sociale (Gjergji et al, 2020).

I criteri ESG descrivono un'azienda secondo parametri non finanziari, valorizzandone la portata sociale ed ambientale (Revelli, 2017), contestualizzando crescita economica e salvaguardia della comunità e del territorio in cui opera con l'obiettivo di creare un modello di crescita che contemperi questi due obiettivi in una prospettiva di lungo periodo (Jebe, 2019). La vicinanza di tali obiettivi con quelli che da sempre connaturano l'impresa familiare (Berrone & Gomez-Mejia, 2012) rende, quindi, perfettamente collegabili e sovrapponibili i due fenomeni.

Come sostenuto da Habbershon e Williams (1999), l'interazione tra l'obiettivo dell'impresa ed i valori e gli obiettivi della famiglia rende le imprese familiari uniche.

L'attitudine a perseguire e consolidare risultati non esclusivamente finanziari ma socio-emozionali (Berrone et al, 2012), l'attenzione al rapporto umano con tutti gli stakeholder unito alla tutela del territorio di appartenenza (Cabrera-Suarez et al, 2001), il desiderio di esercitare e preservare il controllo e l'influenza della famiglia, la salvaguardia dei valori, dell'identità e della reputazione della famiglia proprietaria (Sirmon & Hitt, 2003), rendono gli obiettivi e la natura di un'impresa familiari diametralmente opposti rispetto a quelli di un'impresa non familiare (Gómez-Mejía et al, 2007). Proprio questa preminenza dei valori socio-emozionali avvicina maggiormente, ed in modo quasi automatico e naturale, le imprese familiari alle tematiche ESG.

Venendo all'attualità, a dimostrazione delle sempre crescente attenzione, tanto del mondo imprenditoriale quanto di quello accademico, che caratterizza il rapporto tra impresa familiare e tematiche ESG e su quanto e come le imprese recepiscono, adottino e divulgano tali politiche, risulta di particolare interesse l'indagine condotta da Ernst & Young in collaborazione con l'Università di St. Gallen in Svizzera, secondo cui il 78% delle imprese familiari incluse nel Family Business Index ha avviato una reportistica sui progressi fatti nel campo della sostenibilità, creando una vera e propria "Agenda ESG".

In valore assoluto si tratta di un contributo molto importante su scala globale, visto che le più importanti 500 imprese familiari vantano un giro d'affari complessivo pari a 7.280 miliardi di dollari e occupano ben 24,1 milioni di persone. L'indagine sottolinea anche come nonostante esistano oggi circa 600 framework ESG che creano una certa confusione, molte aziende sono andate avanti con il lavoro e tra queste circa il 59% utilizza standard di rendicontazione consolidati mentre un altro 19% pubblica in modo indipendente i propri rapporti di sostenibilità.

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Pertanto, obiettivo del presente studio è focalizzare l'analisi sul fattore G, quello relativo alla governance, nella fattispecie contestualizzandolo nelle imprese familiari quotate in borsa.

L'idea di incentrare la ricerca sul tema della governance nasce dall'analisi dei risultati contenuti nella XIV edizione dell'Osservatorio AUB, promosso da AIDAF (Associazione Italiana delle Aziende Familiari), Cattedra AIDAF-EY di Strategia delle Aziende Familiari (Università Bocconi) e UniCredit, con il supporto di Borsa Italiana, Fondazione Angelini e Camera di Commercio di Milano Monza Brianza Lodi.

Ogni anno, infatti, l'Osservatorio monitora tutte le aziende familiari italiane che hanno superato la soglia di fatturato di 20 milioni di euro e pubblica un report incentrato su uno specifico topic.

L'edizione 2022 (presentata a fine gennaio del 2023) è dedicata alla diversity nelle strutture di governance delle imprese familiari italiane ed ha come obiettivo primario quello di presentare una analisi puntuale delle strutture di governance allo scopo di indagare il grado di diversity presente negli organi di governo delle aziende familiari.

Per la prima volta, però, l'Osservatorio AUB ha esteso l'indagine oltre i confini nazionali ed ha presentato un'analisi comparata di alcuni indicatori di governance delle aziende familiari quotate sui mercati Euronext (in ordine, Amsterdam, Bruxelles, Dublino, Lisbona, Milano, Oslo e Parigi). L'analisi si è concentrata sui seguenti indicatori:

- **la leadership familiare:** le aziende familiari di Milano hanno circa il 44% di CEO appartenenti alla famiglia di controllo. Una incidenza superiore si registra soltanto in Francia (55,6%). Tutti gli altri mercati registrano una maggiore apertura al vertice;
- **un Presidente familiare:** in oltre 3 aziende su 4 (77,4%) della Borsa di Milano, tale carica è ricoperta da un membro della famiglia; si tratta di un dato superiore di almeno 10-20 punti rispetto alle aziende familiari quotate sugli altri mercati Euronext;
- **la familiarità del CdA:** le aziende familiari quotate alla Borsa di Milano hanno, in media, il 22% di consiglieri familiari nel board, un dato inferiore a quello delle aziende quotate in Portogallo (27,8%) e Francia (29,6%). La maggiore apertura verso i non familiari delle aziende familiari italiane si conferma osservando la percentuale di aziende con un CdA composto "a maggioranza" da non familiari (pari al 93,3%, contro il 75,8% in Portogallo e il 78,8% in Francia).

Venendo alla realtà dell'impresa familiare italiana, invece, l'Osservatorio AUB dedica un approfondimento specifico anche agli assetti di governance delle aziende quotate alla Borsa di Milano, attraverso l'analisi delle 445 "relazioni sulla corporate governance" rilasciate dalle sopracitate aziende in almeno uno degli anni che va dal 2014 al 2021, allo scopo di monitorare l'evoluzione di alcuni indicatori di corporate governance; tale attività ha prodotto questi risultati:

- **il controllo familiare riduce la dimensione del CdA:** le aziende familiari hanno, nel 2021, un numero di consiglieri inferiore del 20% circa rispetto alle aziende non familiari;
- **Le imprese familiari hanno un CdA che rimane in carica per un numero maggiore di anni** (nel 35% per più di 6 anni, contro circa l'11% nelle aziende non familiari);
- **L'anzianità di servizio del Presidente e del CEO nelle aziende familiari è più elevata**, rispettivamente, del 64% e del 29% rispetto alle imprese non familiari (10,7 anni vs 6,5 quella del Presidente, e 8,9 vs 6,9 quella del CEO);
- **Il controllo familiare non influenza l'età media del Presidente** (che è particolarmente alta): la carica di Presidente è ricoperta da una persona ultra-settantenne in circa 1 caso su 4, senza particolari differenze tra aziende familiari e non familiari;
- **Le aziende familiari hanno leader più giovani:** i CEO delle aziende familiari con meno di 50 anni sono il 27%, un dato superiore di 5 punti rispetto a quello delle aziende non familiari;
- **Le aziende familiari hanno una incidenza più elevata di consiglieri esecutivi** (29% vs 20% nel 2021), e una percentuale quasi doppia di imprese con un Presidente esecutivo (71,0% vs 38,0%), anche se il dato mostra un calo negli ultimi anni (-11% in otto anni);
- **La figura del LID è più diffusa nelle aziende familiari** (34,0% vs 15,0%), anche per la numerosa presenza di Presidenti familiari (circa 2 su 3);
- **La percentuale di consiglieri indipendenti** è inferiore di circa 18 punti nelle aziende familiari (37,4% vs 55,9%);
- Nel periodo 2014-2021 è stabile sia l'incidenza dei leader familiari (pari al 43% circa) che dei consiglieri familiari (pari al 24% circa).

Ebbene, partendo dai risultati del predetto osservatorio, si è deciso di approfondire il rapporto tra impresa familiare e tematiche ESG usando come presupposto proprio gli assetti di governance delle imprese familiari quotate.

Obiettivo del paper. In base al suesposto background teorico ed ai dati raccolti dal XIV Osservatorio AIDAF, il presente lavoro si focalizza sul rapporto tra impresa familiare e tematiche ESG. Nello specifico, si è deciso di incentrare la ricerca principalmente sul fattore governance al fine di dimostrare quanto questo influisca direttamente sulle performance ESG di un'impresa familiare.

Ebbene, il terzo dei fattori ESG riguarda temi strategici e decisivi per lo sviluppo e la sopravvivenza di un'impresa quali l'etica e la trasparenza, le policy e le procedure di controllo e nel caso delle società per azioni i diritti degli azionisti, la composizione, l'indipendenza e la remunerazione del consiglio di amministrazione.

D'altronde, mai come in questo periodo storico, la sostenibilità assume a componente fondamentale delle linee guida strategiche di un'impresa con l'obiettivo di generare benessere collettivo e limitare l'impatto sul pianeta, indirizzando il focus non solo sulle performance economiche ma anche verso quelle sociali e ambientali.

A tale scopo, come tema di governance posto alla base del presente lavoro si è deciso di selezionare la presenza di membri della famiglia proprietaria all'interno dei consigli di amministrazione e, di conseguenza, sono stati analizzati nel dettaglio gli assetti di governance di 50 imprese familiari europee quotate in borsa.

L'obiettivo di questo lavoro, pertanto, è di approfondire quale sia la relazione tra presenza della famiglia proprietaria all'interno del consiglio di amministrazione e performance ESG.

Da ciò discende la seguente research question: la presenza della famiglia proprietaria all'interno del consiglio di amministrazione produce migliori performance ESG?

Metodologia. La metodologia di ricerca utilizza nel presente studio è di tipo misto, ovvero prevede la combinazione e l'integrazione di metodi di ricerca sia qualitativi che quantitativi (Creswell & Plano Clark, 2011).

Secondo Reilly e Jones (2017), il metodo misto offre prospettive diverse ma comunicanti tra loro, utili ad esplorare contesti unici e fornire dati essenziali a descrivere un universo specifico come l'impresa familiare, eterogenea per natura e fondata sulla complessa relazione tra sistemi diversi e complessi come la famiglia e l'impresa.

Una volta selezionato l'approccio quali-quantitativo, si è deciso di selezionare quale campione di riferimento su cui effettuare l'indagine 50 imprese familiari europee quotate in borsa (tra cui 7 italiane); tali imprese sono state individuate tramite la banca dati "Refinitiv".

Il suddetto campione vede al suo interno imprese familiari provenienti da 14 diverse nazioni europee, fondate principalmente tra la seconda metà dell'800 e la prima metà del '900.

La prima fase della ricerca è stata di tipo qualitativo.

Questa fase dell'indagine effettuata sui singoli siti web delle rispettive imprese (principalmente nelle sezioni riportanti la storia dell'azienda) oltre che sulle pagine internet dei principali organi di informazione dei paesi di appartenenza delle singole imprese, è stata finalizzata ad individuare le famiglie proprietarie di ognuna delle imprese rientranti nel campione ed i rispettivi alberi genealogici.

Tale minuziosa attività di identificazione, dapprima della famiglia e poi dei suoi esponenti, è stata fondamentale e prodromica alla fase successiva, ovvero quella quantitativa.

Il primo step della suddetta fase, infatti, è consistito nella catalogazione e suddivisione delle 50 imprese per paese di provenienza, anno di fondazione, forma di governo e classificazione merceologica.

Successivamente, si è proceduto a scaricare dai singoli siti web delle 50 imprese i rispettivi Report Annuali rilasciati nelle annualità 2018, 2019, 2020, 2021 che hanno costituito il range temporale intorno al quale delimitare la presente indagine.

Una volta scaricati i 200 report, sono state analizzate le singole sezioni riferite alla governance al fine di individuare le identità di ognuno dei componenti dei board per ciascuno dei 4 anni selezionati.

Fatto questo, i nominativi dei singoli componenti suddivisi per anno sono stati sistematizzati insieme ai dati aziendali precedentemente catalogati.

Infine, grazie ai risultati raccolti dall'indagine qualitativa, le singole identità sono state triangolate allo scopo di individuare quali tra i componenti dei rispettivi consigli di amministrazione facessero parte della famiglia proprietaria.

Pertanto, l'indagine quali-quantitativa ha prodotto due principali risultati preliminari: il primo riguardante l'appartenenza, o meno, dei 50 CEO alla famiglia; il secondo, quello decisivo ai fini del presente studio, relativo al numero di componenti del consiglio di amministrazione facenti parte della famiglia proprietaria.

Proprio i dati relativi a questo secondo risultato hanno poi prodotto la successiva analisi univariata, utilizzata per misurare la media delle performance ESG delle imprese familiari che hanno almeno un membro della famiglia all'interno del board e quella delle imprese familiari che non hanno alcuna presenza della famiglia proprietaria all'interno del board.

Risultati. Per quanto attiene ai risultati preliminari derivanti dall'indagine quali-quantitativa, il presente studio ha prodotto due differenti categorie di risultati.

La prima è quella relativa all'appartenenza dei CEO alla famiglia proprietaria: in 29 casi su 50 il CEO fa parte della famiglia proprietaria, a dimostrazione di come, nonostante i rapidi e continui cambiamenti nei mercati e la crescente professionalizzazione delle imprese, nella maggior parte dei casi la famiglia preferisca ancora condurre in prima persona l'impresa che possiede.

La seconda categoria di risultati preliminari riguarda la presenza di membri della famiglia all'interno del board.

Nella fattispecie, in 49 casi su 50 almeno un membro della famiglia proprietaria ha fatto parte del consiglio di amministrazione in ognuno dei 4 anni oggetti di indagine; allo stesso tempo, nell'unico caso in cui non è stata riscontrata presenza familiare all'interno del board, tale dato si è ripetuto in ognuno degli anni indagati.

Sul punto è interessante notare come in molti casi è stato rilevato un cambiamento del numero dei membri nel corso degli anni, a testimonianza di come questo dato rifletta anche l'evoluzione della famiglia e non solo dell'impresa, aumentando in caso di ingresso in azienda delle nuove generazioni e diminuendo quando un esponente della generazione al comando decide di farsi da parte.

Tale dato conferma la tendenza per la quale se la famiglia può in alcuni casi rinunciare al ruolo di CEO preferendo un manager esterno è quasi impossibile che questa rinunci a sedersi all'interno del consiglio di amministrazione.

Venendo, invece, ai risultati dell'analisi univariata (racchiusi nella successiva Tab.1) si evince come ci siano delle sostanziali differenze tra le performance ESG delle imprese familiari che hanno membri familiari all'interno del consiglio di amministrazione e quelle che non ne hanno.

La tabella, infatti, presenta le medie ottenute grazie al T-test di tutte le variabili selezionate (ESG, Governance, Environmental e Social), calcolate separatamente ed in funzione dei due sopracitati gruppo di imprese.

La colonna “Significant”, invece, indica la rilevanza statistica del coefficiente ottenuto dall’analisi univariata.

Tab. 1: Risultati analisi univariata: differenza delle medie nel T-test

VARIABILI	IMPRESE MEMBRI FAMILIARI PRESENTI NEL BOARD	IMPRESE MEMBRI FAMILIARI NON PRESENTI NEL BOARD	T- STATISTICS	SIGNIFICANT
ESG PERFORMANCE	60.43636	45.6475	-1.5627	-
GOVERNANCE PERFORMANCE	50.3105	28.8575	-1.9419	**
ENVIRONMENTAL PERFORMANCE	61.70256	40.41	-1.8086	*
SOCIAL PERFORMANCE	67.7886	63.905	-0.3644	-

Fonte: elaborazione propria

Ebbene, come si evince dalla tabella, i due gruppi di imprese mostrano differenze significative in tutte le fattispecie analizzate.

Il punteggio medio relativo alle performance ESG delle imprese familiari che hanno membri della famiglia proprietaria all’interno del consiglio di amministrazione è significativamente superiore rispetto alle imprese che non ne hanno.

Tale andamento è confermato anche dai risultati delle variabili analizzate singolarmente (governance, environmental e social): soprattutto nei casi delle performance relative al fattore governance (alla base del presente lavoro) ed a quello environmental, le imprese familiari con membri della famiglia all’interno del board presentano uno score significativamente superiore rispetto alle altre.

Nel complesso, tali risultati mostrano l’esistenza di differenze statisticamente significative in merito alle performance ESG tra i due gruppi di imprese familiari, a dimostrazione che le imprese familiari che hanno membri della famiglia proprietaria all’interno del consiglio di amministrazione producono performance ESG nettamente superiori rispetto a quelle che non ne hanno.

Pertanto, in riferimento alla domanda di ricerca ed alla luce dei susposti risultati, questo studio può confermare che la presenza della famiglia proprietaria all’interno del consiglio di amministrazione produce migliori performance ESG.

Limiti della ricerca. Nonostante la minuziosa indagine condotta sulle imprese rientranti nel campione, questo studio non è privo di limitazioni.

Il limite più significativo di questo lavoro è rappresentato proprio dalla parzialità del campione esaminato. Sebbene il campione d’imprese studiato presenti una certa varietà, tale da attenuare il rischio di distorsioni prodotte dall’appartenenza ad un unico settore e/o classe dimensionale, l’estensione dell’indagine non costituisce un mezzo sufficiente per poter ritenere generalizzabili i risultati della ricerca. Infatti, sono state indagate solo 50 tra le imprese familiari europee quotate in borsa quando la totalità del campione si avvicina alle 100 unità e, tra queste 50 solo una non ha membri familiari all’interno del board.

Altro limite è rappresentato dalla modalità prettamente randomica con la quale si è deciso di selezionare le 50 imprese che hanno costituito il campione oggetto del presente studio.

Infine, in questo lavoro si è deciso di segnalare solo l’appartenenza o meno alla famiglia proprietaria dei membri del consiglio di amministrazione senza evidenziarne fattori quali genere, livello di istruzione ed eventuale grado di indipendenza che rappresentano ulteriori discriminanti rientranti nel “fattore governance” all’interno del contesto di attuazione di tematiche ESG da parte di un’impresa familiare.

Ulteriori studi sono già programmati per colmare tali lacune, completare l’analisi del campione sia dal punto di vista numerico che qualitativo e rafforzare i risultati dell’indagine.

Implicazioni manageriali. I risultati del presente studio offrono spunti interessanti anche sotto il punto di vista delle implicazioni pratiche.

La relazione positiva riscontrata tra presenza della famiglia proprietaria nel consiglio di amministrazione e miglioramento delle performance ESG può produrre un duplice nonché decisivo risultato: spingere le imprese familiari, restie sul punto per definizione, a modernizzare ed implementare le proprie strutture di governance (oltre che esserne parte integrante) in funzione della costante e continua ricerca di miglioramento dei propri risultati in tema di sostenibilità e, di conseguenza, permettere anche agli altri due fattori ESG, ovvero quello ambientale e sociale di essere “trainati” dalla spinta del fattore governance e permettere all’impresa familiare di raggiungere gli obiettivi di sostenibilità prefissati su tutti i fronti.

Il presente lavoro si concentra sulle imprese familiari quotate, tanto strutturate sotto il punto di vista della governance aziendale quanto fortemente attente alla sostenibilità. Pertanto, a differenza di quelle non quotate in borsa, tali imprese non solo sono più propense ad adottare comportamenti sostenibili ma soprattutto hanno la necessità di divulgare all’esterno tale attività in modo corretto e trasparente attraverso le comunicazioni non finanziarie e, nella fattispecie, attraverso la rendicontazione ESG.

D’altronde, per loro natura le imprese familiari sono mediamente più attente a quali il rapporto con il territorio di appartenenza, il rapporto umano con tutti gli stakeholders, il benessere di dipendenti e fornitori oltre che la tutela dell’ambiente.

Il vero salto di qualità risiede, quindi, nell'andare oltre gli obblighi di compliance o il reporting normativo, strutturando un approccio strategico ai temi ESG, al fine di renderlo sempre più sistemico e condiviso.

Le imprese familiari, infatti, possono svolgere un ruolo chiave nella transizione verso la sostenibilità poiché dispongono del potenziale, delle risorse e della posizione di mercato necessarie per guidare ed indirizzare tale trasformazione nei molteplici mercati di riferimento.

Tale posizione privilegiata è dovuta ai molteplici e peculiari vantaggi distintivi che differenziano l'impresa familiare da tutte le altre tipologie di impresa; queste, infatti, essendo principalmente guidate da valori emozionali ed immateriali piuttosto che dalla spasmodica ricerca del profitto hanno una visione a lungo termine finalizzata a proteggere e salvaguardare l'impresa per le generazioni familiari future.

Pertanto, se insieme all'instimabile patrimonio di valori familiari ed imprenditoriali venisse tramandata ai successori anche una concreta e continua attenzione alla sostenibilità, per l'importanza che l'impresa familiare ricopre nei sistemi economici di tutto il mondo, la trasformazione sostenibile avverrebbe in modo molto più veloce e diffuso.

Di conseguenza, alla luce dei risultati del presente studio, tale scenario è più facile che si realizzi con membri della famiglia proprietaria a ricoprire posizioni apicali all'interno della governance aziendale.

Originalità del paper. *L'originalità di questo lavoro risiede nel trattare un tema, tanto specifico quanto in continuo sviluppo, come quello delle tematiche ESG non da un punto vista etico o sociale ma focalizzando l'attenzione sugli assetti di governance delle imprese familiari che, a differenza delle altre tipologie di imprese, sono meno strutturati e standardizzati.*

Nello specifico, questo lavoro intende analizzare l'esistenza di una relazione positiva tra la presenza della famiglia al comando dell'impresa e l'incremento di performance ESG a dimostrazione di come il "fattore governance" sia capace di fare da traino anche nei confronti degli altri due.

Alla luce di tutto quanto susposto, i risultati preliminari, oltre a quelli attesi da un ampliamento delle analisi finalizzato a consolidare l'indagine, indicano l'effettiva sussistenza di una relazione positiva tra l'adozione di specifici strumenti di governance e le performance ESG di un'impresa familiare.

Parole chiave: *Impresa familiare; ESG; Corporate Governance; ESG Performance.*

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Ecosistema delle Farmacie: una classificazione delle nuove tipologie[♦]

GIULIA NEVI* LUCA DEZI[•]

Inquadramento della ricerca. Durante la pandemia, le farmacie hanno svolto un ruolo centrale, sia nella prevenzione che nel trattamento e nell'educazione del pubblico sulla prevenzione delle infezioni e sulla gestione delle malattie (Lui et al. 2020). Nei Paesi più colpiti dalla pandemia, per mantenere il distanziamento sociale ed evitare il contagio tra le persone, le istituzioni mediche hanno avviato la prescrizione di farmaci online, servizi di consulenza da remoto e consegna di farmaci direttamente a casa. Tornare ad una nuova normalità non è affatto rasserenante e confortante e d'altra parte neanche possibile, le imprese di farmacia lo sanno bene: esiste una farmacia prima e dopo il Covid-19. I cambiamenti e le accelerazioni sul versante tecnologico e su quello normativo, pensiamo allo sviluppo dei vaccini, hanno trasformato l'intero settore sanitario (Patanwala et al. 2022). Il comparto delle farmacie retail è uno dei punti di snodo fondamentali nell'ecosistema sanitario. Globalmente il settore da qui al 2030 vedrà un tasso di crescita annuale composto (CAGR) del 4,7%, le farmacie retail fisiche sono quelle che ancora hanno la maggior parte dei ricavi, il 56,5%. La pandemia ha aumentato la diffusione delle piattaforme online, ma come rilevato da McKinsey (2021) il settore cresce ma più lentamente rispetto ad altri. I trend di crescita appaiono nel complesso molto positivi tanto che ci si aspetta un CAGR per il 2023-2027 del 14,3% (Statista). Le farmacie, inoltre, devono fare i conti con una crescente competizione determinata dalla digitalizzazione (Levaggi et al. 2009) così come dal rafforzamento delle grandi catene e da un'utenza con bisogni differenziati, più attenta alla salute e dove l'invecchiamento della popolazione porta a dover rispondere ad un crescente bisogno di farmaci (Precedence Research 2022). In generale la farmacia è un centro sanitario polifunzionale che sempre di più si sta slegando dalla pura rivendita di prodotti farmaceutici (Federfarma 2022). La trasformazione digitale sta cambiando tutto il settore sanitario, l'industria farmaceutica non è estranea a questo fenomeno tanto che si parla di un Pharma 4.0 (Saha et al. 2022). Le farmacie sono un modello interessante da analizzare anche per capire come la digitalizzazione le stia trasformando a livello di impresa (Peltoniemi et al. 2021) quanto di capacità dinamiche (Okano et al. 2021). Sulla base di tali considerazioni il presente studio mira a classificare le tipologie di farmacie presenti sulla base del criterio di mercato. Nel prossimo paragrafo si procederà con il background teorico per poi procedere con la presentazione della metodologia impiegata nel terzo paragrafo e nel quarto paragrafo proseguire con una discussione dei risultati e la presentazione della classificazione attuata e infine procedendo alle conclusioni e le riflessioni sulle limitazioni e le future ricerche di questo progetto.

Il settore delle farmacie: normativa e digitalizzazione. Il settore delle farmacie retail è un settore peculiare, poiché la farmacia ha una duplice natura, una di supporto allo Stato e una legata alla ricerca del profitto. Il settore a livello globale risulta regolato, gli stessi punti vendita per operare sono sottoposti a registrazioni e licenze (Lluch e Kanavos 2010). Le farmacie già da qualche tempo stanno sperimentando un cambio nel loro modello di business, ciò a causa anche del cambio di equilibrio tra le forze competitive dovuto alla liberalizzazione del settore in alcune nazioni e l'entrata in campo di grandi catene. La liberalizzazione del settore è un fattore molto rilevante, come è emerso in Lluch e Kanavos (2010), ad esempio nel Regno Unito fino ad ora aveva sempre funzionato il meccanismo che il medico prescrive il farmaco e il farmacista opera come distributore, ma nell'ultimo decennio il farmacista sta perdendo il suo potere. Le motivazioni addotte all'apertura del settore sono state che una maggiore liberalizzazione avrebbe portato ad un più elevato dinamismo competitivo. Come emerso dall'analisi dei due studiosi, tuttavia, non è così facile e anche una nazione apparentemente più liberalizzata quale il Regno Unito, alla luce dei fatti, evidenzia che il settore e la rivendita dei farmaci rimane regolato e che le farmacie restano una tra le realtà più normative, con notevoli barriere all'entrata sul mercato e dove i prezzi di alcuni prodotti lasciano poco margine di azione al farmacista (Holdford 2018). Dove sia la soluzione, come sempre nel mezzo, nel trovare un bilanciamento tra liberalizzazione nella diffusione e deregolamentazione nei requisiti richiesti per aprire una farmacia in modo da incentivare la competizione, ma anche evitando che si presenti il caso di oligopoli, i quali potrebbero influenzare un mercato di beni primari, i farmaci, e derive lesive della salute stessa delle persone.

Le imprese di farmacia retail finora sono state per lo più indagate con la lente della medicina cui spesso vengono affiancate (Noorgard et al. 2019) per lo più valutando i rapporti con i diversi stakeholders (Ryan et al. 2018; Taylor et

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al. 2021), o a livello del ruolo del farmacista (Holdford et al. 2017; Koehler et al. 2022) adottare una lente manageriale potrebbe aiutare a livello strategico tali attività.

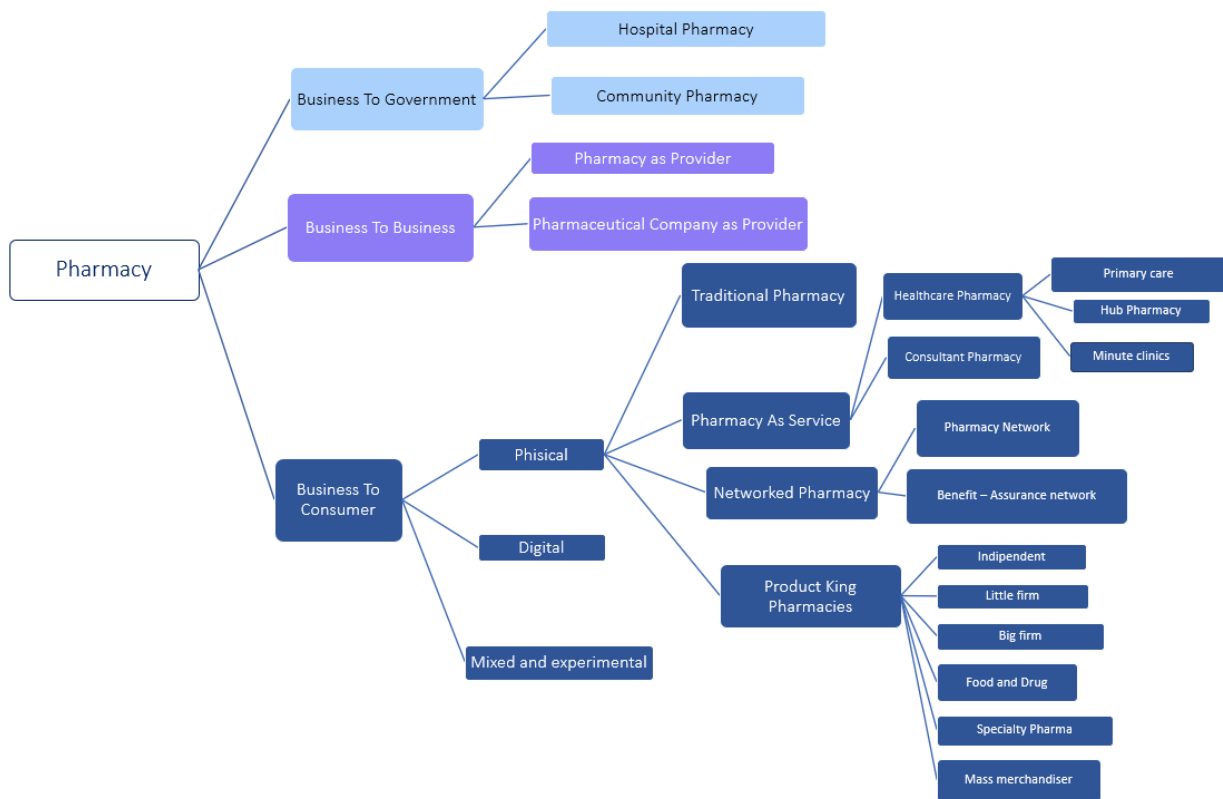
Obiettivo del paper. Il proposito di questo paper è di definire una prima classificazione delle diverse imprese di farmacia a livello internazionale basata sul criterio del “mercato” e del “canale” se digitale, fisico o ibrido, tale tipologia ci si auspica possa portare in studi futuri a definire meglio quello che è il nuovo ecosistema delle farmacie ed enucleare le caratteristiche di ognuna di esse e le possibilità nelle loro mani di creare un vantaggio competitivo. Lo scopo della classificazione è quello di ordinare i sistemi in modo ordinato, utilizzando un criterio specifico (Coccia, 2004) in questo caso il mercato di riferimento delle farmacie.

Metodologia. Il presente lavoro è consapevole della complessità metodologica che richiede operare una classificazione che porti ad una tassonomia o tipologia (Nickerson et al. 2013). Al fine di non scadere nella semplicità metodologica e di svilire concetti complessi, attualmente frequentemente usati in maniera non consona, si è deciso di operare una prima classificazione delle imprese farmacie distinguendo sulla base di un unico criterio classificatorio ossia il mercato di riferimento e il modo di reazione ad esso come recentemente svolto da Hemphill (2021), ma distinguendosi da esso per focalizzarsi in maniera chiara su tre diversi canali e aprendo l'indagine al segmento online. Il principale metodo di indagine è di natura qualitativa. All'analisi della letteratura presente sul tema delle farmacie, dei loro mercati e modelli di business si è unita un'analisi di casi di dati secondari soprattutto riguardo le farmacie digitali dove i confini dell'indagine sono stati estesi individuando casi reali afferenti alle tipologie individuate a livello internazionale trovando validazione e riferimenti al mondo empirico. Nella classificazione secondo il criterio di mercato e del canale si è proceduto attraverso una codifica dei dati seguendo il metodo dell'open coding di Gioia et al. (2012) seguendo l'esempio di Leemann and Kanbach (2021) che, partendo dall'analisi della literature, sono arrivati ad una tassonomia su tre livelli delle dynamic capabilities. Il primo passo è consistito, così, in un'analisi su software EBSCO secondo le seguenti keyword di ricerca “pharmac* AND taxonom*” e si è ristretto il campo all'abstract contributi accademici in lingua inglese sottoposti a processo di peer-review. L'indagine ha portato a 67 risultati sono stati esclusi però gli studi che rimanevano eccessivamente medici e legati all'educazione del farmacista che anche ad una lettura dell'abstract sono apparsi non pertinenti la ricerca (Gallagher 2011; Nazar et al. 2021) dall'indagine sono stati selezionati tre contributi (Jambulingam et al 2005; Martins and Queiro 2015; Doucette et al. 2023) si è unita a questa ricerca una seconda stringa di ricerca relativa a “pharmacy AND typolog*” sono emersi 36 contributi, dalla lettura degli abstract ci si è resi conto che la maggior parte dei paper non era altresì adeguato per l'analisi poiché afferente a temi strettamente medici o a focus chimico-farmaceutici: come tipologia di vaccini, contraccezione, modalità di prescrizione di farmacie e tecnologie a supporto o sul ruolo del farmacista e delle relazioni, il contributo di maggior rilievo è emerso essere quello di Policarpo et al. (2019), considerando il ruolo che il canale ha nella creazione di valore e il criterio di selezione si è inoltre inserita una terza stringa che indagasse a livello di business model: “pharmacy AND business model” da cui su 121 contributi sono stati estratti 11 contributi utili (Harris et al. 2008; Feletto et al. 2010; Elrod et al. 2013; Heinson and Flessa 2013; Singleton and Nissen 2014; Bacci et al. 2016; Rosenthal et al. 2017; Holdford 2018; Pontinha et al. 2021; Hohmeier et al. 2022; Tran 2022) dalla stringa “business model AND pharmacy AND online” sono stati selezionati 8 paper. Successivo step ha visto la rimozione dei duplicati tra le tre stringhe e l'analisi dei contributi. Non tutti i contributi ad una prima lettura sono apparsi utili per l'obiettivo di ricerca. Ad esempio Rosenthal et al. (2016) si focalizzano sul modello di pagamento dei servizi se fee-for-service o pay for performance applicabile in generale all'intera impresa di farmacia e più che altro al modello di costi e revenue dei business model, non danno informazioni riguardo l'organizzazione e l'articolazione di una farmacia. Bacci et al. (2016) si focalizzano sulla rilevanza di attuare collaborazioni tra farmacie e dunque a livello di partnership, ma poco arricchiscono in merito alle diverse forme di farmacie esistenti. Pontinha et al. (2021), invece, si focalizzano su uno specifico servizio che le farmacie possono offrire ossia i Point of Care Testing e attraverso l'analisi della letteratura evidenziano che tali sistemi possono essere utili sebbene ancora poco si conosca in termini di vantaggi e svantaggi dovuti alla loro implementazione. Infine, sulla base della classificazione creata si è chiesta la validazione a esperti e studiosi del settore sanitario.

Risultati. Sulla base della rassegna della letteratura condotta emerge che in passato le farmacie sono state indagate in base al numero di punti vendita: indipendenti se solo uno; piccole compagnie, quelle con più di quattro e meno di dieci punti vendita, grandi compagnie se più di dieci; “food and drug combo” che sono punti vendita con internamente una farmacia e “mass merchandiser” ossia i negozi retail che vendono anche prodotti farmaceutici o affini e le farmacie ospedaliere; altre indagini si sono invece focalizzate sul mix di prodotti che vendono (Chase 1978). Jambulingam et al. (2005) hanno fornito una tassonomia delle diverse imprese di farmacie basata sull'orientamento imprenditoriale di chi guida tali imprese e dalle risorse intangibili ad essa legate: innovatività – proattività- autonomia – competizione – presa di rischio - motivazione. Nonostante la scarsa applicazione (Holdford 2018), stanno aumentando gli studi che indagano le farmacie retail in ottica di business model. Feletto et al (2010) si focalizzano sulla flessibilità organizzativa dei loro modelli di business. Gli autori individuano quattro tipi di flessibilità organizzativa: “steady state”, tipica delle farmacie tradizionali e quelle di comunali; una flessibilità operativa tipica delle cosiddette networked e delle farmacie focalizzate sul prodotto; una flessibilità strutturale tipica di farmacie invece concentrate sui servizi; una flessibilità strategica solitamente posseduta da farmacie a più forte leva commerciale ossia le farmacie incentrate sui prodotti e quelle centrate sui servizi. Essi evidenziano che la flessibilità determina l'emergere dei precedenti quattro modelli di business, tuttavia, evidenziano che nuovi modelli di business possono essere in realtà insiti in questi quattro individuati. Tuttavia, da tali modelli il settore si è molto digitalizzato, sia a causa di fattori condizionali: il Covid-19, che ha imposto una comunicazione tempestiva dei positivi e ha ampliato la digitalizzazione

sul nodo farmacia – Stato/Regioni (Hemphill 2021) nonostante la digitalizzazione del settore fosse già in atto da prima della pandemia e dovuto anche a necessità interne e allo sfruttare le opportunità offerte dai nuovi strumenti digitali come una migliore gestione dei processi e l'arrivo di nuovi software, robot e strumenti tecnologici che hanno permesso di ottimizzare e automatizzare alcuni processi delle farmacie retail (Spiro 2018). Hemphill (2021) distingue tra farmacie “grocery”, farmacie indipendenti, sistemi di grandi retail proprietari e “payer-owned mail order” come Amazon. Sulla base delle evidenze presenti in letteratura e delle condizioni fattuali del contesto contemporaneo si è proceduto a classificare le farmacie secondo tre diversi mercati (Fig.1), sebbene vale l'assunto, ormai comune, che i confini tra i mercati sono più fumosi che nel passato e ciò vale anche per le farmacie, ad esempio le farmacie comunali possono servire tanto il mercato derivante dalle prescrizioni e su mandato dello Stato (Heinson and Flessa 2013; Singleton and Nissen 2014) quanto il settore retail puro dei consumatori, attraverso ad esempio i prodotti da banco. I mercati individuati sono dunque tre, il settore government, il settore business ed il settore consumer, la classificazione opera a livello macro. Per quanto un focus su una singola nazione appare interessante tuttavia prescinderebbe dall'intento di classificare, inoltre la normativa da sempre influenza le forme e le tipologie di impresa, canali e modelli di business così come le strategie tuttavia una classificazione vorrebbe trascendere da tale dimensione paese e consentire una prima generale classificazione dei modelli presenti ad oggi e del criterio adottato ai fini poi di approfondire la ricerca attraverso ulteriori indagini come ad esempio svolto in Holland and Gutierrez-Leefmans (2018).

Fig.1: Classificazione Farmacie – Mercato B2G - B2B - B2C



Fonte: Elaborazione degli autori

Il primo mercato e criterio fa riferimento allo Stato, qui sono presenti essenzialmente due macro-tipologie di farmacie: le farmacie comunali o anche dette Pharmaceutical Benefit Scheme (Singleton and Nissen 2014) e le farmacie ospedaliere interne (Harris et al. 2008) o che forniscono prodotti ai pazienti in dimissione o con patologie croniche (Holdford 2018; Koehler et al. 2022; Tran 2022). Entrambe, si concentrano sul percepire l'individuo essenzialmente come paziente e solo indirettamente come cliente. Le prime sono solitamente delegate dallo Stato a fornire medicinali con prescrizioni o farmaci speciali, così come servizi di supporto ai pazienti dimessi o in condizioni di fragilità. Le seconde sono interne all'ospedale, riforniscono i singoli reparti e ragionano in termini di quasi mercato. Il secondo canale rappresenta invece l'insieme dei rapporti Business to Business. Con la crescente digitalizzazione del settore Miller et al. (2021) individuano come si possano riscontrare due diverse tipologie di mercato, il mercato dei rapporti business to business dove essenzialmente le farmacie operano come provider e fornitrici di altri punti farmaceutici (<https://saveo.in/>; <https://www.pipelinepharma.com/>; <https://medimny.com/>) accanto alle tradizionali case farmaceutiche. Il terzo ed ultimo mercato consiste nel settore consumer, qui le tipologie sono molto più numerose. Rispetto alle precedenti classificazioni si è deciso di distinguere in termini di punto vendita se fisico o digitale. Il primo, il canale fisico, è il settore cui si è di soliti più portati a pensare quando si pensa alla farmacia, una farmacia di

quartiere o rurale, dove il legame con il territorio è fondamentale (Holdford). La seconda tipologia consiste in quella individuata da Feletto et al. (2018) così come da Holdford (2018) di una *networked pharmacy* dove la tecnologia è una leva chiave nel consentire al network di funzionare. Si tratta infatti di farmacie che operano in maniera interconnessa, spesso poiché a proprietà condivisa, tuttavia, ognuna può avere personali brand e punti di forza determinati dalla diversa utenza che serve (Feletto et al. 2018); oppure si tratta di farmacie che operano in forma di network poiché afferenti ad assicurazioni sanitarie, per quest'ultime il legame con pazienti assicurati rimane sia un elemento positivo che negativo (Holdford 2018). Si tratta di farmacie che in questo modo fronteggiano la concorrenza: organizzandosi tra loro, preferendo acquistare una farmacia competitor in modo da evitare inserimenti esterni ed essendo pronte a correre il rischio di essere esse stesse la principale concorrenza, contando sui clienti delle assicurazioni. Rispetto, però, alla tipologia offerta in Feletto et al. (2010) ci sentiamo di aggiornarla inserendo le farmacie *as service* in senso ampio, dove la servitizzazione e l'elemento dei servizi è principale fonte di trasformazione del settore ad oggi (Holdford 2018; Schommer et al. 2019; Tran 2022).

Sebbene i servizi offerti possano essere svariati, considerata la letteratura presente si è deciso di articolare tale elemento in diverse tipologie principali: la *Healthcare Pharmacy*, una farmacia primo punto di cura, prevenzione e diagnosi (Feletto et al. 2018). Essa si può articolare in *Minute clinics*, piccole cliniche con punti di rivendita farmaceutica (Hemphill 2021) o in *Hub* (Holdford 2018). In secondo le farmacie tradizionali, che hanno ampliato l'offerta con i servizi e dove tali restano in gran parte erogati da personale interno appositamente formato, si pensi ai tamponi per la rilevazione del Covid-19, ai vaccini antinfluenzali o al caso della misurazione dell'elettrocardiogramma (Martins and Queiros 2015; Policarpo et al. 2018) e dove le strategie adottate in alcuni sono del tipo *loss leader* (Elrod et al. 2013). Infine, abbiamo le imprese di farmacia dove il prodotto è il vero protagonista, sono le *Product King Pharmacy* che restano *dispensing only pharmacy* (Elrod et al. 2013). Si tratta di farmacie che fanno fortemente leva sui prodotti offerti o perché li producono internamente o perché hanno una grande dimensione, solitamente le grandi catene, ad esempio CVS and Walgreens (Hemphill 2021) che gli consente di effettuare sconti e promozioni. Le *Product King* possono essere farmacie e store unici, ma anche farmacie inserite all'interno di punti vendita della GDO o di prodotti simil farmaceutici rivenduti sempre in questi ultimi punti di vendita. A livello di prodotto non si possono poi tralasciare le *Specialty Phama*, ossia farmacie che possono vendere prodotti o ad alto costo o complessità o contatto, si pensi a farmaci su specifiche molecole o ai farmaci orfani. Tali tipologie di farmacie possono acquisire quattro specifici modelli di business: essere esperte in ricerca di composti per così brevettarli; puntare sulla distribuzione di specialità medicinali a un numero limitato di clienti, "di nicchia"; o secondo un modello basato sullo sfruttare un specifico know-how nella tecnologia di consegna ed infine quelle che operano con una logica di portafoglio gestendo specifiche malattie o, di nuovo, sostanze (Ku 2015). Per ciò che attiene la presente classificazione è il fatto di essere una delle prime che classifica le diverse tipologie di farmacie sui loro tre principali mercati di sbocco: *Business to Government*; *Business to Business*; *Business to Consumer*. Si può così distinguere così tra farmacie pure e ibride (Miller et al. 2021). Ciò che vale per l'offline ancor più vale per l'online, per tale settore le normative determinano differenze importanti sulle diverse tipologie di farmacie. Possiamo distinguere per le farmacie puramente online tra; le *single site*, dove si tratta di siti di farmacie fisiche che operano esclusivamente online, vi sono poi i *marketplace* sia dei grandi colossi dell'e-commerce sia piattaforme specializzate. Sicuramente in tal senso studi più approfonditi che puntino a classificare le farmacie online sono assenti. Come precedentemente ribadito, e come ogni classificazione, la presente si prefigge di dare ordine ai modelli di imprese presenti in funzione del mercato, non si esclude che vi possono essere variazioni e integrazioni tra diversi mercati sia verticali che orizzontali (Schommer et al. 2019) così come modelli ancora in sperimentazione, tra essi di primo interesse appare il modello delle *membership-pharmacy* (<https://www.goodshephealth.com/>) trattato in Hohmeier et al. (2022). Tuttavia, sulla base delle argomentazioni finora esposte, si è costruita una classificazione delle diverse imprese farmacia attualmente attive. Tra le peculiarità della classificazione (Fig.1) vi è la presa in considerazione dello scenario digitale e delle nuove tipologie e modelli di business nati in seguito alla *digital transformation*, fenomeno ricordiamo avviato già ben prima della pandemia, ma che di certo quest'ultima ha accelerato. Ad oggi non è peraltro escluso che un'impresa che opera su uno specifico mercato non possa operare anche in un altro, è il caso esemplare delle Farmacie comunali che operano sia in rapporto con il settore pubblico sia con il consumatore retail. Future evoluzioni del settore consisteranno in un'ancor più crescente sfumatura dei confini a livello di mercato o in una crescente specializzazione. Non sarà da escludere che potranno nascere modelli nuovi come le farmacie consultant, dove il focus potrà essere sul settore benessere in generale o dove gli stessi professionisti del settore medico che decideranno di adottare internamente ai loro hub un servizio di farmacia. La sperimentazione in termini di tipologie e di modelli di business è molto dinamica (Policarpo et al. 2019), se si volesse usare lo strumento del *business model canva* ci si accorgerebbe che la sperimentazione è attiva su tutte i nove blocchi dello strumento: dai pagamenti (Rosenthal et al. 2016), al delivery (Martins and Queiros 2015) fino alle relazioni (Bacci et al. 2016). Grande assente in generale per ogni paper analizzato è il tema della sostenibilità, traslata solamente a livello di profit e non in termini di rispetto per l'ambiente e sociale, dato il ruolo e i comparti cui si connettono le farmacie: il sanitario ed il chimico-farmaceutico.

Implicazioni manageriali. Una simile classificazione consente di mettere ordine nel sistema aprendo nuove possibilità per una regolamentazione più semplice o dove ad una riduzione di vincoli consenta però un mantenimento di controlli su un mercato quale quello del farmaco molto delicato. Inoltre, costituisce un primo ri-ordine di una tipologia di impresa sino a pochi anni fa considerata unicamente ancillare al sistema sanitario. Di fronte all'arrivo delle grandi catene conoscere come è composto il sistema permette di poter cogliere eventuali elementi hardware e software che potrebbero necessitare e le diverse relazioni di business che si possono avviare.

Originalità del paper. *In letteratura è assente una classificazione che tenga in conto come le imprese farmacie sono cambiate e si sono articolate soprattutto in seguito alla digitalizzazione del settore, un elemento interessante perché alcune forme di esse operano spesso in quasi mercato comprendere le tipologie esistenti, le loro articolazioni a seconda del canale e i possibili sbocchi sul mercato nonché le tipologie in sviluppo, come le Membership Pharmacy, è quanto mai interessante per mappare il sistema, comprendere possibili esiti strategici e nuovi modelli di business e avere una comprensione dei percorsi di sviluppo intrapresi. Future ricerche potranno approfondire questo primo studio teorico indagando e clusterizzando tale classificazione con analisi approfondite e comparative tra diverse nazioni.*

Parole chiave: *Pharmacy firm; SME; Typology; New firm enterprise; Digital transformation*

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The role of strategic communication in driving marketing-decision making

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Framing of the research.

Strategic communication in academic literature

The recent disruptions such as the Covid-19 pandemic and major social movements like Black Lives Matter have increased the relevance of strategic communication, which shapes how firms are perceived by publics and affect consumers' behavior towards their offerings. Over the last decades, the academic literature has begun to focus on the topic of strategic communication (Argenti, 2017; Holtzhausen and Zerfass, 2015; Macnamara, 2018; Sandhu, 2009; Zerfass and Huck, 2007) as the omnidirectional diachronic ongoing process of meaning construction (van Ruler, 2018), emphasizing the role of communication departments in complex organizations and, in particular, the importance of communication alignment between organizational objectives, vision, brand and identity (Botan, 2018). Indeed, strategic communication is an “emerging field of knowledge bridging established research fields such as public relations, organizational communication and marketing communications” (Falkheimer and Heide, 2022, p. 15), also defined as an emerging interdisciplinary paradigm (Werder et al., 2018). In this vein, Heide et al. (2018) interpret strategic communication as a discipline that embraces complexity and interdisciplinarity with the aim of fully grasping the different nuances of the organization, without neglecting strategy, orientation, and organizational objectives.

One of the first definitions of strategic communication by Hallahan et al. (2007) interprets the concept of strategic communication as the purposeful use of communication by an organization to fulfill its mission. However, this definition has been superseded by other interpretations of the concept, that focus in more detail on how strategic communication can support the organization in fulfilling its mission (Volk and Zerfass, 2018). In this vein, strategic communication has been defined as an overall strategy to improve the strategic positioning of the organization (Argenti et al., 2005). Zerfass et al. (2018, p. 493) define strategic communication as “the purposeful use of communication by an organization or other entity to engage in conversations of strategic significance to its goals”. In this definition, therefore, strategic communication refers to both messaging and listening activities, including dialogues with stakeholders, social media monitoring, information from employees, etc. In other words, this new role of communication is considered strategic when it becomes substantial or significant for the development, the growth, the identity or the survival of the organization (Zerfass et al., 2018). Indeed, according to this perspective, strategic communication offers a concrete contribution to the decision-making organizational process in an evolving business context (Invernizzi et al., 2012), as it represents a critical organizational management process (Romenti and Invernizzi, 2011; Falkheimer, 2014).

In general terms, according to Volk and Zerfass (2018), the common thread of strategic communication studies is the emphasis on the notion of “purposeful”, “intentional” or “objectives-driven”. Falkheimer et al. (2017), for example, argued this concept is key for the development of effective business strategies, as strategic communication can contribute to business success. To achieve this business aim, Argenti et al. (2005) showed that strategic communication requires an integrated and multilevel approach – according to this framework, each communication function achieves specific objectives through the most appropriate channels and the most effective methods.

Invernizzi and Romenti (2015), in particular, identified four contributions of strategic communication for the organizations, namely “alignment role”, “energizing role”, “visionary role” and “constitutive role”. More specifically, the two authors interpreted strategic communication as a support to the organization to achieve alignment with external expectations, and in particular, as a support for monitoring the activities and the organizational context, capable of providing key inputs to align corporate strategies with stakeholder' expectations and ensure the organization survival and legitimacy. Indeed, according to this perspective, strategic communication lies at the intersection of management strategy and communication (Thomas and Stephens, 2014). More specifically,

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Jarzabkowski et al. (2007) identified a link between discourse and the social practice of strategy, defining this practice as a set of interactions and negotiations of multiple actors that they draw upon in accomplishing that activity.

In addition, recent academic studies highlighted that strategic communication is not managed only internally by the organization, but, for the achievement of its strategic objectives, it also includes external actors and practices, such as the so-called “strategic social media influencer communication”. Indeed, according to Enke and Borchers (2019), strategic social media influencer communication is assuming an increasingly key role both in strategic communication studies and in business practices. Social media influencers represent third-party actors who have a considerable influence on organizational stakeholders, through the production and distribution of content and interaction with stakeholders (Freberg et al., 2011). Hence, in this perspective, strategic social media communication is conceptualized as the strategic use of communication in which influencers, on the one hand, perform activities of strategic relevance to organizational goals, on the other hand, influencers take an active part in interactive processes on topics relevant to the organization, adopting a moderating role (Enke and Borchers, 2019).

More in general, strategic communication has a multidirectional and complex nature which must be managed in harmony with the organizational context (O’Connor and Shumate, 2018). In this perspective, strategic communication involves the interconnection of organizations, messages, and stakeholders, and plays a key role in creating and maintaining business relationships between the parties (Knudsen and Lemmergaard, 2014; Merz et al., 2009). Indeed, recent strategic communication studies adopted a multidimensional network perspective, which allows scholars to analyze the diverse types of networks that strategic communication helps to create, maintain, and dissolve. In this regard, O’Connor and Shumate (2018, p. 400) reveal that “both the network strategies created, and the outcomes of those strategies are described in network terms”. According to the two scholars, in particular, as the affiliation network around an organization increases, so does the number of actors who share the organization’s message. In summary, three factors determine the results of a company’s engagement efforts: (1) the prior state of the affiliate network, (2) the effectiveness of the organization’s network strategies, and (3) the effects of the strategies network of other organizational actors (O’Connor and Shumate, 2018). In addition, a study by Young and Pieterse (2015) showed that strategic communication professionals should also leverage the capital that derives from the composition and structure of the interpersonal network to facilitate information flows in networks. It is believed that networks are beneficial to access unique and non-redundant sources of information.

Purpose of the paper. Given this scenario and considering also the complex and multidimensional nature of strategic communication, it is necessary to reconsider its role in driving innovative business decisions. We pose the following research question:

RQ. How does strategic communication drive decision-making processes in marketing?

Specifically, this research aims to investigate the role of strategic communication in companies from different industries and to explore how corporate communication could drive companies’ activities and impact innovative business decisions considering the transformations in nowadays society.

Methodology. Due to the exploratory objective of this paper and following previous studies on strategic communication (e.g., Besley et al., 2016; Birá et al., 2018; Nothhaft, 2016; Rudeloff et al., 2022), the researchers opted for a qualitative methodology. Specifically, researchers conducted 22 semi-structured interviews in the years 2020-21, which were the first years following Covid-19 pandemic and the murder of George Floyd in May 2020, which increased awareness towards the Black Lives Matter movement at global level. The interviews were carried out via phone or MS Teams, with key informants of companies in Italy operating in diversified industries (e.g., food, fashion, services), holding the role of marketing and communication managers. Researchers ensured the heterogeneity of the sample to gain a multi-sided perspective of observations and generate a context-specific understanding of the phenomena.

For this study, researchers have chosen to adopt the abductive approach, a non-linear research process that continuously compares reality and theory. Theory and data are matched, and the theoretical framework is modified based on empirical findings derived from participant observations and interviews, after which the new framework becomes a useful guide for data analysis (Dubois and Gadde, 2002). Semi-structured interviews were taped by the researchers who conducted the interviews. Registrations were then transcribed and analyzed through a coding process and content analysis (Neumann, 1997) performed by the researchers also involved the interpretation process. Indeed, following the Corbin and Strauss approach (1990), researchers opted for an open, axial, and selective coding strategy. In this process, the researchers (1) labeled key points as codes; (2) grouped these codes based on thematic similarities and developed categories; and, finally, (3) researchers noted the relationships between categories and sub-categories which emerged from the overall analysis.

To increase the robustness of the study, as recommended by Yin (2013), the collected data were triangulated with those derived from the analysis of secondary data (e.g., reports, data of communication campaigns, corporate websites’ analysis, etc.). The data were collected in parallel, and the various sets of results were interpreted concurrently to draw valid conclusions regarding the research problem.

Preliminary findings. Preliminary findings of this research have shown the critical and strategic role of corporate communication in driving decision-making processes in marketing.

Specifically:

- From our analysis emerged that the global visions of marketing managers and those of communication managers are not always aligned within the company and this leads to tensions in the management of relations with the market and also in the development of innovative business solutions.

- In line with some latest research, from our analysis emerge that the role of strategic social media influencer communication is also becoming increasingly important in the aftermath of the pandemic.
- Data analysis has shown that in some companies the function of communication is mainly one of “aligning” (Invernizzi and Romenti, 2015), which facilitates relations with stakeholders and reduces information asymmetries.
- Some interviewees have emphasized that internally, corporate communication plays a crucial role in creating relationships between people with diverse backgrounds and cultures.
- Data analysis also shows that companies, through appropriate strategic communication processes, developing new offerings (Durmusoglu et al., 2022) considering the diverse targets of consumers, succeed in making their brands more inclusive and acceptable. Moreover, companies indirectly generate value for the brand by strengthening its identity (Anzivino, 2021).
- The initial results of the analysis also reveal the critical role of corporate communication management as one of the drivers for the development and consolidation of market relations and its multidirectional and multidimensional nature that should be managed in harmony with internal and external organizational context (O’Connor and Shumate, 2018).
- Furthermore, this research confirms that strategic communication covers a crucial role in helping firms to successfully address societal challenges (Colleoni et al., 2022). For example, it emerged that strategic communication drives business decisions about diversity, equity and inclusion topics including gender (Cewart and Wagner, 2021; Zayer et al., 2019) or ethnicity (Peñaloza, 2018; Strebinger et al., 2018).
- This study confirms that there is the need for more research on the role of practitioners in making decisions about diversity and inclusion (Windels, 2016).

Research limitations. Concerning the limitations, the study adopts a qualitative approach, thereby limiting the generalizability of its results. Future research has the potential to go into greater depth in countries other than Italy and investigate the potential of strategic communication in driving innovative business decisions in each specific sector. Moreover, it could be interesting to extend data collection and conduct a longitudinal and quantitative analysis to understand effects in consumer behavior.

Managerial implications. This study presents a series of practical implications for companies operating in different sectors. Communication managers should embrace processes of meaning-making that go beyond the transmission of messages and deal also with the measurement of behavioral outcomes that are aligned with the strategic goals of the communicative entity and the public interest.

For example, from this analysis it emerged that companies should focus on experiences that create value by proactively exploiting the consumers’ cultural differences. In this way, on the one hand, social inclusion of consumers is generated; on the other hand, companies manage to make their brands more inclusive through multicultural or cross-cultural marketing and communication policies. Diverse and inclusive portrayals in advertising might lead to positive social effects by reducing stereotypes and prejudices in society (Eisend et al., 2023).

In conclusion, through concrete actions and company policies, marketing and corporate communication professionals can support effective marketing strategies in multicultural contexts. To date, companies involved in the study seem not to have fully recognized the specific needs and requirements of heterogeneous targets – both consumers from the international markets where they operate and consumers of the same market with different cultural backgrounds, which should be considered in the development of companies’ marketing and communication strategies (Crick et al., 2020; Oliveira et al., 2023).

Originality of the paper. At the theoretical level, this study responds to the need for more empirical research in the field of strategic communication (Falkheimer, 2014), and, in particular, it highlights the role of strategic communication in driving innovative business decisions through the creation and maintenance of valuable relationships with key stakeholders and heterogeneous consumers. Moreover, in this study we attempted to answer the call for more studies that consider advertisers’ perspective on diversity attributes (Eisend et al., 2023) by providing an empirical study on how these elements are addressed by companies operating in Italy.

Keywords: strategic communication; decision making; market relations; diversity & equity inclusion

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Strategic communication as a tool for managing ICT and cybersecurity crises: an exploratory study

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Framing of the research. *Strategic communication plays a crucial role in the management of organizations (Falkheimer, 2014). Both C-level executives and academic scholars recognize its impact on a company's reputation and relationships, as well as on sales, core operations, efficiency, and growth (Hallahan, 2004; Hallahan et al., 2007). Strategic communication goes beyond the crafting of captivating messages to attract customers. Instead, it entails the purposeful and planned communication on the part of an organization to achieve specific goals and objectives (Hallahan et al., 2007).*

Due to its fundamental role, management scholars have started to include the strategic communication perspective in their areas of interest. Strategic communication is also recognized as fundamental in the management of extraordinary situations (Coombs, 2007), as it supports continuous improvement and change management (Invernizzi, Romenti & Fumagalli, 2012) while protecting organizational reputation as an intangible asset (Contractor, 2000; Dean & Kretschmer, 2007; Gardberg & Fombrun, 2006; Kaplan & Norton, 2004; Louma-aho et al., 2012; Petrick et al., 1999). Organizational crises, identified as extraordinary negative situations, are becoming increasingly part of the normality in the current uncertain business environment. Therefore, communication practices are widely applied in the management of organizational crises with the purpose of preventing them, or of lessening the reputational, financial, operational, and relational impact of such events while increasing the efficiency of management processes (Coombs, 2015). This because strategic communication practices applied to management of organizational crises address the perceptual nature of disruptions. Promptly reacting to a crisis is fundamental for both damage containment and narrative control of the content that stakeholders, online users, and media share with the wider public (Pearson & Clair, 1998). Most crises offer different interpretations, and, for successful crisis management, it is pivotal that the prevailing and most accepted interpretation of the situation is the one with the lowest reputational impact on the organization (Coombs, 2015). Therefore, one of the reasons why communication is so relevant for crisis management defines also the first basic principle of crisis management: crises are perceptual and understanding the nature of their perception on the part of stakeholders is a basic step in developing an effective crisis response (Coombs and Holladay, 1996).

The role of strategic communication in business management and in the management of organizational crises has been widely discussed in the academic literature. Scholars contributed to the definition of crisis typologies (Gundel, 2005; Taleb, 2007; Weiner, 1995; Coombs et al., 1995) as well as strategic crisis responses based on the type of disruption, and on other factors such as the prior reputation of the company and its previous crisis history (Coombs, 2007). However, there seems to be a gap open in the academic literature to further investigate the role of strategic communication in specific case of ICT and cybersecurity crises.

Crisis management is not an alone-standing function in an organization; it rather collects various efforts from a variety of different teams and departments. Crisis management involves, among others, decision-making, environmental monitoring, risk management and communication (Coombs, 2015). For this reason, streamlining internal processes and implementing effective communication flows inside and outside the organization is essential to ensure crisis preparedness and prompt reaction capabilities (Coombs, 2015).

The uncertainty created by the new digital paradigm is an extremely interesting topic to approach from the communication perspective. Since communication is a tool used to help manage activities within an organization, by understanding how communication can influence perceptions and behaviors of different stakeholders, companies can use it strategically to achieve their crisis management and communication goals. This paper approaches the role of strategic communication for crisis management by focusing on a specific crisis typology, that of ICT and cybersecurity crises. These are crises that generate as a consequence of the damage to a company's ICT, including infrastructure, devices, software and data (Brooks et al., 2018). These crises can be both accidental or malicious, and they include various types of disruptions, such as unauthorized access to data or devices, theft of data or devices, data leaking, misuse or loss, damage to infrastructure, systems and data, ransomware attacks, and double ransomware attacks (Brooks et al, 2018).

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Managing and successfully resolving organizational crises is a high-investment and complex activity for business leaders, especially because these extraordinary events usually carry high uncertainty (Burnett, 1998), leaving organizations with limited knowledge and control over the outcome of their efforts (Coombs, 2015). In regard to this, the classification of crisis events into flexible typologies is beneficial for the orientation of decision making as well as management and communication efforts (Coombs, 1998), allowing crisis managers and communication professionals to navigate complexity and organize the information necessary for crisis response (Burnett, 1998) and is a first step to contain a crisis (Gundel, 2005).

It has now become pivotal for organizations to take into account the role of safety and security concerns of users and customers, as well as the consequences of potential ICT incidents or cybersecurity breaches. With the increasing number of cyber-attacks and data leaks in recent years, businesses must ensure that they have proper security measures in place to protect their data and information. This not only protects the organization's reputation and financial wellbeing, but it also safeguards the privacy of its users and customers. Communication plays a crucial role in informing stakeholders about security measures and policies, creating awareness of potential risks, and responding effectively in the event of a crisis. Based on the current state of the art of strategic and crisis communication literature, this research hypothesizes that by prioritizing security concerns and implementing effective communication strategies, organizations may mitigate the risks associated with cybersecurity incidents and build trust with their stakeholders.

In this regard, scholars have highlighted how organizational crises may trigger emotional reactions on the part of different stakeholders. Strong emotional reactions may contribute to higher responsibility attributions to the organization, increasing the reputational damage suffered (Coombs, 2007). As a solution, organizations should constantly communicate with their stakeholders, in order to understand and contain problematic emotions such as panic, aggressiveness or despise that could contribute to damaging the organization's reputation and bottom line (Kasperson et al., 1988). Because ICT and cybersecurity crises often involve the leak or theft of users' personal information, which has been recognized as a threat to personal safety and identity, this activity is particularly relevant to make sure that stakeholders do not lose trust in organizations suffering from similar disruptions (Vilić, 2019).

Connected to the prevention and management of stakeholders' reactions, the Crisis and Emergency Risk Communication framework (CERC) (Reynolds & Seeger, 2005) is particularly useful to understand the importance of using preventive risk communication as well as emergency risk communication to inform and instruct stakeholders on the potential risks and on the actions to take to face a disruption (Panagiotopoulos et al., 2016). This may contain the frustration that comes with a lack of information on the events and on the appropriate behavior to adopt.

The role of strategic communication in crisis management has become increasingly important as organizations face greater exposure to public scrutiny, driven by technological advancements and heightened expectations of social responsibility and sustainability commitments. Additionally, the expanding prevalence of digital technologies and interconnectedness has made disruptions in ICT and cybersecurity increasingly pertinent to organizations.

Purpose of the paper. *The purpose of this research is to close the gap found in the literature concerning the application of strategic communication in the specific case of ICT and cybersecurity crises by investigating the main challenges that these disruptions pose to crisis communication and management, in order to outline the role of communication in enabling the management of security concerns, but also to define the most relevant strategic communication practices and tactics that organizations can use to implement crisis prevention and preparation (Coombs, 2015), as expressed by the following research questions:*

- 1. What are the main challenges faced by organizations in managing ICT and cybersecurity threats and crises?*
- 2. How can strategic communication be leveraged to mitigate the risks and complexity associated with ICT and cybersecurity crises and threats? Which are the specific crisis communication best practices that can help organizations navigate these challenges effectively?*

Cybersecurity crises have received increasing attention from managers, as they pose significant threats to organization's ability to perform their core operations and they may cause the loss or damage or important organizational assets. Moreover, they may harm a company's reputation (Coombs, 2007) while also leading to complex legal implications. However, the knowledge and awareness about them is still low across sectors (Vilić, 2019). In regard to this, scholars have acknowledged how, in the contemporary business environment, there is no security without cybersecurity (Brooks et al., 2018), making it even more urgent for organizations to invest in the development of the necessary skills to face cybersecurity threats.

Methodology. *This study adopts a qualitative research approach, using semi-structured interviews as the primary data collection method. The full sample is selected using a purposive sampling method and it will comprise of 20 communication management professionals and IT/cybersecurity managers working for organizations that have suffered ICT or cybersecurity crises in the past, or consultants working for firms that specialize in crisis management and communication or in cybersecurity. This type of purposive sampling is relevant for a research investigating the role of strategic communication in the management of cybersecurity crises because, by selecting participants who have experience with ICT and cybersecurity, or consultants working in crisis management and communication or cybersecurity consulting firms, the researcher can ensure that the participants have relevant expertise and insights into the research topic. This can increase the validity and reliability of the study's findings.*

The research is still ongoing, and, at the current time, 5 interviews have already been conducted allowing to draw a preliminary analysis of the results, which already shows the emergence of specific patterns and thematic areas. The interviews were and will be conducted face-to-face or virtually, audio-recorded, and transcribed verbatim for analysis. Thematic analysis is used to identify common themes and patterns across the data, and information was and will be

coded in order to identify the most recurring strategic communication practices and suggestions, as well as challenges, applied to the management of ICT and cybersecurity disruptions.

Results (preliminary). Although the research is still ongoing, initial findings reveal the strategies and practices that organizations can adopt to communicate effectively during similar crises, and the challenges they face in doing so. The study also highlights the importance of preparedness and proactive communication in mitigating the reputational impact of security breaches on organizations.

First, this paragraph proceeds to present the findings related to the specific challenges posed by ICT and cybersecurity disruptions to organizations, then it discusses the strategic communication approaches and practices that may support the management and communication of these events. Lastly, a summary table is presented, to provide an overview on how different best practices could be applied to the resolution of specific challenges.

Our ongoing research indicates that organizations face a variety of challenges when dealing with cybersecurity crises, and these challenges are intrinsic to their nature. Participants in our study have highlighted that there is a lack of awareness of the importance of cybersecurity incidents beyond cyberattacks, which is consistent with previous classifications of ICT disruptions that were generally associated with malevolent events (Coombs, 2015). However, our preliminary findings suggest that other types of cybersecurity incidents, such as data mismanagement or system malfunctions, can be just as damaging to organizations, despite receiving less attention.

In addition, our study participants have identified several other challenges, including a high level of complexity of ICT and cybersecurity threats caused by their extremely technical nature and the high uncertainty of their potential outcomes. Moreover, participants in the study mention a generally low level of ICT and cybersecurity crisis preparedness across industries, with the main exceptions being the financial, banking and the high-tech industries. Connected to this, the preliminary results of the research identify a relevant preparedness gap between large organizations and small and medium enterprises (SMEs).

Another challenge posed by ICT and cybersecurity threats to organizations is the lack of a security culture across organizations and industries, which weakens the ability of many companies to implement crisis prevention and preparation. As a result, organizations do not make the appropriate investments in technology/tools, people skills, and procedures' implementation that are necessary to face these disruptions. According to the participants, there is also a language and expertise barrier between the technical departments (including IT and cybersecurity) and the managerial functions (including leadership and crisis and communication management).

An additional challenge relates to the legal implications of cybersecurity and ICT security disruptions, including the financial repercussions that follow when personal data of users owned or stored by organizations are compromised, stolen, or unrightfully accessed.

Participants in the research identify as a challenge the difficulty of risk assessment and impact evaluation when it comes to cybersecurity crises. To this regard, organizations seem to have underdeveloped risk assessment capabilities that may not be suitable to identify the hidden risks and costs of such events and to translate them into quantifiable reputational damage. Moreover, cybersecurity incidents may have long-term consequences that are extremely difficult to predict. Lastly, the prioritization processes concerning technical cybersecurity crisis management (including, for example, system hardening), are usually mis-aligned with those of the crisis communication function, which is concerned with the gathering and analysis of critical information that needs to be promptly communicated with the purpose of ensuring minimal reputational damage.

The research participants have emphasized an intriguing issue regarding the significance of public statistics concerning ICT and cybersecurity incidents. It has been noted that many organizations tend to conceal such incidents whenever possible, with the aim of avoiding public scrutiny and consequences. This tendency is facilitated by the imperceptible nature of most cybersecurity issues, which can often go undetected even by organizations. In some cases, these issues are not purposefully hidden, but they are not recognized by the company that becomes an unaware victim. In both situations, the lack of transparency makes it difficult to generate accurate public statistics on the prevalence, impact, and characteristics of ICT and cybersecurity threats. Consequently, the models used by organizations for risk assessment and impact evaluation are prone to bias, as they heavily rely on industry statistics for their accuracy. This issue has serious implications, as it hinders the ability of organizations to accurately assess risks and make informed decisions about cybersecurity policies and practices.

The preliminary results of the research shed light on how communication activities may support organizations in facing the specific challenges posed by ICT and cybersecurity crises.

Participants in our research mention the importance of delivering training programs to employees. These should not be limited to the best practices to ensure protection against external attacks, such as changing passwords often, establishing a secure connection, or recognizing phishing and pharming campaigns. The trainings should rather involve other topics, including secure data management to avoid human errors leading to loss or damage of assets, and legal requirements of data protection. Moreover, experts mention the use of risk communication as proposed by the CERC framework (Reynolds & Seeger, 2005), in order to keep stakeholders' (including employees, customers and users) awareness on cyber risks high. This involves the communication of the organization's current efforts in ICT and cybersecurity, and precise directions on how stakeholders can contribute to ensure safety.

Another point raised in the initial results of the research, concerns opening a channel for continuous feedback from various stakeholders that the company can use to inform its crisis management and communication plans and implement real-time action to address potential vulnerabilities as they arise. This way, planning becomes a flexible and live activity to ensure the antifragility of the organization (Taleb, 2012).

In order to address the low level of preparedness of most organizations, experts suggest the promotion of security through communication campaigns, especially on the part of larger organizations with resources available. This way, not only users but also smaller organizations without the appropriate knowledge may become aware of the specific risks and may be pushed towards taking action. This entails the opening of communication flows within the industry according to a collaborative attitude and an ecosystem approach to information sharing. Moreover, experts underline the importance of transparency as the only way to correctly inform public statistics on cyber risks and their impact, so that other organizations may become more sensitive to the pervasiveness of such threats.

In order to promote a security culture within an organization, initial results mention internal awareness campaigns that may provide guidance to employees and align the leadership and the technical teams on the importance of ICT and cybersecurity. Additionally, continuous monitoring of employees' and users' concerns may shed light on their information needs and provide data to the organization on how to lead the way a set itself as a point of reference for cybersecurity implementation. The adoption of negotiation strategies and empathetic communication has also been identified as pivotal to address the lack of investments in ICT security and cybersecurity, since the dominant coalition (the leadership) is often more concerned with financial matters and resists to requests of investment in activities of which it does not see the short-term benefits (Coombs, 2015). To this regard, Coombs (2015) mentions the importance of understanding the dominant coalition's background and concerns, in order to adapt the communication and frame the messages in the most convincing way possible.

The language and expertise barrier between IT and cybersecurity professionals and crisis communicators is an important challenge that organizations need to face to tackle ICT and cybersecurity disruptions. In addition to the development of training programs for non-IT employees, experts suggest the importance of training technical professionals in the importance of crisis communication practices, so that they may become increasingly aware of the prioritization processes outside their department. Moreover, the development of a common language around cybersecurity (Brooks et al., 2018) and the adoption of specific communication templates and dashboards that are easily understood by the different functional teams, are fundamental steps in addressing mis-communication and aligning priorities.

Legal implications are impossible to ignore, and, for this reason, organizations should foster transparency in the collaboration with public institutions and control agencies, as well as in the communication with their stakeholders. Transparency does not only prevent or lessen the impact of legal liability but may also increase stakeholders' trust in the good faith of the organization therefore lowering the attribution of responsibility for the crisis (Coombs & Holladay, 1996; Coombs, 2007). In order to address the difficulties in carrying out risk assessment and impact evaluation, participants to our study suggest that the best practices and tactics above will naturally contribute to the problem, by addressing all the inefficient practices and attitudes that prevent organizations from successfully managing cybersecurity threats and crises.

Tab. 1: Challenges of ICT and cybersecurity crises and strategic communication practices to manage them

Challenge	Strategic communication
High level of complexity caused by their extremely technical nature and the high uncertainty of their potential outcomes	Training programs for employees; risk communication as a reputation shield; continuous feedback mechanisms to inform antifragile plans
General low level of preparedness across industries and preparedness gap between large organizations and SMEs	Committing to the promotion of security through communication campaigns; implementation of communication flows within and across industries according to an ecosystem approach to information; commitment to transparency to inform statistics
Lack of a security culture across organizations and industries	Promotion of security through awareness campaigns both internally and externally; fostering direct communication with stakeholders to understand their concerns and information needs
Lack of investments in technology/tools, people skills, and procedures' implementation that are necessary to face cybersecurity disruptions	Adoption of negotiation strategies and empathetic communication on the part of IT/cybersecurity professionals for the communication with leaders and decision makers
Language and expertise barrier between the technical departments and the managerial/communication functions	Development of a common language around cybersecurity and adoption of strategic tools and dashboards to align understanding, activities and priorities
Legal implications of cybersecurity and ICT security disruptions	Fostering transparency and implementing risk communication to prevent liability
Difficulty of risk assessment and impact evaluation (mis-aligned prioritization processes, hidden risks and costs, biased statistics)	All of the above

Research limitations. *This study is still under development and does not benefit from a complete set for results. Future emerging insights may undermine the frame presented in this abstract. Moreover, the study concentrates on a limited sample size, collecting data from a specific group of participants with relevant expertise in crisis communication, ICT, and cybersecurity management. While this group may provide valuable insights, the findings may lack different perspectives of other organizational functions, such as that of C-level executives, but also that of users*

and external stakeholders. Additionally, the study relies on semi-structured interviews to collect data from participants. The accuracy and reliability of the data collected may be limited by the participants' willingness to disclose information, and by their own perception of their experiences, as well as contaminated by the researcher's interpretation.

The study relies on participants who are located within specific geographical locations, particularly Europe and the United States. Increasing the scope of the research to other countries, industries and cultures may provide support and verification of the results emerging from this exploratory study.

Finally, further research could address the lack of quantitative data by integrating the qualitative results with a quantitative survey to analyze users' behaviors and concerns regarding ICT and cybersecurity disruptions.

Managerial implications. The results of this research on the specific role of strategic communication in managing cybersecurity crises can be important for organizations in several ways. Firstly, the study highlights the challenges that organizations face when preparing for or managing a cybersecurity crisis, such as a lack of acknowledgement of the importance of ICT and cybersecurity incidents, a high level of complexity due to their technical nature, and a low level of preparedness across industries. This contributes to a more complete definition of their nature as operational liabilities and reputational threats. Moreover, the research promotes awareness around cybersecurity threats other than cyberattacks, such as data loss or system damage, leading to compromising important assets. This is a significant challenge as other types of cybersecurity incidents may be as harmful to organizations as cyberattacks, while receiving much less attention. By understanding these challenges, as well as the legal implications of ICT and cybersecurity disruptions and the difficulties that companies may face in implementing risk assessment and impact evaluation, organizations can take steps to adopt a new approach built around transparency, collaboration and security commitment, to mitigate cybersecurity crises' impact and become a point of reference for users and other companies.

Second, the study identifies not only a general approach, but also specific best practices for strategic and crisis communication that organizations can adopt to face the challenges posed by cybersecurity. For instance, organizations can provide training programs to employees to ensure not only protection against external attacks, but also secure data management. This can be done while the company communicates their current efforts in information security and cybersecurity to stakeholders, with the purpose of increasing trust and opening communication channels for continuous feedback from customers and employees to inform their antifragile plans and enable real-time action. These practices can help organizations to improve their security culture and preparedness, enhance transparency in public statistics on cyber risks and their impact, and align their leadership and technical teams on the importance of ICT protection and cybersecurity.

Overall, the study emphasizes the importance of preparedness and proactive communication in mitigating the impact of cybersecurity crises on organizations. By adopting the best practices identified in the study, organizations can enhance their ability to prevent, detect, respond to, and recover from ICT and cybersecurity incidents, and thereby protect their reputation and other tangible and intangible assets.

Originality of the paper. The study contributes to the existing literature on strategic communication and crisis management by exploring the specific role of communication practices in preventing and managing ICT and cybersecurity crises. More specifically, this research proposal seeks to investigate how strategic communication can support organizations in navigating the complexity of cybersecurity disruptions within a business environment filled with uncertainty. By emphasizing the role of communication in addressing these risks, the study contributes to the broader understanding of the importance of communication in risk management and crisis response.

While exploring the experiences of communication professionals, IT managers, and executives, this paper expands debate on crisis management and communication by better framing ICT and cybersecurity crises as an independent crisis typology with peculiar characteristics, such as their contagious nature and their ability to silently expand across different departments.

This research provides a first attempt to set the foundations for the development of a new approach to the internal management of cybersecurity matters that involves multiple functions and that revolves around a common language and mutual understanding of different priorities.

Another purpose of this theoretical contribution is that of strengthening the connection between management literature and strategic communication research, which becomes particularly evident in times of crisis, when reputational and financial negative consequences are almost always inseparable.

Overall, this study provides valuable insights into the challenges of managing ICT and cybersecurity crises and highlights the importance of strategic communication in mitigating these risks. The findings can inform the development of more effective crisis communication strategies and contribute to the broader academic literature on risk management and crisis response, while also raising awareness of the internal communication and management challenges that similar disruptions may trigger.

Keywords: strategic communication; crisis management; cybersecurity; complexity

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How does the accent impact on the radio advertising? The case of typical products

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Research framework. *Radio advertising is one of the alternatives available to companies in the context of the communication mix by which communicate to the market, promote one's offer, strengthen the brand and, more generally, transfer news and information to the public.*

In the competition with other media and devices, radio exploits its strengths, among which the advantage of a more effective segmentation of the target audience, specifically in the case of local radios addressing the audience of a specific geographical area and the "increased frequency", that is the repetitiveness of the message which allows it to remain imprinted in the mind, especially if associated with an effective and captivating backing track for the listener. Furthermore, radio "confers memory impact on the audience", exhibits a "long-lasting memory" (Kwon et al., 2018), creates bonds of trust and a sense of intimacy and fidelity with listeners, and tends to be cheaper than television as well as being more easily measurable in the results of advertising investments.

In the face of these strengths, there are also disadvantages. Firstly, the radio presents the risk of a more frequent zapping of the listeners with the airing of advertising and the consequent interruption of the music which causes lower listening fidelity.

Radio, compared to other media, does not allow the listener or advertiser to be able to reuse the message for future references, as case of press or web.

Another critical issue for the effectiveness of radio advertising is the distraction of the listener, who generally, in addition to listening to the radio, is simultaneously engaged in other activities (working, driving, reading) and may not be paying attention to the advertising message, therefore by not memorizing it or by not "keeping" it.

The effectiveness of radio advertising depends on numerous factors, including (i) creativity, i.e. the ability to find new solutions to old problems, (ii) the announce read live (or recorded) by the presenter, (iii) sing & sell, i.e. the musical content of the spot, (iv) the testimonial, (v) slice of life, i.e. the story, in a few seconds, of everyday life situations and (vi) the announcer's voice (Erguven, 2015).

The voice influences attitudes and perceptions on the quality and characteristics of the product, even in the absence of images, thus forcing advertisers to concentrate their efforts on identifying the voice most consistent with the characteristics and content of the message.

Psychology and marketing literature has focused on some specific aspects of the voice, studying in particular the way it impacts on consumer reactions to ads. Some of the most important factors are accent, speech rate and vocal pitch which cause different reactions based on the importance attributed by the listeners, the gender of the announcer and the gender of the listeners (Morales et al., 2012; Apple et al., 1979; Street et al., 1983; Chattopadhyay et al., 2003; Crystal, 2008; Scherer, 1979; Dahl, 2010; Addington, 1968).

It has been demonstrated that listeners prefer products advertised by a speaker with a standard accent, that accents influence how well listeners remember the ad information and that speech rate impacts on persuasiveness of an ad advertisement, that men who speak faster are judged to be more competent, socially attractive, truthful and persuasive than are men who speak more slowly.

Differences in tone of voice are also important: "lower (higher) auditory pitch used in marketing communications cues perceptions of larger (smaller) physical size in the associated product" (Lowe & Haws, 2017), ads narrated by announcers with lower pitched voice are more effective than the same ads spoken by an announcer with a higher pitched voice.

Voice quality and gender voice play an important role too.

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The personality inferences that listeners make based on hearing different voice qualities have a great importance in determining the listeners reactions. When a listener hears a voice that has qualities associated with higher levels of educations or status, the listeners are likely to believe that the speaker is high status or well educated.

Therefore, voice qualities are interpreted differently according to the gender because the reactions to a male or female voice are different (Wiener & Chartrand, 2014; Perona & Barbeito, 2008; Furnham and Paltzer, 2010; Martin-Santana et. Al, 2017).

As stated by Wiener & Chartrand (2014), if the ad is aimed at a female audience and has a female announcer, it would be more effective if the speaker does not have a creaky voice. If the announcer is male, it would be beneficial for him to have a creaky voice.

In countries where there is similarity in the use of male voices in radio commercials, it has been shown that low voices are considered more serious, believable, confident and powerful than high voices which are instead considered sweet, familiar and cheerful (Perona & Barbeito, 2008). Furthermore, it may also be due to a belief that because male voices are generally deeper, they sound more commanding, convincing, and persuasive than female voices. (Furnham and Paltzer, 2010).

Martin-Santana et. Al (2017) demonstrated that the prevalence of the male voice in some markets, such as the Spanish one, is neither justified in terms of effectiveness with non-gender-image products. They argue that to attract the listener's attention, increase audience awareness of the product or brand, and improve awareness, the advertiser should use low-pitched voices, which increase recall levels.

If the advertiser's goal is to create or improve public attitudes towards the product or brand, he would use the low-pitched female voice for its greater ability to change attitudes, particularly for those who.

A further factor which affects the effectiveness of the message and, in particular, directs the attitude of the listener, is the credibility of the source and, therefore, of the announcer. The latter can be analyzed along two components: cognitive and affective.

The former includes reliability and competence, while the latter is identified with attractiveness.

Expertise is "the ability of a communicator to be perceived as a source of valid statements based on his level of education, his own competence and educational background, which allow him to pass certain messages into a valid way. Reliability is the level of acceptance of the communicator and of the transmitted message, that is, listeners believe that the source can be trusted to provide objective and accurate information. Attractiveness is the level of physical attractiveness given to the source by the listener and, to a lesser extent, the emotional attractiveness of the source (Bearden & Netemeyer, 1999).

An important variable for the impact on advertising effectiveness is represented by the type of presenter used in the production of the message.

We can distinguish the endorser into famous and not famous or we can carry out a more detailed analysis which leads us to distinguish according to whether he is a celebrity, a consumer, an expert professional or an employee of the company.

The literature has paid great attention to the relevance of these figures with reference to means other than the radio which has instead received less space from researchers (Mittelstaedt et al, 2000). What emerges in literature analysis is that the absence of images in the radio causes the latter to use celebrities to a less predominant extent than in the context of television which, based on the notoriety of the testimonial, can determine success of the brand, in particular where there is congruence between endorsers of the personality of a brand (Fleck et. Al., 2012).

A well-known and authoritative testimonial can give the message greater effectiveness since the listener, perceiving him for these characteristics as a reliable and therefore sincere person, shows himself well disposed towards the product/service and attentive to the suggestions contained in the commercial and to the description that the announcer himself does. This leads to prefer the use of the pronoun "I" by the latter which shows an involvement towards the product, a real conviction about its qualities and performance.

However, if this is true in the case of television advertising, where the visual elements reinforce the effectiveness of the message when conveyed by a celebrity, in the case of radio, where there is a lack of these elements, a different situation occurs since this medium is more inclined to make use of voices that represent low-profile personalities to the detriment of celebrities who star in advertising in other media. Instead, there is a prevalence of the voices of the Presenter and the Company's employee and also of voices of real people (Perellò Oliver et al., 2018)

The accent plays a key role in qualifying the voice of the speaker during the transmission of the message. Since there are no images, the voice can suggest his appearance and personal characteristics (Krauss et al., 2002); it acts like a salient vocal cue, transmitting minimal information about them and influence social responses (Sebastian & Ryan, 1985).

Since accent affects listeners' impressions of speakers, selecting the right spokesperson to transmit a message is a complex decision that implies evaluating a series of key qualities, such credibility and attractiveness (Heaton & Nygaard, 2011; Stafford et al., 2002) .

Advertisers need to consider the different reactions of listeners when hearing different accents, depending on whether the speaker has a Standard Accent or a Local Accent. The first describes forms that are generally accepted by the majority of the society and provides no obvious indication to the speaker's geographic or social background, while the Local Accent is almost the opposite.

For example, it has been shown that a standard English accent exerts a particular influence on the perception of source credibility compared to the local accent which is associated with a negative social stereotype and decreases perceived trust and similarity, which results in an erosion of the credibility of the spokesperson and the failure to achieve the desired behaviors (Lalwani et al., 2005; Deshields et al., 1997; Deshields & De Los Santos, 2000; Stafford et al., 2002; Reinares-Lara et al., 2016).

Purpose of the paper. The aim of the research is to investigate the potential of radio communication for typical local products. Starting from the significant potential of those goods, from the deep roots in the territory of origin and from the possibilities offered by radio advertising, we will analyze the ways in which it can help strengthen the link between products and consumers who live in the same territory.

The typical products are characterized by a close link with the territory of origin. In addition to stimulating the need for direct knowledge of places, they can become goods whose value transcends their intrinsic utility, since they determine complementary effects related to the sensations (Schmitt, 1999) that they are able to generate.

For this reason, it is necessary to use communication formulas that make them recognizable, so as to achieve notoriety, create value for businesses and their local area of origin. For example, typical agri-food productions have an identity - and in strategic terms can be defined as "uniqueness" - deriving from certain factors, tangible and intangible, such as (Altili 2010; D'Amico, 2004 and 2002; Carboni and Quaglia, 2001): traditions, uses, customs, history, culture, soil and climatic conditions, landscape and production methods consolidated over time.

In this sense, being able to link these products to the tourist potential (where present) of their territories of origin can be a useful strategy to corroborate their reputation. It is the cognitive potential naturally present in typical products, in order to make them part of a whole, through targeted and coordinated experiential marketing actions, useful for communicating the brand-territory union, thus contributing to the creation of a competitive advantage for such productions and for their places of origin. To succeed in such intent, it is essential that companies experience their territories as an indispensable asset for the mutual development and therefore adopt a perspective that connotes them as well-established businesses.

All the above factors represent the heritage of a territory, intended as productive field (Baccarani and Golinelli, 2011), as much as the link between the product and place of origin (Fait, 2010; Fait and Trio, 2011; Maizza and Iazzi, 2011; Maizza et al., 2013; Scroll, 2013; Scorrano et al., 2013; Fait et al., 2014; Iaia et al., 2016). The latter is to be found in those characteristic elements of a product, which come from specific production area and, therefore, cannot be replicated or "exported" to other contexts (Mastroberardino, 2004; Maizza et al., 2003). The brand-territory bond, therefore, manifests itself in that unicum that is created in the mind of the consumer, for that generates and increases the notoriety of both; this, until the land becomes synonymous of its own products and becomes a loyal brand itself, creating value for a plurality of subjects (it is sufficient to think, for example, of the wines produced in Chianti, Bordeaux, Montalcino, etc.).

Methodology. The purpose of the research is twofold. The first is to ascertain what choices businesses producing typical local products make on the use of radio as a means of promoting their commercial offerings.

To this end, in-depth interviews is going to be conducted with entrepreneurs and managers in order to analyze: (i) the communication policies they have adopted and those that they propose to employ in the coming year in perspective; (ii) their attitude and propensity toward the radio medium; (iii) delve into which channel is considered most consistent with their target market; (iv) analyze the type of message considered most relevant; and (v) learn about preferences for the speaker's voice and accent (SA or LA).

The second objective concerns consumer attitudes towards radio advertising and the impact of the accent of the speaker's voice. For this purpose, a random sample of listeners will be involved to listening to two commercial advertising a typical local product, one with SA and another with LA.

On the one hand, speaker credibility will be measured using expertise and trustworthiness as variables; on the other hand, the cognitive level, affective level, and conative level of the listener's response will be analysed through a test.

Results. Since this is an ongoing study, results are not ready yet. Researchers are going to collect them.

Research limitations. A limitation of the research is represented by the use of a single factor of the speaker's voice (the accent) without considering the influence that other elements can exert, such as- for example- the tone, the reading speed, the gender of the speaker.

The significance of the results regarding the credibility of the latter and the listener's response could therefore be consequently limited. Another limit could concern the type of sample involved in the research which is made up solely of listeners living in the same area where the advertised products are produced.

Managerial implications. The research would have interesting managerial implications for managers and businesses, particularly those that produce typical local products.

The results of the study, in fact, may make it possible to obtain useful indications concerning the attitude and response of consumers to a radio commercial using a voice with local accent, as opposed to another with standard accent, in the promotion of a typical product of their region of residence.

This will help guide business choices regarding radio communication and learn which tools and modes of communication are most relevant and present the greatest opportunities for success in dealing with the market.

Originality of the paper. The originality of this research is represented by the choice to cross a topic which is typical of psychology applied to marketing to a local context such as the Apulian one and, specifically, to a particular typology of products, the typical ones.

Keywords: radio, voice, consumers, advertising, typical products

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Unleashing the potential of social media: an investigation into antecedents and opportunities of entrepreneurial intent

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Framing of the research. *The emergence of multi-sided digital platforms in the 21st century has significantly transformed the way individuals interact and organizations engage with their target audience (Troise and Camilleri, 2021). In light of these technological advancements, which continue to reshape the individuals' perception of entrepreneurial opportunities, a novel approach in examining entrepreneurial intent and behaviour is expected.*

This fact embossed the importance for entrepreneurship scholars (Park et al., 2017; Nambisan, 2017; Leftheriotis and Giannakos, 2014) to provide a practical definition of social media entrepreneurship by emphasizing the scarcity of resources available to those venturing into new business ventures, as well as the process of opportunity recognition and evaluation.

Traditionally, media entrepreneurship refers to the strategic usage of a small firm's limited resources to pursue identified profit potential in a particular niche market (Khajeheian and Arbatani, 2011). In the same vein, Gustafsson and Saud Khan (2017) refer to social media entrepreneurship as the practice of identifying, evaluating and seizing lucrative opportunities via social media platforms. In other terms, a process of leveraging social media platforms to identify and capitalize on potential business opportunities.

Beyond the individuals' pursuit of opportunities, previous research has identified the cost-effectiveness of social media as a significant antecedent in its adoption and implementation (Odoom et al., 2017). In fact, technological advancements and the widespread use of social media have significantly reduced the costs incurred in engaging with existing and potential customers (Alalwan, 2018). In addition, social media provides a platform for collaborative content sharing, enabling companies to reach a wider audience without being limited by geographical, cultural, and professional barriers (Kwon et al., 2021). As a result, this collaborative potential and wider content capability have become an effective means to engage with the diverse customer base, ultimately leading to increased cost-effectiveness.

Furthermore, established entrepreneurs underestimate the potential benefits of social media when determining whether to integrate it into their business strategies (Gavino et al., 2019). However, this narrow focus on established entrepreneurs ignores individuals in the pre-launch stage of the entrepreneurial process. In contrast to Gavino et al.'s (2019) findings, social behavior theories propose that entrepreneurs utilize social media and networking sites to cultivate social connections (Turan and Kara, 2018).

Grounded on the research propositions by Olanrewaju et al. (2020), which encourage scholars to advance the discourse on social media-opportunity recognition and explore how platform capabilities and individual characteristics interact to support the entrepreneur opportunity recognition process, our aim is to investigate the antecedents that lead to entrepreneurship intent in digital platforms, specifically social media.

Theoretical background and Hypotheses development. *The emergence of Internet-based social media as a medium of interaction, information, and knowledge sharing has facilitated companies to effectively communicate with hundreds, if not thousands, of customers regarding their products and services (Lee and Cho, 2020). In turn, customers now easily share their thoughts, feedback, and perceptions with others (Alsubagh, 2015), establishing a two-way communication channel that allows companies to gain benefits in terms of customer satisfaction, networking and increased sales (Ramanathan et al., 2017). In fact, when people base their purchase decisions on advertising or experts' advice, they increasingly rely on feedback and opinions posted on digital platforms. In other words, satisfied customers, besides repurchasing products and services, increase their positive online word-of-mouth to others (Eelen et al., 2017). Accordingly, the allure of social media platforms is closely related to the possibility to approach the entrepreneurial endeavor with a customer-centric orientation (Li et al., 2021).*

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In addition, the viewpoints expressed by other individuals on social networks have a significant influence on entrepreneurs' decisions to leverage social media (Turan and Kara, 2018). Via social media, entrepreneurs receive advice from mentors or industry experts, emotional support from peers facing the same challenges and confirmation of decisions through customer feedback. Such support is particularly crucial in the early stages of entrepreneurship where there is a need for information and support on setting up (Olanrewaju et al., 2020). Thus, social determinants significantly influence an entrepreneur's perception of social media usage. In consumer behavior models, social influences are important components in influencing customers' perception, and ultimately, their purchase intention (Turan and Kara, 2018). According to the two scholars, social influences, particularly in responding to social pressure, might impact an entrepreneur's intentions to utilize social media. In other terms, social influences refer to the impact of social factors such as social norms, social support, and social pressure on the attitudes of entrepreneurs, especially aspirational ones, towards using social media for entrepreneurial purposes.

Taken together, our research aims to investigate how the antecedents of entrepreneurial intent in social media and the intention to leverage social media for entrepreneurial purposes are related. Therefore, we propose:

Hypothesis 1 - *Aspirational entrepreneurs' attitude towards intention to use social media for entrepreneurial purposes will be positively influenced by cost effectiveness (H1_a), perceived usefulness (H1_b), customer centricity (H1_c), and social influences (H1_d).*

The ability to recognize opportunities is an important piece in the puzzle of creating a venture. Both academics and practitioners have explored social media and entrepreneurship by highlighting the importance of opportunity recognition and opportunity discovery (Olanrewaju et al., 2020; Park et al., 2017). The dominant discourse around opportunities has been influenced by the dichotomy of this definition (Alvarez and Barney, 2007). Opportunities are concrete, tangible realities, which exist "out there" waiting to be found (Short et al., 2010). They are regarded as a part of the environment, resulting from a combination of the entrepreneur's resources and environmental factors such as technological developments, consumer needs, and market environment (Edelman and Yli-Renko, 2010). While another prevalent view posits that "opportunities are made, not found" and emerge through the actions taken by entrepreneurs in contact with their environment during the entrepreneurial process (Ardichvilli et al., 2013: 106).

The emergence of social media has played a critical role in facilitating the creation of opportunities. According to Park et al., (2017), social media adoption has become timesaving in identifying and developing entrepreneurial opportunities. In fact, entrepreneurs leverage social media to gather data and information resources to uncover potential prospects (Zhao et al., 2022). Among other advantages, both online communication and social media have facilitated to implementation of different marketing strategies with lower effort and cost (Barile et al., 2021). The progress of technology, accompanied by the growth of an extensive virtual community, has provided extensive prospects for the activities. These include the ability to specifically aim for, entice, and cultivate connections with customers, as well as communicate brand strategies while incurring reduced expenses (Barbu et al., 2021). Although previous research has focused on the relationship between entrepreneurial orientation and business performance, Lechner and colleagues (2006) argued that social media plays a crucial role in the development of entrepreneurial capabilities, as it facilitates gaining knowledge and fosters relationships with established companies. Building on this statement, we propose:

Hypothesis 2 - *Social media use positively moderates the relationship between cost effectiveness (H2_a), perceived usefulness (H2_b), customer centricity (H2_c), and social influence (H2_d) towards the intention to use social media for entrepreneurial purposes*

Entrepreneurs expect performance whether using of social media. In this vein, Turan and Kara (2018) have emphasized the significance of performance expectancy, which refers to entrepreneurs' perception regarding the value of social media in improving business performance, including effectiveness, achieved outcome, and task accomplishment (Venkatesh et al., 2003). Alalwan (2018) echoed this notion by emphasizing the importance of social media as a platform for advertising and promotion. They observed that individuals are more prone to adopt new technologies if they perceive them as beneficial, profitable and time-saving. Accordingly, we hypothesize the following:

Hypothesis 3 - *Performance expectancy use positively moderates the relationship between cost effectiveness (H3_a), perceived usefulness (H3_b), customer centricity (H3_c), and social influence (H3_d) towards the intention to use social media for entrepreneurial purposes*

According to prior research (Unal and Uzun, 2021; Chatterjee and Kar, 2020), individuals are more prone to accept and utilize technology if they perceive it as effortless. Conversely, if the technology system is perceived to be complex and requires more effort, it is likely to be avoided (Rugambwa, 2009). The effort expectancy construct captures an aspiring entrepreneur's perception of how easy or difficult it is to use social media and whether they possess the necessary knowledge and skills to use it effectively. In other words, entrepreneurs are more likely to adopt social media if they perceive it as user-friendly and if they feel confident in their ability to use it (Unal and Uzun, 2021). Therefore, since perceived ease of use is a critical factor in determining an entrepreneur's intention to use social media to enhance their business performance, we hypothesize that:

Hypothesis 4 - Effort expectancy use positively moderates the relationship between cost-effectiveness ($H4_a$), perceived usefulness ($H4_b$), customer centricity ($H4_c$) and social influence ($H4_d$) towards the intention to use social media for entrepreneurial purposes

Purpose of the paper. Our research intends to investigate the relationship between the antecedents of entrepreneurship intent on digital platforms, specifically social media, and the individual's entrepreneurial intent to utilize social media for entrepreneurial purposes. By analyzing a specific group of individuals who have expressed the intention in starting an entrepreneurial activity but have not yet taken action, and by leveraging quantitative research methods, we aim to identify the determinants that drive entrepreneurial intent on social media. More specifically, we will examine through empirical evidence how platform capabilities interact with individuals' personal traits to encourage the entrepreneur's recognition of opportunities.

Methodology. To test our research hypotheses, we leverage the Structural Equation Modelling (SEM) method, analyzing data gathered from 359 respondents using prolific (Palan and Schitter, 2018). We conducted a pre-screening process to include only participants who explicitly expressed the intention to start an entrepreneurial venture.

According to Byrne (2012), SEM allows the researcher to simultaneously test numerous interrelated connections between observable variables (indicators) and non-observable variables (latent constructs) that can be targeted in the first phase of SEM measurement model (CFA). Furthermore, SEM validates the relationships between the latent constructs, which are targeted in the second phase of SEM structural model analyses. Furthermore, the scholar may investigate all the issue with the validity and reliability of constructs for each factor separately (Kline, 2015; Anderson and Gerbing, 1988).

The measuring constructs were adapted from extant research: cost effectiveness (e.g., "Social media platforms can be helpful to cut down cost on marketing communications"), perceived usefulness (e.g., "Using social media can be helpful to increase the possibilities of new business partnerships"), customer centricity (e.g., "Through social media I could easily meet customers to realize their current and potential needs for new products), social influence (e.g., "Peers are helpful in the use of online social media"), social media use (e.g., "Social media is a helpful platform to start a new business"), performance expectancy (e.g., "Using social media could enable to accomplish my tasks more quickly), effort expectancy (e.g., "I am skillful at using online social media"), and intention to use social media for entrepreneurial purposes (e.g., "I intend to use social networks in setting up a business").

To measure the items in the questionnaire we drew on a Likert scale where 1 = "Strongly disagree" and 5 = "Strongly agree". Through a factorial and reliability analysis, all factors were able to have Cronbach alpha's above the threshold recommended by Nunnally (1978).

Results. Sample characteristics

According to our findings, slightly more than half of the 359 respondents were women with 57.7%, while 40.9% were men, and the remaining 1.4 % preferred not to disclose their gender. Most of the respondents were in their 30s with an average age of 34.6 years. According to the number of platforms used for leisure, 1.1% reported using no social media, 68% use 1 to 3, 28.7% use 4 to 6 and 2.2% use 7 or more. At now, 52.9% of respondents reported employing social media for business, with Facebook and Instagram topping the list. The average amount of hours that the respondents spend navigating social media is 12.2 hours.

Results

In our investigation, during the initial phase of SEM, the reliability and validity were all tested. Then, the second phase aimed to verify the hypotheses.

The structural model was tested in the second part of the study to validate the conceptual model and investigate the main research hypotheses. The software utilized for this purpose was IBM ILOG SPSS v.25.

As for the main research hypothesis, except for $H1d$ ($IU <- SI$), $H2$ ($IU <- SMU$), $H3a$ ($IU <- CE_PE$) and $H4d$ ($IU <- SI_EE$), the rest of the research hypotheses were refused.

Aspirational entrepreneurs' attitudes towards intention to use social media for entrepreneurial purposes will be positively influenced by social influences ($b = \text{estimate} = .870$, $p < 0.001$).

Social media use positively moderates the relationship between the antecedents of entrepreneurial intent in social media towards the intention to use social media for entrepreneurial purposes ($b = 1.063$, $p < 0.001$). Hence, the positive relationship between the antecedents of entrepreneurial intent in social media and intention to use social media for entrepreneurial purposes is stronger when social media use is high.

Performance expectancy use positively moderates the relationship between cost-effectiveness and the intention to use social media for entrepreneurial purposes ($b = .219$; $p = p < 0.001$). In other words, the relationship between cost-effectiveness and intention to use social media for entrepreneurial purposes is stronger when performance expectancy use is high.

Effort expectancy use positively moderates the relationship between social influence and the intention to use social media for entrepreneurial purposes ($b = -.139$, $p < 0.05$).

In addition, our analysis reveals that individuals' entrepreneurial intent is mostly influenced by social influence and the ability to use social media use. The stronger the individual's beliefs about the personal and social desirability of doing something and whether they have the necessary skills and abilities (control) for it, the greater the likelihood they will use social media to create new business ventures.

Research limitations. *Our study neglected to consider the influence of cultural factors on aspiring entrepreneurs' decisions between personal and corporate social network platforms. Further research could investigate how cultural variations affect individuals' social media entrepreneurial purpose. Cultural factors, such as individualism, collectivism, power distance, and uncertainty avoidance, can affect individuals' attitudes and behaviors towards entrepreneurship (Hofstede and Bond, 1984). Future investigations could involve cross-cultural studies that compare the attitudes and behaviors of aspirational entrepreneurs in different cultural contexts. In addition, future research could validate our findings by expanding the sample in terms of nationality, age, and occupation.*

While our research did not discriminate between different social media platforms, future lines of research might consider investigating the impact of different digital platforms on encouraging entrepreneurial intention. Specifically, researchers could explore how different social media platforms, such as Instagram, Facebook, or LinkedIn, affect individuals' entrepreneurial motivations and intentions.

Managerial implications. *Our findings provide insights for both social media managers and digital platforms on boosting the likelihood of aspirational entrepreneurs creating businesses, as well as guidelines for public and private organizations interested in nurturing entrepreneurial aspirations.*

Recognizing the features of social media platforms that inspire entrepreneurial purpose could be important for public and private organizations in fostering a culture of entrepreneurship, encouraging individuals' entrepreneurial spirit, and creating the optimal environment for socioeconomic growth. This requires promoting a supportive community through networking events, incubator programs, and mentorship opportunities.

Moreover, public and private organizations could create an environment conducive to socio-economic development, which may include policies and initiatives that support entrepreneurship, such as access to capital, tax incentives, grants, and other forms of financial support. In addition, organizations could provide support and guidance to aspirational entrepreneurs by connecting them with mentors, advisors, and investors.

Given the significant correlation between social influence and the intention to employ social media for commercial purposes, launching an entrepreneurial endeavor as well as using social media is strongly affected by other people's opinions. From a psychological perspective, organizations may leverage the power of social influence to encourage entrepreneurship by creating a positive narrative around entrepreneurial activity and sharing success stories, which could help to overcome the fear of failure and inspire individuals to launch their entrepreneurial endeavors.

Our research further found the moderating role of performance expectancy on the relationship between cost effectiveness and the intention to use social media for business purposes and moderating effect of effort expectancy in moderating the relationship between social influence and the intention to use social media for business purposes. As social media continues to gain popularity, aspirational entrepreneurs recognize the significance of serving as facilitators in cultivating relationships with both their current and potential customers. By utilizing social media platforms, entrepreneurs could gain valuable insights into their competitors' approaches, attitudes, and customers' feedback to enhance their competitive advantage.

Finally, entrepreneurs that grasp the benefits associated with social media may create successful customer relationship management strategies and concentrate on customer-centric initiatives, which will enhance efficiency in their entrepreneurial pursuits.

Originality of the paper. *Our study contributes to the investigation of the antecedents of entrepreneurial intent in the context of social media by integrating insights from both entrepreneurship and social media studies (Barile et al., 2021; Alalwan, 2018; Turan and Kara, 2018). Specifically, we identify the determinants that individuals who intend to start an entrepreneurial venture on digital platforms value. While previous research has focused on investigating scenarios of established business ventures (Chatterjee and Kar, 2020), multinational companies (Fraccastoro et al., 2021) or small and medium-sized enterprises (Pentina et al., 2012), this study differs by highlighting the role of social influence and the ability to use social media as determinants of entrepreneurial intent in aspirational entrepreneurs. Additionally, the study identifies the moderating role of performance expectancy in strengthening the relationship between cost reduction, as an antecedent of social media use, and the intention to use social media for business purposes.*

This research contributes to the body of knowledge on transformational entrepreneurship by providing a different perspective on the role played by digital platforms, specifically social media, in fostering entrepreneurial intent.

Finally, our findings offer managerial implications for aspirational entrepreneurs, policymakers, and academics, providing insights into how social media can be leveraged to enhance entrepreneurial intent and socio-economic development.

Keywords: *social media entrepreneurship; transformational entrepreneurship; entrepreneurial intent; digital platforms; social media*

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When, Where and What of Corporate Purpose: a bibliometric analysis using VOSviewer

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Framing of the research. *It is argued that we are currently experiencing a “syndemic” crisis, considering the interaction among the social, economic and environmental dimensions that characterize a variety of global challenges (Horton, 2020), Consequently, an integrated approach is required, with the involvement of many different parties, including companies. In fact, the rising of a number of global challenges (e.g., pandemics, climate change, inequality) prompts for a new role of the business in society (Schlag and Melé, 2020), Confirming that, purpose-driven companies – but all companies more in general – are expected to increasingly manage problems and act with a global and integral vision, cooperating with institutions and communities in the pursuit of the common good and in safeguarding common goods (Albareda and Sison, 2020), Although on purpose-driven companies there is not a unique definition, by them we refer to such companies whose members are inspired by a corporate purpose, which is itself able to respond to specific societal needs (Quinn and Thakor, 2018; Rey et al., 2019), Nevertheless, purpose-driven companies are key to drive transformative innovation needed to address climate change and other societal issues (Henderson, 2021),*

Consequently, among the many recent academic contributions aimed to rediscover companies’ alternative routes from more than profit’s maximization, there is also a re-conceptualization of corporate purpose (Porter and Kramer, 2011; Mayer et al., 2017), Purpose is more and more regarded as the key to deal with the complex world we face today, “where strategy is ever changing and few decisions are obviously right or wrong” (Craig and Snook, 2014, p. 4), For these reasons, far from being exhaustively condensed, the topic of the nature, antecedents and consequences of corporate purpose has acquired a new wave of interest both for practitioners and scholars (Mayer, 2021), There is still need of research on the role of companies in the contemporary and in the future of society (Mayer et al., 2017), and contributions that underline the importance of purpose in orienting companies in that sense are at the early stage (Mayer, 2021), In fact, a variety of questions are rising “about what purpose means, how it is implemented, and how it gains legitimacy and credibility” (Mayer, 2021, p. 898),

Purpose of the paper. *Since its origins, the conceptualization of corporate purpose placed in difficulty management scholars, causing problems in exploring what is purpose, from what data it can be identified and what are relationship between purpose and other organizational features (Warriner, 1965), The ambiguity of the concept of corporate purpose is recognized also in practitioners-oriented debate. For instance, the concept is still equivocal and misunderstood, although “setting, communicating, and delivering an organization’s purpose is at the heart of governance” (Hurth, 2017, p. 4), George et al. (2021) proposed a definition of purpose in for-profit firms as “the essence of an organization’s existence by explaining what value it seeks to create for its stakeholders” (p. 7), However, the authors stressed overriding responsibility of scholars to commit our scarce resources to a research and education agenda that acknowledges the wide role of firms in society and to speak for those stakeholders whose voices otherwise risk being unheard (George et al., 2021),*

The aim of this research is to outline “when” and “where” corporate purpose is framed and “what” are the main topics to which it is addressed, contributing to actual debate by highlighting some possible horizons for future research with a bibliometric analysis on the literature. More concretely, the bibliometric analysis involves exploration of three main areas: (1) “when”, that highlights the time trend of publications on corporate purpose; (2) “where”, that shows the main outlets that welcome research and stimulate debate in the literature on corporate purpose; (3) “what”, that presents and discuss main topics related to corporate purpose research.

Methodology. *According with the end of the research, we performed a keywords-based search in Scopus and Web of Science databases, based on the terms: “organization* purpose*”, “business* purpose*”, “corporat* purpose*”, “firm* purpose*” and “compan* purpose*” in the abstract. After removing non-English documents, and limited the research in the management area, a final sample of 741 publications has been disclosed. We use this sample for the first part of the analysis aimed to explore the “when” of corporate purpose.*

Then, we selected 100 contributions to review, among which 20 were chosen using snowball sampling approach, for a more in-depth analysis of the “where” and “what”. The exclusion/inclusion criterion was aimed to concentrate efforts only on publications where corporate purpose represented the main topic of the study and the term was treated

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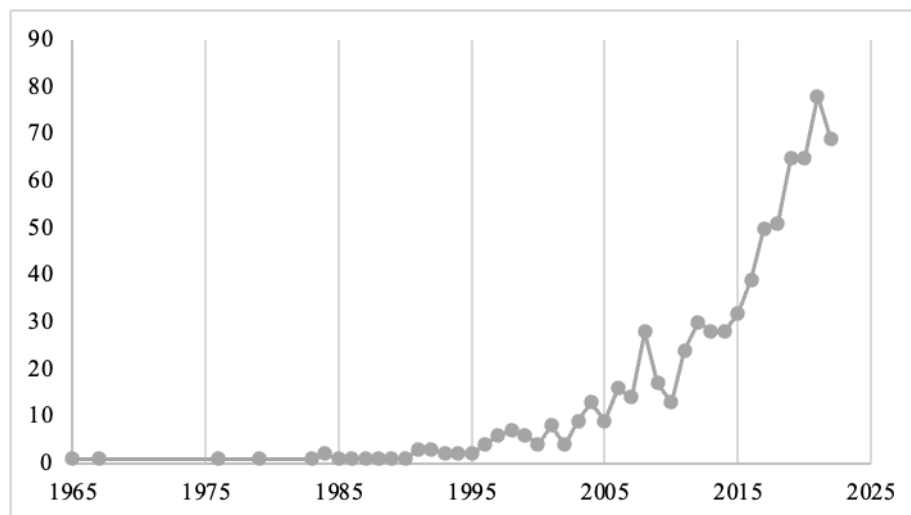
non in a trivial way. Accordingly, we performed a bibliometric analysis for two main reasons: first, studies based on retrieved data are considered more relevant than subjective researcher's interpretation and second bibliometric methods help to obtain clear overview of the debate on a specific topic (Zupic and Čater, 2015). In addition, we used VOSviewer software (van Eck and Waltman, 2010) to generate, visualize and analyse trends and networks in research outlets. Out of a total of 2350 cited sources from the 100 contributions selected (including journals, proceedings, books, manuals, newspapers, and websites), we removed and/or manually repurposed 167 sources that were not appropriate (e.g., typos) for the analysis, leaving a sample of 2183 cited sources. First, we implemented a co-citation analysis of the main research outlets "where" there are publications on corporate purpose. The overall co-citation is done two by two, analysing two sources that are both cited by the same contribution. Then, we performed a keywords co-occurrence analysis, setting the minimum threshold of word frequency statistics as 2, based on keywords that occur at least once. We obtained the map in the Figure 3, in order to show and discuss "what" are the critical leading related topics connected to corporate purpose.

Results.

When of Corporate Purpose

The Figure 1 depicts "when" corporate purpose is framed from 1965 to 2022. The first publication by Warriner, titled "The problem of Organizational Purpose" dates back to 1965. Among most cited and seminal articles, Bartlett and Ghoshal (1994) pushed managers to think on a clear definition of corporate purpose with a perspective inside the organization, in order to give a meaning for working to employees. The number of publications seems to be stagnated until 2010, when there has been an exponential increase, as shown in Figure 1. However, considering most cited articles (i.e., Gartenberg, 2019; Mayer, 2021), scholars' perspective on the topic of corporate purpose seems to change toward a more outside the organization oriented one. For instance, Mayer (2021) argued that the underpinnings to the renovate attention on the topic is due to the changing in companies and market nature that push for the potential role of corporate purpose in promoting better social outcomes.

Fig. 1: Number of contributions on Corporate Purpose per year based on 741 publications

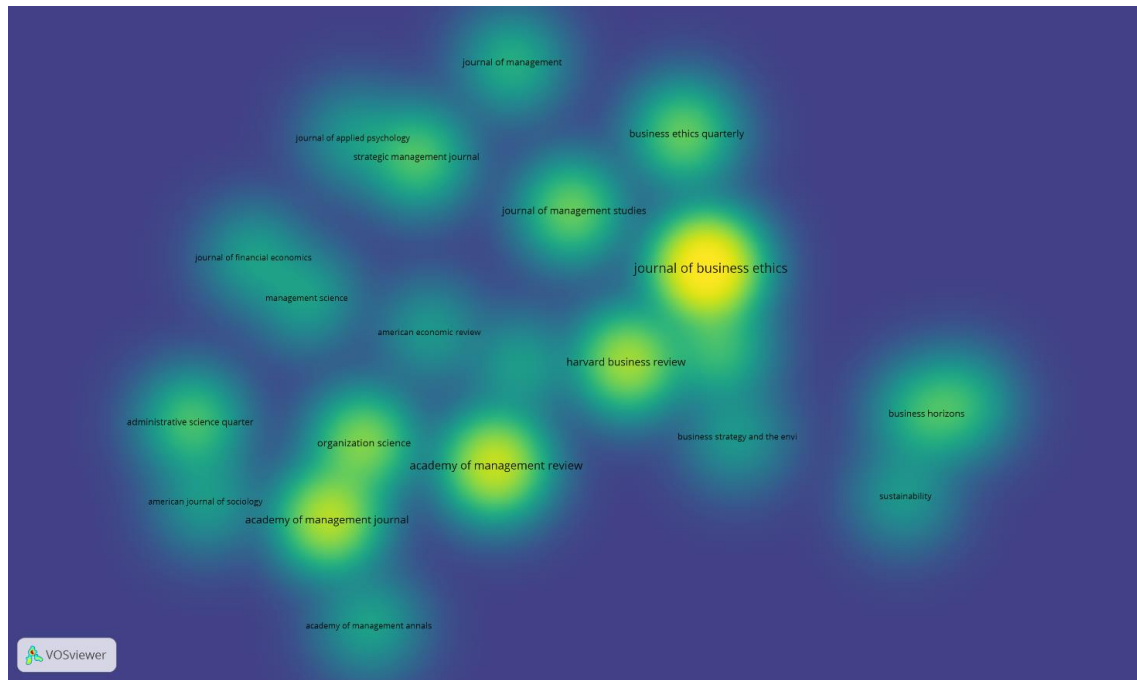


Source: Authors' elaboration

Where of Corporate Purpose

We implemented a co-citation analysis (Figure 2) among the sample of 2183 cited sources, based on the sample of 100 contributions selected for a more in-depth analysis, using the software VOSviewer to visualize the relationships between the most important research outlets "where" corporate purpose is framed. It seems quite clear that the concept of corporate purpose has spread into the language of multiple research outlets. In fact, most articles were published in journals focused on different areas, including mainly business ethics (e.g., Abela, 2001; Sison, 2007; Bhattacharya et al., 2022) and strategy (e.g., Bartlett and Ghoshal, 1994; Collins and Porras, 1996; Craig and Snook, 2014). Moreover, the analysis allows to visualize (Figure 2) journals with the larger number of citations, that are displayed with a stronger hint of yellow: *Journal of Business Ethics* is the most cited, followed by *Academy of Management Review*. The density visualization in the Figure 2 highlights also the relatedness among journals that is stronger the closer journals are located to each other. For instance, it is possible to identify two main clusters: *Journal of Business Ethics* that seems to be more related to *Harvard Business Review*; and the same for the relationship between *Academy of Management Review*, *Academy of Management Journal* and *Organization Science*.

Fig. 2: Co-citation analysis with cited sources on Corporate Purpose



Source: VOSviewer (version 1.6.18)

What of Corporate Purpose

We performed a keyword co-occurrence analysis that can be observed in the comprehensive map below (Figure 3). The label and rim size of an item is determined by the weight of each keyword and each circle represents a node. The higher the weight of a keyword, the larger the article label and circle are (van Eck and Waltman, 2010). Overall, the keyword “corporate social responsibility” had the largest node and the highest frequency, followed by “sustainability”. The connection among nodes represents their co-occurrence relationships, according to which, different research clusters are formed and displayed with different colors. We analysed each cluster, in order to depict “what” are the main topics to which corporate purpose is addressed.

- **Cluster 1: common good, corporate social responsibility, mission**

The first cluster includes and strictly relates common good and purpose, with corporate social responsibility and mission. For instance, many authors, contributing to Humanistic Management theory, stress the fact that purpose contributes to the common good through the material and moral development of people at work (Sison, 2007). The final purpose of business organization is to serve the societal common good and satisfy the need of people living in the place where the firm operates (Melè and Schlag, 2015). The main idea is to consider the purpose of the firm as common good (Naughton et al., 1995), recognising the connection among the good of the firm and the good of the entire society, since the fact that firms are “community of persons” (Melè and Schlag, 2015). This perspective implies managerial actions, by impacting on corporate social responsibility issues and mission statement (i.e., Alegre et al., 2018). Confirming that “purpose provides a clear definition of the firm’s intent, creates the ability for stakeholders to identify with, and be inspired by, the firm’s mission, vision, and values, and establishes actionable pathways and an aspirational outcome for the firm’s actions” (George et al., 2021, p. 7).

- **Cluster 2: climate change, capitalism, sustainability, corporate strategy**

The second cluster welcomes contributions that confirm the positive impact of purpose in facing nowadays environmental crisis toward a corporate strategy that recognises the need for companies to be sustainable. In line with these considerations, Gartenberg et al. (2019) confirms that purpose impacts on strategy implementation and suggests that employees with strong beliefs in the purpose of their organization achieve better performance. Social and environmental crisis caused the proliferation of corporate purpose statements. Purpose has been considered more and more as a crucial organization feature toward sustainability, which includes ESG (environmental, social and governance) dimensions and it is becoming an integrated component of purpose in the for-profit enterprise (George et al., 2021). George and Schillebeeckx (2022) suggest that corporate purpose can be strategic to deal with “geopolitical, organizational and market tensions induced by the pandemic, climate change and digitization” and it can be a factor that preserves companies’ advantage.

- **Cluster 3: benefit corporation, corporate governance, theory of the firm**

The third cluster collects contributions around benefit corporation (B-Corps) phenomenon, as concrete entities that combine the goal of profit with a social-oriented purpose attested by a legal tool, causing change in the corporate governance setting of the company (Hurt 2017; Mayer, 2021). It means also rethinking the traditional theory of the firm toward a re-conceptualization of the organizational purpose. For instance, Mion and Adauí (2020) confirm that B-Corps pursue benefit in a responsible, sustainable, and transparent way and considering diverse stakeholders.

- **Cluster 4: creating shared value, hybrid organizations, corporate objectives**

The fourth cluster relates with the perspective of redefining corporate objectives, intending purpose as corporate objectives and goals (Bartlett and Ghoshal, 1994), as creating shared value (Porter and Kramer, 2011), It permits the setting up of organizations that have a dual purpose, generating both social and economic value (Alter, 2007), To better understand this cluster, Lankoski and Smith (2018) offer a useful range of companies on the base of their objective, with a comprehensive classification on objective functions that goes beyond the dualism profit maximization/something different. In particular, the authors assemble the corporate possible objectives into five group, “based on the centrality of social welfare: (1) entirely absent from the objective function, (2) a process characteristic, (3) one of the end objectives, (4) the only end objective, adjusted by profit as a process characteristic, and (5) the only variable in the objective function” (p. 248), Among the third group, hybrid organizations allow their members to practice more of their internally held ideals and feel a common sense of organizational purpose (Gumusay et al., 2020),

- **Cluster 5: transformation, leadership, ethics**

The fifth cluster collects contributions based on the concept of transformational leadership and the role of leaders in defining corporate purpose. For instance, Craig and Snook (2014) argue that leaders’ most important role is to be executives of the organization’s purpose. Henderson (2021) confirms that transformational leaders have a powerful core set of ideological values: they are exceptional to balance social and financial responsibilities, catching new opportunities in the market thanks to an authentic corporate purpose. Kempster (2011) gives a comprehensive overview on how leadership and purpose are tied, since the fact that “leadership discourse could be framed as fulfilling a societal purpose in that it provides a connection beyond the organizational boundaries and is ‘good for collective human wellbeing” (p. 325),

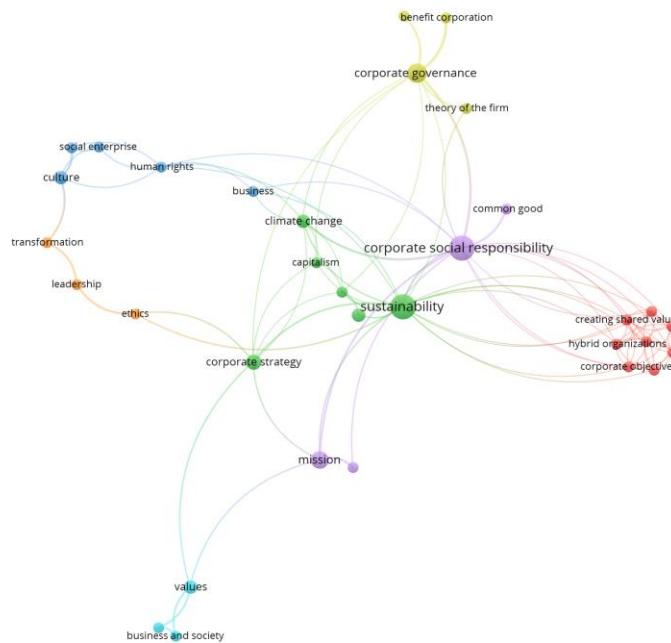
- **Cluster 6: social enterprise, culture, human rights, business**

The sixth cluster includes contributions that recognise that conceptualizing corporate purpose means building a common business culture. For instance, purpose has a particularly effective driving role in orienting sustainability behaviour of employee at work since it is an inspiring and collective call to ethical actions, rather than a generic guideline on how to behave (Bhattacharya et al., 2022),

- **Cluster 7: values, business and society**

The seventh cluster considers core values as drivers and intrinsic components of corporate purpose. For instance, Hollensbe et al. (2014) argue that, unless businesses have be seen more as ‘consumer of trust’ rather than ‘generator of trust’, values (i.e., dignity, solidarity, reciprocity) may help businesses to achieve purpose. Moreover, companies that have a strong set of core values and a fixed core purpose are more prompt to adapt in a changing world and to solve problems innovatively (Collins and Porras, 1996),

Fig. 3: Keywords co-occurrence with cited sources on Corporate Purpose



Source: VOSviewer (version 1.6.18)

Avenues for Future Research

There is still need of research to be done in order to better understand the results of the literature and the practice actions that might be observed among companies in the market to formulate and realize corporate purpose. Both increased attention on the topic along time (Figure 1) and the top quoted journal “where” it is framed (Figure 2) represents relevant results for feeding reasons in dealing with research on corporate purpose. For guidance in future

research, Table 1 presents a series of questions that can be explored by both scholars and practitioners, starting from “what” are the critical leading related topics to which it is addressed (Figure 3),

Tab. 1: Future research directions on Corporate Purpose

<i>Cluster and Potential Frameworks</i>	<i>Keywords</i>	<i>Questions</i>
Cluster 1 <i>Humanistic Management</i> <i>Business ethics</i> <i>CSR</i>	<i>common good, corporate social responsibility, mission</i>	<i>What is degree of “fuzziness” among common good and corporate purpose? Does formalizing a clear and cascaded purpose make corporate social responsibility actions more effective?</i>
Cluster 2 <i>Strategy</i> <i>Sustainability</i> <i>Communication</i>	<i>climate change, capitalism, sustainability, corporate strategy</i>	<i>Does the presence of a corporate purpose that reflects a company’s commitment to sustainability (often branded as greenwashing) enhance trust with stakeholders? What are the consequences of purpose on corporate strategy?</i>
Cluster 3 <i>Governance</i> <i>Institutional isomorphism</i> <i>Public goods</i>	<i>benefit corporation, corporate governance, theory of the firm</i>	<i>What is the role of corporate governance, related to benefit corporations, in achieving social impacts? How to create the organizational structures and governance routines that can contribute to the social impact?</i>
Cluster 4 <i>Goal-setting</i> <i>Agency</i>	<i>creating shared value, hybrid organizations, corporate objectives</i>	<i>How does defining a clear corporate purpose influence short- and long-term goals in an organization? How to help managers in moving beyond traditional corporate social responsibility approach to a shared value one?</i>
Cluster 5 <i>Leadership</i> <i>Motivation</i>	<i>transformation, leadership, ethics</i>	<i>How purposeful leadership occurs in practice, promoting ethical practice inside and outside the organization? How do ethical motivation of leaders guide the formalization of purpose in firms?</i>
Cluster 6 <i>Information asymmetry</i> <i>Equity and Justice</i>	<i>social enterprise, culture, human rights, business</i>	<i>What are internal and external factors that affect the formation and the evolution of a common culture socially oriented in social enterprises? Can the presence of purpose in the organization accelerate the processes of work democratization?</i>
Cluster 7 <i>Values, norms and ethics</i> <i>Expectation</i> <i>Trust</i>	<i>values, business and society</i>	<i>How do individual values affect the formation of corporate purpose? What are the societal expectation and attitudes on corporate purpose?</i>

Research limitations. This study has some limitations, which open horizons for future research. First, it relies primarily on data retrieved from Scopus and Web of Science, so the limitations of databases may also apply to the study per se. In addition, bibliometric analysis involves technical decisions such as the selection of language and fields of inquiry, which may exclude relevant contributions to the analysis. Furthermore, the bibliometric approach provides an analysis that is eminently descriptive and may lack a content analysis to increase explanatory power and provide deeper analysis of results and implications.

Managerial implications. The conceptualization of corporate purpose is practitioners’ oriented. The “Statement on the Purpose of a Corporation” signed by US Business Roundtable (2019) and the report “Principles for Purposeful Business” published by The British Academy are examples of the current managerial debate on the future of business. Consequently, this research may help leaders to direct the definition and the action related to their companies’ purpose, taking into consideration the corporate features, strategy and values to which it is addressed.

Originality of the paper. The research contributes to management and business ethics literatures on the concept of corporate purpose. The keyword analysis is an effective method to identify hot issues and research frontiers on the topic and specially to map out the complexity of issues and declinations involving corporate purpose. The overall bibliometric analysis allows to provide insights into the state of the art of the concept of corporate purpose in the management field, by identifying when, where it is framed and what are key topics to which it refers.

Keywords: corporate purpose; bibliometric analysis; VOS viewer; business ethics; business in society

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Allocazione di risorse, governance e risultati della cooperazione: coopetition versus cooperazione nell'industria del vino

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Inquadramento della ricerca. Tradizionalmente, gli studi di strategia hanno identificato la competizione come la principale forma di interazione interimpresa che consente di ottenere, sia benefici strutturali a livello di settore o infra-settoriale (Porter, 1980), sia benefici in termini di maggiori risorse e competenze necessarie per perseguire vantaggi competitivi differenziali rispetto alle altre imprese rivali (Barney, 1991). Conseguentemente, gli studi di strategia hanno considerato la cooperazione interimpresa, sia implicitamente o esplicitamente, come una forma di collusione che indebolisce i benefici della concorrenza e, quindi, riduce il benessere economico (Hoffman et al., 2018). Anche se le imprese hanno riconosciuto un'utilità nella cooperazione interimpresa tesa al perseguimento di un obiettivo specifico, gli studi di strategia hanno principalmente considerato la competizione e la cooperazione quali modalità di interazione separate e indipendenti, e dunque, difficilmente conciliabili (Hoffmann et al., 2018: 3034).

Il crescente numero di imprese coinvolte in relazioni interimpresa - anche tra imprese rivali (Hamel, 1991; Brandenburger e Nalebuff, 2021) - ha portato all'attenzione degli studiosi il fenomeno della simultanea cooperazione e competizione, noto anche come coopetition (Hoffman et al., 2018). Seguendo questa prospettiva, le imprese dovrebbero imparare, non solo ad operare in un ambiente competitivo e ostile, ma anche a essere in grado di cooperare con altre imprese, incluso coloro che, per diversi aspetti, potrebbero essere concorrenti (Lorange e Roos, 1991: 25).

Le risorse e le capacità dei partner sono un "must-have" (Wagner et al., 2011: 30) per le quali le imprese considerano la scelta di avviare una strategia cooperativa. Segue come i partner rivali valutano la scelta di cooperare come un'opportunità per acquisire competenze e sviluppare conoscenze (Hoffmann et al., 2018), dove le tensioni legate all'opportunità dei rivali e all'interesse a ottenere benefici privati possono condizionare l'esito della stessa relazione interimpresa (cfr. Kale et al., 2000; Khanna et al., 1998).

Obiettivi. Al di là dei benefici derivanti dalla cooperazione tra imprese, anche in competizione tra loro, gli studi management sul tema della coopetition suggeriscono che la cooperazione con un rivale è molto più frequente della cooperazione con un partner o con impresa con cui non si sperimentano situazioni di rivalità (Minà e Dagnino, 2022). Tuttavia, nonostante la letteratura sia crescente sul tema, non sono ancora chiare le motivazioni che spingono le imprese a cooperare con i rivali (scelta cooperativa) oppure a cooperare con imprese non rivali (scelta puramente cooperativa).

Pertanto, si vuole indagare in che modo e a quali condizioni ciascuna di queste scelte di governance e di allocazione di risorse ad esse collegate, abbiano un effetto sui risultati della cooperazione.

Sulla base di tre casi di studio storici e longitudinali nel settore del vino, lo studio intende proporre un modello di confronto tra le modalità di governance cooperativa esclusiva e non esclusiva e modello di governance cooperativa in regioni vinicole rinomate e non rinomate in Italia.

Metodologia. La natura esplorativa della ricerca richiede un'analisi qualitativa tramite lo studio un caso studio (Yin, 2009). Conformemente a quanto già presente in letteratura sulle alleanze cooperative, (Gnyawali et al., 2008), questo studio muove dal metodo di ricerca à la Eisenhardt (1989, 2021) e sviluppa un caso polare delle cooperative nel settore vitivinicolo teso a comprendere le scelte di governance e di allocazione delle risorse in coopetition.

Tre motivazioni principali supportano la scelta metodologica. In primo luogo, il metodo dei casi consente di approfondire studi e ricerche che si trovano nelle fasi iniziali di indagine (Gibbert et al., 2008). In secondo luogo, il metodo dei casi studio è indicato per lo sviluppo di analisi longitudinali (Eisenhardt, 1989, 2021), in questo modo è possibile cogliere, sia lo sviluppo del fenomeno, sia i nessi causali, ad oggi non esplorati, che intercorrono fra essi. Questo aspetto è di particolare importanza per questa ricerca che esplora in che modo le scelte di cooperazione tra imprese rivali si sviluppano rispetto alla pura cooperazione. In terzo luogo, l'analisi qualitativa dei casi studio è preferibile quando le indagini sono collegate alle circostanze che si sviluppano simultaneamente un contesto di vita reale (Leonard-Barton, 1990) che rende difficile, sia definire chiaramente il legame tra il fenomeno e il contesto nel

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quale esso si manifesta e si sviluppa, sia isolare gli elementi del contesto che possono influenzare l'evoluzione del fenomeno oggetto di studio.

Nello specifico, lo studio muove da due casi polari: una cooperativa esclusiva e una cooperativa non esclusiva al fine di comprendere in che modo i soci decidono di conferire uva alla cooperativa e come le due modalità di governance incentivano i suoi soci a puntare al miglioramento continuo della qualità delle proprie risorse (specificatamente uva). La raccolta dei dati dei due casi studio è avvenuta tramite interviste ai soci delle cooperative e ai consigli di amministrazione delle cooperative. Questa prima ondata di interviste ha sottolineato il rilievo del territorio e il ruolo che la reputation della regione vinicola gioca nella percezione dei consumatori. Segue come la scelta delle forme di governance richiede un secondo livello di analisi dei casi di studio condotta attraverso una seconda tornata di interviste. Poiché la prima ondata consisteva nel confronto di una cooperativa esclusiva con una cooperativa non esclusiva, entrambe provenienti da regioni rinomate, la seconda ondata consiste nel confronto della cooperativa non esclusiva della rinomata regione vinicola (con ulteriori interviste) con un'altra cooperativa non esclusiva di una regione vinicola meno conosciuta.

Risultati. Studi sulla cooperazione adottano una visione relativamente favorevole dei benefici sottesi alla strategia cooperativa secondo cui la condivisione delle risorse ad opera delle imprese che collaborano genera vantaggi reciproci per tutti i partner coinvolti nella relazione (Lechner et al., 2019). Lo studio in parola intende sfidare questa posizione predominante in letteratura suggerendo che il bias di avversione alla perdita che può emergere nelle collaborazioni orientate all'opportunità può indurre i partner a comportamenti cooperativi meno vantaggiosi (Kahneman e Tversky, 1979; Kahneman e Tversky, 1992).

L'analisi dei casi oggetto di studio suggerisce che, rispetto alla pura cooperazione, la coesistenza ha un esito nettamente negativo sull'esito collaborativo. Nelle cooperative non esclusive, i soci tendono a conservare l'uva della migliore qualità per produrre il proprio vino mentre danno l'uva di qualità inferiore alla cooperativa. Sebbene questo comportamento non possa essere ricollegato a imbrogli o violazioni contrattuali in senso di costo di transazione (Williamson 1975, 1979), suggerisce che la realizzazione di benefici privati prevale sullo sviluppo di benefici comuni.

Al fine di evitare che i risultati potrebbero essere distorti poiché i casi studiati provengono da regioni considerate di alta qualità per la vinificazione e quindi i produttori di vino possono già beneficiare di vantaggi comuni che non richiedono sforzi di collaborazione, lo studio prevede il confronto tra il caso della cooperativa non esclusiva di una rinomata regione vinicola con una cooperativa non esclusiva di una meno rinomata regione vinicola. In questo modo è possibile comprendere se il contesto condiziona il comportamento dei soci delle cooperative vitivinicole. L'analisi qualitativa delle interviste condotte durante le due ondate di studio consente di evidenziare che non necessariamente la cooperazione è preferibile alla pura cooperazione e vice versa. Fattori contestuali o di opportunità/necessità sottesa alla cooperazione consentono di chiarire la scelta tra le due governance mode.

Questo studio si propone di fornire tre principali contributi teorici. In primo luogo, il lavoro intende estendere la teoria esistente sulle relazioni interimpresa introducendo la teoria dell'avversione alla perdita alla situazione della cooperazione e al modo in cui questo pregiudizio influenza l'allocazione delle risorse. In secondo luogo, il lavoro consente di approfondire se il valore esogeno di una risorsa detenuta da un'impresa condiziona il grado di cooperazione tra le imprese rivali. Di fatti, gli studi sulla cooperazione largamente ignorano il valore della risorsa e che ruolo gioca nella parte cooperativa della relazione cooperativa. In terzo luogo, la considerazione congiunta dei primi due contributi favorisce una comprensione più dettagliata delle motivazioni sottese scelta di una strategia cooperativa. In questa prospettiva, l'articolo fornisce ulteriori spunti che estendono gli studi attuali sulle teorie della cooperazione.

Limiti della ricerca. Questa ricerca si basa su tre casi di studio qualitativo nel settore vitivinicolo, dunque, l'estendibilità dei risultati appare, in prima essere limitata. In tale prospettiva, la specificità del tipo di risorse coinvolte nelle relazioni tra aziende vitivinicole potrebbe generare comportamenti e scelte strategiche diverse in ambiti ad esempio fortemente tecnologici. In secondo luogo, i rapporti di cooperazione esplorati in questo studio si focalizzano su un tipo particolare di relazione basato sulla membership, in questo caso le cooperative. Benché potenzialmente le dinamiche membership-based si estendono a diversi settori (si pensi al cibo piuttosto che al commercio più in generale), è possibile che le scelte di governance identificate in questo studio non siano esplorabili in settori lontani da logiche simili a quelle delle cooperative.

Implicazioni teoriche e pratiche. Nonostante queste limitazioni, le implicazioni sottese allo studio sono estendibili oltre i confini del contesto analizzato. L'inquadramento teorico che intende esplorare le decisioni di allocazione delle risorse sotto diverse modalità di governance interimpresa apre ad implicazioni sulle scelte di governance e di modalità gestionali sull'allocazione delle risorse. In particolare, il lavoro esamina come i membri prendono decisioni sull'allocazione di risorse simili che differiscono per il loro livello di qualità e complementarità con le altre risorse da combinare. Le opzioni sono: uso proprietario o uso collaborativo e queste opzioni sono condizionate dalla modalità di governance. Questa impostazione è tipica di altri fenomeni rilevanti sia a livello pubblico che privato, istituzionale. Si considerino, a titolo di esempio, i differenti regimi di proprietà intellettuale che disciplinano le invenzioni universitarie. Nei paesi nei quali è ammesso il 'professor privilege' la proprietà intellettuale è riconosciuta, in primo luogo, al professore e successivamente all'istituzione. In questo contesto, i ricercatori possono decidere - ogni volta che viene realizzata un'invenzione - se sfruttare in proprio lo specifico brevetto o concederlo al patent pool di ateneo (Martinez e Sterzi, 2021). I meccanismi di governance appropriati sono quindi rilevanti e ci sono prove aneddotiche di università europee che hanno sciolto i loro pool di brevetti sotto il regime di privilegio dei professori. A livello micro, la decisione di allocazione può essere applicata anche alle alleanze di R&S tra concorrenti. Sebbene le questioni di governance siano state affrontate in letteratura (Walter et al., 2015), una questione che non è stata studiata in modo specifico

riguarda la modalità di allocazione delle risorse (star scientists vs. ricercatori junior). Pertanto, la ricerca è solo un primo passo di una questione rilevante per le relazioni cooperative in cui le decisioni di allocazione delle risorse vengono prese in forme differenti di governance.

Originalità del lavoro. La letteratura esistente muove dall'idea che, attraverso la coopetition, imprese concorrenti condividono risorse di valore, capaci di generare sia benefici comuni sia benefici privati (Gnyawali e Madhavan 2001). Le risorse sono di valore se consentono alle imprese di cogliere opportunità o di difendersi dalle minacce provenienti dal contesto competitivo (Barney, 1991). La condivisione di risorse di valore può avere fundamentalmente due scopi per generare benefici comuni: sfruttare opportunità comuni o difendersi da minacce comuni. Ad esempio, da un lato, nel settore vitivinicolo, i produttori di vino australiani hanno sviluppato delle alleanze per fronteggiare insieme le sfide sottese alle minacce dovute al cambiamento climatico (Crick, 2018). Dall'altro lato, lo sviluppo di etichette regionali come forma di cooperazione impatta sulla vendita di vino dei singoli produttori e crea benefici per quest'ultimi che possono, dunque, sfruttare un'opportunità condivisa con altri produttori (Bruwer e Johnson, 2010).

Tuttavia, la letteratura esistente sulla coopetition non affronta la distinzione tra i questi motivi degli sforzi collaborativi e come potrebbero condizionare le decisioni di allocazione delle risorse delle imprese coinvolte. Secondo la teoria del bias di avversione alla perdita (Kahneman e Tversky, 1979; Kahneman e Tversky, 1992), gli individui sono molto più motivati all'azione per paura di subire perdite e per i benefici potenziali che ne possono derivare. Se si applica questa teoria agli studi sulla cooperazione, si potrebbe desumere che, i partner di una collaborazione interimpresa siano più motivati a contribuire a collaborazioni che hanno come oggetto condiviso quello di affrontare minacce comuni piuttosto che l'obiettivo di sfruttare opportunità comuni. Muovendo da queste premesse, non risulta chiaro in che modo le imprese prendano decisioni in merito all'allocazione delle risorse laddove la motivazione principale sottesa alla cooperazione sia quella di cogliere un'opportunità comune. Nel contesto oggetto di indagine, i produttori di vino devono decidere come allocare risorse simili e complementari (uva) per scopi propri (produrre il proprio vino) o comuni (cedendo uva alla cooperativa). La domanda non considera solo la quantità, ma anche la qualità delle risorse da destinare.

Questo lavoro sostiene che queste decisioni poste in essere delle imprese partner siano condizionate, sia dal contesto, sia dai meccanismi di governance. Il contesto può essere caratterizzato dalla notorietà della regione dove risiedono i viticoltori e la cooperativa. I meccanismi di governance sono le regole che definiscono come i soci devono allocare le risorse alla cooperativa. La modalità di governance di più alto livello della cooperativa porta a due forme di governance: cooperative esclusive e cooperative non esclusive. Nella cooperativa non esclusiva, i produttori di vino possono destinare parte della loro produzione di uva alla cooperativa e parte alla produzione del proprio vino. In questo caso, la cooperativa stabiliva solitamente importi minimi per i soci. Questa modalità di governance porta a una situazione di coopetizione. In regime di cooperazione esclusiva, i soci sono tenuti a conferire alla cooperativa tutte le loro uve (ovvero eliminazione della concorrenza e pura collaborazione). Segue la domanda di ricerca: in che modo le modalità di governance e le decisioni di allocazione delle risorse condizionano la realizzazione di benefici condivisi?

Parole chiave: cooperazione; coopetizione, settore vitivinicolo, cooperative, governance

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How Exogenous Shocks Affect the Evolution of Public-Private Partnerships for R&I: An Analysis of EU R&I Collaborative Healthcare Projects

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Framing of the research. *Management literature on innovation processes widely acknowledges the critical role of collaboration among a variety of heterogeneous actors to improve the performance of innovative processes (Ahuja, 2020; Balland, Boschma, and Ravet, 2019; Dagnino et al., 2015; Freeman, 1991; Pelacho et al., 2020; Powell et al., 2005; Schilling and Phelps, 2007). At the same time, it is acknowledged that innovation processes are often triggered by exogenous shocks that create new opportunities for business and society (Mention, Ferreira, and Torkkeli, 2020; Ucaktürk, Bekmezci, and Ucaktürk, 2011). Exogeneous shocks, such as financial crises, natural disasters, accidents, plague outbreaks, and so on, push firms and institutions to generate innovative solutions, reflect on process improvement, as well as implement learning processes in order to cope with the adverse consequences they generate) and reduce their economic and social impact. In addition, coping with the multi-faceted interdependent challenges engendered by shocks is usually extremely resource and effort demanding. This situation increases the need to collaborate among private and public organizations and institutions to put together the required resources and capabilities, accelerate the discovery of ad hoc innovative solutions, share the risk, and minimize costs.*

The formation of public-private partnerships (PPPs) for R&I is seen as an effective and efficient option to foster and manage cooperation between public and private organizations that aim to address the challenges originated by exogenous shocks (Burnett, 1998; Pauchant and Mitroff, 1994). These multi-member partnerships are based on the awareness that some challenges necessitate the potential of actors' heterogeneity and diversity of capabilities interaction and complex organizational structures to handle and overcome emerging issues. These forms of partnerships may include alliances, contractual and cooperative agreements, collaborative activities, and other collaboration forms for R&I activity (Hodge and Greve, 2007), as well as sustainable social and economic development (Brown, 1991). The PPPs combine the strengths of private actors (innovation potential, technical skills, and knowledge) and the power of public actors (social responsibility, local knowledge, and skills) (Roehrich, Lewis, and George, 2014). In particular, the potential of PPPs is based on their capacity to: (i) provide effective instruments to develop innovative solutions for global challenges; (ii) re-think business processes with key stakeholders, and give voice to informal actors.

The potential of PPPs is particularly relevant in the healthcare sector (De Vruueh, de Vliieger, and Crommelin. 2019; Kostyaney et al., 2016; Nikolic and Maikiskch, 2006). The healthcare sector is characterized by high social relevance and impact of the long-term provision of publicly beneficial services. The pharmaceutical part of this industry is usually marked by extraordinarily high R&D expenditures, extended timelines for new product development, increased marketing costs, and very high profits (Bierly and Coombs, 2004). In a healthcare crisis setting such as a pandemic, the PPPs may: (i) address the financial and risk aspects connected with the challenges posed by the crisis (Casady and Baxter, 2020; De Vruuej et al., 2019); (ii) support flexibility in management and efficiency in supply chains (De Vruuej et al., 2019); and (iii) maintain more effective information exchange between actors (Casady and Baxter, 2020). Katz et al. (2018) point out that the PPPs' potential is rooted in their capabilities to: a) build trust (Bierly and Coombs, 2004; Bstieler, 2006; Mention et al., 2020) and lines of communication; b) recognize unique resources and skills and include the actors that control or own these resources and skills in the partnership; c) smooth knowledge integration through established networks protocols, and information sharing infrastructure.

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Although extant literature recognizes the critical role of the PPPs as an inter-organizational structure to face crises, especially in the healthcare sector. Still, no single formula exists for successful cooperation and the division of responsibilities between partners. Further research is needed to depict a comprehensive framework regarding this phenomenon, aimed to answer the following questions, partly promoted by Hodge and Greve (2007): What can be learned from the history of these partnerships, what is new about their origins, structures, dynamics, and performance? How do exogenous shocks affect the evolution of PPPs for R&I?

Purpose of the paper. The paper seeks to answer the previous research questions by applying concepts developed in the literature that scrutinize the dynamics of complex network formation and evolution (Miller and Page, 2007, Newman, Watts, and Barabási 2013), as well as the specific role of systemic exogenous shocks in affecting these dynamics.

Several studies highlighted that internal and external shocks might engender radical transformation in social structure and inter-organizational networks (Corbo, Corrado, and Ferriani, 2016) and may determine path dependence in the underlying processes (Page, 2006). Accordingly, it is critical to distinguish between endogenous and exogenous shocks¹ in order to scrutinize the functioning of complex networks and how diverse organizations self-organize versus external factors (Sornette et al., 2004). Widmaier, Blyth, and Seabrooke (2007) state that an exogenous shock creates shifts in both the economic structures and the distribution of capabilities, and questions the “roles of agency, uncertainty, and ideas in advancing change” (Widmaier et al., 2007, p. 748). An exogenous shock may modify a complex network structure by impacting the rules of affiliation and of tie formation (Powell et al., 2005). Gulati and Gargiulo (1999) and Madhavan, Koka, and Prescott (1998), Corbo, Corrado, and Ferriani (2016) underline that external crises may foster network reproduction and open new paths for transformation. Moreover, these authors state that an external shock engenders a blended logic of tie creation and stimulates the clustering tendency of a network. Also, Sornette et al. (2004) underline that a shock may lead to a similar power-law within a system. Independently from the specific way change is considered, it is critical to understand that crises offer opportunities for change by allowing social agents to explain events and encourage innovation, particularly at the policy level (Widmaier et al., 2007). Liebowitz and Margolis (1995) underline that external shocks may force unknown parameters, shaping a path-dependent logic between actors. Thus “some initial endowment alone could never tell us very much about the eventual path of real economies over time (Liebowitz and Margolis, 1995, p. 223)”. Finally, an exogenous shock creates acceleration processes in national and international collaboration regarding the uptake of innovation, product design, and new business models (Swaites et al., 2020).

To examine the impact of external shocks on the evolution of a specific type of collaborative inter-organizational network (i.e., the PPPs for R&I), we concentrate on EU R&I collaborative healthcare projects and investigate the history dependencies within them and how an exogenous shock, such as COVID-19, fosters the evolution of the complex R&I networks. Specifically, the study’s empirical setting focuses on the R&I networks associated with the healthcare sector, which were funded by the EU’s two most recent R&I framework programs: the EU 7th Framework Program (FP7) and the EU 8th Framework Program, known as Horizon 2020 (H2020). In these framework programs, the EU acts as a public actor, favoring and spurring cooperation between heterogeneous knowledge actors (i.e., private for-profit companies such as pharmaceutical firms and SMEs, higher educational institutions, public institutions, research organizations, non-governmental organizations, and so on) aiming to boost innovations supported by various policy actions. In addition, among the collaborative health projects of H2020, we identify and analyze the COVID-19 calls, to point out the differences that characterize the formation and evolution of these specific projects.

Methodology. The data relating to the two R&I networks linked to the healthcare sector in the FP7 and H2020, as well as the partners belonging to them, is downloaded from the CORDIS - Community Research and Development Information Service - website in July 2020. This portal is an open-access repository to communicate and disseminate information on EU-funded research projects and their results. In total, data of 2087 EU-funded projects are involved in this study. The size of the partnership (network), funding period, and duration varied in terms of the calls. The FP7 group includes 1004 projects developed in the period 2008-2021 with an average duration of 47 months (min. 11 - max. 104) and 3629 actors involved. The H2020 group encompasses 1044 projects, and the covered period is 2014 - 2026, with an average duration of 36 months (min. 1 - max. 101). The group of EU R&I COVID-19 calls of the H2020 originates from the sum of: (i) the H2020 COVID-19 projects, this sub-group includes 33 projects covered by the period: 2020 - 2025, with the average duration of 25 months (min. 11 - max. 59), and involved 271 organizations; and (ii) the Innovative Medicines Initiative (IMI2) projects, this sub-group encompasses 6 projects, the covered period is 2020 - 2025 with an average duration of 32 months (min. 14 - max. 59), and 67 organizations are involved. Accordingly, we were able to analyze two types of network evolution: (a) history dependencies between the actors of the FP7 healthcare and H2020 healthcare projects; and (b) history dependencies between the actors of the H2020 healthcare projects and specific EU R&I COVID calls.

Network analysis, as a multidisciplinary research approach (Barabási et al., 2002; Newman, 2001, Tumminello et al., 2010), was chosen to scrutinize the dataset previously described due to its efficiency in the representation of social structures and the contextualization of the behavior of actors involved in the selected projects/communities. An in-depth analysis of the projects helps us to understand if, under an emergency state, organizations are more likely to create a

¹ “Exogenous peaks occur abruptly and are followed by a power-law relaxation, while endogenous sales peaks occur after a progressively accelerating power-law growth followed by an approximately symmetrical power-law relaxation which is slower than for exogenous peaks” (Sornette et al., 2004, p. 228701-1).

link based on past experiences, trust, reputation, resource specialization, or other factors that significantly impact the establishment of links between two (or more) organizations. More in detail, we first provide an overview of R&I partnerships by looking at the system as a bipartite network of institutions and projects, in which a link is set between an institution and a project if the institution participated in the project (Asratian, Denley and Haggkvist, 1998; Tumminello et al., 2011). This part of the study concentrates on evaluating institutional overlap between single projects, intending to study cooperation patterns and the lock-in phenomenon. After listing all single partners in the mentioned EU-funded projects, we construct a table with institutional overlaps that enables us to scrutinize the persistence of partnership composition across programs (i.e., between FP7 healthcare projects and H2020 healthcare projects, and between H2020 healthcare projects and the specific COVID-19 healthcare projects in H2020). We concentrate the analysis on the number of persistent project-partners across two programs. Accordingly, our interest focused on projects with a minimum of 2 actors. Indeed, projects with only one actor do not provide information about cooperation evolution. Instead, they indicate an actor's participation in multiple EU framework programs. To deepen our understanding of the process of partnership formation, we perform community detection and evaluate the modularity (Newman, 2001) associated with the determined partitions of both R&I networks. The modularity of network structure weighs the internal strength of the division of a network into communities with respect to inter-community connectivity.

In addition, following Tumminello et al. (2011), we scrutinize three specific COVID-19 projects to better understand the network's evolution by means of the identification of the attributes shared by the actors belonging to the same community.

Results. Our preliminary results indicate that the EU R&I healthcare projects show two typical patterns of aggregation under an exogenous shock: (i) strong lock-in effects; and (ii) highly innovative partnerships. The conducted analysis demonstrates that even under exogenous changes, some partnerships in the EU R&I healthcare networks, even large ones, persist over time. Comparing the partnerships of the 997 FP7 projects with at least two partners and the ones of the 684 H2020 projects with at least two partners, we observe that 22,535 partnership intersections include at least two institutions. On the other hand, 596 partnership intersections with at least two partners resulted from the comparison of the 684 H2020 projects with at least two partners and the 39 specific COVID-19 healthcare projects involving at least two partners. Accordingly, strong lock-in effects across programs exist, particularly in the verge between FP7 and H2020. This favors the network's stability and conservative behavior of actors in healthcare R&I projects. In our understanding, such behavior is firmly linked to characteristics such as trust, specialization, infrastructure endowment, professional links, and other resources owned by the actors, that induce the sector's traditional actors to group together to form (reliable) clusters of excellence. Additionally, more extreme cases are visible in different frames: network openness to new cooperation in the specific COVID-19 calls and strong lock-in in the H2020 program, representing a systems' path dependence. However, milder lock-in effects are also apparent among COVID-19 initiatives. Such path dependence is based, partly, on IMI clusters. This can be evaluated positively, as the IMI initiative can be positioned as a collaboration incentive towards more robust link creation between healthcare companies, previously competitors and now partners, and direct stakeholders, such as patient groups.

At the same time, the list of actors participating in the EU framework programs is changing remarkably. As expected, the strong mobilization of the classical EU healthcare actors has been observed. However, partnerships among them tended to change with respect to previous programs as forced by urgency. More generally, it appears that the COVID-19 response demanded such expertise, facilities, and means that the paradigms of mutual trust and adaptation, as incentives to re-propose already tested collaborations, deteriorated in favor of other paradigms' fitness, reputation, and selection (of the fittest). The mentioned classical actors represented by the solid geographical clusters within the EU do not leave leading positions in the sector. During COVID-19, they are more open to closer and faster cooperation than ever. However, they do not appear in the same collaborations as before. Moreover, the performed analysis demonstrates a worldwide openness to finding common innovative solutions for the outbreak, mobilizing resources for welfare purposes, and scale-up medical capacity for treatment and testing. Indeed, the United States of America, China, and Canada demonstrated significant involvement in the COVID-19 calls. Their participation in the EU calls indicates the tendency to collaboratively respond to an exogenous shock, reducing competition and increasing the trust among the partners through lock-in at the local and global levels.

The analysis of the three most significant COVID-19 initiatives demonstrates a strong dependence on the overall R&I network. The newly created COVID-19 partnerships can be understood as a knowledge selection from the previous collaboration of the H2020 communities. Unlike what happened in previous programs, the leading positions are taken by private (for-profit) companies. Almost in all cases, the participation of these companies in the COVID-19 R&I actions is based on their own funds, without EU contribution. This result may be due to the perception that such an unprecedented global mobilization of governments and institutions may lower the risk of investing in basic research. Having specific knowledge and infrastructure that permits them to take part in these actions, the private companies accept high R&D expenditures, knowing that a winning result can guarantee their financial sustainability for decades (Bierly and Joseph, 2004).

Finally, it was noticed that under urgency conditions policymakers demonstrate flexibility and adaptability of the funding rules to solutions for a global pandemic response. The COVID-19 projects are characterized by a shorter evaluation period, an increased mobilization of both private and public funds, a proactive start of the actions, and a shorter life span of the proposals.

Research limitations. *The study has several limitations. The first limitation is linked to the construction of the dataset. The data on non-funded projects is not presented in the dataset, as this information is not accessible to third parties due to the EU data protection law. Such information would undoubtedly allow a better representation of the healthcare R&I network formation and its evolution; as well as it would clarify the role of other “worldwide big innovators”, like the Russian Federation, which does not appear in the COVID-19 dataset. The second limitation is linked to the research method applied. In this work, no qualitative approach was used. We believe that panel interviews with the coordinators of the proposals (both funded and not funded) would enrich scholars’ understanding of the project formation logic and collect tacit knowledge regarding R&I networks’ evolution. This would support the systemization of research knowledge on the role of informal mechanisms (such as trust) followed by network actors. To conclude, we should recognize that the scope of the present research does not overcome the specific EU-funded healthcare R&I field considered. Accordingly, future studies are needed to validate the current results when considering different frameworks.*

Managerial implications. *In the past, the healthcare sector was described by long innovation processes, testing, and standardization procedures (Bierly and Coombs, 2004). Today, we can state that the pandemic has changed such dynamics. New partnerships and business models are under development, potentially bringing forth specific knowledge on innovation development, supporting the fight against the pandemic, and reformulating the working framework in the healthcare sector (Swaithe et al., 2020). As an R&I policy tool, the PPPs should demonstrate capacities and potential for innovation to overcome socioeconomic crises that appeared due to various external conditions. These external shocks call for a mobilization of knowledge, resources, and skills belonging to heterogeneous actors to develop the products and services that are necessary to tackle the challenges that originated from the shocks.*

From the managerial point of view, understanding the PPP potential and the different logic underlying partnership formation under the pressure of an exogenous shock may support firms, especially SMEs, in selecting and managing the “right” collaboration opportunity. This knowledge supports firms in the creation of new inter-organizational paths to strategic partners and key stakeholders that enable the development of new product and service offerings. At the same time, firms became aware of the need to balance the innovation potential of collaboration activities and risk-sharing with “old” or totally “new” partners.

This work has implications also for policymakers. The EU R&I framework programs are powerful instruments to support new policy directions (for example, Sustainable Development Goals), especially in situations of crises. The study underlines the need for simplified and fast procedures to guarantee the creation of collaborations to achieve specific goals. It also shows that balancing “classical” actors, “middle-class innovators,” and newcomers is essential to develop sustainable innovation. This balance can be stimulated by applying updates to the R&I projects’ selection criteria, for example, based on the blind review of the proposals.

Originality of the paper. *The path dependence literature in social studies is based on mathematical literature of nonlinear dynamic models, also known as chaos or complexity models, for which a key finding is “sensitive dependence on initial conditions ...and with an outcome a property of lock-in by historical events” (Liebowitz and Margolis, 1995, p. 206). Some specific research fields point out that, for example, “path dependence arises specifically because of powerful network effects and high switching costs” (Aghion et al., 2019). According to them, the economic theory proposes that a pathway will be selected depending on the innovation process’s initial conditions. Vergne and Durand (2010) underline that path dependence provides information but does not predict causes of continuous persistence in organizational capabilities. Furthermore, recent research on network formation in R&D found that endogenous factors predominate over exogenous mechanisms in the formation of networks (Tomasello et al., 2014).*

To the best of our knowledge, management research has not yet provided an in-depth empirical analysis of the contribution of inter-organizational history dependencies under exogenous shock. Our study provides such an enrichment. Additionally, the words of Foss (2020) support our empirical and theoretical contribution. The author states that the “pandemic presents not only a unique test-bed for examining existing principles of organizational design but might also stimulate new theory related to the temporal dimension of organization design and the influence of path-dependence” (Foss, 2020, p. 270).

Keywords: *public-private partnerships; R&I collaborative projects; exogenous shocks; network dynamics; path dependency; healthcare sector*

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L'investimento in *corporate heritage* delle imprese familiari

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Obiettivi. *Le imprese familiari si distinguono per la presenza della famiglia nella proprietà e nel management. L'ingresso di tale presenza resta l'obiettivo degli studiosi di family business che, attraverso l'uso di approccio teorici di natura neoclassica come l'agency theory e le successive estensioni come upper echelons e stewardship theory, e quelli riferibili agli studi di strategic management come la teoria delle risorse, hanno come obiettivi corroborare la relazione esistente tra proprietà e comportamenti strategici. L'obiettivo consiste nell'individuazione degli antecedenti ascrivibili alla famiglia in grado di spiegare i risultati delle imprese familiari. In questo percorso di studi, Gómez-Mejía, Haynes, Nuñez-Nickel, Jacobson, e Moyano-Fuentes (2007) hanno contribuito definendo il concetto di "utilità non economica" che la famiglia riceve dal possesso e gestione dell'attività imprenditoriale. Tale teorizzazione è nota come Socioemotional Wealth (SEW). L'idea fondativa è che le famiglie hanno l'obiettivo di preservare o incrementare il loro ritorno socio emotivo dalla gestione dell'impresa, tralasciando gli obiettivi di massimizzare i loro ritorni finanziari (Gómez-Mejía, Cruz, Berrone, and DeCastro, 2011). In aggiunta a questa proposta, Miller and Le Breton-Miller (2014) avanzano l'ipotesi che occorre distinguere fra famiglie con "restricted" SEW e famiglie con "extended" SEW. Nel caso di famiglie con una "restricted" SEW, gli stakeholder principali sono esclusivamente i componenti della famiglia e l'impresa presenta obiettivi di breve termine. Famiglie con una "restricted" SEW hanno, ad esempio, come priorità di garantire un lavoro permanente a tutti component della famiglia e di avere accesso diretto alle risorse dell'impresa. Al contrario, le famiglie con un "estende" SEW sono intrinsecamente motivate dal desiderio di costruire e sviluppare il successo delle generazioni successive e hanno principalmente un orientamento di lungo termine. A nostra conoscenza, non vi sono studi che abbiano cercato di collegare la visione della SEW agli investimenti delle imprese familiari in corporate heritage. Pertanto, ci si chiede: qual è il legame tra il coinvolgimento delle famiglie nella governance dell'impresa e gli investimenti delle imprese familiari in corporate heritage?*

In questo lavoro, adottiamo la "extended" SEW. Inoltre, consideriamo che, nel contesto delle imprese familiari, un concetto rilevante sta emergendo ultimamente come asset strategico: quello di corporate heritage. La corporate heritage si riferisce essenzialmente ai "tratti e agli aspetti di un'organizzazione che collegano il suo passato, il suo presente e il suo futuro in modo significativo e rilevante" (Burghausen e Balmer, 2014). Consideriamo questi tratti della corporate heritage quali asset strategici delle imprese familiari che, a seconda del diverso coinvolgimento della famiglia nella proprietà, nella governance e nella gestione dell'impresa, presentano condizioni favorevoli per generare e diffondere un "brand di famiglia". Il brand di famiglia può a sua volta contribuire a sviluppare capitale sociale delle imprese (Dyer, 2006). In questo studio si sviluppa la "extended" SEW in quanto crediamo che l'importanza degli obiettivi non economici o delle motivazioni incentrate sulle necessità della famiglia (ad esempio, Beckhard e Dyer, 1983; Newbert e Craig, 2017) siano direttamente riconducibili alla presenza di un amministratore delegato familiare o non familiare e alla composizione dei consigli di amministrazione delle imprese familiari (D'Allura, 2019).

Il contributo di questo lavoro è triplice. In primo luogo, esso è una delle prime indagini con un focus specifico che fa progredire la letteratura sulla corporate heritage, mostrando i forti legami con il coinvolgimento della famiglia all'interno delle aziende familiari. In particolare, si evidenzia che le imprese utilizzano strategicamente il passato (Wadhvani e Bucheli, 2014) e la loro storia (Argyres et al., 2020) o la loro corporate heritage per poter preservare la loro brand identity e rafforzare la loro legittimità nei confronti di clienti e partner. Tale approfondimento sulla corporate heritage diviene particolarmente importante per le imprese familiari che hanno la necessità di perpetuare i propri valori da una generazione all'altra, mantenendo al contempo flessibilità per essere in grado di adattarsi nel tempo e di essere adattabili sul mercato (Sasaki et al., 2020).

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In secondo luogo, questo studio fornisce una misura della corporate heritage utilizzando un indice composito, considerando molteplici variabili che ne racchiudono le componenti chiave (cfr. Burghausen e Balmer, 2014); ovvero, l'indice di "corporate heritage". Questo indice funge da variabile dipendente nella parte quantitativa della ricerca.

Infine, lo studio adotta un approccio metodologico quali-quantitativo originale nella ricerca sulle imprese familiari ("mixed method"). L'utilizzo di un approccio misto o ibrido sembra vantaggioso in tale contesto poiché l'uso di metodi quantitativi e qualitativi integrati può consentire una comprensione più raffinata dei problemi di ricerca e dei fenomeni complessi (Creswell e Plano Clark, 2011), permettendo di combinare metodi di processo e metodi statici in un unico studio. Questa condizione è confermata dagli studi sulla corporate heritage nelle imprese familiari. Nello specifico, l'indagine è stata condotta sul settore della moda in Italia.

Metodologia. Per convalidare il nostro quadro di riferimento, abbiamo svolto sia analisi quantitative che qualitative sui dati delle aziende appartenenti al settore della moda. Abbiamo scelto di utilizzare un approccio di ricerca con metodi misti. La ricerca con "mixed method" è "l'uso combinato di metodi quantitativi e qualitativi all'interno di un singolo studio" (Molina-Azorin, 2016). Questo tipo di ricerca è cresciuto rapidamente nell'ultimo decennio sia nelle ricerche di strategic management (Molina-Azorin, 2011; 2016) sia di family business (Micelotta et al., 2020). Come riportano Evert et al. (2016) nella loro review di 465 articoli empirici su temi legati alle imprese familiari pubblicati tra il 1988 e il 2014, il 7,75% del campione totale, ovvero 36 articoli, sono stati classificati come contributi che hanno adottato "mixed methods".

Quattro ragioni fondamentali hanno spinto a scegliere questo tipo di strategia di ricerca: a) l'uso sapiente di un approccio combinato di tecniche quantitative e qualitative può consentire una comprensione più raffinata dei problemi di ricerca e fenomeni complessi piuttosto che l'uso di un approccio puramente quantitativo o qualitativo (Creswell e Plano Clark, 2011). Questa condizione è confermata nel caso del presente lavoro che studia la corporate heritage nelle imprese familiari. Infatti, questo fenomeno complesso (la corporate heritage) ha ricevuto attenzione soltanto di superficie nell'ambito della letteratura sulle imprese familiari; b) la facilitazione dell'integrazione delle caratteristiche statiche e di processo. Se la ricerca quantitativa esamina principalmente le caratteristiche statiche e le regolarità di un fenomeno, la ricerca qualitativa si concentra maggiormente sugli aspetti di processo (Bryman e Bell, 2007).

Questa condizione è corroborata altresì nel contesto di questo studio poiché, utilizzando una strategia di ricerca ibrida, siamo in grado di combinare caratteristiche statiche e di processo nello studio della relazione tra patrimonio aziendale e imprese familiari, abbinando i risultati empirici di un'ampia banca dati con lo studio diretto e approfondito di due casi dell'industria della moda. Infine, c) i due metodi possono essere combinati in modo produttivo nei casi in cui l'obiettivo è di migliorare la validità di nuove misure attraverso la triangolazione e/o di generare la comprensione dei meccanismi alla base dei risultati quantitativi in un territorio almeno parzialmente nuovo (Edmondson e McManus, 2007). In questo caso, infatti, utilizziamo una nuova misura di corporate heritage applicata al contesto delle imprese familiari (il Corporate Heritage Index, riportato di seguito).

Infine, il team di ricerca che ha progettato e realizzato il presente lavoro è composto da un numero equilibrato di studiosi che hanno sviluppato nel tempo una varietà di capacità di ricerca, ottenendo una formazione metodologica approfondita nella ricerca qualitativa, quantitativa e/o con metodi misti. Questa molteplicità dei background ricerca si rivela particolarmente utile e proficua allorché si tratta di condurre un'indagine con metodi misti. Inoltre, abbiamo osservato che i risultati della letteratura mostrano che gli articoli che adottano "mixed methods" tendono a ricevere in media più citazioni rispetto alle ricerche monometriche (Molina-Azorin, 2012). In effetti, la media delle citazioni ricevute per ogni anno e la somma cumulativa delle citazioni sono entrambe più alte per gli articoli che riportano studi che utilizzano metodi misti piuttosto che per gli studi un unico metodo (Molina-Azorin, 2016).

In questo studio, abbiamo deciso di iniziare presentando e analizzando i dati quantitativi (vedi Tab. 1), per poi passare a quelli qualitativi. Il nostro intento è innanzitutto di testare le variabili con un campione ampio e successivamente di approfondirle con l'indagine di due casi studio nella fase qualitativa (Molina-Azorin, 2016). Inoltre, seguendo le indicazioni di Morse (1991), abbiamo scelto di non selezionare un metodo dominante, ma di assegnare la stessa priorità a entrambi i due metodi di indagine, quantitativo e qualitativo. Infine, nello svolgimento della ricerca abbiamo adottato un disegno esplicativo che si colloca nel quadro di Creswell e Plano Clark (2011) e Molina-Azorin (2016). Si tratta di un disegno di ricerca che distingue due fasi. La prima consiste nella raccolta di dati quantitativi e poi nella raccolta di dati qualitativi per sostenere e spiegare i risultati quantitativi ottenuti. Abbiamo quindi iniziato con la raccolta e l'analisi dei dati quantitativi. È seguita la fase qualitativa, progettata esplicitamente per analizzare più approfonditamente i risultati della fase quantitativa. "La logica di questo approccio è che i dati e i risultati quantitativi forniscono un quadro generale del problema della ricerca, ma è necessaria un'analisi più approfondita attraverso la raccolta di dati qualitativi per perfezionare, estendere o spiegare il quadro generale" (Molina-Azorin, 2016: p.343). Pertanto, la fase qualitativa risulta particolarmente utile per convalidare il processo di selezione delle variabili utilizzate nella fase quantitativa.

Tab. 1: La presenza della famiglia e l'impatto sugli investimenti in Corporate Heritage

VARIABILE DIPENDENTE: Corporate Heritage	(1)	(2)	(3)	(4)	(5)
Età dell'impresa	-0.0237*** (0.0003)	-0.0239*** (0.0003)	-0.0249*** (0.0001)	-0.0251*** (0.0001)	-0.0258*** (0.0001)
Fatturato	0.0004 (0.5058)	0.0004 (0.5167)	0.0004 (0.5282)	0.0002 (0.7908)	0.0001 (0.9108)
Leverage	-0.0000 (0.7839)	-0.0000 (0.7684)	-0.0000 (0.7122)	-0.0000 (0.8152)	-0.0000 (0.7333)
ROA	-0.0001*** (0.0090)	-0.0001*** (0.0096)	-0.0001** (0.0110)	-0.0001** (0.0130)	-0.0001** (0.0138)
Generazione aziendale	-0.0021 (0.2999)	-0.0021 (0.2989)	-0.0025 (0.2195)	-0.0035* (0.0872)	-0.0037* (0.0742)
Indice di liquidità	0.0008 (0.8847)	0.0007 (0.9016)	-0.0000 (0.9955)	-0.0017 (0.7573)	-0.0027 (0.6306)
Età del CEO	-0.0001** (0.0385)	-0.0001** (0.0392)	-0.0002** (0.0224)	-0.0002*** (0.0064)	-0.0002*** (0.0055)
Leadership familiare (LF)	0.0036*** (0.0022)	0.0036*** (0.0025)	0.0162*** (0.0076)	0.0160*** (0.0084)	0.0196*** (0.0019)
Quota di controllo della famiglia		-0.0011 (0.7165)	0.0108* (0.0912)	0.0096 (0.1316)	0.0084 (0.1875)
LF * Quota di controllo della famiglia			-0.0137** (0.0342)	-0.0116* (0.0728)	-0.0099 (0.1302)
% consiglieri familiari				-0.0090*** (0.0009)	-0.0023 (0.5897)
FL * % consiglieri familiari					-0.0096** (0.0460)
Costante	0.2245*** (0.0000)	0.2225*** (0.0000)	0.2171*** (0.0000)	0.2305*** (0.0000)	0.2327*** (0.0000)
Osservazioni	1,364	1,364	1,364	1,362	1,362
R-quadro	0.1891	0.1912	0.1941	0.2017	0.2043
Numero di Imprese	104	104	104	104	104
Effetti fissi per impresa	Yes	Yes	Yes	Yes	Yes
Effetti fissi per anno	Yes	Yes	Yes	Yes	Yes

Note: I valori in parentesi sono p values.

Risultati. Nella tabella 2 si riportano i risultati principali dell'analisi qualitativa dei casi Ferragamo e Gucci che sono collegati con i risultati della parte quantitativa. L'analisi comparata dei due casi permette di confermare l'importanza delle sei dimensioni usate per la costruzione dell'indice di Corporate Heritage (Tabella 3)

Tab. 2: L'evoluzione storica e la corporate heritage: una comparazione tra Ferragamo e Gucci

Ferragamo		Gucci	
Fattori chiave	Attività di Corporate heritage	Fattori chiave	Attività di Corporate heritage
Fase fondativa: 1928-1960		Fase fondativa: 1921-1954	
1928: Fondazione	1950s: il fondatore crea l'archivio storico, che include 258 brevetti registrati e i relativi materiali di supporto (prototipo di scarpe, bozzetti, foto, adv, marchio)	1921: Fondazione; produzione di valigie di lusso	
Transizione dalla produzione artigianale a quella manifatturiera		Early 1950s: diversificazione di prodotto: produzione di accessori in pelle	
1960: Morte del fondatore		1954: morte del fondatore. Tre dei suoi figli, Rodolfo Gucci, Vasco Gucci, and Aldo Gucci, diventano azionisti con quote pari della proprietà dell'impresa	
Seconda generazione: 1960-2005		Seconda generazione: 1954-1983	
Produzione in outsourcing ma processo decisionale centralizzato	1985: Primo Evento per celebrare il Fondatore. 1995: Apertura del Museo Ferragamo per commemorare la storia del fondatore e il suo ruolo nella storia contemporanea del settore scarpe.	Early 1970s: internazionalizzazione (Europa, Stati Uniti e Asia)	
Transizione dal mono al multi brand.		1979: creazione della linea Gucci Accessories Collection (diverso target rispetto al precedente)	
Internazionalizzazione attraverso la creazione di un network distributivo globale		Terza generazione: 1984-1993	
		Overlicensing e declino delle performance Lotte intestine in famiglia 1987: Investcorp acquisisce il 50% delle azioni di Gucci 1993: Maurizio Gucci, nipote del fondatore, si dimette da presidente.	

Separazione tra proprietà e controllo: 2006-in corso		Separazione tra proprietà e controllo: 1994-in corso	
2006: Michele Norda diventa CEO	Dal 2006: "Ferragamo Creations" (riedizioni annuali di scarpe e borse storiche, in serie limitate e numerate)	1995: Gucci Group NV diventa una società quotata in borsa	2006: Frida Giannini riorganizza l'archivio storico di Gucci
2011: Salvatore Ferragamo Spa diventa una società quotata in borsa	2007: Varina, replica dell'icona Vara creata da Fiamma Ferragamo nel 1978	1999: LVMH (Louis Vuitton Moët Hennessey) acquisisce il 34,4% delle azioni Gucci e, in risposta, Gucci forma un'alleanza strategica con PPR (Pinault-Printemps-Redoute); LVMH contesta la legalità dell'alleanza; e Gucci acquisisce Yves Saint Laurent.	2008: Nasce la collezione "Flora" di borse colorate, ispirata al foulard di Grace Kelly degli anni '60
	2008: celebrazione dell'80esimo anniversario della Fondazione Ferragamo.	2001: PPR group (ora Kering) prende il controllo proprietario di Gucci	2011: Apre a Firenze il Museo Gucci, disegnato da Giannini, nell'ambito di una più ampia serie di iniziative intraprese per celebrare il 90° anniversario della fondazione Gucci
	2013: Il progetto l'Icona (produzione di modelli Vara personalizzati) festeggia i 35 anni di Vara		2014: Viene lanciato GucciMuseo.com per consentire a un pubblico globale online di visitare il Gucci Museo.
	2013: La famiglia Ferragamo crea la Fondazione Salvatore Ferragamo per promuovere la conoscenza di Salvatore Ferragamo e del suo lavoro.		2021: La collezione Aria di Gucci, progettata dall'attuale direttore creativo Alessandro Michele per celebrare il 100° anniversario della fondazione Guccio e il patrimonio Gucci.

Tab. 3: Le variabili di Corporate heritage: Ferragamo e Gucci

	Ferragamo	Gucci
Website dell'impresa	Sezioni storiche dettagliate dedicato al fondatore e alla storia dell'azienda	Assente la sezione "Storia"
Archivio storico	Archivio digitale accessibile online Material Archive accessibile inside Ferragamo	Materiale di Archivio accessibile solo all'interno di Gucci
Marchio storico	Si (registrato nel 1931)	Si (registrato nel 1955)
Monografie aziendali (numero)	Si (5)	Si (3)
Musdeo dell'impresa	Incentrato sulla figura di Salvatore Ferragamo Collezione permanente	Incentrato sul patrimonio del marchio Gucci attraverso prodotti iconici e cimeli Collezione permanente e mostre temporanee di arte contemporanea
Fondazione	Incentrato sulla promozione della conoscenza di Salvatore Ferragamo e del suo lavoro	Nessuno

Nel caso di Ferragamo, tra il 1928 e il 1960 il fondatore dell'azienda ha svolto un ruolo decisivo nella costituzione dell'archivio storico e nella selezione della memoria - invenzioni e innovazioni tecnologiche, di prodotto e di marketing che ne sono derivate - da conservare e trasmettere. Dopo la morte del fondatore, la famiglia svolge un ruolo decisivo nella conservazione e nell'istituzionalizzazione del patrimonio aziendale. La famiglia, tuttavia, si è occupata del patrimonio aziendale principalmente come mezzo per perseguire scopi autocelebrativi. Con l'insediamento di un amministratore delegato non familiare nel 2006, la corporate heritage, incentrata sull'immagine iconica del fondatore, inizia a essere considerata quale asset strategico per consentire la penetrazione nei mercati esteri, in particolare nei Paesi emergenti. Il caso Gucci mostra livelli diversi di impegno nei confronti della propria corporate heritage sotto diversi assetti proprietari. Gucci e il suo marchio hanno infatti vissuto momenti particolarmente turbolenti tra la fine degli anni Ottanta e l'inizio degli anni Novanta. Gli effetti negativi dell'eccessiva concessione di licenze e delle lotte intestine alla famiglia Gucci hanno minacciato drammaticamente la posizione di mercato dell'azienda contribuendo all'esaurimento del patrimonio e del prestigio del marchio. Da quando, nel 1995, Gucci è diventata una società quotata in borsa, l'obiettivo principale dei top manager - in primis l'amministratore delegato Domenico De Sole e il direttore creativo Tom Ford - è stato quello di reinventare l'azienda attorno ad un moderno brand di lusso. Essi sono riusciti nell'intento riprendendo il controllo della complessa struttura di licenze e di distribuzione di Gucci. È interessante notare che un chiaro impegno verso l'accumulo e lo sviluppo del patrimonio aziendale di Gucci è emerso soltanto dall'inizio degli anni 2000, quando il gruppo familiare francese Pinault-Printemps-Redoute ha assunto il controllo di Gucci.

L'analisi presentata conduce a sostenere l'esistenza di una relazione diretta e significativa fra la presenza di un amministratore delegato familiare e l'investimento in corporate heritage, e suggerisce che tale relazione è moderata dal livello di coinvolgimento della famiglia nella proprietà e nel consiglio di amministrazione. A nostra conoscenza, questo lavoro è il primo che analizza questa relazione, fornendo così prove empiriche a sostegno dell'argomentazione che le priorità della SEW sono dei predittori delle decisioni e dei risultati delle imprese familiari. In base a ricerche precedenti, questo risultato supporta l'idea che l'effetto del coinvolgimento della famiglia sulla performance di un'impresa familiare sia complesso e articolato piuttosto che diretto e lineare (Chrisman, Chua, Pearson e Barnett, 2012; De Massis et al., 2013).

Limiti della ricerca. Come ogni altro studio, anche questo non è esente da limitazioni. In primo luogo, siamo consapevoli che i nostri dati si riferiscono a un solo Paese e a un solo settore. Di conseguenza, il campione è di dimensioni relativamente modeste e composto da imprese familiari italiane che operano nel settore della moda. Pertanto, i risultati potrebbero non essere facilmente generalizzabili alle imprese familiari che operano in altri Paesi e in altri settori. Questa condizione potrebbe essere ancora valida se utilizziamo la fase qualitativa per convalidare il processo di selezione delle variabili utilizzate nella fase quantitativa. Pur riconoscendo che diversi studi precedenti si sono basati su dati relativi a un solo Paese per indagare le logiche di SEW nelle imprese familiari (ad esempio, Gómez-Mejía et al., 2007), incoraggiamo tuttavia le ricerche future a estendere il loro monitoraggio a più Paesi per analizzare le scelte relative alla corporate heritage. Ulteriori ricerche potrebbero dare ulteriore linfa alla generalizzazione dei risultati, ad esempio estendendoli ad altri settori, come ad esempio quello farmaceutico, ingegneristico e automobilistico, che comprendono un gran numero di aziende B2B medio grandi.

In secondo luogo, ci siamo concentrati sull'impatto dei CEO familiari e del coinvolgimento della famiglia nella proprietà dell'impresa e nel consiglio di amministrazione, fornendo evidenze empiriche di queste relazioni. Ciononostante, gli sforzi futuri degli studiosi potrebbero esplorare altre misure di SEW, considerando l'inclusione di altre proxy del controllo familiare e dell'influenza sulle scelte strategiche.

In terzo luogo, nello studio del CEO e del consiglio di amministrazione delle imprese familiari ci siamo concentrati principalmente sulle differenze tra membri della famiglia e non (amministratori delegati e membri del consiglio di amministrazione), senza prendere in considerazione altre differenze rilevanti che possono esistere all'interno del consiglio di amministrazione. Le ricerche future potrebbero aprire la "scatola nera" dei processi consiliari (Zattoni et al., 2015), andando oltre la semplice dicotomia amministratori familiari vs. amministratori non familiari per concentrarsi su questioni relative ai "micro-processi", come il modo in cui viene raggiunto il consenso all'interno del consiglio e come questo processo di costruzione del consenso può eventualmente cambiare nel corso del ciclo di vita dell'azienda e del suo consiglio di amministrazione.

Infine, un limite di questo lavoro riguarda la natura dell'analisi qualitativa condotta, che adotta i canoni dell'analisi documentale e utilizza dati secondari per giungere alle sue conclusioni. Per questo motivo, si promuove la realizzazione di ulteriori studi empirici basati, non soltanto su dati documentali, ma anche su dati primari derivati da interviste ai presidenti, ai membri del consiglio di amministrazione e agli amministratori delegati delle imprese familiari, che potrebbero fornire ulteriori prove recenti e rilevanti in questa importante direzione di indagine.

Implicazioni pratiche. Tre sono le principali implicazioni di questo lavoro per le imprese familiari. In primo luogo, i nostri risultati indicano che il controllo familiare ha un effetto diretto sull'investimento in corporate heritage, tanto che la performance dell'impresa è più bassa quando la proprietà familiare è interamente concentrata nelle mani della famiglia di controllo, mentre aumenta quando l'azionariato diventa più aperto ad investitori non familiari. Questo studio rivela anche che la presenza di un amministratore delegato familiare può essere dannosa o vantaggiosa per l'investimento in corporate heritage, a seconda del grado di coinvolgimento della famiglia nella proprietà e nel consiglio di amministrazione, perché questo dipende dalla tipologia di SEW ("extended" vs "restricted"). Sorprendentemente, si riscontra un effetto negativo dei CEO familiari sugli investimenti in corporate heritage nel caso di un elevato coinvolgimento della famiglia. Questa condizione supporta l'idea che gli amministratori delegati familiari possano esercitare la loro influenza in modo differente a seconda del grado di coinvolgimento della famiglia; ad esempio, possono essere buoni "stewards" dell'impresa e rivelare la presenza di una "extended SEW" o, al contrario, possono essere cattivi "stewards" e rivelare la presenza di una "restricted SEW".

In secondo luogo, lo studio offre un contributo alla visione della SEW per quanto riguarda gli esiti e i risultati delle famiglie. Infatti, sviluppiamo l'idea che, nelle imprese familiari, le scelte decisionali dell'amministratore delegato (della famiglia) si basino sulla doppia considerazione di perdite e guadagni per quanto in relazione alla SEW della famiglia di controllo (Gomez-Mejía et al., 2007). L'investimento in corporate heritage dovrebbe essere visto come un potenziale guadagno da parte di un CEO familiare, a causa della sua importanza per la conservazione della SEW della famiglia di controllo, e come una potenziale perdita da parte di un CEO non familiare, a causa del suo costo e del suo impatto sulla performance finanziaria a breve termine dell'impresa. Inoltre, in prospettiva comportamentale sappiamo che, se la salvaguardia della SEW da parte delle famiglie non fosse allineata con gli interessi dei proprietari, le imprese familiari potrebbero non investire molte risorse in iniziative che non sono in grado di migliorare la loro performance. L'esempio tipico è relativo agli investimenti in CSR e alla performance. A nostra conoscenza, nessuno studio precedente ha affrontato la relazione tra il coinvolgimento della famiglia e l'investimento in corporate heritage adottando la prospettiva della SEW e, allo stesso modo, nessuna ricerca precedente ha esaminato il ruolo svolto da un amministratore delegato familiare su tale decisione strategica. Le imprese familiari risultano, pertanto, interessate ai nostri risultati su questo aspetto e, seguendo la nostra traccia, possono assumere delle scelte coerenti su quanto sottolineato.

In terzo luogo, i risultati mostrano che, sebbene l'investimento in corporate heritage contribuisca a costruire la legittimità di un'impresa con gli stakeholder interni ed esterni, collegando le preoccupazioni e gli interessi contemporanei dei clienti e degli stakeholder al passato, al presente e al futuro dell'impresa (Balmer, 2011), la misura in cui le imprese familiari investono effettivamente in corporate heritage dipende da com'è percepita dal CEO della famiglia l'importanza di preservare la SEW. In effetti, questa ricerca fornisce un primo punto di riferimento suggerendo che il diverso grado di investimento delle imprese familiari in corporate heritage può essere collegato al livello di coinvolgimento della famiglia nella proprietà e nel consiglio di amministrazione, oltre che al fatto che le famiglie controllanti e i CEO (di famiglia) non condividono necessariamente la stessa visione della SEW ("extended"

vs. “restricted”). Più specificamente, il presente lavoro contribuisce a spiegare il livello di investimento delle imprese familiari in corporate heritage identificando il ruolo svolto dal CEO della famiglia. Le scelte dell'impresa familiare in questa direzione possono tenere, pertanto, conto dei risultati del nostro lavoro.

Originalità dello studio. Questo studio contribuisce al filone di ricerca interessato all'accumulo e all'utilizzo della corporate heritage delle imprese. Si tratta a evidenza di un primo sforzo in tale direzione, costruito sull'idea che la storia dovrebbe ispirare il successo delle imprese familiari qualora la famiglia è in grado di gestirla e di investire su di essa. In particolare, gli studiosi di marketing si sono concentrati sulla corporate heritage intesa come risorsa strategica. Hanno mostrato come i manager utilizzano questa risorsa a livello aziendale e di brand di prodotto per influenzare le percezioni dei consumatori (Balmer, 2011). Sebbene un numero crescente di ricerche si concentri sull'importanza della corporate heritage, l'argomento manca ancora di chiarezza concettuale e di una direzione chiara per la sua operazionalizzazione. Tale mancanza di chiarezza concettuale conduce a problemi di misurazione della validità del costruito, della validità della conclusione statistica e della validità interna (MacKenzie, 2003). Lo studio in discorso affronta questa lacuna proponendo un indice composito di corporate heritage (CH), che misura l'accumulo e lo sfruttamento della corporate heritage. I nostri risultati fanno anche luce sulle varie dimensioni della corporate heritage e mostrano come le imprese familiari possono impegnarsi in misura differente nell'effettuare investimenti in corporate heritage.

Infine, questo studio contribuisce a far avanzare la nostra comprensione della eterogeneità delle imprese familiari mostrando come la complessità degli effetti dei CEO familiari sia una delle fonti di take eterogeneità. Poiché diversi studi hanno indagato la relazione fra l'eterogeneità della governance e il processo decisionale delle imprese familiari, rivelando evidenze empiriche contrastanti, molti studiosi hanno sollecitato studi sull'eterogeneità dell'influsso della governance familiare sul comportamento delle famiglie imprenditoriali (D'Allura, 2019; Daspit et al., 2018). Questo lavoro risponde a tale richiesta mostrando che la presenza dell'amministratore delegato familiare costituisce di norma un fattore rilevante per comprendere l'eterogeneità delle decisioni e dei risultati delle imprese familiari, considerando la decisione strategica di investire in corporate heritage come uno di questi. Infatti, i risultati dello studio aiutano a conciliare le evidenze contrastanti emerse da studi precedenti: in presenza di un preciso livello di coinvolgimento della famiglia nella proprietà e/o nel consiglio di amministrazione, un amministratore delegato familiare può creare condizioni facilitanti per conseguire una maggiore redditività rispetto a un amministratore delegato non familiare. Di conseguenza, secondo Bauweraerts et al. (2021), tali risultati mettono in discussione il falso mito o tradizionale preconcetto che l'inserimento di un amministratore delegato esterno in un'impresa familiare sia di per sé una condizione favorevole. In particolare, lo studio contribuisce al dibattito che lega il comportamento e i risultati delle imprese familiari all'influsso del CEO familiare, mostrando come una visione SEW ristretta o estesa del CEO familiare sia collegata a differenti livelli di coinvolgimento della famiglia nella proprietà e nella governance dell'impresa (come, ad esempio, nel consiglio di amministrazione) (Le Breton-Miller e Miller, 2018).

Parole chiave: corporate heritage, proprietà familiare, ceo, storia

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How companies navigate circular economy paradoxes: an organizational perspective

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Framing of the research. Companies operate in highly complex environments in which they are often faced with contradictory demands simultaneously (Smith and Lewis, 2011). Indeed, companies must concurrently address economic, environmental, and social goals, collaborate with other actors and maintain their own identity, create value for themselves and the community, or be innovative and conservative (van Bommel, 2018). Smith and Lewis (2011) framed tensions (or paradoxes) within four categories: learning, organizing, belonging and performing paradoxes. Each category is related to core organizing elements concerning knowledge, processes, identity and goals, respectively.

Some authors have analyzed these tensions with specific reference to corporate sustainability (Hahn et al., 2015; Slawinski and Bansal, 2015). Indeed, the integration of corporate sustainability within organizational strategies and dynamics is a source of tensions between desirable but, at the same time, contradictory interrelated aspects (Hahn et al., 2018). For instance, competing tensions may occur between values and identities concerning social and environmental issues (i.e., belonging tensions), between the adoption of sustainable business models and the maintenance of existing routines and systems (i.e., learning tensions), between the integration and structural separation of sustainability activities (i.e., organizing tensions), or between the pursuit of competing sustainability issues (i.e., performing tensions) (Hahn et al., 2018).

As stated by some authors, these types of tensions are also experienced by firms that adopt circular economy practices (Daddi et al., 2018; De Angelis, 2021; Corsini et al., 2022). For instance, the implementation of circular economy actions can create conflicting effects such as the adoption of better resources from an environmental perspective and the associated increase in costs (e.g., for research and development or testing) (De Angelis, 2021). This contradictory aspect is embodied in the tension (performing) between the pursuit of short-term gains and long-term prosperity (Slawinski and Bansal, 2015). Moreover, effectively implementing circular practices often requires collaboration with other companies in the value chain and projection into the broader social-ecological system in which companies operate, at the expense of maintaining a well-defined identity and independence (Geissdoerfer et al., 2018). This necessary projection aimed at integrating circular economy principles can create a tension (belonging) between the desire to emancipate itself as a “stand-alone” company and the recognition of being part of a larger system (De Angelis, 2021). The adoption of circular practices can also rise belonging tensions between the pursuit of the organization’s self-interest and that of the community (Geissdoerfer et al., 2018). The need to collaborate with other companies in the value chain for successful implementation of circular practices can then bring up organizing tensions between collaborative and competitive dynamics (Xiao et al., 2019). In addition, companies that adopt (or intend to adopt) circular economy actions may experience tensions (learning) due to the need to innovate (e.g., business model) while relying on existing capabilities and knowledge (van Bommel, 2018).

To manage these tensions, companies can take different approaches. In their literature review, Van der Byl and Slawinski (2015) identified four different types of approaches: win-win, trade-off, integrative, and paradox. The first two approaches are characterized by eliminating tensions through the alignment of sustainability elements (win-win approach) or the choice of one element over another (trade-off approach). The integrative approach entails managing tensions by balancing the elements of sustainability. Finally, the paradox approach involves the recognition, acceptance, and dynamic incorporation of tensions within business decisions and strategies (Ivory and Brooks, 2018). Therefore, the paradox approach assumes a dynamic equilibrium model. Studies have shown that when actors are able to dynamically cope with paradoxes, they can simultaneously achieve desirable outcomes from different perspectives (Kim et al., 2019; Sharma and Jaiswal, 2018). Indeed, according to Smith (2014), the long-term performance of firms depends on their ability to concurrently cope with conflicting demands and alternatives on ongoing basis. Two pathways have been identified in the literature to navigate for managing tensions through a paradoxical lens: acceptance of paradox and paradoxical resolution (Smith and Lewis, 2011; Ivory and Brooks, 2018). Acceptance of paradox is the recognition of conflicts, ambiguities, and contradictions as normal elements of business life (Smith and

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Lewis, 2011). This pathway is necessary for companies to become aware of the inevitability and persistence of paradoxes and to consciously live with them. Paradoxical resolution consists of “purposeful iterations between alternatives in order to ensure simultaneous attention to them over time” (Smith and Lewis 2011, p. 392). Thus, this pathway concerns the dynamic shift of decisions between conflicting options as part of a broad, long-term pattern (Kim et al., 2019). Ivory and Brooks (2018) proposed a framework to explain how strategic agility and, in particular, the meta-capabilities that comprise it (i.e., strategic sensitivity, collective commitment and resource fluidity) can enable the company to virtuously navigate these paradox pathways within corporate sustainability. In doing so, the authors also identified organizational processes and practices for each meta-capability that contributes to the management of corporate sustainability with a paradoxical lens. Drawing on the paradox theory and based on this framework, the present research empirically analyzes the effects of contextual organizational factors in leading to the acceptance and resolution of paradoxes that companies experience in adopting circular economy actions. Specifically, we examine the role of cognitive diversity, organizational design, supply-chain management, reward/incentive structure, and experimentation and dialogue space in triggering the recognition and acceptance of circular economy paradoxes and stimulating their resolution.

Hypotheses

How companies deal with the ambiguities inherent in corporate sustainability is related to the cognitive frame of decision makers (Hahn et al., 2014). In particular, the cognitive homogeneity of decision makers can create excessive consolidation of existing routines at the expense of broader, ambivalent interpretations of the conflicting aspects inherent in sustainability (Hahn and Aragon-Correa, 2015). Conversely, cognitive diversity makes existing ambiguities more likely to be considered in strategic decisions (Hahn et al., 2014). Companies that promote and pursue cognitive diversity equip themselves with leaders and organizational members with a variety of backgrounds, expertise, skills, and worldviews. When companies have a diversity of knowledge and skills internally, they are more strategically sensitive to broad issues, reduce the risk of “groupthink”, and interpret trends and dynamics of the external environment more mindfully (Ivory and Brooks, 2018). Cognitive diversity thus contributes to the emergence and recognition of the existence of different perspectives and viewpoints, thereby leading to acceptance of paradox. Accordingly, we posit the following hypothesis:

H1: Cognitive diversity positively influences the acceptance of circular economy paradoxes.

Circular economy practices in most cases involve close collaboration with other actors in the value chain (Genovese et al., 2017). This collaboration, however, as stated above, can be a source of tensions due to the simultaneous desire to maintain a well-defined identity and independence and the need to be part of a larger system (De Angelis, 2021), or the need to create value for themselves and the community at the same time (Geissdoerfer et al., 2018). Therefore, supply chain management, intended as the set of practices, goals, risks, and assets shared with supply chain actors (Cao and Zhang, 2011), involves the emergence of tensions that companies must recognize and accept in order to establish beneficial collaboration. Furthermore, in the context of the circular economy, supply chain management involves the development of important relational and coordinative capacities with other actors (Genovese et al., 2017). This fosters a thorough understanding of existing resources, awareness of the risks associated with the provision and use of tangible and intangible resources, and the ability to influence rapid and effective resource redistribution (Cao and Zhang, 2011). Since the ability to reallocate resources in a timely and informed manner is critical for managers to dynamically shift decisions and strategies, supply chain management contributes to the resolution of paradoxes (Xiao et al., 2019). Based on these considerations, the following hypotheses:

H2: Supply chain management positively influences the acceptance of circular economy paradoxes.

H3: Supply chain management positively influences the resolution of circular economy paradoxes.

To properly embrace the principles of sustainability and circular economy, companies must also set up an organizational design consistent with such a purpose (Hahn et al., 2015). Organizational design consists of the set of structural features of the firm that define how goals are set, how decisions are made, and how roles are allocated and designed (Burton et al. 2011). As indicated by Hahn and Aragon-Correa (2015), organizational designs that involve flexible, decentralized, open and participatory structures are more likely to incorporate sustainability, as it is based on an open-systems approach. However, structuring such organizational designs can create tensions between the need to have a well-defined decision-making process based on hierarchical scale and, at the same time, have more fluid corporate architectures (Hahn et al., 2015). Therefore, creating an organizational design that adequately incorporates the open-systems approach underlying corporate sustainability and circular economy, implies accepting these tensions. In addition, the implementation of more fluid, open and horizontal organizational architectures facilitates heterogeneity of interpretations with respect to sustainability and the ability to readily reconfigure the business system and routines, thus enabling greater dynamism in changing strategies and decisions on an ongoing basis. As such, organizational design contributes to the resolution of paradoxes (Ivory and Brooks, 2018). We thus offer the following hypothesis:

H4: Organizational design positively influences the acceptance of circular economy paradoxes.

H5: Organizational design positively influences the resolution of circular economy paradoxes.

Clearly, accepting tensions, rather than avoiding or eliminating them, implies a greater propensity to proactively confront them and to “become comfortable with the disquiet they provoke” (Miron-Spektor et al., 2018, p.11). So, companies that reach the step of accepting tensions tend not to feel threatened by the paradoxes that inevitably arise in approaching sustainability and the circular economy, but to explore them and continuously seek creative and effective solutions to manage them (Hahn et al., 2015). Acceptance of tensions, therefore, enables the firm to recognize polarities constructively, process them, and exploit them productively and dynamically for the benefit of organizational action (Smith and Lewis, 2011). Accordingly, the following hypothesis:

H6: Acceptance of circular economy paradoxes positively influences the resolution of circular economy paradoxes.

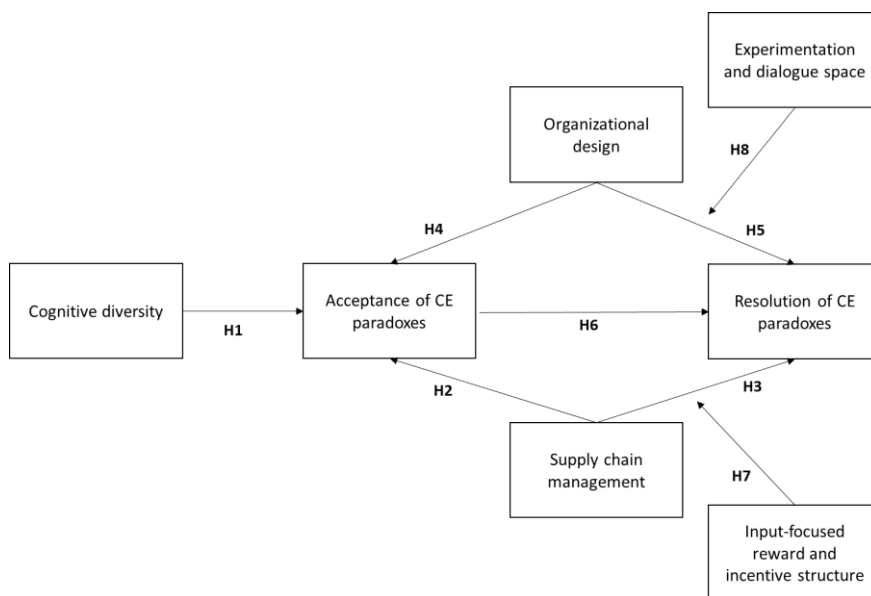
Conflicts and inconsistencies can also arise with reference to the relationship between formal and informal corporate systems (Hahn et al., 2015). In particular, this occurs when there is a mismatch between the two types of systems. Indeed, as noted by Epstein et al. (2015), even when informal systems are oriented toward and promote sustainability, if formal incentive systems are linked only to financial-economic performance, discrepancies emerge. So, formal reward and incentive systems play an important role with respect to sustainability and circular economy practices. Reward and incentive mechanisms serve both to motivate individuals’ behaviors and to indirectly communicate organizational priorities (Ivory and Brooks, 2018). When companies construct these mechanisms not on the basis of outputs, such as the financial ones, but on the basis of inputs that take into account sustainability aspects, such as the procurement from sustainable suppliers, they help to boost the emphasis on effective and sustainable supply chain management and avoid triggering linear behaviors that are solely linked to the achievement of short-term economic goals (Ivory and Brooks, 2018). Therefore, reward and incentive structures characterized by a focus on inputs increase the effectiveness that supply chain management has on the resolution of circular economy paradoxes. Therefore, the following hypothesis:

H7: Input-focused reward and incentive structure positively moderates the relationship between supply chain management and resolution of circular economy paradoxes.

Since sustainability is rooted in an open-system approach (Hahn and Tampe, 2020), companies adopting circular economy practices should create a context consistent with this approach that allows and encourages the emergence of diverse perspectives and interpretations (Bianchi and Testa, 2022). This is possible when organizational members are encouraged to express opinions, to experiment ideas and practices, to make suggestions, and to communicate with each other (Hahn et al., 2014). Therefore, a business context characterized by an experimentation and dialogue space based on free and open debate and that accepts heterogeneity of interpretations increases the effectiveness of participatory, decentralized and open organizational design in resolving circular economy paradoxes by stimulating new and innovative responses to sustainability issues (Hahn and Aragon-Correa, 2015). Thus, we posit the following hypothesis:

H8: Experimentation and dialogue space positively moderates the relationship between organizational design and resolution of circular economy paradoxes.

Fig. 1: Hypothesized model



Methodology.

Sample and data collection

Hypotheses were tested on a sample of Italian manufacturing companies. Data were collected by means of a questionnaire that was submitted by a commercial data provider to a representative sample of small, medium and large Italian manufacturing companies. In designing the questionnaire, several procedural remedies were adopted to minimize bias that can affect survey-based research, such as common method bias and social desirability bias (Podsakoff et al., 2003). Data were collected during June 2022. At the end of the data collection period, the final sample consisted in 303 completed questionnaires. Table 1 shows the sample breakdown in terms of manufacturing sector, role of respondents, numbers of employees and year of company birth.

Tab. 1: Sample breakdown in terms of manufacturing sector, role of respondents, numbers of employees and year of company birth

Manufacturing sector	% of companies in the sample	Number of employees	% of companies in the sample by number of employees	Role of respondents	% of the role of respondents in the sample	Year of company birth	% of companies in the sample by year of birth
Construction	19%	< 25	19%	President	13%	1950 or before	7,9%
Chemical Industry	8%	26 - 50	8%	Vice president	5%	1950 – 1959	3,0%
Pharmaceutical Industry	17%	51 - 100	17%	Chief executive officer	8%	1960 – 1969	7,6%
Food Industry	12%	101 - 250	12%	General manager	14%	1970 – 1979	16,5%
Clothing, textile or related industry	12%	251 - 500	12%	Chief operating officer	27%	1980 – 1989	15,5%
Wood and furniture industry	9%	> 500	9%	Finance director	6%	1990 – 1999	17,5%
Paper and related products industry	5%			Director of services	4%	2000 – 2005	14,2%
Other in the manufacturing sector	19%			Manager	24%	2006 – 2010	8,6%
						2011 – 2015	5,0%
						2016 – 2020	4,0%
						2021 – 2022	0,3%

Measurements

Most measures utilized in the study were developed based on already validated psychometric scales. Measurement scales were then adapted to the context of the study in close collaboration with managers, representative of Industrial Associations and academics. Both 5-point and 7-point Likert scales were used.

In order to measure acceptance and resolution of circular economy paradoxes we relied on the measurement scales developed by Miron-Spektor et al. (2018). In particular, we modeled the scales named by the authors “Experiencing tensions” and “Types of tensions” to adapt them to the conflicts that companies experience in implementing circular economy practices, in order to capture the propensity of companies to recognize these tensions as inescapable elements of corporate action and to address them dynamically, iteratively and creatively. Four items were developed for acceptance of circular economy paradoxes and five items for resolution of circular economy paradoxes.

To measure cognitive diversity, we used the scale validated by Van der Vegt and Janssen (2003). We then asked respondents to assess to what extent they believe that company managers differ in their way of thinking, in how they viewed the world, and in their beliefs about what is right and wrong. Four items were developed for this purpose.

Supply chain management was evaluated based on the scales proposed by Cao and Zhang (2011) to measure supply chain collaboration. Specifically, the authors considered this construct as second-order, thus developing specific scales for each first-order construct that forms it. In order to use a single measurement scale to assess supply chain management, we aggregated items related to decision synchronization, incentive alignment and resource sharing, resulting in a scale of ten items.

To measure organizational design, we referred to the theoretical framework of Ivory and Brooks (2018) together with the scale developed by Perez-Valls et al. (2016). Accordingly, the measure used in this study incorporates five items related to horizontality of decision making, decentralization in goal setting, fluidity of organizational structure, and flexibility in resource deployment and role design.

The measure for experimentation and dialogue space was developed based on the scales validated by Arnold et al. (2000) and Alegre and Chiva (2008). Specifically, we relied on both scales to obtain a broader measure aimed at

capturing the encouragement of organizational members to express ideas and suggestions, the listening to everyone's opinions, and the incentive for dialogue and mutual communication. Eight items were then implemented for this purpose.

Regarding the input-focused reward and incentive structure, we started from the emerging literature on procurement practices and technology use in the circular economy field (Gusmerotti et al., 2019). Then, in collaboration with managers and experts, we declined these practices in the form of input-focused incentive mechanisms. The measurement scale so developed incorporates four items on aspects regarding incentive structures that range from the rewards of procurement from local and sustainable suppliers, to rewards for the use of resource-efficient technologies.

Finally, two company level variables were accounted as control variables in the study. Specifically, company age and company size (in terms of employees). Both variables were measured by means of a multiple-choice question.

Results.

Assessment of the measurement model

The CFA confirms the unidimensionality of the seven constructs, indicating that the measurement items load consistently on seven distinct factors, with factor loadings ranging from 0.61 to 0.80 and uniqueness values less than 0.49. Robustness and validity checks confirm the good fit of the model: both the comparative fit index (CFI) and the Tucker-Lewis index (TLI) are 0.96 (above the threshold of 0.90); the root-mean-square error of approximation (RMSEA) is 0.034, well below the threshold of 0.08; the chi-square adjusted for degrees of freedom (χ^2/df) is 1.35, considerably below the threshold of 3.0.

Regarding convergent validity, all observed variables are significantly related to their latent construct ($p < 0.001$) and all regression coefficients are greater than 0.05. In addition, to assess the amount of total variance explained by each construct, we calculated the average variance extracted (AVE). All constructs show an AVE that meets the threshold of 0.5 (Hair et al., 2010), with only two exceptions represented by acceptance and resolution of circular economy paradoxes (0.46 and 0.49, respectively). Therefore, we calculated composite reliability (CR) for all constructs and saw that all latent variables show CR values ranging from a minimum of 0.77 to a maximum of 0.93, far above the recommended threshold of 0.6. So, the convergent validity of the latent constructs can be considered satisfactory.

The reliability and internal consistency of each latent construct were evaluated by calculating Chronbach's alpha and Raykov's reliability coefficients. All values are above the recommended threshold of 0.7 (Hair et al., 2010).

Regarding discriminant validity, the squared correlations between latent variables are all below the 0.5 threshold, showing that items that do not belong to the same construct are only weakly correlated with each other. In addition, discriminant validity was determined by evaluating Maximum Shared Variance (MSV) and Average Shared Squared Variance (ASV). Both were found to be lower than the average variance extracted (AVE) for all constructs (Hair et al., 2010). Finally, as a further confirmation of discriminant validity, we calculated the heterotrait-monotrait ratio of correlations (HTMT). None of the HTMT criteria violates the recommended threshold of 0.85 (Henseler, 2015).

Therefore, these analyses provide no evidence of reliability and validity violations.

Common method bias analysis

Although we reduced the risk of common method variance by introducing several procedural remedies during survey design, this is a cross sectional study based on self-reported data and in which all variables were measured using the same source. Therefore, it could produce biased results. To test this issue, we performed two statistical tests. First, we tested whether common method variance affects our data by performing Harman's single-factor post-hoc test. This test showed that the largest factor accounts for 36% of the variance, and seven factors emerged with eigenvalues greater than 1. Therefore, common method variance is not a problem.

In addition, we further tested for common method variance by analyzing a common method factor (Podsakoff et al., 2003). We found that, on average, the variance explained by the observed latent constructs is 54% greater than the variance explained by the common method factor. Based on this analysis, common method bias is not a problem in our study.

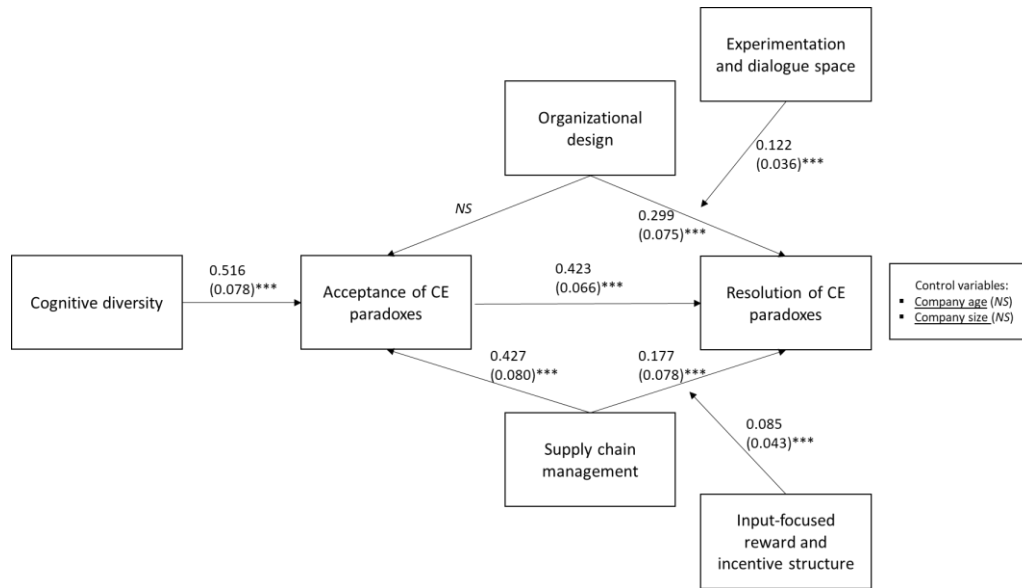
Testing hypothesis

Hypotheses 1 through 6 were tested by means of a structural equation model (SEM) (Fornell and Larcker, 1981). The model exhibits a good fit: CFI and TLI amount to 0.97 and 0.96, respectively; RMSEA is 0.035; the χ^2/df ratio is 1.372.

SEM results (β coefficients, standard errors and statistical significance) are shown in Figure 2.

Moderations (hypotheses 7 and 8) were tested by means of two hierarchical regressions (Frazier et al., 2004). The results are displayed in Figure 2.

Fig. 2: Results of the model. Standard errors are in parenthesis. *** $p < 0.05$; NS, not significant



Research limitations. Exploring the limitations of the present study helps identifying avenues for future research. First, the study focuses on a limited set of variables that do not necessarily take into account all the significant factors that influence the acceptance and the resolution of circular economy paradoxes. From an organizational perspective, future studies could focus on investigating other factors such as organizational learning and adaptation or organizational slack (Ivory and Brooks, 2018).

Second, the study builds upon a unique source of data. Despite procedural remedies have been adopted to reduce potential social desirability bias, respondents' tendency to overestimate certain aspects of their organizational context could result in an overestimation bias. Future studies should therefore attempt at triangulating the results by combining diverse data collection methods, or by combining diverse sources within the same organization.

Managerial implications. The findings of the study provide implications for management. In the first place, in order to accept and acknowledge the tensions that inevitably arise in the implementation of circular economy practices, the study highlights the relevance of creating a business environment characterized by a diversity of experiences, skills, and viewpoints (Hahn et al., 2014). To this end, companies and managers should orient the selection and training processes of organizational members toward enhancing cognitive diversity.

Second, our findings show that collaboration with supply chain actors is a key determinant in both the acceptance and resolution of circular economy tensions. Therefore, in order for companies to consciously live with these tensions and exploit them productively, they should pay attention to managing their relationships with supply chain actors.

Third, given the importance of organizational design in structuring a flexible context capable of accommodating different interpretations regarding sustainability issues and fostering dynamic strategic changes (Hahn and Aragon-Correa, 2015), managers should engage in building horizontal structures and decentralized decision-making processes, for example, by distributing responsibilities among multiple roles and business units.

Fourth, as shown by the results of the study, to increase the effectiveness of organizational design in the resolution of circular economy paradoxes, managers should stimulate the emergence of suggestions and opinions from various organizational members and facilitate communication and interchange between areas, for instance, by organizing informal meetings among individuals from different business units.

Fifth, as suggested by our study, in order for supply chain management to further contribute to the company's ability to meet competing goals and demands in the context of circular economy, managers should implement incentive systems based on inputs, such as rewarding purchasing from suppliers who adopt circular economy principles.

Originality of the paper. Most of the literature on the topic of tensions inherent in corporate sustainability is conceptual (Van der Byl and Slawinski, 2015). The few empirical studies on this issue have mainly focused on identifying the types of paradoxes that companies and individuals experience when confronted with sustainability issues and how they handle them. For example, Van Bommel (2018) examined the tensions that arise in implementing sustainable business models and how companies approach them. Slawinski and Bansal (2015) analyzed how companies respond to the climate change issue and attend to the intertemporal tensions between the short and long-term underlying corporate sustainability. Bianchi and Testa (2021), through a longitudinal qualitative study, explored how cognitive frames influence the companies' responses to the tensions inherent in sustainability in an evolutionary perspective. Moreover, few studies examined tensions with specific reference to the circular economy. Among them, De Angelis (2021) conducted conceptual research aimed at identifying, from a business model perspective, the typology of organizational tensions in circular economy implementation. Another study conducted by Daddi et al. (2019), through a multiple case study approach, investigated the paradoxes related to circular practices that paper, textile, and leather firms may encounter in the performance of their activities and analyzed the strategies adopted to cope with these

paradoxes. However, to the best of our knowledge, no empirical study has focused on investigating the contextual organizational factors that can stimulate the pathways of acceptance and resolution of circular economy paradoxes. Therefore, our study represents the first attempt to empirically test the organizational-level drivers of acceptance and resolution of tensions by companies adopting circular economy actions.

Keywords: paradox theory; tensions; circular economy; sustainability; quantitative research

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Measuring circular economy in SMEs: a systematic review previously not needed

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Abstract

The circular economy (CE) discussion is increasingly widespread in all sectors. Implementing laws to protect natural resources and adopting practices closer to the 2030 Agenda of Sustainable Development Goals (SDGs) is essential and worrying for companies that have to realign products to government requests. Companies of all sizes and in every state have been forced to review production processes by adopting an economic model based on reuse, recycling, etc. Through a bibliometric analysis, this work aims to demonstrate that for small and medium enterprises (SMEs) there are no standardized and shared measures and/or questionnaires to measure sustainable practices based on the circular economy, unlike listed companies. In principle, the researchers submitted questionnaires to company managers asking them to define their sustainable commitment and the CE practices adopted through a Likert scale. Therefore, from the consultation of the literature, it appears necessary to identify some indicators for SMEs to improve communication and information on the processes and changes taking place towards the CE by companies. This work demonstrates that the efforts made by companies aimed at aligning their activities according to the principles of the CE would be more effective only with the support of the institutional factor. Particularly, the novelty of this work consists in proposing a unique theoretical perspective that all companies can exploit to disseminate the steps towards the CE.

Framing of the research. *In the continuing discussion on the circular economy, all sectors are concerned about revising their production processes and realigning products to the demands of governments. Indeed, it is becoming increasingly widespread at the decision-making level to implement laws to protect natural resources and adopt practices closer to the 2030 Agenda of the Sustainable Development Goals (SDGs). Companies of all sizes and in every European state were forced to revisit production processes, raw materials applied to finished products, and packaging greener than in the past. This process transformation has resulted in the migration from a linear economy to a Circular Economy (CE).*

Purpose of the paper. *Large enterprises and listed companies receive ratings or scores set by Bloomberg, Refinitiv etc. Instead, small and medium-sized enterprises (SMEs) do not dispose of visible results and measures of their changes, in relation to the indicators that characterize the CE in its entirety. However, they concentrate efforts on improving their productivity chains by reducing material use and frequently resorting to recycling. The interest in CE measures in these firms results mainly because they globally represent the backbone of the economy (Yumar et al., 2020). The literature review highlights the need to adopt a unified instrument for calculating a CE indicator across all dimensions of companies. Specifically, many scholars implemented theories and tips to adopt measures of CE (Edwin Cheng et al., 2022; Liu et al., 2022). The aim of our work is to propose a specific literature review in order to bear on particular techniques and indicators for measuring CE practices in each firm. By questioning “Is there a unique indicator to measure CE in SMEs?”, the novelty of this work consists in capturing the most widely applied measurement methods and proposing a univocal perspective that all companies can exploit. A univocal approach also implies a deeper involvement of SMEs on the topic of the CE: indeed, constituting the majority of the entrepreneurial structure, SMEs also require a method of measuring the CE.*

Methodology. *According to the directions of Donthu et al. (2021), a multistage literature review was performed in order to best address the research question. First, we provide an overview of the journals in the Descriptive section, by focusing on the topic, emerging trends and research fields. Second, we purpose a thematic analysis with remarkable insight into the methods and variables utilised to measure the CE in companies.*

In order to obtain the first generic database for our research, the keywords “SMEs” AND “circular economy” AND “waste” AND “innovation” AND “indicator” were searched in the Scopus Database, which represents the hugest

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database of peer-reviewed literature (Chadegani et al., 2013; Paes et al., 2019). We decided to include papers published in the period 2018 and 2023, due to the greater concentration underlined by Dominko et al. (2022). By integrating new articles, we focused on the latest publications that are closer to the recent challenges in management. We excluded papers in some unrelated subject areas, such as “Psychology”, “Arts and Humanities”, “Pharmacology, Toxicology, Pharmaceutics” and “Biochemistry, Genetics and Molecular Biology”. Moreover, we filtered “articles”, excluding “reviews” and “articles in press”. This first analysis revealed 1005 papers.

In order to concentrate the research on the management field, we filtered the Scopus category, by selecting “Business, Management, and Accounting” and we obtained 469 papers. Data were collected on 06 February 2023.

We operated via Bibliometrix R-package (Aria and Cuccurullo, 2017), considering that Scopus offers compatible metadata for bibliometric analysis software. A descriptive analysis was conducted on this restricted sample, using Bibliometrix.

A thematic analysis was applied to discover the variables and methods used, subsequent to the descriptive analysis of the sample referring to the “Business, Management, and Accounting” area. The authors jointly agreed on the exclusion of the articles, following a precise collection of information on all articles in the sample: particularly, before the exclusion, all abstracts of selected articles were examined.

Subsequently, the papers that seemed most suitable for a more accurate review were ranked. The authors, the research aim, methods and insights or implications were explored.

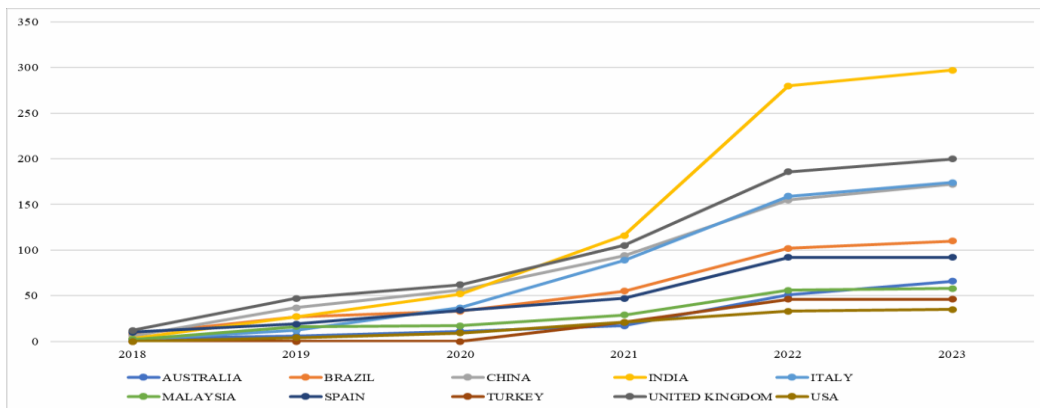
The 23 articles excluded were not referring to techniques for measuring the CE but rather focused on analyses towards a more circular supply chain in firms and the reasons for switching to the CE.

Results.

1. Descriptive Analysis

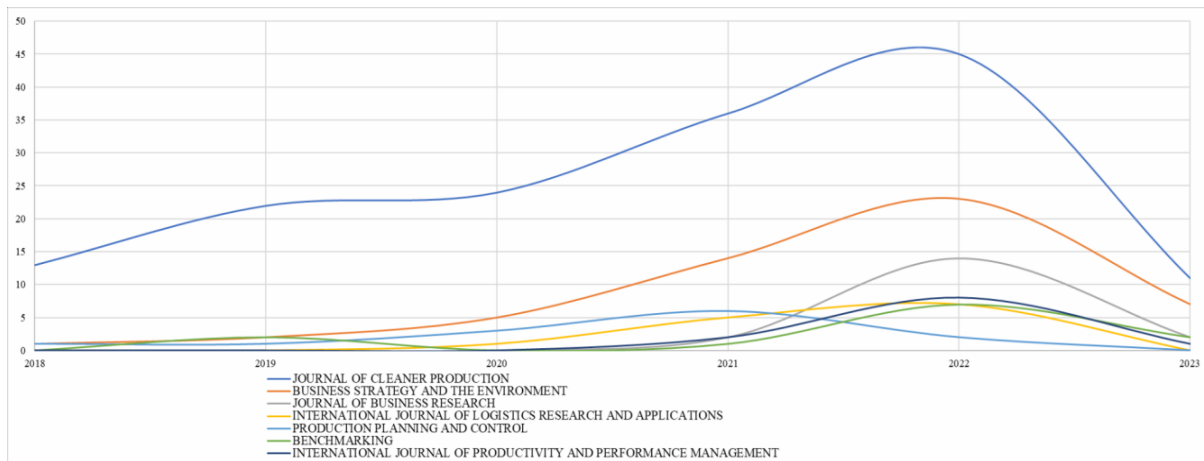
The sample referring to the “Business, Management, and Accounting” area counted 469 papers. The Top 10 most published countries are Australia, Brazil, China, India, Italy, Malaysia, Spain, Turkey, the United Kingdom, USA. Figure 1 shows an intensifying publication by India from 2021, followed by the United Kingdom.

Fig. 1: Top 10 most published countries



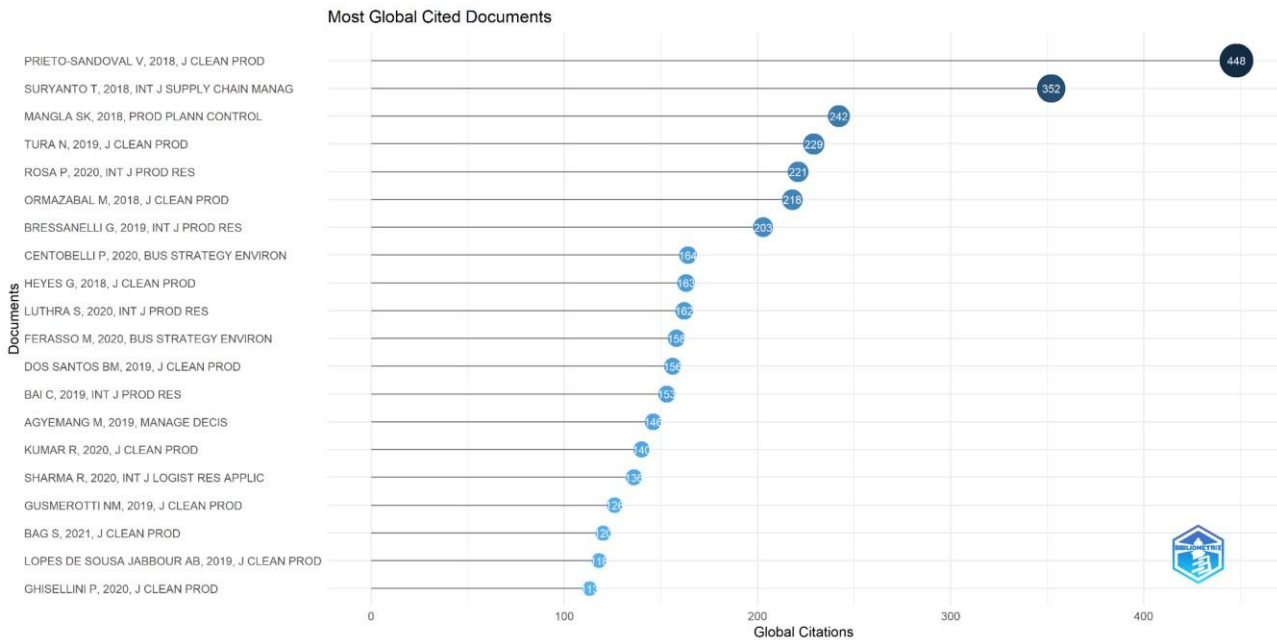
Journal of Cleaner Production dominates the list of the discovered journals, taking the centre stage across the timeframe examined with the highest number of annual occurrences, depicted on the vertical axis of Figure 2. The reason for this broad dominance is inherent in the journal’s interest in topics, such as waste management. Similarly to the former, Business Strategy and the Environment holds a preponderant role.

Fig. 2: The timeframe examined with the highest number of annual occurrences



Among the most cited articles (Figure 3) is the paper by Prieto-Sandoval et al. (2018), published in the Journal of Cleaner Production, elaborating on a systematic literature review, that identified the main concepts and determinants of CE.

Fig. 3: The most cited articles



Before proceeding with the thematic analysis, it was useful to focus on the Authors’ keywords to grasp the direction of the papers. Figure 4 shows the most used words in the research area covered by this study, based on the font size. Therefore, Figure 4 reveals that within the “Sustainable development” and referring to the “SMEs” theme, we found the “Circular Economy” and all related topics. In support of our analysis, it is evident that words such as “indicator” and/or “variables” are not mentioned in the figure obtained through the bibliometrics analysis.

Fig. 4: Word Cloud Map created with Authors’ keywords.



2. Thematic Analysis.

By systematically reviewing 469 academic research articles, interesting and significant analyses and themes were identified in this research area. These show indicators to define and evaluate the CE, circular business models and use cases and their barriers, different geographical areas and industrial sectors of application of the CE. The collection of information about the management of the CE and its evaluation in SMEs prevails through case studies (including Multiple Case Studies) and/or questionnaires/surveys administered to managers or company owners.

Most of the literature got interested in exploring, testing and measuring CE. Specifically, Agudo et al. (2023) adopted a Factor Analysis in their study for the creation of circular value in the context of a CE related to companies

that produce child seats. The retrieval of data and the extrapolation of information on the management of waste and related waste and, therefore, on the circularity of child seats, were obtained by means of email surveys.

Agyabeng et al. (2023) used partial least square structural equation modelling (PLS-SEM) through SmartPLS to analyse survey data gathered from 122 managers of SMEs in Ghana in the manufacturing sector. The measurement items used are Supply chain ethical leadership, Circular supply chain practices, corporate sustainability performance, External environmental orientation and Internal environmental orientation.

Munodawafa et al. (2022) through a literature review and qualitative interviews identified three dimensions of eco-innovation capabilities (Product Service Stewardship, Prevention of environmental pollution and Commitment to sustainable development). Exploratory and confirmatory factor analysis was applied to data collected by Malaysian Oil and Gas Equipment and Services (OGSE) company operators.

Choudhary et al. (2022) retrieved data thanks to 305 responses through an online questionnaire administered to executives working in the middle or senior management of SMEs. The part related to the measurement of the items and the CE of plastics has been adapted from the existing literature and has been modified to fit the context of the research. All the constructs were reflective in nature and were measured on a 7-point Likert scale anchored with 1 intended as “strongly disagree” to 7 corresponding to “strongly agree”.

Galatti et al. (2022) prepared a Likert-scale questionnaire to identify potential indicators to measure social aspects of CE in the textile and fashion sector. The social dimension of the CE and the social aspects of labour practices and decent work were divided into the following topics within the questionnaire: employment, labour/management relations, occupational health and safety, training and education, diversity and equal opportunity, and fair distribution of income.

Costa et al. (2022) adopted an online questionnaire to the Portuguese hotel industry obtaining 1407 hits in terms of response. The questionnaire comprises 20 questions, spread across seven sections: i) Accommodation Profile; ii) CE Awareness; iii) EC Challenges; iv) CE Enablers; v) CE Attitude; vi) CE Benefits; vii) CE and the Organizational Performance. The application and relevance of the CE concept, within the group of interviewees, were measured with a Likert scale in most of the questions and two open-ended questions, which were analyzed using content analysis.

Lehmann et al. (2022) have identified two dimensions, such as environmental degradation and resource efficiency, on the basis of the CE, using Eurostat and United Nations data from 28 European countries in the period 2011-2017. Through the dynamic panel models, they assessed the impact that investment, human capital, innovation and previous levels of circularity had on each dimension of the CE identified, comparing their impacts on both two dimensions.

Rodríguez-González et al. (2022) focused on the study of how green strategies (GBS) and eco-innovation (EI). This analysis was carried out via an empirical study on a sample of 460 companies in the automotive sector through questionnaires. To measure EI, an adaptation was made to the scale proposed by Doran and Ryan (2012) and Segarra-Oña et al. (2011) considering five items: “Focuses its investments mainly on EI activities”, “Increases awareness towards EI”, “Has a distribution of information on EI”, “Has constant training on EI”, “Participate in or develop R&D projects in EI”. While, to measure sustainable performance, an adaptation to the scale proposed by Gadenne et al. (2009) was measured through five items: “It significantly reduced environmental accidents”, “It significantly reduced energy consumption costs”, “Waste treatment significantly decreased”, “Waste dumping significantly decreased”, “Significantly reduced fines for environmental incidents”.

Liu et al., (2022) used the fundamental principles needed to establish a CE framework, as tabulated by the Ellen MacArthur Foundation (EMF, 2020), in order to empirically investigate the impacts of Covid-19 on the use of technological innovation and CE practices on organizational performance. Their aim was to comply with the unavailability of a typical consensus questionnaire and standards to measure industrial and economic activities related to CE and technological innovation. Within the framework of CE practices, it appears conservation and growth of natural resources, human capital, optimization of resource allocation and efficiency of industrial processes, that were introduced in the questionnaire sent to 480 manufacturing companies.

Dey et al. (2022) examined the adoption of CE in European SMEs (France, Greece, Spain and the United Kingdom) using a mixed methods approach (survey, interviews, case studies) to collect data from around 100 SMEs in each country. With regard to the circular economy, they analyze the areas relating to Design, Procurement, Production, Distribution, Usage/consumption, Reverse Logistics linked to Energy efficiency, Resource efficiency and Waste reduction.

Yu et al. (2022) investigated the manufacturing firms of Zhejiang Province, China. The survey was carried out through a telephone and e-mail survey and retrieved 308 valid questionnaires. All survey metrics were rated using a 7-point Likert scale. First, the authors focused on green design, measured via seven elements, mainly including reducing the use of hazardous raw materials, improving the use of materials, designing for recycling and reuse of products, etc. Second, concerning the recovery of investments, the drivers set was mainly composed of the sale of excess inventory and scrap, the recycling of reusable materials, etc. Finally, the environmental performance was estimated with environmental improvement in various aspects, such as the discharge of solid waste and wastewater, the use of toxic and harmful substances, the occurrence of environmental accidents, etc.

Roos Lindgreen et al. (2022) conducted a survey getting 155 responses and held 43 by Dutch and Italian companies active in the CE. The goal was to explore the use of sustainability assessment approaches and the use of CE; study the process of developing evaluation approaches; to find out the benefits and barriers to CE assessment. The analysis was conducted by measuring the following indicators used by the authors: Carbon footprint, Ecological footprint, Product environmental, Environmental life cycle assessment, Life cycle costing, Material flow analysis, Social life cycle assessment, Water footprint, Environmental accounting, GRI standards, Tailor-made circularity indicators based on a

life cycle approach, Tailor-made circularity indicators based on direct impact, Tailor-made sustainability indicators based on direct impact, Tailor-made sustainability indicators based on a life cycle approach, Single indicators Material Circularity Indicator, Material durability, Recycled content, Recycling rate, Time for disassembly, Volume of non-renewable resources not extracted, Volume of virgin material production prevented and Volume of waste diverted from landfill.

Darmandieu et al. (2022) investigated whether circularity in production processes can generate a reduction in the production costs of companies and the conditions that determine the intensity of this reduction. Data on 13,117 SMEs from the Flash Eurobarometer 2017 were implemented. The variables used to examine circularity were as follows: Reduction of production costs, Respondents to the Flash Barometer survey were asked, "What impact have resource efficiency actions taken on manufacturing costs over the past two years?". They recorded the responses as follows: "Significantly increased" was assigned the value 1; "Slightly increased" value 2; "Unmodified" the value 3; "Slightly decreased" value 4; "Significantly decreased" value 5. Referring to circularity in processes, it was created a variable in two steps. In the first stage, they used Eurobarometer information to perform a cluster analysis. Respondents to the Flash Eurobarometer survey were asked: "What actions is your company taking to be more resource efficient?" Seven practices were evaluated: "Water saving", "Energy saving", "Use predominantly of renewable energy (e.g. own production via solar panels, etc.)", "Material saving", "Waste minimisation", "Selling the waste material to another company" and "Recycling, reusing material or waste within the company". Finally, they recoded the answers via a dummy variable with a value of 1 if the company had implemented the practice, or 0 otherwise.

Bag et al. (2022) explored enablers in the context of the contribution of SMEs to the CE. They used a survey to collect data from 240 worker in SMEs of South Africa. They focused on the following characteristics: The company is dedicated to reducing the consumption of raw materials and energy; The company initiatively enhances the energy efficiency of production equipment; Product packaging materials are used repeatedly; Waste produced in the manufacturing process is recycled; Waste products from consumers are recycled; Waste and garbage are used after reprocessing to manufacture new products.

Portillo-Tarragona et al. (2022) offered valuable novel insights into the explanatory capabilities of accounting, which could integrate the measurement and valuation of related intangibles and firm-specific potentials in an environmental management framework. The authors used a model of the cause-and-effect relationship between circular patents held by firms and their capabilities, through a PLS-SEM. The chosen sample counted 120,406 patents from 2,216 Spanish companies, integrating patent types that could foster the sharing economy and CE, as well as patents on waste and other green patents.

Khandelwal and Singh (2022) focused on the factors related to green production in Indian SMEs and studied companies' attitudes towards green practices. Basically, with a survey conducted in the managerial area of SMEs, it emerged that firms were oriented to energy efficiency, water saving, green action, and waste management.

Henry et al. (2022) started with an explanatory scenario concerning the motivation behind the entrepreneurs; indeed, they want to conceptualize the archetype of a "grassroots" circular entrepreneur based on a theoretical framework and direct interviews with these actors. They analysed entrepreneurial identity and its CE motivations. Through a survey of 57 entrepreneurs in Europe and Australia, pieces of evidence arise a new category of sustainability-focused entrepreneurs, oriented to the CE. In the broad meaning of the term "circular economy", the visions of the entrepreneurs interviewed focus on the protection of the individual and the related social aspects.

Soh and Wong (2021) tested whether the relationship between companies' innovative eco-design capabilities and sustainable competitive advantage was positively moderated by customer involvement. They elaborated on the relationship between innovative eco-design capabilities and environmental performance to understand whether it was mediated by sustainable competitive advantage. After interviewing Chinese manufacturing companies, 216 questionnaires were analysed using SmartPLS software. Exploitation of innovative ecoproduct design capabilities and customer involvement, Sustainable competitive advantage, Environmental - Social - Financial performances were identified among the questionnaire sources. The results stated that the transition to the CE could be made with customer involvement and the exploitation of innovative eco-design capabilities for a sustainable competitive advantage. The authors emphasised the role of international and local advocacy groups and governments, which should continuously engage and educate on sustainability performance.

Van Langen et al. (2021) examined CE literature and collected the opinions of three different categories in Italy: Researchers, Economists and Administrators. With 122 responses, half of the respondents in the administrators' group consider the "recycling phase" and "eco-industrial parks and smart cities" among the most CE critical aspects. The economists' group attaches more importance to "sustainable supply chains", the "recycling phase" and "new business models". Emerged that society was far from achieving the goals of CE and that the action should be forced by policymakers and economic actors. Concerning the policy instruments and other CE measures, it needed to implement items, such as "investment in research to promote innovation/circular technology" and "investment in adequate circular infrastructure (to promote ease of transport, storage, marketing ...)"; "the creation of adequate circular infrastructure"; "the creation of take-back networks and markets (new financial instruments, ethical finance, etc.)"; "the adoption of a circular economy"; "the adoption of broad and long-term innovative policies at the national level" and "the promotion of research and implementation of circular product design".

Marín-Vinuesa et al. (2021) showed the need to measure CE, emphasising the complexity of finding a clear indicator. It is proposed to measure patents related to CE. A model of cause-and-effect relationships between CE-related patents and firm capabilities was defined within the theoretical framework of dynamic capabilities. This study

analyses a sample of 2,216 Spanish companies holding 120,406 patents using PLS-SEM. They emphasised the importance of firms' innovation capacity related to patenting, collaborative innovation, persistence in patenting or the ability to collaborate with research institutes.

As a result of an extensive literature review on the conceptual framework of the Circularity Measurement Toolkit, (CMT) Garza-Reyes et al. (2019) enabled the assessment of the degree of circularity in manufacturing SMEs. Existing studies in the literature provided the basis for the suggested toolkit by defining different types of circular practices. They provided the development of a conceptual framework for the proposed CMT, its verification and its validation with a Delphi study, subsequent to a systematic literature review to identify gaps.

Paes et al. (2019) investigated the steps made and further action achievable regarding the connections between CE and bio-waste management in the context of environmental sustainability. They performed a literature review and then created a swot analysis to examine CE in the context of organic waste. The business environment and public policies for CE could create various possibilities to increase the efficiency of industrial processes and reduce the consumption of natural resources. The authors traced the importance of government support, which has been insufficient so far.

Zhu et al. (2019) chose to investigate China's small farms to understand their steps towards CE. Specifically, they interviewed the working staff and the farmers and they discovered not only the many benefits from a financial point of view but also the benefits to the entire neighbouring community, which benefited from the clean air. The authors highlighted how government intervention gains significance in emerging economies under the form of subsidies. For validating CE instruments, the government must ensure that there is a good willingness to act on the entrepreneurial part.

Research limitations. The major limitation of this first bibliometric analysis consists in exclusively consulting articles published in the Scopus subject area 'Business, Management and Accounting' in the recent time horizon (2018 - 2023). However, this study represents the first working step to subsequently integrate the results from the Web of Science database. Applying similar methods, it is intended to carry out these research criteria in Web of Science to enrich this work. In addition, this first proof can be completed with the analysis of references and citation indexes, authors and relevant institutions involved in the publishing process, among other useful information.

Managerial implications. From the literature consultation, it appears necessary to identify some indicators for SMEs, to improve communication of the processes and changes occurring towards CE. This initial work-in-progress denotes a large part of the literature willing to align policymakers and governments and the lack of unique CE indicators. Indeed, a standard indicator incorporating the entire CE dimensions is still in its infancy, as is the CE principles adoption in SMEs (Rittershaus et al., 2023). However, it emerges the essential government role in the ecological transition, by providing also considerable economic support to SMEs, often lacking sufficient sources to adapt to sustainable standards. For instance, on the waste management side, governments could count the expenses that firms undertake to deliver special waste. Referring to CE innovation practices, governments could request companies' data on renewable energy consumption or the amount for publishing or acquiring green patents (Marín-Vinuesa et al., 2021; Portillo-Tarragona et al., 2022). The government's intention might include measuring the most eco-efficient solutions adopted in the companies' supply chain (material, energy and water reduction), and assessing sustainable efforts also via the reduction of environmental emissions. Consequently, a specified survey with these types of information could be submitted to companies (Liu et al., 2022), combined with other financial documents typically required.

Originality of the paper. The novelty of this work-in-progress concerns the application of two steps of literature review, first descriptive and then thematic, in order to deeply explore the state of the art. These two stages permitted to design and suggest a new insight, including the excellent progress reported by researchers in recent years. The bibliometric literature review highlighted the need for a standardised indicator for practical CE in SMEs, similar to a score produced by Bloomberg or Refinitiv for listed companies. This preliminary work proposes the implementation of a questionnaire to quantify the efforts of SMEs towards CE. The essentiality of government action in unifying CE assessments for all companies, including SMEs, has been learnt from the literature.

Keywords: Circular economy (CE); CE indicators; CE measurement; standard survey; SMEs.

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What Is Circular Economy?

Could it be the more the merrier in a B Corp? A Spatial Error Model

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Abstract

Considering the spread of B Corp certification and its success among stakeholders, particularly consumers, this project aims to assess the steps implemented by Italian companies, by exploring the sides of the workers and governance. The aim of this work-in-progress consists into test if the relationship between the overall score produced by B Lab and the number of employees can be influenced by the geographical location of the firms. This project seeks to analyse 121 B Corp firms located in Italy. Ordinary Least Square (OLS) and Spatial Error (SE) models were implemented in the analysis for the year 2019. This work reveals some spatial clustering in the residuals. This first research draft aims to provide the basis for appropriate reflections that could prove useful for managerial decisions. Indeed, if geographical location affects the relationship between the B Corp score and the organisational standards of firms, a twofold purpose of the work is suggested. First, firms that are not yet B Corp would benefit greatly by learning from neighbouring firms that have already achieved certification. Second, companies that still exhibit low B Corp scores can be inspired and replicate the successful organisation of neighbouring B Corp companies with high scores.

Framing of the research. The Sustainable Development Goals (SDGs) cover several directions. Besides focusing on the environment and the protection of land and resources, it seeks to achieve social goals such as inclusion and respect for the individual. This topic is of particular interest to companies, as they are the places where the culture of respect can be spread, without neglecting economic goals. In this regard, B Lab outlines a series of indicators that take into account all dimensions of the company, which are candidates as B Corp firms. It is precisely B Lab the institution that issues the certification, after a meticulous examination of the companies' performance and scores. Companies must be aligned with performance standards regarding five areas (Governance, Workers, Community, Environment, and Customers), respecting legal requirements, the consideration of all stakeholders in decision-making must be incorporated into the company's guidelines and subscribing to the B Lab term sheet and the Declaration of Interdependence, and also paying the yearly certification charge. The last point is a commitment to maintaining standards and embodies the seriousness of the certification received.

Purpose of the paper. Considering the spread of this certification and its success among stakeholders, particularly consumers, this project aims to assess the steps implemented by Italian companies, by exploring the sides of the workers and governance. Furthermore, to improve comprehension of the phenomenon behind the spread of these certifications, this project intends to investigate the relationship between the score obtained by B Lab and the consideration of the human and innovation factor in the company. This investigation is restricted to Italian B Corp companies. Because of the different cultural scenarios that may concern the geographical positioning of the analysed companies, a geospatial analysis will be performed. Particularly, it is questioned if the relationship between the overall score produced by B Lab and the number of employees can be influenced by the geographical location of the firms. The exploration intends to comprehend if the score assigned by B Lab is influenced by the number of employees of the analysed B Corp firms and if this relationship depends on the geographic location of the firms. Principally, the aim of this work-in-progress consists into test whether the relationship one chooses to investigate is also affected by a spatial dependence of the observations. The first underlying connection emphasises the strength of a working team composed of a larger number of workers. This relationship is controlled also by the number of managers and board members. Indeed, in successful sustainable projects, several decision-makers are involved, who have the opportunity to express their views and share their visions with others. Specifically, analyses of social psychology have shown in the literature that large groups, such as the workers' team and board, demonstrate a better capacity for resolution, and a greater number of critical judgements and perspectives on a given issue (Harrison, 1999; Haleblan and Finkelstein, 1993).

Furthermore, Wiersema and Bantel (1992) refer to manager traits and the role of manager culture in the decision-making process. Thus, considering the similarities between neighbour firms, it can be relevant to explore if the relationship could be affected by the positions of the observations. For this purpose, spatial econometrics permits the detection of spatial effects in regression analysis.

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Methodology. *To demonstrate the research question, this work-in-progress seeks to analyse 121 B Corp firms located in Italy. The list of firms was collected from the B Lab databases available on Data World. Consequently, these firms have been retrieved on AIDA (Analisi Informatizzata delle Aziende Italiane) from Bureau van Dijk resources. From the exploration of AIDA, company composition data could be extrapolated to obtain the constitutive side of managers, board and employees. Data was collected for the period 2015-2020.*

An initial exploration of the collected data was carried out through Tableau software, which made it possible to show the location of the analysed firms. Subsequently, an Ordinary Least Square (OLS) and a Spatial Error (SE) model were implemented by Stata software. This type of simultaneous autoregressive model was selected to consider the slight but significant clustering of the residuals (Houlden et al., 2021). This procedure permits comprehending insights into the residual distribution. In order to consider the significant clustering of residuals by capturing a single model for the entire sample, this technique assumes that the residuals, rather than the structures of the data variables, are influenced by their neighbours (Golgher and Voss, 2016). For the creation of this peculiar residual distribution, spatial econometrics enables the use of geo-coded data to obtain information on the dependence of observations on their geographical location. It requires longitude and latitude data, that have transformed into X and Y coordinates, relating to the location of the observations. In this work-in-progress, the distance matrix was calculated with the distance between B Corp firms. In order to measure the position of all analysed firms, these coordinates were collected for each observation, by considering the corporate headquarters.

In the construction of the OLS model, the literature review allowed the addition of specified variables that could be included in this draft. A primary focus on the study of Ardito et al. (2021) enabled the investigation of an already explored relationship between gender diversity on boards of directors. According to the logical idea of Ardito et al. (2021), the score given by B Lab to the certified B Corp was handpicked as a dependent variable in this work-in-progress, in light of the overview that the score performs towards the different parameters concerning the Environment, Workers, Customers, Community, and Governance. Overall B Corp Score assigned to each company by B Lab was obtained from the dataset extracted from Dataworld. These scores represent an effective benchmarking tool because they compare companies with high performance on various aspects of economic, social and environmental sustainability (Honeyman & Jana, 2019; Carvalho, 2021). The process of accreditation begins with a period of self-assessment for the firm. The B Corp Effect Assessment questionnaire allows all organizations to benefit from an assessment of their business's sustainability in terms of governance, economic outcomes, environmental performance, and social impact. The questionnaire automatically produces a score ranging from 0 to 200: organizations that achieve a minimum of 80 points have the option to go to the next level (B Lab). The upcoming level is a call conference with a member of the B Lab team aimed at verifying and deepening specific areas of the questionnaire. Before receiving the final green light, it is normally asked to provide any papers that may certify and validate the self-declared assertions in the questionnaire (B Lab, Impact Assessment).

The selection to integrate into this work-in-progress the overall score B Corp allows for all the factors that constitute this score, ranging from an organisation's contribution to the economic and social well-being of the communities in which it operates up to the overall mission, ethics, accountability and transparency in social and environmental issues (Ardito et al., 2021).

The score produced by B Lab is not based on profit and loss account observations or data made public by the company through financial statements. The score is created on the basis of a declaration submitted by the company when applying for certification. For these reasons, the variables chosen as independent and control variables were obtained from public financial statements and they refer to the management decision of the company. Thus, for the selection of the independent variable, it was ranked the number of employees. As key organizational information, the number of employees represents stands out as one of the most powerful stakeholders, capable of ensuring better performance in terms of employee well-being, as reported by Ardito et al. (2021). Specifically, the number of employees is considered to test workforce and motivation, as drivers in sustainability-oriented companies, such as B Corp.

Moreover, by exploiting some suggestions that appeared in Arend (2014) and Ardito et al. (2021), this work-in-progress proposes to test as control variables the number of members composing the management team and board of directors, to elaborate on the further possibility that could be influenced the B Corp's overall score. Thus, control variables were represented by the average age of managers and the board, a dummy indicating whether the company has collected patent rights, and the percentage of women on the board or among managers. These chosen variables aim to intercept and communicate the optimal directions for companies not yet B Corp, which intend to move towards this type of certification.

The need to include a variable connected to innovation, such as the detention of patent rights, may become a relevant point in the debate on the orientation towards innovative actions. This variable may affect the recognition of the B Corp, as underlined by Ardito et al. (2021) and it may influence environmental innovation (Haščič, and Migotto, 2015).

The average age of managers was chosen as a control variable, by questioning if the higher value for average age corresponds lower value for the overall score. Indeed, managers' and directors' backgrounds represent a significant role in explaining performance variations between businesses. Their personalities, values, expertise, and experiences cover a significant impact on how they think and make decisions (Hambrick & Mason, 1984; Hambrick, 2007).

Referring to the percentage of women on board and among managers, this control variable intends to measure if the woman's presence could contribute to the enhancement of the overall score. The variable is recurrently detected in the literature in testing related theories on board diversity and firm performance (Rose, 2007). Furthermore, including this

variable is connected with the fact that it is better to have female directors when aiming for an overall improvement in Corporate Social Responsibility (CSR) performance (Ardito et al., 2021). Similarly, considering that CSR goals are embedded in the standards that a B Corp should contain, we choose to include it in the analysis to test how much the presence of women on the board may have affected an overall B Corp score.

Results. From the first exploration of the position of considered Italian B Corp firms via Tableau software, it appears that the majority of B Corps is located in the Central North. Through the inclusion of a density map relating to the higher overall B Corp score, it is possible to obtain a primary geographical distribution of the observations. The average B Corp score is higher in areas of the map where the colour is more saturated. However, considering the descriptive statistics on the entire sample, the average overall B Corp score is 90 points, the minimum is 80 and the maximum is given as 148.

The OLS and SE models focused only on the year 2019 because it was found to be the most inclusive year of observations and the firms reported no significant changes in previous years, both in terms of overall B Corp score (dependent variable) and for the independent variables included in the model. For the baseline and OLS models, Moran's I test was examined to reveal the existence of global spatial autocorrelation. The global Moran's I statistic essentially compares the actual value of each individual's residuals with a weighted matrix of neighbours and generates a value for the overall geographical clustering of the model's performance. Moreover, it was used to quantify the spatial autocorrelation of the residual error components (Moran, 1950). The value of each residue is therefore compared to that of its closest neighbours to get a clustering value for each place by means of nearby Moran's I. (Moran, 1950). The values for both measures range from -1 (clusters of dissimilar values) to 1 (clusters of similar values), with 0 denoting no autocorrelation. Moran's I index was calculated for the year 2019, reporting a significant level of autocorrelation. In this first proof, Moran's I test may permit an explanation of a significant positive spatial autocorrelation among the regression residuals, thus suggesting a re-formalization of all the results previously obtained with OLS and a redefinition of the model. This procedure appears to be the most commonly used specification test for spatial autocorrelation (Anselin, 2022; Arbia, 2014), derived from a statistic developed by Moran (1950) as a two-dimensional analogue of a test for correlation of univariate time series (Cliff and Ord, 1975).

The value of this index permits it to move forward in the exploration of the SE model. Indeed, the SE approach includes the spatial autocorrelation structure into a linear model and adds λ as an autoregressive parameter to account for these patterns. This term is accomplished using a spatial weights matrix, in which each location's nearest neighbours and the weight assigned to each neighbour based on their closeness are specified. A variance-covariance matrix built using the spatial weights matrix is then used to describe the spatial dependency of a place. In the model computed, λ and its likelihood ratio illustrate a significant value, respecting the acceptable range. This value implies some spatial clustering in the residuals, which could be driven by underlying random processes and thus could be effectively captured by an SE model.

Research limitations. The main limitation highlighted in this first draft, which intends to be completed and improved, is the lack of several variables that allow for a better understanding of B Corp governance. As it turns out in other works that have chosen to examine relations related to board composition and the inclusiveness of women in the decision-making process, the consultation of a more extensive database could consider further control variables that would better test the research. For the same reason, consulting other databases at the European level would allow the analysis to be extended beyond Italy. This last point would be interesting in light of the different socio-economic cultures that characterise the European continent.

As outlined by B Lab Impact Assessment, the overall score is created based on evaluations expressed by the organisation towards the company requesting certification. This score is made up of several factors, obtained from a survey that B Lab. This characteristic could trigger objections about the scoring's impartiality and the sense of comparing it with factual variables from the business statement.

By including control variables that can report more on the sustainable aspect of the company, all factors affecting the B Corp's assessment can be included.

An important limitation emerges also in the choice of measuring innovation through the company's entitlement. For while this remains one of the few elements to test a firm's attitude to invest and publish its know-how, thereby making innovation available to other firms, it also becomes a limiting measure available only for some firms. Furthermore, understanding innovation from a broader perspective might be useful to assess the progress made by individual companies in revolutionising governance, thus noting the changes that have occurred over the years. This first project step aims to better explain the relationships in the future, by integrating also a distinction regarding the industry sector of the analysed companies. Another interesting point could arise from the different B Corp firms' sizes. Improving the analysis of the geographical dependence with these differentiations may also offer other practical insights. It was decided to limit the period of analysis to the time frame 2015-2020, focusing the SE analysis on 2019. A more comprehensive subsequent analysis could cover the years 2019-2022 in order to better capture the governance changes following the Covid-19 pandemic and the war.

In recent years, other Italian companies have obtained B Corp certification, demonstrating that interest in this topic is growing. In a second phase of the work, it may be interesting to also include new Italian B Corp entries, in order to test which changes have been made in governance to enable compliance with B Corp standards. In a subsequent phase, the sustainability report of firms might also be considered, in case it is publicly disclosed by the firm, in order to examine its relation to the steps taken by the firm towards the realisation of the 2030 Agenda goals.

Notwithstanding the underlining numerous limitations related to variables and sample division, this first research draft aims to provide the basis for appropriate reflections that could prove useful for managerial decisions.

Managerial implications. By overcoming limitations and incorporating suggested changes, a completed version of this work-in-progress could represent a view to providing managerial advice. Spatial Econometrics can reveal aspects related to the culture of a given territory. Indeed, it could summarise reasonably the cultural characteristics and phenomena that have taken place in a specific territory. By detecting similarities between neighbouring B Corp companies, managers and decision-makers of companies wishing to become certified may observe the behaviour of their neighbours in order to draw examples from them. This work-in-progress could offer a view referring to the potential of workers' teams in a more sustainable context of firms. In particular, the contribution of the team members might serve to create a meaningful impact and might attempt to achieve the desired inclusion within the working environment. To not let industrialisation, deprive the need for human presence, but rather support the work of qualified employees, this research project strives to emphasise the importance of human experience in production processes.

Originality of the paper. This work stands in the broad discussion that has been growing in recent times on B Corp firms. In particular, by orienting the focus towards the customer, it is the first stakeholder the business strives to satisfy in terms of the green trust (Bhattacharya and Korschun, 2008). This primary stakeholder shows a growing increasingly trusting in businesses that adopt environmentally friendly practices (Krause, 1993). Consequently, companies are increasingly using tactics geared at green certifications recognized at the European but also worldwide levels, in order to accomplish these aims (Cronin et al., 2011). As a result, the incorporation of environmentally friendly manufacturing practices and design into a company's product strategy is guided by a set of certifications (Szabo and Webster, 2020). However, the most controversial question is whether a company can convince customers through third-party certification. For these reasons, this work-in-progress wanted to focus on the company's strategy of applying as a B Corp. This type of certification allows for an adjustment and improvement of internal performance (Honeyman and Jana, 2019), but it also has very good consequences for external actors. Investigating the behaviour of already B Corp certified companies and their organisational practices could be a key element for companies wishing to apply for the same certification. If geographical location affects the relationship between the B Corp score and the organisational standards of firms, a twofold purpose of the work is suggested. First, firms that are not yet B Corp would benefit greatly by learning from neighbouring firms that have already achieved certification. Second, companies that still exhibit low B Corp scores can be inspired and replicate the successful organisation of neighbouring B Corp companies with high scores.

Keywords: BCorp; sustainable firms; Spatial Econometrics; Geospatial analysis; Spatial Error Model.

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Building an Organizational Sustainable Identity: An Exploratory Analysis of Brazilian Coffee Producers

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Framing of the research. *In recent years, the importance of environmental issues to practitioners and academics has grown, reflecting their essential role in sustainable development. Sustainability has emerged as a critical topic of concern for individuals, organizations, and nations worldwide, with sustainable development being seen as a means of achieving economic, social, and environmental well-being for present and future generations (Fuente et al., 2022; George and Schillebeeckx, 2022; Vasileiou et al., 2022). The concept of sustainable development is multidimensional, involving the interplay between economic, social, and environmental considerations (Vervaal et al., 2022). Economic dimensions refer to the ability of an economy to grow sustainably and equitably, without degrading the natural resource base or compromising future generations' ability to meet their needs (Luo and Zheng, 2013). Social dimensions of sustainable development encompass the well-being of individuals and communities, including access to basic needs such as food, water, and healthcare, and social equity and justice (Sancha et al., 2015). Environmental dimensions focus on protecting natural resources, reducing pollution, mitigating climate change, and preserving biodiversity, among other issues (Lopes de Sousa Jabbour et al., 2017; Simpson et al., 2007).*

Environmental issues are widely recognized as intertwined with economic and social factors, thereby necessitating a multidisciplinary approach that leverages the specialized knowledge of practitioners and academics across diverse fields. Thus, an understanding of sustainable development and its three dimensions is crucial for policy-makers, business leaders, and researchers alike to ensure a sustainable future (Silvestre and Țircă, 2019). Besides, there is growing evidence that sustainability pathways can bring benefits not only to economies and the achievement of societal outcomes but also to firms. In particular, by integrating sustainability into their operations and business models, firms can gain a competitive advantage by reducing their environmental impact, increasing efficiency, and enhancing their reputation and brand value (Carter et al., 2021; Casidy and Lie, 2023; Gupta and Kumar, 2013; Kiefhaber et al., 2020).

Firms that implement sustainable practices can improve their supply chain management and reduce waste, which can translate into cost savings and improved efficiency (Le et al., 2022). Furthermore, firms that adopt sustainability strategies can enhance their reputation and brand value by demonstrating a commitment to environmental and social responsibility. This, in turn, can lead to increased customer loyalty and stakeholder support (Baumgartner and Rauter, 2017). The integration of sustainability into business strategy can drive innovation as firms seek to develop new products and services that meet changing consumer preferences and societal needs (Zhang et al., 2022). As a consequence, the firm can obtain the creation of new markets and revenue streams, as well as improvements in organizational performance (Aman and Seuring, 2022; Fuente et al., 2022; Keränen et al., 2023; López et al., 2023; Wood et al., 2021). Among performance implications, Aman and Seuring (2022) observed that sustainable approaches have tangible effects on focal firms' operational performance, which covers a range of critical factors like cost reduction, speed, time, and flexibility. Broccardo and Zicari (2020) conducted a study that showed the advantages of implementing a sustainable strategy for improving profitability. The positive effect was more pronounced for larger firms than for small and medium-sized ones. It is likely that larger firms have greater resources to devote to social and environmental initiatives. Thus, firm size has an impact on sustainability implementations and related performance implications.

As Keränen et al. (2023) suggested, the concept of sustainability is connected with the organizational identity literature. In this perspective, organizational identity literature provides a useful framework for thinking about how sustainability can be incorporated into an organization's identity, values, and purpose, and for understanding the factors that can support or hinder the effective implementation of sustainability practices within an organization. Drawing on organizational identity theory (Albert et al., 2000; Gioia et al., 2013; Sasaki et al., 2020), organizational identity is viewed as a combination of centrality, distinctiveness and temporal continuity. Haslam et al. (2017) proposed

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three different perspectives for viewing organizational identity. First, organizational identity represents a social construction that emerges from collective sensemaking processes to give meaning to shared experiences and to answer the core question of "who we are as an organization". Second, merging with social identity theory (Ashforth and Mael, 1989), it is seen as a part of social identity, where the understanding of "who one is" relates to the ability to identify oneself as a member of a particular organization. Thus, organizational identity becomes a tool for determining organizational behavior. Third, the view of organizational identity as a social actor is framed within the institutional theory (Zhao et al., 2017), where it includes external legitimation claims and behavioral commitments that determine the characteristics of an organization.

The formation of organizational identity is a process that entails a series of distinct stages. According to Gioia et al. (2010), such formation of an organization's identity is dynamic as it is shaped by the interactions between its members and external stakeholders. This process can be broadly classified into eight distinct stages, each of which plays a crucial role in shaping the identity of the organization. The first four stages of the identity formation process involve the articulation of the organization's vision, the exploration of potential meanings and values, the experience of contrasting perspectives, and the convergence towards a shared and consensual identity. These initial stages serve as a foundation for the subsequent recurrent actions that influence the ongoing evolution of the organization's identity. The following four stages - negotiating identity claims, attaining optimal distinctiveness, performing liminal actions, and assimilating legitimizing feedback - represent key processes that occur throughout the identity formation process. Negotiating identity claims involves reconciling conflicting views and opinions while attaining optimal distinctiveness involves balancing the organization's need for uniqueness with its need to conform to accepted norms and expectations. Performing liminal actions involves exploring new and potentially transformative experiences while assimilating legitimizing feedback involves seeking and incorporating external validation and recognition. Together, these eight stages represent a comprehensive framework for understanding the complex and multifaceted process of organizational identity formation.

The current trend toward sustainable business practices has led to the evolution of organizational identity, with an increasing emphasis on the integration of environmental considerations (Simões and Sebastiani, 2017). However, despite the growing attention paid to this subject, there is limited empirical evidence available. Some scholars have highlighted the crucial role of entrepreneurs in promoting sustainable development within the business context. For instance, Wry and York (2017) established a link between role identities and opportunity recognition, demonstrating that the more identities a founder displays, the higher the likelihood of achieving both commercial and social objectives. Similarly, York et al. (2016) proposed a hybrid founder identity that incorporates both environmental and commercial considerations, seeing identity as the motivator for the development of sustainable practices. The research findings indicated that entrepreneurs' attitudes toward sustainability are shaped by self-selection.

Moreover, scholars have contributed to the research on organizational sustainable identity and green organizational identity highlighting the importance of interpreting the reality of a business and its context in shaping the identity of the organization (Chang and Chen, 2013; Chen, 2011; Cornelissen et al., 2021; Frostenson et al., 2022). These studies have contributed to the development of a better understanding of the formation of organizational identity, its relationship to sustainability, and its impact on innovation and performance outcomes. For example, Frostenson et al. (2022) argued that organizational sustainable identity is more of a social construct. The authors proposed that the sustainability identity of an organization is developed through the interpretation of the reality of its business and the context in which it operates. The discourse and sensemaking within the firm contribute to the construction of a specific organizational sustainability identity, which is shaped by the beliefs about the sustainability of organizational members and communication with customers. A study conducted by Cornelissen et al. (2021), examined the formation of hybrid organizational identity among social firms. The authors proposed that this process is akin to character formation, as the leaders and members of the organization experiment with provisional identities to create an integrated hybrid organization. This process involves two interrelated parts: first, figuring out who they are in terms of their dual mission and organizational character, and second, the collective meaning of "what we are doing" in terms of product and social impact strategies.

Regarding green organizational identity, Chen (2011) defined such a concept as an interpretive scheme used to frame the behavior of an organization's members in view of a sustainable approach. The analysis of the relationships between environmental organizational culture and environmental leadership as antecedents of green organizational identity and green competitive advantage as an outcome was examined by Chen (2011). It was found that both antecedents are positively associated with green organizational identity and green competitive advantage, respectively. Following this line of research, Chang and Chen (2013) noted that green organizational identity positively affects green innovation performance, with environmental commitment and organizational legitimacy mediating this relationship. In line, several researchers (Soewarno et al., 2019; Song and Yu, 2018) explored the mediating effect of green organizational identity within green innovation strategy- green innovation relationships in different research settings. In particular, the findings of Song and Yu (2018) claimed that green innovation strategy is positively related to green organizational identity, which consequently positively affects green innovation. Similar results were obtained by Soewarno et al. (2019). Additionally, the analysis of Soewarno et al. (2019) extended a mediation research model by including environmental organizational legitimacy. The results revealed that stronger legitimacy would lead to better green innovation performance and gain more social support.

Purpose of the paper. This study is part of a wider and still ongoing research that bridges organizational identity theory literature (Albert et al., 2000; Gioia et al., 2013; Haslam et al., 2017) with the sustainable concept (Kieffhaber et

al., 2020; Verwaal et al., 2022) to advance our understanding of the organizational pathways to building organizational sustainable identity. We analyze organizational sustainable identity as a social construct that frames organizational behavior by introducing relevant norms and values toward maintaining sustainable development. We argue that by implementing economic-, social- and environmental-based mechanisms, firms shape organizational identity towards a sustainable one. Thus, the purpose of this study is to explore key pathways leading to the creation of an organizational sustainable identity. The findings are based on a qualitative analysis of 26 Brazilian firms operating in the food industry. The model comes from an exploratory analysis of in-depth semi-structured interviews on the pathways for developing organizational identity integrating sustainable aspects. Thus, we propose an exploratory framework related to the formation of an organizational sustainable identity.

Methodology. *The study follows a qualitative approach which allows analyzing how a sustainable identity can be built into organizations. In detail, we adopt the narrative inquiry approach (Balzano and Vianelli, 2022; Bloom et al., 2021; Paschen and Ison, 2014).*

Consistently with Riessman's guidelines (2008), the analysis phases include attending, telling, transcribing, analyzing, and reading. Thus, initially, we build a framework to have a comprehensive image of the theoretical background and familiarize ourselves with the research context. Then, we proceed with data collection. We framed the study within organizational identity theory, assuming that identity is built on personal and collective narratives that are used for sense-making and understanding values and ethics (Humphreys and Brown, 2002). In this view, sustainability is seen as a collective construct that provides the environmentally oriented character of an organization's actions. Based on the literature review, sustainable practices exposed three aspects which were covered in our interview protocol: economic, social, and environmental. All the interviews were recorded with the interviewee's permission and lasted from 45 to 90 minutes. In the transcribing phase, we completed line-by-line coding, which allows for building narrative maps and structures. The procedure was conducted by two researchers independently; thus, we obtained an acceptable level of intercoder reliability (O'Connor and Joffe, 2020). Next, we grouped codes into logical categories which reflect the apparent themes. This step facilitates patterns' visualization for proposing the final model. Lastly, we review the obtained evidence together with external readers in order to ensure a holistic and coherent presentation of the research findings.

The primary data consists of 26 semi-structured narrative interviews conducted with managing directors and founders of purposefully selected case firms. Purposive sampling, in this case, is relevant as all units of the analysis share the same characteristics in terms of environmental conditions and regulatory requirements (Sohns et al., 2023). The case selection is based on such criteria: first, performing sustainable practices by the firm. Next, firm size - only SMEs have been included, and industry - the analysis focuses on the food sector, particularly coffee producers.

To maintain respondent confidentiality, we assigned a random code for each interviewee (A1, A2, etc.), which is aside from cited quotes.

Results. *The qualitative analysis revealed distinct patterns in the interplay between organizational identity and sustainability, demonstrating the integration of environmental approaches into the construction of organizational identity. Through an analysis of interview data, we identified patterns where participants discussed their perceptions of and implemented practices toward sustainability. We utilized second-order labeling to capture quotes that exemplified the shared perspectives among participants. Here we report some representative quotes that inspired our analysis. For instance, the following quote, "When we started our path in sustainability, we were attracted by the premium", represents the theme of sustainability-related economic incentives. Another manager framed sustainability as a matter of lifestyle, with its roots originating in the sphere of personal values, "We are always worried about sustainability, especially my father [prior firm owner]. We have been reforestation for 15 years. We care about the ecological system that provides the fauna ecological corridors between the forest areas and the water source as lakes and rivers".*

The analysis identified three mechanisms through which firms can transform their identity into a sustainable one. For instance, the economic aspect involves offering premium prices that align with the organization's commercial objectives. As one respondent noted, "some buyers pay a little bit more, as a premium. But in general, it is more related to the proximity of us to the buyers from the external market."

The social aspect, on the other hand, entails treating employees fairly. One interviewee stated that "we help each other. I have the machinery to help them (workers), and they work for me sometimes. We pay a good price for the service provided. It is not a registered relationship, but it is a very fair relationship. We don't exploit each other. It is very natural."

Finally, the environmental aspect involves implementing sustainable activities and practices such as preserving nature, improving soil conditions, and saving water resources. As one participant mentioned, "We also try to decrease the use of chemicals and use more biological inputs. It is not easy, but with good consultancy and good workers, it is possible to do so." Another respondent stated that "We consider the preservation of the forest and water resources. In the past, it was not preserved. In 2013 and 2014, we had a drought in our region, so we started to worry about it.

Based on the empirical findings in Fig. 1, we propose our exploratory model.

Fig. 1: An exploratory model of an organizational sustainable identity formation



As Fig. 1 shows, through our analysis, we have identified a range of motivating factors that prompt managers to develop a sustainable organizational identity. These factors are often grounded in personal values, intrinsic motivation, environmental concerns, and financial rewards. Interestingly, the adoption of sustainable practices is often supported by external stakeholders such as suppliers or clients, which facilitates the translation of these motivating factors into tangible actions. For instance, one of the respondents said: “In 2019, we met a person from [name of an organization that provides technical support and courses for farmers]. He appreciated our coffee and suggested us to invest in sustainable farming, which, in turn, would help to sell coffee for a higher price”. Another interviewee mentioned, “We had some visits of exporter firms around here. Also, cooperatives and coffee buyers facilitate the transition to more sustainable way of production. They offer technical support and a small premium per bag of coffee”. Sustainable actions align with the three subdimensions of sustainability, namely economic, environmental, and social, resulting in the positioning of themselves as sustainable one and building favorable reputations. One manager said, “We try to keep our farm organized and clean, to give a good image and have a good reputation nearby. So, when someone comes here, they will see that we follow a sustainable path. We also try to identify the physical structure like the chemical room, signals communicating that we do not allow to hunt or fish in our land”. In this perspective, organizations can develop an integrated sustainable identity that reflects their commitment to long-term sustainability practices. For example, one participant stated, “In general, a sustainable approach could be beneficial as it helps to keep the farm organized, workers are treated fairly as they are registered, and also it makes our country a better place.” Such a strategic approach can help organizations achieve not only their environmental and social goals but also attain sustainable economic growth over time, building an organizational sustainable identity.

Research limitations. While this study provides novel insights, it is important to acknowledge a number of limitations. The complexity of organizational sustainable identity presents a challenge to achieving a comprehensive understanding of all its aspects, which in turn limits the generalizability of our findings. Additionally, our focus on SMEs in our case selection may not extend to larger firms, and the sampling may not represent all industries and regions, which further restricts the applicability of our findings. To overcome these limitations, future research could incorporate comparative studies in different countries and industries, as well as consider longitudinal studies to examine the evolving nature of these phenomena over time. Furthermore, to address the aforementioned limitations and further enhance our understanding of organizational sustainable identity, future research could explore alternative methodological approaches that account for the complexity and nuances of this concept. For instance, adopting a mixed-methods approach or utilizing alternative data collection methods could provide a more comprehensive and accurate understanding of organizational sustainable identity. Additionally, examining the impact of contextual factors such as national culture, industry-specific regulations, and market conditions could shed light on how these factors shape the development of sustainable identity in organizations.

Managerial implications. The results of this study offer valuable insights for managers on how to establish a sustainable organizational identity. Specifically, the study highlights the importance of taking actions to improve the environmental aspect, promote fair employment practices, and treat workers ethically. These practices not only demonstrate a commitment to sustainability but could potentially contribute to better performance outcomes, such as increased financial rewards and higher customer engagement. By positioning themselves as a sustainably oriented firm, organizations can differentiate their products from competitors, and leverage this identity as a marketing tool to maintain relationships with stakeholders.

Originality of the paper. Our analysis provides an exploratory model for understanding the process of creating a sustainable identity within an organization. By applying organizational identity theory, we have incorporated mechanisms of sustainability to examine the experiences and practices adopted by firms striving for environmental stability. This framework helps to illuminate the pathways that organizations can take to establish a sustainable identity and lays the foundation for future research in this area. Building on these exploratory insights, organizations could develop more effective strategies for promoting sustainable practices and driving long-term success.

Keywords: organizational identity, sustainability, economic sustainability, social sustainability, environmental sustainability, narrative enquiry.

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The entrepreneurial capabilities-resilience-recovery path: A dynamic view on small cafés and restaurants facing the pandemic[♦]

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Framing of the research. *Exogenous unexpected events (such as economic crises, and human and natural disasters) are constantly increasing in frequency and magnitude, causing important threats to business performance (Castro and Zermeno, 2020; Linnenluecke, 2017). To avoid negative effects, businesses should engage in dynamic adaptive strategies aimed at building resilience to recover and continue to generate revenues. To explain the reason why some businesses are able to face critical events better than others, extant literature has identified resilience as the ability to not only survive, but to be able to thrive through times of adversity (McManus et al., 2008). This literature evidence that business resilience is concerned - among others - with the business size and the sector. From the former viewpoint, small businesses are less able to display robustness and resilience capacity; from the latter perspective, manufacturing displays superior resilience capacity in the long-run compared to the services sector (Pearson et al., 2011). Within the latter, food and beverage (F&B) service activities □□defined as being “concerned with the provision of food and drink ready for immediate consumption” (Cousins et al., 2014, p. 6) □□have been the most impacted by the pandemic together with tourism. The sector was in good health and showed positive growth rates before the spread of the pandemic. However, FIFE (2022) estimates that in the period 2020-2021, 45,000 companies operating in the sector went out of business, with 23 billion euro of consumption which are still missing in comparison with the pre-covid period (2019), about a quarter of the total. The impact on revenues was even stronger, equal to - 34.4 billion in 2020, and - 10 billion in the first quarter of 2021, with a sharp drop in employees in public establishments, especially in central Italy, equal to -27.6%. Within the F&B sector, particular importance at the national level is played by cafés and restaurants. These businesses temporarily ceased operations during the lockdowns and had to heavily redefine their business models and operations e.g., they started to provide takeaway and receive orders online or via phone for delivery services (Dedeoğlu and Boğan, 2021) all along the pandemic spread period; this put seriously at risk their survival, also considering their mainly nature as micro and small businesses.*

Some studies have evidenced the role of resources and capabilities, especially when they are dynamic, to feed resilience (Battisti and Deakins, 2017; Martinelli et al., 2018); however, this literature is still in development. In small companies where there is only one decision-maker which is the entrepreneur, the latter individually develop and applies DCs to sense and seize opportunities, face threats, and evaluate and prescribe changes in the configuration of resources (Teece, 2014).

Purpose of the paper. *This research aims at exploring if those small businesses operating as being resilient as driven by dynamic capabilities show performance and recovery’s capacities in relation to a specific kind of natural disaster biological that is: the Covid-19 pandemic. This analysis is performed focusing on cafés and restaurants, business activities particularly affected by the pandemic spread. Understanding the factors driving resilience and verifying the subsequent effect on business performance compared to the pre-covid situation is key to fostering academic knowledge on the topic and help small F&B entrepreneurs to understand how to behave and what factors manage to improve their resilience capacity. And this is easier when there is evidence of a positive impact that being resilient can have on performance in comparison to the pre-pandemic situation.*

Whenever unpredictable and unexpected events occur, the Dynamic Capabilities (DC) view allows the reconfiguration of existing resources and capabilities, so that enterprises can maintain a competitive advantage. Therefore, given the extremely negative impact of the pandemic on cafés and restaurants, especially for the small enterprises, we believe that the DC perspective is particularly suitable for studying the entrepreneurial ability to renew and reconfigure resources (Helfat and Peteraf, 2009; Teece 2007). DC is generally defined as the ability of an organization to intentionally create, add or change its resource base (Helfat and Peteraf, 2009). Therefore, DCs provide a suitable framework for the analysis of value creation and business continuity in turbulent and dynamic environments (Teece 2007), also and above all in the case of small entrepreneurs facing natural disasters. Indeed, in these contexts, DCs allow for the reconfiguration of resources and capabilities for the

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purposes of sustainable competitive advantage (Teece, 2007). Entrepreneurial capabilities are of paramount importance when small businesses are concerned as they drive the small entrepreneur to deal more effectively with the changes that occur in a dynamic environment. In agreement with Woldesenbet et al. (2012), entrepreneurial capabilities can be considered as inherently dynamic, as they interact in subtle and complex ways with the environment. In this sense, DCs and entrepreneurial capabilities coexist in supporting environmental changes, given that «it would be difficult to delineate where an entrepreneurial capability ends and a dynamic capability begins» (Woldesenbet et al., 2012, p. 495). Our model considers two meta-DCs (Battisti and Deakins, 2017; Makkonen et al., 2014), namely: 1) "regenerative abilities" consisting in the ability to intervene on the basis of existing resources in order to modify it with planned and intentional acts (reconfiguration), in order to make it suitable for a new situation (leveraging); 2) "renewal capabilities", dynamic capabilities aimed at changing the resource base, with particular reference to the entrepreneur's ability to read the market and consequent positioning in order to exploit the emerging opportunities (sensing and seizing).

Competencies in one period can increase the likelihood of dealing with future challenging situations (Sutcliffe and Vogus, 2007). The second construct of interest is composed by the dimensions of sensing & seizing in the context of dynamic capabilities. Sensing includes 'identification, development, codevelopment and assessment of technological opportunities in relationship to customer needs', whilst seizing involves the 'mobilization of resources to address needs and opportunities, and to capture value from doing so (Teece, 2014, 332). Thus, sensing refers to the capacity of continuously analyse the surrounding environment, collecting information from it (such as market trends, best practices, competitor's activities). Seizing, instead, refers to the development and selection of opportunities for the business, considering strengths and weaknesses of the environment (Teece, 2007). The link between entrepreneurial capabilities and resilience has been supported by Manfield and Newey (2017); we can therefore postulate the following hypotheses.

H1: Resources Exploitation exerts a positive and direct effect on entrepreneurial resilience. H2: Sensing and seizing exerts a positive and direct effect on entrepreneurial resilience.

We make use of the measurement scale for Resilience proposed by Kantur and İşeri-Say (2015) and, in particular, we look at two relevant dimensions, such as:

- Robustness: capacity of resilience, thus the robustness of the entrepreneurial project and of those resources and competences employed in developing the business;
- Agility: adaptation capacity and flexibility of entrepreneurial pathways.

The ability to properly answer to negative exogenous event through reorganisation strategies is a key point stressed, among others, by Comfort (1994). In particular, the two dimensions of Robustness and Agility highlight the capacity to convert challenges into opportunities, in a bounce-forward process, as also underlined by Martinelli and Tagliacuzzi (2018).

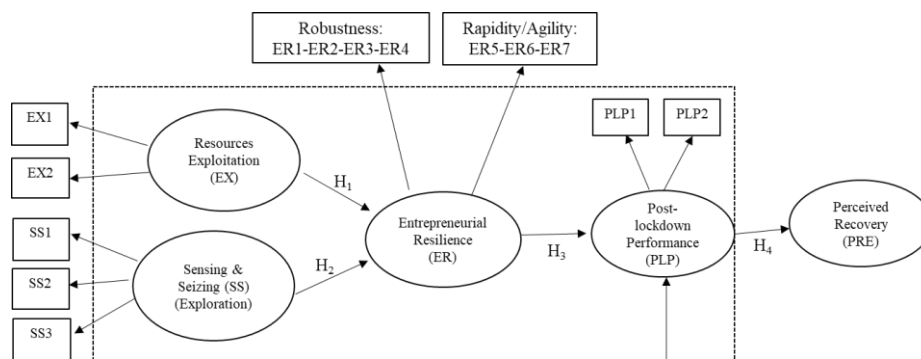
Accordingly, we expect that those firms who displayed higher levels of resilience also reported a good economic performance with respect to the pre-Covid-19 condition and perceived their business situation as recovered.

Tognazzo et al. (2016) and de Vries and Hamilton (2021) evidenced a positive relationship between a resilient firm and its profitability. Therefore, we postulate the subsequent hypotheses:

H3: Entrepreneurial resilience exerts a positive and direct effect on post-lockdown performance. H4: Post-lockdown performance exerts a positive and direct effect on perceived recovery.

Here below Figure 1 displays the interactions put into play among the variables of interest

Figure 1. Graphical representation of the research model and its hypotheses



Note: To render the path diagram more evident, we omit the measurement errors in the figure. Observed variables (i.e., indicators) are represented by rectangles, whereas latent constructs are displayed in ellipses.

Methodology. A structured questionnaire designed to minimize biases was administered F2F to a sample of small traditional F&B entrepreneurs in October-November 2020, in a period in which people felt a sense of relative safety thanks to the reduction of contagious during summer. That was a time in which cafés and restaurants were back in activities and had a lot of customers. The investigation took place in four districts

(Mirandola, Concordia, Carpi, San Felice sul Panaro) of the Province of Modena (Italy) by a number of trained interviewers. The sample is composed by 139 entrepreneurs, aged 46 on average and mainly male (64%), 51% of which own a high-school degree. The interviewees declared an average number of employees equals to 5; average sales accounting for almost €253.900,00 and a long experience in running their own business (more than 16 years, on average). The average surface of the cafés/restaurant accounts for 138 square meters.

In order to analyse the effect of the pandemic on entrepreneurial resilience considering the role played by dynamic capabilities, a Partial least squares structural equation modelling (PLS-SEM) was performed.

More specifically, four latent concepts - named Sensing and Seizing (SS), Exploitation (EX), Entrepreneurial Resilience (ER) and Post Lockdown Performance (PLP) - were constructed starting from the reference literature with perceptive measures collected through the survey. In fact, structured questionnaire includes questions about entrepreneurial resilience, in accordance with the formulation by Kantur and İşeri-Say (2012, 2015), as well as on dynamic capabilities, whether innovative or adaptive (Kump et al., 2019; Verreyne et al., 2016).

Finally, the questionnaire also includes a specific section on the comparison between the actual and the pre-covid-19 performance conditions with indicators measuring profitability and sales volume together with a synthetic self-assessment of the level of recovery perceived by the enquired entrepreneurs. Psychometric measures were used to assess post-lockdown performance and recovery, as they are considered equivalent to using financial and operational performance indicators and may be recommended if archival data are not available, and depending on the peculiarities of the empirical context (Vij and Bedi, 2016). Actually, the small entrepreneurs operating in the sector under observation are usually unwilling to share their balance data. All the main variables included in the questionnaire and employed in the empirical model are listed in Table 1.

Tab. 1: Indicators for each latent construct and final outcome

Items for Resources Exploitation (EX)	
EX1	- Current resources are able to support the positive trend of my activity in the long run (rec_1)
EX2	- In my activity there are enough resources to face emergencies (e24_3)
Seven-point Linkert-scale ranging from 1 (fully disagree) to 7 (fully agree).	
Items for Sensing & Seizing (SS)	
SS1	- I always catch new business opportunities (dc_ss3)
SS2	- I am able to use my capabilities to achieve new and different goals (dc_lev2)
SS3	- I try to offer new dishes/services to my clients (dc_kc2)
Seven-point Linkert-scale ranging from 1 (fully disagree) to 7 (fully agree).	
Items for Entrepreneurial Resilience (ER)	
ER1 Robustness	- I try to give continuity to my business (rob1)
ER2 Robustness	- My activity can identify different solutions to solve problems (rob2)
ER3 Robustness	- My activity can stay on the market also during difficult conditions (rob3)
ER4 Robustness	- My activity does not give up and follows its pathway (rob4)
ER5 Rapidity/Agility	- My activity rapidly takes actions when needed (rap1)
ER6 Rapidity/Agility	- My activity can generate opportunities also from unfavourable circumstances (rap2)
ER7 Rapidity/Agility	- My activity can rapidly take adequate actions when needed (rap3)
Seven-point Linkert-scale ranging from 1 (fully disagree) to 7 (fully agree).	
Items for Post-lockdown Performance (PLP)	
PLP1	- Volume sales (eco1), pre- and post-lockdown comparison
PLP2	- Marginality (eco2), pre- and post-lockdown comparison
Seven-point Linkert-scale ranging from 1 (very much lower) to 7 (very much higher).	
Perceived Recovery (PRE)	
PRE	- Current perception of recovery (c19new)
Seven-point Linkert-scale ranging from 1 (very much worse) to 7 (very much better) compared to the situation prior to Covid-19	

Source: authors' elaboration.

The empirical model analyses the impact of Sensing & Seizing (SS), i.e., the exploration dimension, and Exploitation of available and new resources (EX) on Entrepreneurial Resilience (ER). Subsequently, we also check how Entrepreneurial Resilience (ER) impacts performance (PRE), making a comparison with the economic condition prior to the Covid-19 versus the situation at the time of the survey and the self-assessed recovery perception.

We thus assume that all these four constructs are latent (and thus not directly observable) and we employ a Partial least squares structural equation model (PLS-SEM) that allows for a limited sample size and explores the predictive relationships between the different constructs (Hair et al., 2017a; Hair et al. 2017b).

The model is composed by two parts: the measurement (or outer) one and the structural (or inner) one. The first displays the relations between the latent variables and their indicators (i.e., manifested variables listed in Table 1), whereas the second part shows the relations between the latent variables themselves.

More specifically, the measurement part is represented by all arrows displayed in Figure 1, except the ones in the dashed-line box. The indicators are associated to their latent construct through their loadings (i.e., λ_{11} , λ_{12} , λ_{13} , λ_{24} , λ_{25} , etc.). The structural part, instead (in the dashed-line box in Figure 1) is represented by two exogenous latent variables, named Sensing & Seizing (SS) and Exploitation (EX), whilst the others two are endogenous latent variables, named Entrepreneurial Resilience (ER) and Perceived Recovery (PRE).

This empirical strategy can be interpreted as an advanced multivariate technique performing two analyses at one go: the structural one similar to a regression model and a measurement one in line with a factor or a principal components analysis (Venturini and Mehmetoglu, 2019). As PLS-SEM is a distribution-free method, we rely on the nonparametric bootstrap (Venturini and Mehmetoglu, 2019; Davison and Hinkley, 1997).

Results. Results clearly show the importance of developing adaptive processes aimed at valorising a resilient-type of response to adverse exogenous events. In such a way, negative economic consequences derived from a negative shock can be prevented through a dynamic adaptive strategy.

In the measurement model, all individual items included in the model show acceptable reliability. Despite two of them display a loading slightly under the threshold, we do believe it is important to keep them as the overall reliability and internal consistency are confirmed. In addition, we would like our model being coherent with the theoretical framework behind the concept of organizational resilience as developed by Kantur and İşeri-Say (2015).

Therefore, looking at the measures of internal consistency reliability, Cronbach’s alpha exceeds the threshold of 0.6 denoting a good level of internal consistency of the chosen indicators. In addition, Composite Reliability (ρ_C) is above 0.7 and below 0.951 confirming “satisfactory to good” reliability levels (Hair et al., 2017a). For what concerns the reliability coefficient (ρ_A), it is also displays expected values between the Cronbach’s alpha (lower bound) and the Composite Reliability (upper bound).

Switching to the structural part of the model, for all the latent constructs the convergence validity is assessed by the Average Variance Extracted (AVE) across all items associated with a latent construct (AVE measures the level of variance captured by a construct versus the level due to measurement error). The AVE is higher than the recommendation of 0.5 for all constructs, meaning that they explain more than 50% of the variance of their items (Hair et al., 2017a, 2017b).

Table 3 shows the structural model evaluation and hypotheses testing.

More specifically, resources Exploitation (EX) is profitable for enhancing entrepreneurial resilience (ER), and this is also true for the sensing & seizing (SS) aspects concerning the dynamic capabilities involved (Teece, 2007 and 2014). The higher the entrepreneurial resilience capacity of C&R entrepreneur, the higher the performance after the first lockdown and subsequently also the recovery perception. This is consistent with what has been formulated by Martinelli and Tagliazucchi (2018).

Tab. 2: Structural Model and path model results

	Entrepreneurial Resilience (ER)	Post-lockdown Performance (PLP)	Perceived Recovery (PRE)	AVE
Entrepreneurial Resilience (ER)		H3: 0.354*** ER → RE		0.529
Resources Exploitation (EX)	H1: 0.435*** EX → ER			0.709
Sensing & Seizing (SS)	H2: 0.224** SS → ER			0.615
Post-lockdown Performance (PLP)			H4: 0.606*** PLP → PRE	0.903

*** p<0.01, ** p<0.05, * p<0.1

The recovery after an unpredictable and disruptive event, such as a pandemic, can be achieved through the efficient exploitation of available and new resources, as well as sensing and seizing capacities. This investment in different adaptive strategies related to some key dimensions is profitable to learn how to face subsequent negative events. In this vein, unpredictable shocks become an opportunity to change towards the better, recalling Kantur and İşeri-Say (2012), as well as an opportunity to adapt in order to easily face other events in the future. The final goal is to reach a positive and stable economic condition in terms of durable revenues and marginality and recover.

Finally, for what concerns control variables, we do control for the surface of the building in which the economic activity is performed, the year in which the activity has begun, entrepreneur’s age, gender and level of education. The statistically significant control variables are: C&R facilities surface (lower is the surface and better we expect to be the post-lockdown performance in terms of marginality and sales); entrepreneur’s age with a negative and significant sign; and entrepreneur’s education level (higher levels are profitable to foster post-lockdown economic performance and the perception of recovery).

Research limitations. Finally, some limitations of the study may be mentioned. They especially lie on the limited sample of reference which is however mainly due to the availability of the owners to be interviewed. Furthermore, we considered two main kinds of DCs, while others important DCs components (e.g., learning) may play a role. The proposed model does also not include the psychological resilience of the entrepreneur, even if this can be the case in the small businesses surveyed (Tagliacruzchi et al., 2023). Actually, we are currently repeating the survey on a larger sample of small service businesses, but at the same time we are aiming at involving again the entrepreneurs surveyed in the current study in order to look at the phenomenon in a longitudinal way and in a post-disaster situation. Last but not least, recent works evidenced that resilience can also have negative effects: Hartmann et al. (2022) highlight that entrepreneurs who are able to cope with difficult situations may underestimate future challenges, leading to an increased likelihood of failure. Further studies should explore these effects too.

Managerial implications. The increasing exposure of small businesses - especially those operating in traditional services sectors - to disruptive unpredictable events calls for an in-depth analysis of the drivers and dimensions of entrepreneurial resilience that can help in facing extreme outcomes. To survive and persevere, small service enterprises must engage in new dynamic and adaptive strategies able to feed their resilience capacity in order to respond to critical events.

Our results contribute to the literature on DC's, resilience and small entrepreneurship confirming the positive link between entrepreneurial resilience and performance also in the traditional food and beverage sector, extending the evidence already proved in other contexts such as the retailing one (Tagliacruzchi et al., 2023; Martinelli and Tagliacruzchi, 2018). Moreover, our results support a dynamic view of resilience (Martinelli et al., 2018) as able to produce positive effects on performance even in a limited extent of time. Results can also envisage the acknowledgement that the identification of resilient practices today, may represent a preventive strategy to cope with future and frequent expected crises. A deeper knowledge on the effects of the pandemic on performance and feeling of recovery, also considering that the pandemic last longer than other crises, can enable small service entrepreneurs to better rely and higher invest in their resilience capacity to face crises investing in their capabilities to explore business and market opportunities but also to exploit their resources to feed resilience capacity. This consists in being robust and committed to their own development path, while behaving and operating in rapid way. To ensure preparedness, small entrepreneurs operating in the F&B sector should develop a solid and sound entrepreneurial project from the very beginning of their venue, getting the best from their agile nature (Kelliher and Reindl, 2009). Moreover, small facilities in terms of sqm can be less costly to manage and enable better performances and more agile recovery.

Additionally, our findings can give guidance to policy makers in supporting small entrepreneurs operating in service sectors. In fact, the study of the resilience capacity of small business is crucial to understand how entrepreneurs can ensure the survival of their businesses during the crisis. However, profitability can be developed if policy makers can support the development of DCs, engaging in institutional initiatives addressed at strengthen entrepreneurs' awareness of the need to build a robust enterprise development path able to feed performance and lead to recovery in case of adverse events. Associations of entrepreneurs (like FIPE or similar) and public authorities responsible for local and national economic development may be crucial in supporting resilient entrepreneurs' behaviours. They should support young entrepreneurs, rendering them sensible to the importance of education and arrange for learning initiatives. These efforts can drive a change in the entrepreneurial approach from survival to dynamic adaptation to changing circumstances avoiding small business failure, and promoting small business success.

Originality of the paper. Small businesses operating in the services sector play a fundamental economic and social role (Halkos et al., 2018) but show a high vulnerability rate to a variety of risks, including natural disasters (Torres et al., 2019, Branicki et al., 2017). Although several works have tried to propose important factors for the development of resilience in both organizational and entrepreneurial domains (Castro and Zermeño, 2020), further knowledge on the factors contributing to the development of resilience is required (Duchek S., 2018); this, especially to understand the path to performance and recovery after an exogenous shock (Liu et al., 2013; Battisti and Deakins, 2017). Furthermore, despite the importance of the topic, resilience has been little researched (Duchek, 2018), even if the pandemic has stimulated academics in this direction. The lack of research on entrepreneurship and resilience is also highlighted by Korber and McNaughton (2018) and especially strong when SMEs are involved; as a matter of fact, surveys on the factors that drive small entrepreneurs to survive and be resilient after natural disasters lack (Torres et al., 2019). Additionally, our study is an explorative effort to go into this direction and contribute to close these gaps. In so doing, our study contributes to the literature on micro- and small-enterprises as well as on DCs.

Keywords: Cafés and restaurants; Covid-19; entrepreneurial resilience; performance; dynamic capabilities; PLS-SEM.

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The contribution of digital technologies to the sustainability of companies: a multiple case study approach among the mechanical industry

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Framing of the research. *The companies' digitalization process did not start recently. In fact, it began several years ago with the renewal of their production processes.*

The digital transformation of business models is transforming consumer preferences and consumption as industries introduce digital technologies to increase their competitiveness in order to change customer relationships, internal processes and value propositions. (Bednarčíková and Repiská, 2021)

Digitalization refers to the integration of digital technologies in various aspects of society, including business, government, education, and healthcare. When adopting a digitalization process, companies use digital technologies to transform and optimize processes, increase efficiency, and create new value for customers and stakeholders (Westerman et al., 2014). This transformation is driven by the increasing availability and affordability of digital technologies, such as the internet, mobile devices, cloud computing, artificial intelligence, and the Internet of Things (IoT) (Bughin et al., 2018). The digitalization of society is seen as a key driver of innovation and growth, as it also creates new opportunities for businesses to develop and market products and services, and for governments to deliver services more efficiently. (Manyika et al., 2015).

Digitalization has significant social and environmental implications (Bednarčíková and Repiská, 2021), and various organizations in the world (e.g.: OECD, UN, EU) have considered the need for institutions and practices in the field of sustainable management.

From the merger between the digital and the environmental transition of the companies, the research is currently developing a new concept: the digital green transformation.

Digital green transformation is a rapidly growing area of research and innovation. It involves the application of digital technologies such as artificial intelligence, the internet of things (IoT), big data analytics, 3d printing, augmented reality to help tackle environmental and social challenges, including climate change, resource depletion, and social inequality. (Mele, Rizzi, Tucci, 2018)

Furthermore, sustainability has become a critical issue for firms across various industries in recent years, and a growing body of literature has explored the benefits and challenges of sustainable business practices. According to Atasoy et al. (2020), sustainability involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. Firms that adopt sustainable practices are often viewed as responsible and ethical, which can enhance their reputation and increase customer loyalty (Schaltegger and Wagner, 2011). However, implementing sustainable practices can be complex and costly, requiring significant investments in technology, employee training, and process redesign (Van der Byl and Slawinski, 2015).

Despite these challenges, firms that prioritize sustainability can enjoy numerous benefits, including cost savings, increased efficiency, and improved competitiveness (Elkington, 1997). For instance, implementing sustainable supply chain practices can lead to reduced material and energy consumption, resulting in lower costs and increased efficiency (Seuring and Müller, 2008). Additionally, sustainability can create new market opportunities for firms that offer environmentally friendly products and services, as consumers increasingly prioritize sustainability in their purchasing decisions (Hassini et al., 2012). Sustainability is also becoming increasingly important for firms' long-term viability, as governments and other stakeholders are pressuring firms to address social and environmental issues (Schaltegger and Wagner, 2011). Firms that fail to adopt sustainable practices risk damaging their reputation and losing market share, as consumers and investors demand greater social and environmental responsibility (Sawhney and Ebrahim, 2020).

However, achieving better sustainability performance through the use of digital technologies also presents some challenges. One of the main concerns is the potential for increased energy consumption and environmental impact

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associated with the production and disposal of electronic devices and equipment required for digital technologies. Additionally, the use of digital technologies may result in increased data privacy and security risks, as well as ethical concerns related to the collection and use of personal data. Furthermore, the adoption of digital technologies may lead to job displacement or a mismatch between available skills and the changing demands of the labor market. These challenges highlight the need for a balanced approach to the adoption and implementation of digital technologies for sustainability, which takes into account economic, social, and environmental factors, as well as the potential risks and trade-offs associated with their use. It is important for companies to engage in open and transparent dialogue with stakeholders, such as employees, customers, and local communities, to address these challenges and ensure that the benefits of digital technologies for sustainability are realized in a responsible and ethical manner. (Bakici et al., 2013; UNIDO, 2019; Yang et al., 2020).

However, it should also be noted that the literature highlights the enormous potential of digital technologies in terms of environmental impact. According to Pappas, Mikalef, Giannakos, Krogstie, digital technologies can also help to increase social and economic sustainability by facilitating more equitable access to resources and opportunities. For instance, blockchain can help increase transparency and accountability in supply chains, ensuring fair treatment of workers and responsible sourcing of materials. Paradoxically, one of the most significant benefits of this intersection is that it has the potential to significantly reduce the environmental impact of human activities. Digital technologies can help optimize resource use, increase energy efficiency, reduce waste, and provide more accurate data for decision-making. (Chandra, Guha, Gupta, Haldar, 2018)

For this reason, studying the connection between DTs and sustainability is essential because it can provide valuable insights and solutions to some of the most pressing challenges facing companies today. It can help us identify and evaluate the potential benefits and risks of digital technologies and develop strategies for their responsible use. It can also inform the design and development of new digital technologies that are optimized for sustainability, and help us understand how these technologies can be integrated into existing systems and infrastructures. (Silva, Pinheiro, Figueiredo, Ferraz, Tribolet, 2019)

Despite this potential, companies may not fully understand the opportunities and benefits those digital technologies can offer in terms of promoting sustainability. (Jäger-Waldau, 2016; GeSI, 2018). For this reason, a significant number of DT initiatives fail due to companies' lack of understanding of the value offered by these technologies (Tabrizi et al., 2021).

In this regard, it is interesting to note how the literature is divided on the ease of adoption and the success of digital technologies in relation to the size of the enterprise. On the one hand, the OECD states that the adoption of digital technologies in the industry has been uneven across enterprises of different sizes: large enterprises have been early adopters of digital technologies, small and medium-sized enterprises (SMEs) have been slower to embrace these technologies due to factors such as lack of resources, expertise, and access to financing (OECD, 2018).

There are also several empirical studies that support the OECD's thesis, for example, a study by Yin et al. (2019) found that lack of resources and resistance to change were major barriers to digital adoption among SMEs in China. Another study by Marston et al. (2016) identified fear of security risks and lack of awareness as key barriers to digital adoption among SMEs in the UK.

On the other hand, is it possible to find in literature academic publications that suggest that small enterprises may be more agile and faster while adopting digital technologies compared to larger enterprises. For example, a study by Gubik et al. (2019) found that small and medium-sized enterprises (SMEs) in Hungary are more likely to adopt digital technologies compared to large enterprises due to their higher flexibility and ability to adapt to changes. Similarly, a study by Järvenpää et al. (2018) found that SMEs in Finland were more active in adopting digital technologies compared to larger firms due to their higher risk-taking propensity and entrepreneurial orientation.

This contrast has created a digital divide between large and small enterprises, with potential implications for productivity, competitiveness, and job creation, even in literature.

Furthermore, the impact of digital technologies in different industries must also be analyzed; academic literature suggests that the adoption of digital technologies in the industry has been uneven across different sectors. For instance, the mechanical industry has been relatively slow in embracing digital technologies due to various barriers, including the lack of skills and resources (Chen et al., 2020). In contrast, the service sector has been more open to adopting digital technologies, particularly in areas such as e-commerce, customer relationship management, and online marketing (Sánchez-Peinado and Fuentes-Fuentes, 2019). The construction industry has also been identified as a sector with slower adoption due to its unique characteristics, such as fragmentation and project-based nature (Gimpelj and Pšeničný, 2021).

These findings suggest that the adoption of digital technologies is context-specific and varies across industries, highlighting the need for tailored strategies for each industry.

However, it should be noted that academic literature on this topic is still relatively scarce, and there is a need for further research to deepen our understanding of the factors that influence the adoption of digital technologies in different industries. While some studies have highlighted specific barriers to adoption in certain industries, more research is needed to explore the context-specific factors that shape the adoption and diffusion of digital technologies across industries and regions. Therefore, further investigation is needed to advance our understanding of the drivers and barriers to digital adoption in different sectors, as well as the implications for firm performance, competitiveness, and innovation. Moreover, it is crucial for companies to approach DT development and implementation with a broad business strategy that considers the long-term implications and potential benefits: companies cannot ignore social

issues, and carrying out corporate social responsibility activities is essential (Lichtenthaler, 2016). By incorporating DT initiatives into a broader strategy that considers social and environmental concerns, companies can improve their chances of success and enhance their sustainability efforts.

This study examines the relationship between the subject of digitalization, namely digital technologies (DTs) and the green transition with the aim of understanding how DTs can contribute to sustainability and meet the United Nations' Sustainable Development Goals (SDGs).

Purpose of the paper. The purpose of this paper is to explore the relationship between digital technologies (DTs) and sustainable development goals (SDGs) in the Italian corporate landscape. The study investigates the degree of digitalization within companies to understand whether DTs can promote an ecological transition toward sustainability, in line with the SDGs of the United Nations.

The study draws on the literature related to digital technologies, their potential impact on business operations, and the increasing focus on sustainability in the industry. The research also takes into account the limited research on the intersection of digital technologies and sustainability in the mechanical industry. By addressing this gap in the literature, the study provides important insights into the potential of digital technologies for promoting sustainable practices and improving overall business performance in this industry.

In addition to evaluating the potential for companies to rely on digital technologies to optimize their activities and assessing the positive impact of such technologies on the ecosystem, the paper aims to contribute to the literature by providing a deeper understanding of the challenges and opportunities associated with digitalization in the mechanical industry. By identifying the most promising digital technologies in the context of sustainability and examining the managerial implications of their implementation, this paper aims to offer insights and recommendations for industry practitioners and researchers seeking to leverage digital technologies to achieve sustainable outcomes and embrace the digital green transformation. (Ferrari, & Tartiu, 2020)

Methodology. We analyzed the degree of digitalization in the Italian corporate landscape and the potential of DTs to act as a keystone for ecological transition with a special focus on the mechanical industry. The aforesaid industry which includes manufacturing of machines, equipment, and parts, has been one of the key drivers of economic growth and technological advancement worldwide. According to a report by the World Economic Forum, the global manufacturing industry is undergoing a Fourth Industrial Revolution, characterized by the integration of advanced digital technologies such as the Internet of Things, artificial intelligence, and robotics (WEF, 2018).

Furthermore, the mechanical industry is one of the largest and most important industries in Italy, representing around 30% of the country's manufacturing sector and contributing significantly to the national economy (D'Alessandro and Nuccio, 2019). This industry is composed of a diverse range of sectors, including machinery, equipment, and components production, as well as aerospace and defense (Istat, 2019). The mechanical industry in Italy faces various challenges, including the need to keep up with digitalization trends and improve productivity (D'Alessandro and Nuccio, 2019). The industry has also been impacted by the COVID-19 pandemic, leading to a decline in production and revenues in 2020 (Mastrapasqua and Zaroni, 2021). Despite these difficulties, the mechanical industry in Italy has strengths in terms of innovation and technological advancement, with many companies investing in research and development to stay competitive (Istat, 2019).

In particular, we analyzed the digital green transformation process of two companies, one operating in the mechanical engineering sector and the other in the steel industry, both have been active in the Italian market for several decades. The mechanical engineering company specializes in the production of high-quality components and machines for various industries, such as automotive and aerospace. The company has a strong reputation for its technological capabilities and commitment to innovation. On the other hand, the steel company is a leader in the production and distribution of steel products, with a wide range of applications in different sectors. The company has developed a comprehensive supply chain and logistics network, allowing it to provide customized solutions and services to its clients. Both companies have been adapting to the challenges of digital transformation, investing in advanced technologies and exploring new business models to improve their competitiveness in the global market.

The research methodology used in this study is a qualitative multiple case study approach, which aimed to explore the use of digital technologies in the mechanical industry. The study involved conducting in-depth interviews with key figures such as the Chief Innovation Officer, the Chief Sustainability Officer, the Chief Technology Officer and a few project leaders directly involved in the application of digital technologies for sustainability purposes. This approach has been widely used in previous research to gather rich and detailed insights from key stakeholders within an organization (Eisenhardt, 1989; Patton, 2002). By engaging with a variety of individuals within the company, this study will be able to capture a diverse range of perspectives and experiences related to the use of digital technologies for sustainable practices. In several companies within the industry. The qualitative data collected from the interviews were analyzed through content analysis to identify common themes and patterns related to the research questions.

Results. The intended outcome of this study was to assess the extent to which companies can rely on digital technologies to optimize their activities and how these technologies can have a positive impact on the ecosystem.

The findings of the study were interesting and provided many insights for reflection; the interviews revealed multiple insights into the challenges faced by the companies. They discussed their innovative and highly technological projects, as well as the difficulties they are facing in achieving them. Additionally, the results demonstrated the contribution of digital technologies in terms of environmental sustainability compared to other types of solutions. One of the main themes was that of skills, and the companies highlighted that they are currently adopting a hybrid form of innovation, partly with internal resources and partly with external partners. However, the delicacy of operating with

external partners in such cutting-edge and critical matters was also highlighted. In this regard, all companies agreed that the solution lies in finding the right balance between external and internal resources. Moreover, the different degree of pervasiveness of digital technologies with respect to the products developed by the companies was also noticeable. In fact, on some products, DTs are essential, while on others, their application is challenging.

We have also gained a comprehensive understanding of their level of knowledge of digital technologies and which ones they believe have the greatest impact in the mechanical engineering industry.

In conclusion, one limitation highlighted by the analyses is related to the obsolescence of production plants. Especially in large companies, plant conversions take time, and to achieve sustainability, 100% of the equipment must be converted. However, it has been proven that new equipment has all integrated digital technologies, and the results are evident in terms of positive environmental impact.

Research limitations. It's important to acknowledge the limitations of our research and analysis. Firstly, the cultural context: our study was conducted in an Italian market which may limit the generalizability of our findings to other cultures or societies. For example, the attitudes, beliefs, and values of the participants may be influenced by their cultural background, which may not be representative of other cultures. Additionally, the focus of our research was on companies operating in the mechanical engineering industry, which may not be representative of other industries. Furthermore, our sample consisted mainly of large companies, and therefore our findings may not be generalizable to small or medium-sized enterprises. It's important to recognize that our study was qualitative in nature, meaning that we explored the why and how behind the adoption of digital technologies, but we did not examine the impact on performance in detail. To fully understand the impact of digital technologies on company performance, further quantitative and comparative studies are necessary, both within and across industries and technologies.

Managerial implications. If digital technologies are found to positively impact sustainability, this could have significant managerial implications for companies. For example, it is crucial for managers to update their skills and knowledge and to hire employees with the relevant expertise. This is particularly important given the rapid pace of technological change, which requires companies to continuously adapt and learn new skills (Reeves et al., 2017). For example, companies may need to hire data scientists and analysts to effectively collect and analyze data generated by digital technologies, or invest in training programs for existing employees to develop new digital skills (Cusumano et al., 2017). Additionally, this transition would require rethinking existing business models and integrating new sustainable practices into corporate operations. The success of digital technologies in promoting corporate sustainability could result in new business opportunities, as companies that adopt and implement these technologies successfully may gain a competitive edge in the market. (Lopes et al., 2019). Companies must carefully weigh the long-term costs and benefits associated with adopting digital technologies and consider the potential trade-offs between economic, social, and environmental factors. Companies need to ensure that the adoption of digital technologies does not compromise customer data privacy, and they must comply with regulations governing data protection and sustainability reporting. Additionally, there is a need to address ethical concerns such as the impact of digital technologies on employment and inequality. Moreover, the potential for digital technologies to increase resource efficiency and reduce carbon emissions must not lead to complacency in reducing overall consumption and promoting circular economy models. Companies must balance their efforts to reduce environmental impact with the need to create economic value and meet customer demands. For this reason, it is essential for companies to take a strategic approach that involves integrating digital technologies into a broader sustainability strategy to achieve meaningful and lasting impacts. In conclusion, engaging with stakeholders, such as employees, customers, suppliers, and other external actors, is critical for the development and implementation of digital technologies for sustainability. It is worth noting that the successful implementation of digital technologies for sustainability also requires a commitment to continuous learning and improvement. This includes regularly reviewing and updating sustainability strategies and monitoring the effectiveness of digital technologies in achieving sustainability goals. Finally, the process of transitioning to digital technologies in large, established companies is often constrained by the obsolescence of their existing production facilities. In many cases, these companies must first convert their aging equipment, use it until it is fully depreciated, and then invest in newer, more sustainable machinery. This process can take a significant amount of time and resources, and may limit the speed at which these companies can adopt digital technologies. It is likely that the transition to digital technologies will need to be gradual, and that opportunities to do so will arise primarily during the process of equipment replacement and facility modernization. However, it is important to note that this process presents an opportunity for companies to invest in more sustainable and efficient production practices, which can have significant benefits in the long term.

Originality of the paper. The original contribution of this paper lies in its analysis of the impact of digital technologies on competencies and resources within the context of the Italian mechanical industry. This industry is significant for the Italian economy and has a considerable environmental impact. Previous research has mainly focused on the application of digital technologies in the production process and their economic benefits, neglecting their effects on competencies and resources. This paper addresses this gap in the literature by exploring how digital technologies impact the development of competencies and the allocation of resources in the metalworking industry. Specifically, the study sheds light on the hybrid approach to innovation, whereby firms use both internal and external resources to drive innovation, and the delicate balance that firms must strike when working with external partners. The paper also highlights the different degrees of pervasiveness of digital technologies across different products, and the challenges associated with transitioning to more sustainable machinery due to the obsolescence of existing production plants. Overall, this paper provides a unique perspective on the impact of digital technologies on competencies and resources

within the Italian metalworking industry, offering insights that have important implications for firms operating in this sector. In conclusion, the solidity of this study is strengthened by the contribution of prestigious companies, providing a comprehensive overview of the investments that mechanical companies should focus on in the future to transform what was once seen as a limitation (environmental responsibility) into a great opportunity.

Keywords: DTs, SDGs, Mechanical industry, Strategic management., Sustainability.

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Mapping the Environmental Incubators Ecosystem of Climate Tech Ventures in Europe

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Framing of the research. *Tackling grand environmental challenges such rising sea levels, drought and extreme weather, soil degradation or collapsing food systems will require an immense effort to invent, refine, and deploy technologies aimed at reaching these objectives (UNFCCC, 2018). Historically, small and new established ventures have played an important role in promoting technological innovation, often leading to the introduction of paradigm-shifting technologies, which change in the way we live. These ventures, however, face many challenges in maturing to a point where they survive and have positive social, environmental and economic impacts. A weak entrepreneurial support system which does not offer linkages to appropriate technology markets and financial support for entrepreneurial activities have often been proposed as one of the main causes of green ventures failure (Volkman et al., 2021; Theodoraki et al., 2022; van Rijnsoever, 2022)*

Among the different actors populating the ecosystem aimed at supporting the development of ventures with the potential to create a positive impact on society, environmental incubators have the potential to play a multidimensional role in supporting climate-resilient and low-emission technologies to be developed, accepted and used by society (UNFCCC, 2018). Environmental incubators, defined as any sort of environment designed to support ventures that aim to introduce a positive environmental impact, are created for hatching ventures by providing financial and nonfinancial support with the goal of fostering tenants' hybrid objectives (Hirschmann and Moritz, 2022). These incubators call for innovation in environmental specific topics such as waste management, hydrogen development or the promotion of smart mobility services. Given their increased level of specialization, they provide tenants with access to the more diverse information and to the network of contacts they need to recognize and capitalize on eco-friendly opportunities (Millette et al., 2020).

The few studies on the relationship between environmental incubators and performance of the tenants are mixed. For instance, the benchmarking study carried out by the European commission (2002) is a clear evidence of the fundamental role played by incubators for sustaining entrepreneurship and innovation especially in those fields requiring cutting-edge solutions such as climate change. The study shows that the survival rate of tenants was significantly higher than those off-incubation respectively 80-90% against 30-50% over a period of 5 years. Relatedly, a recent study by Sansone et al. (2020) focused on the Italian context, found no difference in term of subsequent performance for ventures included in an incubator interested in supporting firms aimed at eliciting a positive societal change vis-à-vis those include in programs promoted by traditional business incubators.

Importantly, much of the research has treated environmental incubators as largely homogenous in their business models, in the admission criteria and in the typologies of services offered to tenants. In doing so, it has considered the potential treatment effect along only one or two dimensions, ignoring the significant variation in incubators along multiple design features. However, heterogeneity is one of the distinctive traits of these actors. For instance, variation has been observed in the type of service offered by these incubators (Sansone et al., 2020), finding an increased propensity to offer, among others, services related to support the tenants in measuring their impact and training activities related to business ethics and social responsibility. In addition, heterogeneity has been observed in the selection criteria adopted to assess ventures to be included in the incubation programs (Hirschmann et al., 2022). Such heterogeneity is likely to be salient both for understanding their impact on and across ventures and their differentiated role in the ecosystem in which they operate (Woolley and MacGregor, 2022).

Purpose of the paper. *In this paper we seek to fill this gap by mapping the landscape of European incubators and analysing variations in their critical design features. In so doing, our work highlights potential fruitful avenues for broader research community interested in a set of key questions: how do environmental incubators program vary? The goal of this paper is thus to provide a broader and deeper understanding of environmental incubator programs and*

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their features, and to set forth a research agenda that leverages environmental incubators as laboratory to explore the development of green ventures and technological solutions aimed at tackling environmental grand challenges.

Methodology. We deployed a qualitative and quantitative cross-sectional research approach for analysing environmental incubators placed in Europe with programs that include ventures dealing with climate-tech solutions. To do so, we relied on a list of green incubators active in 2022 provided by NetZero Insights, a data provider specialized in mapping the ecosystem supporting environmental ventures. The list is available on NetZero website, and it is constantly updated in order to support climate founders to keep track of relevant open incubation opportunities. The initial list has been downloaded in May 2022 and enclosed a sample of 101 European incubators and their 135 programs aimed at promoting green ventures. After having downloaded the list, we checked the quality of information provided by the platform in order to exclude incubators which do not fulfil our requirements. In particular, we verified if incubators are headquartered in Europe (even if operating on a global scale) and proposed incubation programs focused on supporting the development of green ventures. After the initial check we did not eliminate any incubators enclosed in the starting list.

To retrieve information about incubators and programs carried out, we content-analysed websites and sustainability reports. The collected information about incubators and their programs has been independently assessed by researchers and clustered at the incubator or program level. Specifically, at the incubator level we collected data about: the foundation year of each organization, the legal form adopted, the presence of a sustainability or impact report; the headquarter country(ies); the market scope, which can vary along four dimensions: regional, national, European or global level; incubator portfolio, which count the number of ventures belonging to the current portfolio of the incubator; and source of revenues, which refers to the to the origin of incubator resources whether external such as “Corporate Sponsorship”, “Government”, “VC Fund “ and “University Based” or internal like “Fundraised Fee”, “Office Space Renting”, “Participating Fee”, or both.

At the program level, we assessed the number of selected ventures, which stands for the maximum number of firms that will be allowed to participate to each incubator program per session; the program(s) duration (measured in month); if the incubator requires a stake to their tenants in return for the service offered; the presence of financial contributions, which is a dummy variable that takes value 1 if the program provides financial contributions to the tenants under the nature of grant, best-in-class award or venture capital investment. With respect to this latter variable, we also collected more details about the type of contribution and the amount of this contribution (where the currency was different from EUR, the current currency conversion rate is applied updated to 1st November 2022).

In addition to these variables, we collected data about the sectors in which the program is specialized; the phase of intervention, which is a variable that assesses the stage of maturity of the ventures and ranges from “Early” phase, in which tenants are still defining their business model, to “Mature” phase; the activities and services offered by each program, which include an assessment of all the services provided by the program. With respect to services and activities offered, we first collected rough data about every type of service offered and subsequently each researcher independently aggregated these raw data into clusters. Table 1 reports, for each cluster an example of the services aggregated. Similarly, we retrieved information about the selection criteria, which incorporates all the requirements ventures must meet to be eligible for the program. With respect to respect to the selection criteria adopted, we first collected rough data about every type of selection criteria used and subsequently each researcher aggregated raw data into clusters. Table 2 reports, for each cluster identified, an example of the criteria aggregated.

Tab. 1: Supporting activities offered by incubators and example of variables retrieved by environmental incubators website and sustainability reports

Coaching & Mentoring	<ul style="list-style-type: none"> - Coaching - Individual Coaching - Mentoring - 1 to 1 Mentoring
Communication	<ul style="list-style-type: none"> - Promotion on Social Media - Visibility & Media Support
Follow-On Support	<ul style="list-style-type: none"> - Further Funding After the Ending - Post-Program Support
Fundraising Support	<ul style="list-style-type: none"> - Access to Equity Agreement with Investors - Access to Financial Partnership with Corporations - Access to Investment Opportunities - Crowdfunding - Matchmaking and Access to Investors - Pitch Practice Support
HR, Tax & Legal	<ul style="list-style-type: none"> - HR Services - Supporting for Legal Procedure - Legal Advice
Impact Assessment	<ul style="list-style-type: none"> - Impact Measurement & Validation Support - Tools and Methodologies for Estimating the Impact
Managerial Training and Development	<ul style="list-style-type: none"> - Business Development - Business Model Canvas - Consultancy (Internal)

	<ul style="list-style-type: none"> - Masterclasses - Online Materials - Pricing Model - Seminaries - Strategy Planning - Supply Chain Development - Trainings - Webinars - Workshops
Networking	<ul style="list-style-type: none"> - Access Facilitation with Institutions - Access to Connections - Access to Events - Access to the Alumni Community - Demo Day
Office Space	<ul style="list-style-type: none"> - Co-working Space - Physical Space
Product Development	<ul style="list-style-type: none"> - Access to Industrial Facilities & Tools - Piloting & Prototyping Support with Partners - Real Environment Testing - Access to Technological Infrastructures
Others	<ul style="list-style-type: none"> - Data Analysis Support - Market Analysis Support - Membership for Accessing Extras - Accommodation - Travel Cost Coverage

Tab. 2: Selection criteria adopted, and example of variables retrieved by environmental incubators website and sustainability reports

Characteristics of the Team	<ul style="list-style-type: none"> - Complementarity of Team Skills - English Proficiency - Full Time Participation - Motivation - One Founder is Part of Minority Group - Pitching Presentation Skills - Previous Experience - Skills and Abilities of the Members
Economic Viability - Feasibility	<ul style="list-style-type: none"> - Previous Funding - Realism - Solidness of the Business Model - Solvency
Founders Equity	- Minimum % of equity owned by the founder / team of founders
Geography	- Based Being based in a specific location
Impact Potential	<ul style="list-style-type: none"> - Environmental Impact - Proven Evidence of Impact
Innovativeness	<ul style="list-style-type: none"> - Level of Innovation - Technological Advantage
IP Rights	- IP Rights
Minimum Development Product	<ul style="list-style-type: none"> - Stage of product development - MVP Proven Prototype / MVP
Programme Suitability	<ul style="list-style-type: none"> - Fit with the Thematic - No older than 5 years - Alignment with the Programme
Partnership	<ul style="list-style-type: none"> - Ready to Establish Collaboration with Companies - Having a Partnership with a Corporate - Having a Partnership with another venture
Scaling potential	<ul style="list-style-type: none"> - Scaling Potential - Scalable Idea - Looking to Scale Internationally

Following the exploratory nature of the study, we mobilized the descriptive statistics for summarizing the data in one-way comparisons as well as combining the variables for cross comparisons.

Results. We find several patterns characterizing the current landscape of European incubators and their design features in sustaining ventures and we hope as well to provide guideposts for future research, policymakers, and practitioners.

Firstly, we analyse geographical distribution, maturity and main operating sectors of environmental incubators. With respect to geographical distribution, our data presented in Table 3 shows that environmental incubators are evenly spread across Europe with a peak concentration in Spain, Germany, United Kingdom, and Italy. These results

are consistent with those observed in previous literature focused on traditional incubators and with the notion that concept of business incubation in Europe appeared earlier in countries such as United Kingdom, Germany, and France (Aernoudt, 2004). We grouped the HQ Country based on the classification provided by United Nations Statistics Department (1970).

Tab. 3: Incubators geographical distribution across European regions and Countries

		Frequency	Percentage
Eastern Europe	Bulgaria (1) Hungary (3) Poland (1) Romania (1) Ukraine (1)	7	6.63%
Northern Europe	Denmark (3) Estonia (1) Finland (1) Ireland (1) Latvia (3) Lithuania (1) Norway (3) Sweden (5) UK (10)	28	29.70%
Southern Europe	Croatia (1) Cyprus (2) Greece (1) Italy (7) Portugal (4) Spain (14)	29	28.71%
Western Europe	Austria (1) Belgium (2) France (5) Germany (11) Netherlands (5) Switzerland (5)	29	28.71%
Multiple HQ		8	7.92%

Similarly, our data confirms that the incubators aimed at supporting ventures with a social or an environmental purpose is a relatively new phenomenon (Hirschmann et al., 2022; Grilli and Marzano, 2023). Our sample population, in fact, is mainly composed by young organizations: 84,16% of incubators was founded within the last decade and the 47.52% in the last five years. Interestingly, only the 20.8% of the incubators publish a sustainability or an impact report in which are summarized the results of its activities. The environmental incubators mostly intervene in Carbon Reduction, Agri Food, Mobility, and Energy. Environmental incubator can either be publicly or privately funded (Hirschmann et al., 2022). Public sources such as government grants aims to boost the ecosystems encouraging the birth of enterprises for solving societal problems (Surana et al., 2020). Governmental sponsored environmental incubators represents the 38.61% of the incubators in our sample, while the other mainly rely on private sponsorships, often supported by well-established corporations which tend to engage with incubators as source of learning and for arranging potential valuable alliances.

The second step of the analysis regards the assessment of the key design choices related to cohorts of incubates, including the selection criteria adopted, the average duration of the program and the size of the cohort of the ventures included in each program. Our data indicate that the 54.5% of environmental incubators have a predefined number of seats available per program, equal on average to 15, while the remaining part does not report limits in the number of ventures accepted in each program. The reported duration of each program is, on average 5 months. With respect to the stage of maturity, the 57.43% of environmental incubators select early-stage ventures, while the 26.7% of the total do not poses acceptance conditions based on the stage of development, incubating ventures at any stage of maturity. On average, environmental incubators take into account two criteria when evaluating ventures to be selected. Among the most frequent selected criteria adopted, we identified: (1) the characteristics of the entrepreneurial team, which comprehend the embedded skills, abilities, experience, and motivations of the working team (47.5%); (2) the program sustainability, which regards the fit between the venture and the area of intervention of the incubation program (39.6%) and; (3) the scaling potential, which relates to the market growth possibilities of the venture (37.6%). Interestingly, only the 25.7% of the incubators indicates explicitly as a selection criterion an assessment of the potential capacity of the venture to generate a tangible environmental impact for society.

Incubators may provide capital provision to participating ventures; the financial contribution varies for amount, typology, and source. Half of the incubators in the sample population entails the provision of funding, and some of those (43%) ask for equity stake in return. The widely varying amount as well as the percentage of equity stake ranging across programs and are generally meant for sustaining business growth. The convertible loan works well as financial

instrument for the specificity of the incubator - incubatee agreement. The array of offering, described as design features depends on the design choices made by each incubator for each program. The cluster of services may vary substantially, it can be even customized according to peculiar requests. In the European environmental incubator landscape, almost all incubators provide more than one service with an average of about 4 services provided. Among the most offered, we find (1) managerial training, (2) networking, (3) coaching and mentoring, (4) fundraising support, and (5) office space. The latter might have been affected by the switch towards virtual and blended modalities of work more and more adopted since the pandemic.

The third phase of the analysis, which is in a preliminary phase, is concerned with the identification of the relevant patterns based on specific environmental incubators' characteristics. Following Woolley and MacGregor (2022), who studied traditional incubators effectiveness based on sponsorship types, we firstly distinguished incubators based on the presence of funding at the governmental level. Our preliminary results reveal that, on average, governmental sponsored environmental incubators tend to be more locally focused as compared to those not supported by governmental funding. As reported in Table 4, in fact, the former type of environmental incubators has a narrower market scope focusing mainly at regional (10.26%) or national level (41.06%); on contrary, the majority of environmental incubators which do not rely on governmental support is mostly focused at European (24.19%) or global level (51.61%).

Tab. 4: Environmental incubators market scope based on the presence of governmental sponsorship

	Governmental sponsored environmental incubators			
	NO		YES	
	N	%	N	%
Regional	2	3.23%	4	10.26%
National	13	20.97%	16	41.03%
European	15	24.19%	11	28.21%
Global	32	51.61%	8	20.51%
Total	62		39	

Additionally, while the two types of incubators tend, on average, to admit the same number of ventures in their programs (15 on average), their programs tend to differ substantially in term of duration and typology of services offered. Specifically, the average duration of program offered by governmental sponsored environmental incubators is 6 months, 2 months longer than those proposed by incubators not supported by governmental funding. With respect to the type of service offered, our preliminary results point to a different orientation among the types of incubators. In particular, recipients of government sponsorship tend to focus more their attention on offering managerial training (100%) and coaching (95.6%), while those not receiving this type of support put more emphasis on networking activities (92.1%) and fund-raising support (87.1%).

Taken together, our preliminary results suggest the existence of differences among environmental incubators based on the financial support received by external sources. Similarly, other dimension will be investigated in order to assess the presence of similarities and dissimilarities between environmental incubators according to different dimension such as the region of HQ or the typology of services offered.

Research limitations. Our research presents several limitations, most of them related to its current stage of development. In fact, although preliminary data presented suggests the presence of substantial heterogeneity among environmental incubators based on the presence of governmental sponsorship, additional analyses are required to fully understand variations in environmental incubators critical design features. For these reasons, data will be further analyses in order to identify patterns and trends across European incubators. For instance, additional information can be provide to study incubators based on their geography, the type of services offered, or whether they require equity. In doing so, our research will provide a more nuanced view of the European landscape, informing researchers, entrepreneurial teams and institutions.

More in general, our analysis is focused only on one of the actors supporting the environmental ventures ecosystem. However, we note that it is important to recognize that environmental incubators are only one of many types of intermediaries that are emerging and may exist in a country. Cataloguing the vast number of programs, as well as creating taxonomy of entrepreneurship and innovation programs that allows us to compare across different types of action supporting the development of environmental ventures and green technologies, is another important endeavour. Once we have a catalogue of programs in a region and a way of comparing programs with one another, it becomes possible to systematically understand how the spatial distribution of entrepreneurship support programs alters the likelihood of entrepreneurial entry, the probability of success conditional on entry, and the fate of regional innovation ecosystems.

Managerial implications. From a managerial point of view, our preliminary results have important implications for environmental ventures and public institutions. First, data reveal the existence of distinctive of environmental incubators designs, which might prioritize different objectives and, consequently, different types of ventures. Hence, to increase the chance to be selected by an incubation program and from benefit type of services offered, environmental ventures have to extensively search for the best-fitting program/incubator being aware of all the trade-off they can face in term of service offered vis-as-vis request from the incubator in term of equity. Similarly, policymakers that support environmental incubators should also be aware of the heterogeneity of such incubators in terms of objectives, service

offered and requests in order to define supporting criteria that are in line with the overall policymaker objectives, which are typically different from those of other corporate sponsors.

Originality of the paper. *To the best of our knowledge, this paper represents the first attempt to systematically map the environmental incubators ecosystem at the European level. Results presented shed further light on the critical design features of environmental incubator and how these features vary according to key dimensions such as the presence of public funding. Since the nascent phenomenon, the work contributes to broaden the knowledge of the field in addition to having managerial and institutional implications.*

Keywords: *Environmental Incubators; Venture supporting ecosystem; Green innovation*

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Digital transformation and value creation: the case for agri-food sector

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Framing of the research. *Digital entrepreneurship represents a critical pillar for digital economic development (Shen et al., 2018; Elia et al., 2020) and it represents an emerging topic of research (Dong, 2019; Nambisan, 2017). Davidson and Vaast (2010) define digital entrepreneurship as “the pursuit of opportunities based on the use of digital media and other information and communication technologies”.*

Understanding the means of digital entrepreneurship is important for all, because digital entrepreneurs with new ways of doing business are having an enormous effect on the whole world, especially from the last decade. The development of digital technologies represents one of the most important and impactful technology trends in recent years. The development of digital technologies, such as cloud computing, Big Data Analytics, Artificial Intelligence, 3D printing, and blockchain, has stimulated a growing debate about how new and innovative entrepreneurial activities can be stimulated. Companies are being called upon to rethink the way they operate to cope with the fast-changing environment and to be able to seize the countless business opportunities that digitization offers (Porter & Heppelmann, 2015; Brehmer et al., 2018).

Digital entrepreneurs rely upon the characteristics of digital media and IT to pursue opportunities. In doing so, they exacerbate changes in the competitive landscape, as they attempt to seize the opportunities and thereby potentially further the creative destruction process of the digital economy” (p. 2). The European Commission (2015) sustains that digital entrepreneurship creates “new business opportunities and accelerates the transformation of the existing businesses, through the development and smart use of novel digital technologies, to increase growth and create employment”. In the context of digital entrepreneurship, scholars suggest that digital technologies represent external enablers of new ventures able to be used by entrepreneurial agents to create new forms of value for people and society (Davidsson, 2015; Davidsson et al., 2018). In fact, the increasing pace of technological innovation has generated radical changes in the increasingly complex economic and social system in which companies operate. Digital technologies permeate every sector, and companies cannot ignore the impact of digital technologies within their businesses. At the same time, these changes require management scholars to analyze the impact that digitization can have at the level of the individual company, the sector, the ecosystem, and the social context (Genco, 2017). In this scenario, some scholars (Bharadway, 2013, p. 472) highlighted how businesses should “adapt their business infrastructure to the new digital era” especially, have to adapt their value chains to the digital context (Porter and Heppelmann, 2015). In this increasingly complex and technological context, management scholars have the task of understanding future scenarios and guiding corporate decision-makers toward the adoption of a systemic approach (Golinelli, 2000) based on achieving systemic balance in business-environment relationships (Golinelli, 2000; Genco, 2012).

The research agenda on digital business and digital entrepreneurship is growing, becoming an important reference point for the analysis of social challenges and problems (Raja, 2016; Yu et al., 2019; Tsatsou, 2021).

Purpose of the paper. *Despite the increased interest in research in the field of digital transformation and digital entrepreneurship, today its impact on society and economic systems is not yet much studied.*

In particular, it has been highlighted that the diffusion of digital technologies is supporting the implementation of new ways of doing business, because they offer companies the opportunity to innovate at various levels of the value creation process, thus also changing the relationships between all actors in the value chain (Arnold et al., 2016; Rachinger et al., 2018). The fast evolution of digital technologies has radically changed the essence of value creation and value appropriation process (Caputo et al., 2019), with a shift from the classical static, vertically and integrated model to a more loosely coupled networks Pagani (2013).

In this context, starting from the suggestions of some scholars that consider digital technologies as external enablers of new ventures able to be used by entrepreneurial agents to create new forms of value for people and society (Davidsson, 2015; Davidsson et al., 2018), in our study we aim to analyze how digital technology and digital ventures

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based on these technologies can impact the process of value creation and distribution into value chain and economic sectors.

In particular, we focus on a specific kind of digital technology, blockchain, whose potential for the creation of entrepreneurial “opportunities that enhance social and economic wellbeing for disenfranchised members of society,” has been showed by some authors (George et al., 2012, p. 663). We consider the application of blockchain technology in the agricultural sector where the role of this technology has been highlighted but as showed by some scholars (Demestichas et al., 2020) its impact on the redefinition of the value distribution chain has received limited attention and further research are necessary.

The study aims to answer to the following research question: *Can the blockchain technology impact the value chain of the agricultural sector?*

Especially we want to highlight how the application of digital technologies in the traceability of agri-food supply chain can support the generation and distribution of value for all the actors involved in the chain, and how can support the economics and social development of the territory and rural areas.

In the last decades, the agri-food sector is experiencing, as a result of the digital revolution, a growing motion of continuous innovation. Wanting to focus attention on the AgriTech phenomenon, understood as a term that encompasses the application of digital technologies along the entire value chain of the agri-food sector, it is possible to identify different trends: Precision Farming, Animal Health, Vertical and Indoor Farming, Water and Crop Tech, Food Safety, Food Quality Management, Lifestyle healthy, 3D Printed Food, Connected Kitchen, Smart Packaging ecc.

At the same time, agri-food startups have recently become focal points of tech sector innovation and financing. In fact, has highlighted some scholars (Fairbairn et al., 2022), rapidly multiplying tech startups are promising to import the tech sector's trademark disruptive innovation into an industry often inefficient and unsustainable. In this scenario, startups played a significant role in promoting digital solutions in the agri-food sector. A 2019 study (Osservatorio Smart AgriFood, 2019) identified a sample of 500 startups that globally raised a total of \$2.9 billion in investments.

Parallel to what has happened in the industrial sector, the use of digital solutions, developed often by start-ups, within the agricultural sectors is driving this sector towards a new phase of development, referred to as 'Agriculture 4.0'. As noted by Klerx et al. (2019), the adoption of digital technologies within farms is the first piece of Agriculture 4.0, which is developed on the effects of digitalization on farmer skills, on the digitalization of agricultural knowledge, and so on the digitalizing agricultural production systems and finally the development of an Economics and management of digitalized agricultural production systems.

For several years in Italy too has been experiencing exponential growth in terms of the spread of high-tech solutions in the agri-food sector. Already in 2019, the value of Agriculture 4.0 had reached a total of around 400 million euros (equal to 18% of the European sector). Not even the Covid-19 crisis has reversed the positive trend, and the market has exploded, rising from 540 million euros in turnover in the first half of 2020 to 1.3 billion at the end of 2020, and to 1.6 billion in 2021 (Osservatorio Smart AgriFood, Marzo 2022).

The agri-food value chain is a complex system responsible for the flow of agri-food products from the production phase to the consumption phase. In the agri-food value chain the considerable number and heterogeneity of the stakeholders are involved from different sectors, such as farmers, distributors, retailers, consumers, etc., renders the agricultural supply chain management as one of the most complex and challenging fields of application of blockchain technology (Mirabelli and Solina, 2020).

Blockchain is a digital record-keeping system that removes the need for third-party intermediaries who traditionally facilitate a range of essential transactions (Crosby et al. 2016). This is possible thanks to a decentralization process of the management of those transactions, using cryptography to enable distributed verification of information and thus support secure and transparent peer-to-peer exchange (Swan 2015). In basic terms, a blockchain is composed of blocks that store data (currencies, software programs, contracts, etc.). These contain a unique identifying hash and a further hash that links to a previous block (hence, 'the chain'). The ledger of activity is shared publicly with everyone on the network, and when a new transaction is realized, all nodes on the network must validate its legitimacy before it is accepted on the blockchain (Pilkington 2016). These factors together make blockchain nearly immutable, leading some to suggest that blockchain represents a new paradigm. Some researchers have described blockchain as a foundational technology, the impact of which has been compared to that of the early World Wide Web (Iansiti and Lakhani, 2017). To date, the main applications of blockchain are in the financial context concerning cryptocurrencies and Bitcoin (Nakamoto, 2008), but the characteristics of blockchain have led to its application in numerous sectors, including manufacturing, energetic services, and insurance (Fernández-Caramé et al., 2018).

Blockchain technology is a solution for tracking agri-food products along the entire supply chain from 'farm to fork'. Through the traceability of agricultural products, it is possible to combat counterfeiting phenomena and therefore create value for local economies with an agricultural vocation, both from an economic and social point of view. The traceability of the agri-food chain is of particular importance, in an area like that of southern Italy, with an agricultural vocation.

In the last decades, managing traceability in food supply chains has gained increased societal and economic importance due to the impacts on a large scale, of disruptions in food safety on businesses and human health (Meuwissen et al., 2003; Ringsberg, 2014). Over time, there have been several attempts at traceability of the agri-food value chain, however as pointed out by some scholars (Zhao et al., 2019) these solutions are ever centralized, monopolistic, symmetrical, and sometimes opaque.

Traceability of the supply chain has the main objective of increasing the value generated by agricultural production. Through the traceability of the food supply chain, it is possible to distribute the value created, among all the actors involved along the supply chain, but even more so on the production territory and its community. In particular, our goal is to try to demonstrate how the adoption of this technology can contribute to the creation of value in the agricultural sector, and the distribution of value in the territory of reference, stimulating the birth of new businesses and the generation of economic and social impact, especially for rural areas (Burke, 2019).

The agricultural product quality policy is an integral part of the Common Agricultural Policy (CAP), as it is considered a strategy for maintaining and developing diversified agricultural activities in rural areas and strengthening the competitiveness of these territories.

Methodology. We chose to adopt a qualitative approach, based on the case study methodology (Yin, 2018). The paper describes an Italian case of a start-up operating in the sector, to analyze how the technology has been developed and implemented and the impact that the implementation of the project can generate for the local agricultural sector. The company has developed a traceability system aimed to "redesign the food supply chain bringing innovation to security and information management systems, ensuring that everyone involved in the value chain has the certainty of the product, starting from the origin e not from the document. This blockchain solution is able to overcome the problem of the low validity of digital twins (Botta et al., 2021; Henrichs et al., 2022). Digital twins (Stark et al., 2019) is considered the "Achilles' heel", of blockchain-based supply chains the use of blockchain technology to track goods is ineffective if there is not a strong correspondence between what is physically exchanged and the digital information that appears in blockchain transactions (Botta et al, 2021).

Results. The study has made it possible to identify that the impact of the application of blockchain technology, goes beyond technical aspects in terms of increase of transparency and efficiency of the supply chain, but it involves social aspects acting as an enabler of local development and contributing to give value to all actors involved in the process (Parente, 2020). In particular, results of our study highlight how the implementation of blockchain technology can radically change the agribusiness supply chain. Blockchain technology enables a new business model that innovates agri-food supply chains by supporting value creation for consumers and farmers located in rural areas. As a result, the value retained and reinvested in rural areas increases differently in a large percentage of the value created is retained by intermediation and distribution operators.

Research limitations. While we believe the present study is of great significance for having considered the impact of digital technologies on value creation and distribution process, we acknowledge that our research is not without limitations that open up new avenues for future research. First, we consider in our study a single case that limits the generalizability of our results. Second, we focus on a specific sector, that is agrifood sector, characterized for a very complex structure in terms of actors and subjects involved.

Managerial implications. The paper has both theoretical and practical implications. From a theoretical point of view, the paper contributes to digital entrepreneurship research showing how digital entrepreneurship, can support the development and distribution of value production. From a practical point of view, the paper provides evidence about the strategic role that the adoption and implementation of blockchain technology can play in the Agricultural supply chain (Burke, 2019), and in rural community development and resilience that can obtain benefits economic and organizational point of view through the implementation of a real blockchain-based platform.

Further, our study highlighting how the development of agricultural supply chain solutions, based on blockchain technologies, can guarantee greater traceability and transparency, suggest that the adoption of this technology could be a useful strategy that can lead to an increase in production and diffusion of value in a particular way to rural areas

Originality of the paper. Our paper provides useful evidences about the role of blockchain technology in agrifood sectors suggesting that its impact is not limited to technical aspects in terms of increase of transparency and efficiency of supply chain, but involves social aspects acting as enabler of local development and contributing to give value to all actors involved in the process.

Keywords: Digital transformation; Value creation; Agri-food; Blockchain; Supply Chain; Digital entrepreneurship

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Which are worthy? Achieving legitimation for innovative projects in the eyes of knowledgeable audiences[♦]

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Abstract

Legitimacy is a key issue for startup projects, helping innovative ideas and potential ventures to achieve social and financial support from external stakeholders. When participating to competitive contests, startup projects need to achieve legitimacy and be considered appropriate entities by a jury of experts, who represent a knowledgeable and competent audience. In this study, we aim at investigating which elements characterizing startup projects are correlated with higher probability for the projects to be legitimated by knowledgeable audiences. We explore this issue by building on a dataset of 124 projects submitted to the BiUnicrowd contest (2018-2021) organized by the University of Milano-Bicocca. We discuss our results and suggest contributions to literature on category dynamics and entrepreneurship, also offering some insights in terms of implications for managers.

Framing of the research. *Innovative, early stage projects, often struggle to be considered legitimate (Aldrich and Fiol, 1994). Many projects, although incorporating novel ideas or solutions to social issues (De Silva et al., 2021) may not be perceived as appropriate in the eyes of stakeholder audiences, thus failing to achieve legitimacy (Suchman, 1995) and gather the financial and social support needed to develop and grow. This legitimacy may be particularly important in the case of innovative contests (Boudreau et al., 2011), during which participating projects need to persuade knowledgeable, expert audiences not only that their ideas are novel enough, but also that their goals and overall activities are appropriate, worthy to be transformed into new ventures. Indeed, in the case of contests, expert audiences evaluate various dimensions of projects, and thus for projects' proponents (e.g., potential entrepreneurs) it is important to understand which elements and signals they can leverage to persuade these audiences of their value and achieve legitimacy. Hence we ask: what are the elements that are correlated to startup projects gaining legitimacy in the eyes of knowledgeable audiences? In the following sections, we investigate this question by looking at BiUniCrowd, a contest for innovative projects created by the University of Milano-Bicocca.*

Purpose of the paper. *Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995: 574) and represent a key factor for startup projects and potential ventures (Capo and Di Pietro, 2023; Fisher et al., 2016). Scholars have pointed out how nascent and young ventures may face a "liability of newness", showing - among other weaknesses - low levels of legitimacy (Singh et al., 1986), which may prevent them to attract the needed support (both in terms of financial resources and social capital) to survive and grow. New ventures striving to be noticed and recognized as a participant in a given market has to attract the attention of stakeholder audiences such as private investors, prestigious partners, intermediaries, and media (Petkova et al. 2013). Legitimacy also entails being evaluated on the basis of specific elements (Aldrich and Fiol, 1994; Suchman, 1995). Affiliation with high-status actors such as venture capital investors provide legitimacy as those actors are supposed to have the ability to assess the quality of a new venture. Participation in competitive contexts such as business plan competitions may also help startup projects gain legitimacy as "victories in contests legitimate organizations and validate their reputation because of the taken for granted axiom that winners are 'better' than losers" (Rao, 1994: 32). Indeed, by emerging as winners in contests, startup projects signal their future value to potential customers, partners, and investors and justify their existence as reliable entities in the entrepreneurial environment (Rao, 1994). However, to win competitive contests, startup projects need to persuade an expert audience (i.e., a designated jury) of their value and*

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appropriateness, which will then provide validity clues to future stakeholders (Wang et al., 2016). Studies have argued that, when evaluating and providing legitimation to certain actors' categories, expert audiences employ specific mechanisms particularly in view of the knowledge and understanding they have of that category (Vergne and Wry, 2014). While the literature has posited that experts take into account several elements when undertaking decisions (Petkova et al., 2013; Eisenhardt, 1989), it has overlooked which are the elements they account as most important when evaluate candidates (i.e., deciding who is going to win a contest). In this sense, we build on crowdfunding and entrepreneurship literature (Belleflamme et al., 2014), and propose that two elements can play a key role in shaping expert audience's evaluations. First, studies focusing on crowdfunding campaigns have argued how team size can have a positive effect on their success (Oo et al., 2019), due to social network effects (Mollick, 2014) and human capital benefits that may accrue as the number of team members increases. This is because, on the one side, each individual can bring on her own connections and contacts (i.e., her own social network) as prospective investors and funders of the campaign; thus, as the team size grows, a campaign's chances to reach the target goal and be successful also increase. On the other side, scholars suggest that larger teams may also provide ventures with higher human capital (Ucbasaran et al., 2003), which in turn may allow a firm to leverage diverse competences, and skills as well as access to social and financial resources (Becker, 1975), resulting in increased likelihood of success when appealing to potential investors and backers. The potential to build on a wide social network and the diversity and richness of human capital incorporated may render a startup project viable and appropriate in the eyes of expert audiences. This suggests that team size may represent an element taken into account in legitimation processes by expert audiences. As such, we formulate the following hypothesis:

Hypothesis 1. *The number of members in a team is positively correlated with the probability of a startup project being considered legitimate by an expert audience.*

Second, entrepreneurial studies have focused on the importance of signals in persuading investors to finance a venture (Ahlers et al., 2015). Scholars agree that, among others, the level of education can work as an effective signal, portraying the venture's founders as competent and knowledgeable, and helping reduce the uncertainty investors may have regarding the entrepreneurial project feasibility (Hsu, 2007; Levie and Gimmon, 2008). Like investors, also expert audiences (such as members of a jury during a competitive contest) rely on signals to evaluate the worthiness and appropriability of a project. In this sense, conveying the image of competence by means of high levels of education possessed by the principal team member may increase project's chances to be considered legitimate in the eyes of an expert audience. Hence, we formulate the following hypothesis:

Hypothesis 2. *The education level of the principal team member is positively correlated with the probability of a startup project being considered legitimate by an expert audience.*

Methodology. *The dataset includes 124 projects submitted to the first four calls of BiUnicrowd (2018-2021), a contest based on a program of alternative finance organized by the University of Milano-Bicocca in collaboration with the Italian crowdfunding platform "Produzione dal basso". Students (both former and current) and employees (e.g., researchers, professors, administrative staff) of the university could submit their proposal to a jury of experts. The winners of the contest (i.e., the selected projects) received specific training from the university and from the crowdfunding platform experts, and later on, participated in a crowdfunding campaign. These campaigns were based on the "all-or-nothing" system, for which the collected funds are transferred to the project if the pre-set target is met. A peculiarity of BiUnicrowd is that the university or other associated partners (e.g. Fondazione Comunità Milano, Corepla, and Sorgenia) commit to co-finance the project if at least 50% of the target is met. Therefore, the benefits of participating in the BiUnicrowd program are related to access to funds, learning opportunities (e.g., in marketing and communication), visibility, and legitimacy. The first two calls of the contest received more projects (41 and 47, respectively), which may be related to the novelty of the program and then some proposals were outside the scope of the calls or of a too low quality; the third call received 24 projects, and the fourth 12. The number of winning projects that eventually did the campaign was 4 and 5 for each call. For each of the 124 projects, we have access to the biography of the proponents - i.e., the principal investigator (PI and - if any - of the other team members), and a description of the projects (including business plan and budget). From this information, we created a set of variables correlated to the probability of being selected by the commission of experts and eventually participating to the crowdfunding campaign. We estimate a probit model, where the dependent variable "winning" is equal to 1 if the project is selected by the experts, and 0 otherwise. All variables are listed in Table 1, with descriptions and some statistics. We clustered errors by each call.*

Tab. 1: Variables and description

Variable	Description	Mean	SD	Min	Max
Winning	Dummy (1/0): 1 if the project has been selected by the experts	0.15	0.35	0	1
Team size	Number of persons in the application	3.63	2.38	1	12
Team female shares	Share of females in the team	45.27	39.24	0	100
Team homophilia	Dummy (1/0): 1 if team members are either all females or all males	0.53	0.50	0	1
Team 50% females	Dummy (1/0): 1 if at least 50% of team members are females	0.49	0.50	0	1
Team n. females	Total number of females in the team	1.72	1.81	0	11
PI female	Dummy (1/0): 1 if PI is female	0.42	0.50	0	1
PI high school or bachelor	Dummy (1/0): 1 if the education level of the PI is high school or bachelor's degree	0.24	0.43	0	1
PI master	Dummy (1/0): 1 if the education level of the PI is a master's degree	0.48	0.50	0	1
PI PhD	Dummy (1/0): 1 if the education level of the PI is PhD	0.27	0.45	0	1
PI STEM edu	Dummy (1/0): 1 if the education level is in science, technology, engineering, or mathematics (STEM) fields	0.44	0.50	0	1
Mission digital & innovation	Dummy (1/0): 1 if the mission is related to digital and innovation	0.39	0.49	0	1
Mission environmental	Dummy (1/0): 1 if the mission is related to environmental issues	0.29	0.46	0	1
Mission social & health	Dummy (1/0): 1 if the mission is related to social and/or health issues	0.32	0.47	0	1

Results. *Our preliminary exploration of the factors related to the probability of being selected by an expert audience is mostly focused on the characteristics of the PI, and on the team members (if any). Table 2 shows the probit estimations of seven model specifications.*

Across models 1-7, the strongest and more consistent result is about the number of team members, which is positive and statistically significant in all models. Our hypothesis 1 is confirmed. This result is in line with the literature on crowdfunding success (e.g. D'Agostino et al., 2022), suggesting that larger teams are considered a good signal of the potential success of the campaign and subsequent development of the project. Larger teams embody a higher amount of human capital, can benefit from a greater division of labor and the presence of heterogeneous and complementary competencies, and access to a larger network that may support the campaign. In model 7, we also test the non-linearity of team size; we expect that too many members may be detrimental to success because of repetition and overlapping of competencies, but the squared term is not statistically significant probably because most teams in our sample have a limited number of participants.

In models 2-5, we investigate the composition of the team in terms of gender; this exploration is based on the observations that of the 18 projects selected, 11 (61%) are led by females, and these teams are more likely to have more women on board (i.e., 6 of these 11 project teams have at least $\frac{3}{4}$ of females). This overrepresentation of women in comparison to other contexts (e.g., Johnson et al. 2018) may be explained with two complementary motives. First, the University of Milano-Bicocca is more specialized in fields in which traditionally women are more represented (e.g., social sciences). Second, reward crowdfunding is usually linked to projects with strong social dimensions, and the calls of BiUnicrowd are oriented towards social or environmental issues, in which women tend to be more committed; for example, among the partners that have co-financed projects, there is Fondazione Comunità di Milano (which support projects with a social impact) and Corepla, a national consortium for plastic packaging recycling. However, none of the variables related to gender is statistically significant, not even PI being a female. The pairwise correlations between female PI and female composition of teams ("Team female share" and "Team 50% females") are above 0.8 and 0.7, respectively; however, the VIF does not raise concerns.

In general, none of the variables related to PI characteristics seem relevant, except marginally in models 3 and 7, where "PI PhD" is positively correlated to the probability of being selected for a campaign at a low level of significance ($p < 0.10$). The significance of "PI PhD" becomes stronger ($p < 0.05$) in model 6 after the exclusion of "PI STEM edu.", suggesting that having a PI with a PhD is a strong signal of quality, but part of this effect is mitigated when the PI has an education in STEM fields. We also tried the interactions between "PI PhD" and "PI STEM edu", and none of the three coefficients are statistically significant at the conventional levels (results not shown here). Therefore, we find support for hypothesis 2 on the importance of PhD for PI, although further investigation is required to check the robustness of this result.

Tab. 2: Econometric results: probit

	(1) Winning	(2) Winning	(3) Winning	(4) Winning	(5) Winning	(6) Winning	(7) Winning
Team size	0.143*** (0.0404)	0.133*** (0.0292)	0.147*** (0.0395)	0.134*** (0.0250)	0.212*** (0.0792)	0.139*** (0.0507)	0.704** (0.340)
Team female shares		-0.00758 (0.00713)					
Team homophilia			0.0483 (0.218)				
Team 50% females				-0.398 (0.554)			
Team n. females					-0.135 (0.123)		
Team size ²							-0.0497 (0.0308)
PI female	0.511 (0.489)	0.907 (0.848)	0.505 (0.493)	0.785 (0.851)	0.769 (0.689)	0.474 (0.518)	0.623 (0.539)
PI master	0.603 (0.517)	0.607 (0.513)	0.602 (0.515)	0.594 (0.479)	0.590 (0.504)	0.599 (0.506)	0.702 (0.538)
PI PhD	0.811 (0.507)	0.899 (0.594)	0.815* (0.491)	0.834 (0.519)	0.859 (0.557)	0.899** (0.450)	0.926* (0.483)
PI STEM edu.	0.188 (0.396)	0.130 (0.420)	0.193 (0.392)	0.198 (0.385)	0.151 (0.396)		0.108 (0.386)
Mission environmental	0.104 (0.409)	0.165 (0.385)	0.110 (0.411)	0.0872 (0.429)	0.106 (0.429)	0.157 (0.364)	-0.0333 (0.374)
Mission social & health	-0.0883 (0.407)	0.0142 (0.350)	-0.0809 (0.441)	-0.00559 (0.378)	0.00360 (0.339)	-0.0804 (0.404)	-0.191 (0.393)
Constant	-2.596*** (0.637)	-2.420*** (0.439)	-2.640*** (0.475)	-2.507*** (0.527)	-2.752*** (0.720)	-2.516*** (0.643)	-3.887*** (0.651)
Observations	124	124	124	124	124	124	124
Pseudo R-squared	0.171	0.182	0.172	0.177	0.180	0.169	0.216

Clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Research limitations. *Our research is not without limitations. Firstly, BiUnicrowd is a very recent program, and this implies that the dataset suffers of different biases: few projects in total, large variance in the quality of projects for each call, and high variability across the calls because of different partners and experts involved. Secondly, we mainly codified information from CVs, whose format and quality of the information provided sometimes are inconsistent across calls (especially for team members), which further limit the information we can use across the calls. Finally, the generality of our results is limited by the peculiar context, which is the crowdfunding activity experienced by a specific public university.*

Managerial implications. *Our findings offer some implications for practice. First, it suggests how important is to know 'who you are talking to' (i.e., the audience you are targeting) and incorporate in a project or venture that will be evaluated by that target audience the elements that this latter will considered valuable and appropriate. As marketers do when segmenting their customer base and deciding which segment to target, startup projects or new ventures need to channel their initial resources, rather than towards persuading as much people as possible, towards convincing one specific audience. Such a strategy (i.e., target one audience and prepare for it) may enable new projects or ventures to employ limited amount of resources, only the amount needed to reach that target, and proceed incrementally in steps by allocating other resources towards the next target (and audience) that need to be persuaded to acquire support and legitimacy (which may be financial investors or backers in case of crowdfunding campaigns).*

Second, our findings highlight the importance of team size and level of education as dimensions that affect expert audiences, whose evaluation may eventually provide a strong legitimation signal to other less expert audiences such as financial contributors to a reward crowdfunding campaign. Project teams will probably benefit from a clear awareness of the importance of these factors. However, data limitations prevent a deeper understanding of team composition which we aim to investigate in our future research. Moreover, the analysis of projects selected into crowdfunding campaigns could help to understand to what extent expert evaluation predicts the actual success of a project during the crowdfunding campaign. Comparing the selection outcome with the performance of selected projects in the campaigns may provide useful information for the organization and assessment of the selection process.

Originality of the paper. *This working paper contributes to two streams of literature. The first one is related to category dynamics (David et al., 2023; Zuckerman, 1999) and particularly the issue of how actors can gain legitimacy when appealing to knowledgeable audiences. Indeed experts, in view of their competence and information about the entity they are evaluating, may take into account specific elements (Vergne and Wry, 2014) different from the factors that general audiences (such as crowdfunding investors, the public, or media) take into account when conferring (or not) the label of worthiness to an actor. The second stream of literature is related to entrepreneurial scouting, which has mainly investigated how venture capitalists select startups in which to invest and to a less extent has addressed the role of experts without financial interests in early-stage projects. The main contribution of our work to this latter literature is the specificity of the setting - a contest that allows a first-stage selection of projects that will participate in a crowdfunding campaign at a later stage. The presence of the University as a promoter of reward crowdfunding*

provides a rich pool of potential participants and projects. At the same time, the promotion and financial backing of a crowdfunding campaign by an academic institution probably play a legitimating role.

Keywords: legitimacy; entrepreneurship; competitive contests

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Harvesting the future: the role of innovative companies in the agri-food sector

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Framing of the research. *Despite the importance of innovation in improving production processes and profitability, few studies have attempted to measure the level of innovation at the farm level. The purpose of this paper is to empirically test the effects produced by new investments on the efficiency of agricultural enterprises and to determine which factors characterize innovative companies in the Italian agricultural sector. Using a conditional Data Envelopment Analysis (DEA) approach this study analyses the data collected by the Farm Accountancy Data Network for the period 2011 - 2020. Findings show that in line with the literature, companies led by young entrepreneurs, which diversify production, and which adopt the new technology are the most innovative and most efficient.*

Purpose of the paper. *The main purpose of the agricultural sector is to guarantee a constant and quality production of food in order to satisfy the primary needs of the population, for this reason the agricultural sector has often found itself facing significant challenges related to the trade-off between productivity and the environment (Rosa-Schleich et al., 2019). Therefore, innovation represents one of the main drivers of productivity becomes a key factor in facilitating the development of the agri-food sector. This need has also been repeatedly emphasized by the European Union with the creation of the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) whose purpose is to promote sustainable and innovative agriculture, oriented towards the creation and dissemination of innovation within the territory (Läpple et al., 2015). In addition, it is known that to ensure the increase of sustainability in the agricultural sector, the continuous innovation process through the adoption of new technologies and the making of new investments plays a key role (Armanda et al., 2019). In order to full fill these expectations, agricultural firms should be integrated into the innovation process with specific innovation policies for companies operating in this sector. However, it is believed that innovation in the agricultural sector depends on a series of factors other than the so-called "traditional", because most of the agricultural enterprises are small and sometimes located in desolate areas due to the characteristics of the business activity (Kantor and Whalley, 2019). For these reasons the innovation in agricultural is often studied from input side, it understood as the capacity to absorb new technologies, rarely from the output side that is the capacity to produce innovation. Hence, it is ignoring the capacity to an agricultural firm to the ability to invest in innovation with its own internal resources (Alarcón and Sánchez, 2016). To deepen this theme, this paper focuses on the role that innovation investments have on the performance and efficiency of Italian farms, our analysis will allow us to identify the strengths and weaknesses of the territory providing political decision makers to develop strategies able to mitigate weaknesses and consolidate strengths (Borghini et al., 2021). According to L'apple et al. (2016) we use the variable new investment as a proxy of level of innovation, and we go see how it impacts on the productivity and efficiency of firms, then we will focus on the analysis of the farmers characteristics such as gender, age, economic dimension (Fusco et al. 2022).*

Although the agricultural sector plays an essential role in ensuring food production, food production has a lower level of innovation than other sectors (Pardey et al., 2010). Showing how from the point of view of innovation the agricultural sector has ample room for improvement (Islam et al., 2013). The reasons for this gap can be linked to factors that characterize farms such as small size, low level of education, greater distance from knowledge poles, low level of investment (Bjerke and Johansson, 2022).

According to the internal innovation capacity Läpple et al., (2016) constructed an innovation index taking into account three different components the adoption of innovation (the use of an innovative technique), knowledge acquisition and continuous innovation, where continuous innovation means the farmer's ability to make new investments in order to maintain a high level of innovation.

Methodology. *In the first step, a quantitative analysis has been conducted, by applying a Data Envelopment Analysis on an unbalanced panel data composed by 33.607 observation for the period 2011 – 2020 in order to assess*

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the relationship between farmers efficiency and innovation; in the second step with a correlation, we analyse the influence of characteristics farmers characteristics on innovation. The DEA methodology is a linear mathematical program that allows us to measure the relative efficiency of our decision-making units, traditionally called DMUs (Charnes et al., 1978), such as firms, provinces, regions, countries and other entities, which have no a specific functional expression. Proposed and developed by Farrell (1957) it allows us to evaluate the performance of each unit up to the achievement of the frontier, which once reached gives the possibility to use the efficient units as comparators or models (Hu, Wang, and Yeh 2006).

A peculiarity of the DEA methodology is to attribute a synthetic indicator to any phenomenon; from an empirical point of view the DEA allows us to identify the optimal frontier of the DMUs based on the inputs and outputs assigned to each one, given that all values can be a frontier point either above or below the productivity frontier.

The distance that separates each DMU from the border determines its level of efficiency, if the DMU is positioned on the frontier, therefore, it has a distance equal to 0, the DMU will be efficient, otherwise it will be inefficient.

An evolution of the traditional DEA is a DEA with conditional efficiency, given a certain level of technology we consider that the production activity is characterized by a series of inputs $X \in \mathbb{R}_+^p$ which are used to produce a series of outputs $Y \in \mathbb{R}_+^q$ and a generic vector of environmental variables $Z \in \mathbb{R}^d$.

As demonstrated by Cazals et al. (2002), Daraio and Simar (2005), the total unconditional output (the set of all possible and technically feasible combinations between (x, y)) is defined as follows:

$$\psi = \{(x, y) \in \mathbb{R}_+^{p+q} \mid x \text{ can produce } y\}$$

$$\text{Where } \Psi = \{(x, y) \mid H_{X,Y}(x, y) > 0\} \text{ and } H_{X,Y}(x, y) = \text{Prob}(X \leq x, Y \geq y).$$

$\overline{\Psi}$ is the support of the joint random variables (X, Y) . The Farrell-Debreu approach to estimate unconditional (marginal) efficiency with outputs and inputs (x, y) is defined as:

$$\lambda(x, y) = \sup\{\lambda \mid (x, \lambda y) \in \Psi\} = \sup\{\lambda \mid S_{Y|X}(\lambda y|x) > 0\} \quad (1)$$

Where $S_{Y|X}(y|x) = \text{Prob}(Y \geq y \mid X \leq x)$ represents the nonstandard conditional survival function of \overline{Y} with $\overline{X} \leq x$

This framework was extended by Mastromarco and Simar in (2015) and Toma (2020) including time dimensions, in line with their approach we considering a panel data composed by (x_i, y_i, z_i) with $i = 1 \dots n$, and $t = 1 \dots S$, in order to estimates the unconditional and conditional attainable sets. To include time in our analysis, the variable T time will be considered as a further conditioning variable, and for each year period \overline{t} (in this case each year), we will proceed to the definition of all attainable set $\psi_{\overline{t}}^z \subset \mathbb{R}_+^{p+q}$ as support for conditional probability:

$$H_{X,Y|Z}^t(x, y|z) = \text{Prob}(X \leq x, Y \geq y \mid Z = z, T = t)$$

According to Daraio and Simar (2005) the conditional output-oriented technical efficiency, with z conditions at time \overline{t} , is defined as follows:

$$\lambda_t(x, y|z) = \sup\{\lambda \mid (x, \lambda y) \in \psi_{\overline{t}}^z\} = \sup\{\lambda \mid S_{Y|X,Z}^t(\lambda y|x, z) > 0\} \quad (2)$$

Where $S_{Y|X,Z}^t(y|x, z) = \text{Prob}(Y \geq y, \mid X \leq x, Z = z, T = t)$.

Assuming the assumption of convexity and free disposability for the true attainable sets of inputs and outputs, including the z condition and il time \overline{t} . The formula of the DEA estimators according to Daraio and Simar (2007b) is:

$$\hat{\psi}_{\overline{t},DEA}^z = \{(x, y) \in \mathbb{R}_+^p \times \mathbb{R}_+^q \mid y \leq \sum_{j \in J(z,t)} \gamma_j y_j; x \geq \sum_{j \in J(z,t)} \gamma_j x_j; \gamma_j \geq 0 \text{ s.t. } \sum_{j \in J(z,t)} \gamma_j = 1\} \quad (3)$$

Where $J(z, t) = \{j = (i, v) \mid z - h_z < z_{i,v} < z + h_z; t - h_t < v < t + h_t\}$; $\overline{h_z}$ and $\overline{h_t}$ represent the bandwidths of suitable size choice by data-driven methods.

While $J(z, t)$ illustrate the procedure to localize and estimate the conditional DEA estimates and they define the points in a neighborhood of (z, t) , which will be using to compute the local DEA estimates. Following Bădin et al. (2010), Daraio and Simar (2005, 2007a) the choice of the appropriate bandwidths is determined by the value of conditional distributions $S_{Y|X,Z}^t(y|x, z)$, with $\overline{X} \leq x$, $\overline{T} = t$ and a particular value of $\overline{Z} = z$ using standard tools according to Hall et al., (2004).

Variables (t, z) need a smoothing and appropriate bandwidth for this reason we have:

$$\hat{S}_{Y|X,Z}^t(y|x, z) = \frac{\sum_{j=i,v} I(x_j \leq x; y_j \geq y) K_{h_z}(z_j - z) K_{h_t}(v - t)}{\sum_{j=i,v} I(x_j \leq x;) K_{h_z}(z_j - z) K_{h_t}(v - t)}$$

In this function we have include the kernels with compact support (for further and technical details see Bădin et al., 2010), in our studies we apply a quartic kernel.

$$\lambda_{\alpha}(x, y) = \sup\{\lambda|S_{Y|X}(\lambda y|x) > 1 - \alpha\}$$

$$\lambda_{t,\alpha}(x, y|z) = \sup\{\lambda|S_{Y|X,Z}^t(\lambda y|x, z) > 1 - \alpha\}$$

In the model we not considering the full support of Y under the conditioning, but with a value less extreme (with $\alpha \neq 1$). These partial estimates, including also possibly extreme values, providing similar information to the full frontier estimates. In order to select the reasonable value of α we following the approach adopted by Bădin et al. (2010), Daraio and Simar (2007a).

Results. According to the approach proposed by Bădin et al. (2012) we can identify the effects produced by conditioning variables on distribution of the inefficiencies and on the boundary.

The effects on the frontier can be assess using the ratio between conditional and unconditional efficiency measures, concerning to conditional and unconditional attainable sets on the full frontier.

$$R_o(x, y|z, t) = \frac{\lambda_t(x, y|z)}{\lambda(x, y)} \tag{4}$$

The focus of our paper is to assess the effect of T and Z on these ratios. When we apply the output oriented estimates, generally, the conditional efficient frontiers is below of the unconditional one, unless the ratio is equal to 1, this is possible when there is no shift due to variables condition T and Z .

From the analysis of boundaries differences between the possible attainable sets, we can assess if the our variables time T and Z influence the technology of production.

If the ratio tends to increase the product effect will be positive, alternatively as proposed by Bădin et al. (2012) we can consider the counterparts of α and use more central indicators such as the median to evaluate the effect of T and Z on the distribution of the inefficiency.

in this case the relationship is described as follows:

$$R_{o,\alpha}(x, y|z, t) = \frac{\lambda_{\alpha,t}(x, y|z)}{\lambda_{\alpha}(x, y)} \tag{5}$$

The shifting effect caused by our conditional variables already observed from the equation (4), they may be more evident (or less) in the ratio calculated from equation (5) using the ratios for the different levels of α .

In summary using non-parametric estimators for efficiency, we analyse how this value varies for the effects of our variables T and Z for the ratios described in equations (5) and (6).

The results show that, in line with the literature, companies led by young entrepreneurs, diversifying production and adopting new technologies, are the most innovative and most efficient.

Research limitations. The dataset used in the analysis include 12.601 observations distributed over 10 years (2011 - 2020), the data was extracted from FADN database. Our dataset includes all farmers who made investments in the reference year, for this reason our dataset is a unbalanced panel dataset. Some studies analyze the relationship between company size and innovation and underline how large companies have a greater propensity to innovate thanks to the availability of greater financial resources (Baumann, and Kritikos, 2016). In the primary sector this aspect has been evaluated by

Perales et al., (2020) where they find a positive impact between size and innovation, in their study using the number of employees as a proxy of the size of the enterprise. Another important driver in the innovation process is human capital, the ability to absorb and adopt knowledge in the process, the absorption capacity reflects the ability of the enterprise to increase its technologies and knowledge.

Although this variable is commonly used in the study of business innovation; in the agricultural sector there are only a few studies, due to the availability of data, which use human capital as an engine of innovation, in this sense Läßle et al., (2015) find a negative relationship between age and innovation, the explanation of these results is that older farmers respect compared to younger ones have a shorter time horizon ahead of them to enjoy the returns of investments in innovation and the fact that the Older farmers tend to have lower levels of education.

The ability to innovate often also depends on external as well as internal factors, often external factors such as networks and localization are necessary to integrate internal resources. One way to overcome the lack of time and resources (financial and human capital) and to draw on external sources, which can concern both relations with the territory and targeted national policies (Fitjar and Rodríguez-Pose, 2017). This perspective in the agricultural sector is not shared by all researchers, some pointing out that small farms tend to innovate by relying on their internal resources (Lindgaard Christensen et al., 2011).

Managerial implications. In this study in order to reduce the problem of the “curse dimensionality”, we considered an elementary production model with one output and only three inputs: value added as output and equity, machinery and labor as output. In addition, in order not to burden the model with conditional variables, we only use two variables: time and new investments.

All companies have a precise mission, and as the ultimate goal is the creation of profit and wealth for the property (Fridman, 1970). Innovative companies are strongly oriented towards dialogue with the external environment.

Sono destinatari di questo lavoro sia le Pubbliche Amministrazioni che le Aziende ed i giovani imprenditori. Tali soggetti sono in grado di cogliere l'opportunità di creare valore legato all'innovazione. For this reason, this study suggests that young people who try their hand at a business idea should be encouraged. The creation of new public incentives to facilitate the breeding of new young businesses and to encourage such enterprises to diversify their production. Diversification is in fact a process with medium-long times, to which is added the need for high investments. The organization must be ready and flexible to adapt to change, so as to develop new logics and procedures to make the most of the result of product diversification. Today's founders have a broader vision than that of the generations that preceded them. The territory of action of a young entrepreneur is much wider. Technological innovation for a young person is more accessible and easily usable.

A true culture of innovation is something profound that permeates the entire company vision. It allows us to listen to consumers, intercept technological and cultural changes and anticipate innovative solutions.

One of the elements that allows companies to have a greater chance of success is innovation. In close reciprocal relationship with developments in scientific research and knowledge and therefore with progress, it is a determining factor in the economic growth of a country.

Innovation therefore means adhering to circumstances, to changes in the environment, to scientific discoveries, it means not losing sight of the market, observing, and proposing concrete answers that are increasingly consistent with the needs of customers. A company with older management often has a very narrow view of innovation, identifying it exclusively as new product development and research and development.

On the other hand, a company with young management is easier to change one or more dimensions of its business system to reach high levels of performance

Every company, to be competitive, is called to deal day after day with the reality that surrounds it, above all it is called to look at the market. This means paying attention to the needs of its customers, to the answers that the market is offering them, to the possibilities still unexplored. Innovation also means taking risks and accepting the challenge of change.

The growing attention of consumers towards the quality of products, health aspects, the environment and the sustainability of production processes are today the main levers that push the innovation processes of agri-food companies.

Originality of the paper. In the analysis of innovation in the agricultural sector, different approaches have been used, including micro and temporal studies of innovation enablers that can be internal and external to enterprises (Klerkx et al., 2009).

With a macro approach Spielman and Birner and in their study, based on the national innovation system, identifying the main constraints related to the agricultural sector and proposing the construction of a series of indicators able to eliminate these constraints.

Researchers addressed the relationship between agriculture and innovation, which, although one of the drivers of the country's growth, has had few empirical studies also due to the difficulty of providing a single definition of innovation valid in all sectors (Gault 2018).

For the construction of these indicators, a theoretical framework is adopted that is based on the construction of indicators capable of measuring innovation efforts at national level (R&D expenditure, number of patents) and their impact on productivity and growth (Spielman and Birner, 2008).

From a micro-level approach there are a limited number of studies due to the difficulty of identification in the agricultural innovation process and the scarce availability of data (VanGalen and Pope, 2013).

The variety of results of previous studies requires more details on the relationship between innovation and growth in the Italian agricultural sector and what characteristics innovative farmers have.

Keywords: agri-food; innovation; Data Envelopment Analysis; DEA;

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Managing the digital healthcare services design: A preliminarily study on the role of human-like interaction, anthropomorphism and emotional receptivity on patients' intention to use medical intelligent agents

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Framing of the research. *Today's technological advances are reshaping the world of digital-based healthcare services, by involving a radical process of digitalization. The broad scope of digital health includes categories such as mobile health (mHealth), health information technology (IT), wearable devices, telehealth and telemedicine, and personalized medicine representing new ecosystems able to empower health leaders to digitize point-of-care settings and propose advanced patient-centered care (Värri et al., 2020). Alongside teleconsulting platforms, existing digital business models propose automated services such as medical chatbots to interact with patients (Nadarzynski et al., 2019). Such chatbots consists in a computer program that simulates human conversation through voice commands or text chats or both: Technically, chatbots are built on the basis of Artificial Intelligence (AI) features that may be embedded and used through any major messaging application. Nevertheless, previous research stress their lack of human-like interactions. In this scenario, the advent of Metaverse may fill this gap by "catapulting" patients and doctors into a parallel virtual reality made up of avatars where interactions are as similar as possible to those in the real world. In the case of digital-based healthcare services through the Metaverse many promising opportunities emerge as face-to-face communication, affective communication, communicating with emotion and social interactions that are critical for doctors-patients' relationships may be expressed by the avatars (Córdova González, 2022). Indeed, the avatars technically consist of digital-based physical representations of people in the virtual world such as in the Metaverse: The avatars, may be realized by the using of specific software aimed to create a virtual version of the individuals who would enter the virtual world, finally appearing similar in the physical aspect, and usually looking exactly like as they do in real life, thus appearing as digital representations of ourselves (Sestino, Guido & Peluso, 2022).*

From a final users' perspective (i.e., the patients), the confluence of the aforementioned new technologies activating the Metaverse may enable healthcare specialists to deliver a suite of highly integrated, intentional, and individualized care, unfettered by the siloed nature of existing healthcare models in a "parallel" daily life environment (Sun et al., 2022). The Metaverse may foster rapidity of both doctor-patients and doctor-doctor communication enabling unprecedented levels of sophistication in prevention, diagnosis, and treatment, by conducting the doctor-patient experience to a futuristic level. To increase knowledge in this promising research field, we try to investigate what are the individual determinants of consumers' intention to use new digital-based healthcare services. We explore the role of three constructs - namely human-like interaction, perceived anthropomorphism, emotional receptivity, which might contribute to explaining consumers' intention to use such services.

Individuals' intention to use digital-based services delivered by human-like agents in the form of virtual agents (such as chatbots, fully automated and computer-driven) or intelligent agents (such as avatars, partially automated, and human-driven) in the digital environments has recently attracted scholars' attention. On the basis of the extant literature, the role of real individual similarity (or identification) to their avatar or to the online available human-like agents, (e.g., as in Yang et al., 2011; Keeling & McGoldrick, 2008; Kim & Kim, 2016; Jahn et al., 2021), along with the emotional components of digital interactions (e.g., as for empathy, social interaction, and so on; Aylett et al., 2005; Cordar et al., 2014; Jahn et al., 2021) with human-like intelligent agents such as the avatars seems to be important in influencing individuals' intention to use such healthcare digital service.

As for the human-like interactivity, while chatbots might be perceived as less human-like interactive due to their fully automated nature, avatars within the Metaverse might instead be perceived as more human-like interactive precisely because they represent the virtual translation of human individuals as for the doctors (Ciechanowski et al., 2017; Mystakidis, 2022; Mygland et al., 2021).

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Similarly, in this domain, the role such intelligent agents' perceived anthropomorphism of has also captured the research attention as well: Indeed, the construct of anthropomorphism refers to the individuals' tendency to perceive inanimate objects as human-like entities (Guthrie, 1993), and consists in the inference process of attributing external characteristics, motivations, behaviors, and underlying states that are typical of humans to objects and non-human agents (Guido & Peluso 2014). By considering the digital environments, the virtual agents may be designed in an anthropomorphic way, which gives it characteristics that humanize it: For this type of agent, embodied, non-verbal ability (human gestures) and verbal abilities (voice and conversational skills) reflect ritual behavior (Koike & Loughnan, 2021). Individuals' perceived anthropomorphism may directly influence their intention to use a human-like intelligent agent, both depending on the agent type (e.g., robot gender, individual similarity) and on the type of service offered (Blut et al., 2021). This individuals' intention is mainly driven by the similarity they attribute to the digital tools, such as in the event of virtual agents e.g., chatbots (Sheehan et al., 2020), or avatars (Jahn et al., 2021). Accordingly, many studies demonstrated how the possibility of making intelligent virtual agents as anthropomorphic as possible may be one of the success factors in positively influencing the reactions of end-users (e.g., as in Moussawi et al., 2021; 2022)

By considering the healthcare sectors and current effort in proposing new digital-based environment for healthcare service delivery, despite the efforts of medical chatbots to reach increased level of anthropomorphism (Bulla et al., 2020), the avatars may be better welcomed by final users because perceived as more similar to the humans (e.g., doctors or clinicians) they represent in the virtual world. Indeed, as clarified above, since the avatars are not automated by computers but controlled by humans, they may embody all the positive sides, acting like humans, and not incurring in technological errors because driven by the humans behind them, by revealing higher level of human-like interactivity (Latoschik et al., 2017).

More importantly, in the healthcare sector, doctors' non-verbal communication during medical visits plays an important role in assessing patient compliance, satisfaction with care and monitoring health improvements (Goold & Lipkin, 1999; Ong et al., 1995). Indeed, doctors' medical profession requires they are both clinically competent and empathetic towards the patients (Kerasidou & Horn, 2016). Previous studies show that the doctors' non-verbal emotional communications may generate positive emotions and it may have positive effects of on patients' perception of the overall quality of the healthcare services (Ranjan et al., 2015). Patients are particular receptive these non-verbal approaches and are often looking for a "total guidance", both in professional and emotional terms. Accordingly, the literature demonstrates how socio-emotional interchange (e.g., approvals, laughter, legitimacy, empathy) largely influence how patients feel after the consultation (Pawlikowska et al., 2012). Indeed, such forms of non-verbal communication represents a fundamental factor of such socio-emotional exchange (Friedman, 1979; Roter, 2006). More prominently, this kind of communication is essential for patients' perceived quality of the healthcare service (Laine et al., 1996), and it is able to influence the overall perception of the delivered service.

Purpose of the paper. Based on above, in this study we hypothesized that the human-like interaction level (low vs high) may positively influence individuals' intentions to use through the effect of their perceived anthropomorphism. Moreover, by considering the peculiarities of the doctor-patient relationship resulting not only from professionalism, but also from emotionality, empathy, and non-verbal communication, we postulate that such an effect may be moderate by patients' emotional receptivity.

To test the hypothesis, an experimental design based on a two-cell experiment has been conducted by manipulating the level of human-like interactions in a digital-based healthcare service delivery. Building on previous literature explaining the different level of perceived human-like interaction levels, we manipulate human-like interaction level by exposing half sample to a scenario describing the use of chatbot for healthcare service delivery (low condition). The other half of the sample has been exposed to a scenario describing a Metaverse-based healthcare service delivery in where users are able to interact via their avatars (high condition).

Methodology. An experiment has been conducted among a sample of 312 randomly recruited participants, who have been invited to participate through the Mechanical Turk Platform by Amazon (Aguinis et al., 2020). Among the participants, half of them have been exposed to a scenario in which a target patient had the possibility of using a remote teleconsultation in an online environment through the use of a chatbot able to interact with the patient asking him/her about their symptoms, allergies, and so on in a private chat (human-like interaction; low condition). The other half of participants has been exposed to a scenario where a patient had the opportunity to enter the Metaverse and interact with his/her GP for the desired teleconsultation (human-like interaction; high condition). To confer more consistency in our stimuli, before conducting the main study a pre-test was performed among a sample of 40 participants, who rated the perceived level of human-like interaction about the chatbot vs the avatar in the Metaverse (1 = "Totally non-human-like interactive", 7 = "Totally human-like interactive").

As for the main study, we administered questionnaire built through the Qualtrics platform (Weber, 2021). The questionnaire has been organized in four sections. Firstly, we welcomed participants and we asked them to report their emotional receptivity based on Lee and Lim (2010) (i.e., "The use of hands and other body movements is very helpful in facilitating communication", "It is necessary to show too much facial expressions", "People should show a lot of facial expressions when talking", "I pay close attention to people's gestures when talking to them", "When communicating, a person should use a lot of variation in his/her voice tone, pitch, and loudness"). In the second section, on the basis of our two-cell experiment, participants have been randomly assigned to two different scenarios/settings in where we manipulated the level human-like interaction in the online digital-base healthcare service delivery (low level, by using chatbot vs high level, by using Metaverse-avatars). Then, in the third section, we asked for participants' intention to use

digital-based healthcare service by using a two-items scale drawn by Fishbein and Ajzen, (1975) (i.e., "I intend to use such digital-based healthcare service in the future", "Probably, I will use such digital-based healthcare service in the future" there and perceived anthropomorphism consisting of a four-items scale drawn by McLean et al. (2019) (i.e., "When I communicate with the digital doctor, it feels like someone is near me", "The interaction experience with the digital doctor is close to that with a human being", "During interactions the with the digital doctor, I feel like I am communicating with a human", "I interact with the with the digital doctor in a way similar to how I interact with people"). Both individuals' intention to use, and perceived anthropomorphism, together with their reported emotional receptivity were assessed on a 7-point Likert-scale.

Results. Confirming our hypothesis, results show that high level human-like interactions (low; chatbot vs high; avatars) positively influences individuals' intention to use such digital-based healthcare services, through the effect of their perceived anthropomorphism. Furthermore, such effect is significant only among individuals with a higher level of emotional receptivity, by confirming the relevance of having to maintain a certain degree of emotionality even in totally digital-based environments.

Research limitations. In this study, we focused on the technicalities of some intelligent agents used for digital-healthcare service purposes, specifically by alternatively using medical chatbots and medical avatars which served to manipulate the human-like interaction level of such proposed intelligent medical agents. By considering we would investigate consumers' reactions to such intelligent agents' characteristics in terms of human-like interactivity, and anthropomorphism, together by considering individuals' emotional receptivity (which underlies the doctor-patient relationship), some "product"-related variables have not been considered. Future studies may leverage seminal suggested variables (e.g., as for perceived usefulness, ease of use, and so on) to enrich our proposed conceptual framework, or may consider further patients'-related individual differences (e.g., as for their openness to experience, innovativeness, need for security) together with some sociodemographic variables in this domain (e.g., as for the role of age).

Managerial implications. This study attempts to provide a response to the plea by Dwivedi et al. (2022) for research examining how the Metaverse may contribute to telemedicine and other healthcare activities. The study presents theoretical and managerial implications. Findings our paper may be useful to advance current understanding of individuals' intention to use digitalized healthcare services, and it sheds light on the drivers that may influence the use of the Metaverse technologies in healthcare. The current study also extends research related to both anthropomorphisms, and the role of emotional receptivity literature. Managerially, this research suggests healthcare managers how to deal with newer digital tools such as avatars. From a service-design perspective, we propose some insights on how to design acceptable and usable digital-based healthcare services by suggesting managers which aspects they should emphasize in designing such avatars, e.g., guaranteeing certain levels of human-like interaction and anthropomorphism. These latter make the user experience of digital-based healthcare services in the virtual world closer to the real one, and above all, without sacrificing the role of emotionality in the doctor-patient relationship. Furthermore, our work can provide useful ideas for the design and planning of digital platforms for the provision of digital-based health services by observing careful co-planning with the end users, capable of favoring a deeper digital transition in this industry as well. Summarizing, our results may suggest marketers and managers how to design effective digital-based healthcare platform (e.g., as for teleconsulting purpose) by accessing the Metaverse. In this sense, Metaverse applications in healthcare may significantly improve patient outcomes by opening up completely new channels for delivering cost-effective treatments. Moreover, such new kind of digital-based healthcare service, may represent a prodigious tool for healthcare professionals, allowing remote monitoring and telemedicine for geographically limited or social limited patients.

Originality of the paper. This paper is the first to investigate individuals' reactions to intelligent agents able to confer certain level of human-like interactions: To the best of Authors' knowledge, no studies investigated patients' reactions to chatbot (characterized by low level of human-like interaction) vs. Metaverse-based avatar (characterized by high level of human-like interaction), and specifically on their intention to use. More importantly, we alternatively consider individuals' perceived anthropomorphism of such intelligent agents, and decisively their emotional receptivity tendency.

Keywords: metaverse; chatbot; digital healthcare; healthcare; human-like interaction; anthropomorphism; emotional receptivity; intention to use

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Managing communication and business strategies for a better society: The issue of obesity prevention and digital therapeutics. Findings from a preliminary literature review

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Framing of the research. *Current technological advances have radically reshaped society (Younes and Al-Zoubi, 2015). By considering the healthcare sector, the digital progress has a great potentiality as it could overcome current barriers to healthy behavior changes by providing behavioral interventions that enable the management and treatment of chronic diseases such as obesity (Allen et al., 2013). In this domain, Healthcare 4.0 refers to the efforts directed at providing healthcare services designed to improve individuals' health and well-being management through the use of advanced technologies, such as IoT sensors and devices, smartphones, electronic health records (EHR). Such technologies could also facilitate the collection of personal and behavioral data that might be leveraged to influence patients' behavior and personalize their therapies (Jayaraman et al., 2020), thus transforming the traditional relationship between doctor and patient into in an equal and collaborative partnership. This empowerment process places the patient at the center of the healthcare system (Meskó et al., 2017). The aforementioned digital features may make digital medicine more effective than in the past in treating and preventing chronic disease (Von Huben et al., 2021) in that their execution mode allows greater accessibility to cognitive-behavioral interventions (CBT) (Kambeitz-Illankovic, 2022) and thus the development of self-regulation practices (Bryant, 2021). Indeed, chronic disease management often occurs not only by treating the clinical disorder but also by correcting daily life habits (Arlinghaus and Johnston, 2019). However, it has been shown that the effectiveness of digital healthcare may be different by considering both the condition and severity of the disease. Indeed, previous literature demonstrated that the application of digital interventions for the prevention of depression in patients with back pain had halved the risk of the onset of depressive disorder (Sander et al., 2020), while the same intervention implemented for the treatment of depression for the same type of people did not bring benefits (Baumeister et al., 2021). In this domain, the digital medicine may play an important role in the development of a new approach to the prevention and treatment of another urgent disease such as obesity (Hinchliffe et al., 2022), by both facilitating weight loss in overweight and obese individuals and educating and encouraging them to engage in healthier lifestyles (Lang and Froelicher, 2006). The Obesity Medicine Association (OMA) has defined obesity as "a chronic, progressive, relapsing, and treatable multi-factorial, neurobehavioral disease, where in an increase in body fat promotes adipose tissue dysfunction and abnormal fat mass physical forces, resulting in adverse metabolic, biomechanical, and psychosocial health consequences" (<https://obesitymedicine.org/what-is-obesity/>, 2022). Medical literature (Al-Kandari, 2006; Poirier, 2007; Kanthe et al., 2012) has defined three grades of obesity: Grade 1 (BMI ranging from 30 to 34.9 kg/m²), Grade 2 (BMI ranging from 35.0 to 39.9 kg/m²), and Grade 3 (BMI ≥ 40 kg/m²). Nowadays, obesity is now considered the largest non-infectious epidemic of the third millennium and has been recognized as a major public health problem as it represents an important risk factor for major chronic diseases such as Type-2 diabetes, cancer, or cardiovascular diseases (Ali et al., 2022). To date, the WHO European Regional Obesity Report 2022 Health Organization (WHO) found that 59% of European adults and almost 1/3 child (29% of males and 27% of females) is overweight or is suffering from obesity, which is responsible for about 13% of total European deaths (<https://www.who.int/europe/news/item/03-05-2022-new-who-report--europe-can-reverse-its-obesity--epidemic>, 2022). A study by the McKinsey Global Institute (MGI) specifies that the obesity epidemic produces about 5% of worldwide mortality and points out that the costs of the disease not only expressed in terms of health but also in economic terms: the total economic impact of obesity is about 2 trillion dollars per year or 2.8% of world GDP (<https://www.mckinsey.com/mgi/overview/in-the-news/the-global-obesity-threat>, 2022).*

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Therefore, through a holistic approach that allows the collaboration of medical professionals, politicians and consumer behavior scientists (Roberto et al., 2014), a major public health effort is urgently needed to tackle the current of obesity challenge at a global level (Nestle and Jacobson, 2000). Obesity is recognizable as a lifestyle illness (Egger and Dixon, 2014). Therefore, a multidimensional therapeutic method based not only on prescription drugs but especially on cognitive-behavioral interventions is important for an effective treatment of the disease (Alimoradi et al., 2016).

By deeply analyzing this domain, the digital therapeutics (hereafter, DTx) may become central to preventing obesity. DTx have been defined by the Digital Therapeutics Alliance as software systems that, once installed on smartphones, tablets, or wearable devices, provide a therapeutic service, in stand-alone mode or plug-in with other therapies or medicines, with the aim of preventing and treating clinical diseases (<https://dtxalliance.org/understanding-dtx/what-is-a-dtx/>, 2022). On the basis of its technicalities, DTx may represent an effective and important opportunity in designing new digital healthcare service delivery processes (Sverdlov et al., 2018), and may contribute to treating patients' dysfunctional behaviors by improving adherence and management of diseases such as obesity. To clarify, DTx uses digital tools like mobile devices, apps, sensors, virtual reality, the Internet of Things, and other tools to spur behavioral changes in patients (https://www.pharmastar.it/binary_files/instantbook/PDF_Digital_Therapeutics__finale_29462.pdf, 2022). The DTx development may thus have a positive impact on providing customized health services as their design is tailored to fit patient's needs (Dang et al., 2020). Two practical examples of digital therapeutics currently available in the market are reSET-O and Sleepio, which are mobile applications that provide cognitive behavioral therapies (as a form of psychological treatment that has been demonstrated to be effective in contributing to heal), and lead patients with narcotics use disorders to track their substance use, cravings, and triggers (<https://peartherapeutics.com/products/reset-reset-o/>, 2022). The strength of DTx is the ability to customize treatments according to the therapeutic needs of the patient (Hong, 2021) and according to the important US market research company, Allied Market Research, the DTx market will grow up to \$13,8 billion by 2027 compared to \$2.88 billion in 2019 (<https://www.alliedmarketresearch.com/digital-therapeutics-market>, 2022).

Purpose of the paper. This paper systematizes the body of knowledge related the issue of DTx for the treatment and prevention of obesity through a systematic review of the literature. Our goal is twofold: a) to identify the most promising discussion topics to date, and b) to prepare a research agenda for the future, which identifies the useful questions to be investigated for the construction of services based on DTx and the communicative inputs that optimize cognitive-behavioral therapies by making the visual interface of multi-channel digital platforms (e.g., web, mobile, notification app mobile) more effective in actively involving the patients, eventually guiding them towards virtuous and behaviors for the obesity prevention and treatment.

Methodology. A systematic review of the marketing and consumer behavior literature regarding the obesity issue has been conducted. We have analyzed how marketing efforts and appropriate communication strategies may improve eating behaviors and prevent obesity. In so doing, we have shed light on issues that are worthy of further study by scientific research in the future. To provide a critical review of academic studies, we examined scholarly articles published in international peer-reviewed journals over the last twenty-two years (2000-2022).

Our process started by defining a list of 12 keywords that could be used to extract the most appropriated scientific contributions, published in the most relevant management journals. We then searched the three main business databases (Business Source Premiere and EconLit, hosted by EBSCO; and ABI/INFORM Complete from ProQuest, Scopus) for articles published in the appropriate journals that contained the words "marketing", "consumer", or "advertising" in their title. To strengthen our research, we also considered other relevant journals that cover research areas related to healthcare marketing and obesity/overeating.

A sample list of selected keywords referred, for example, to "obesity", "digital therapeutics", "communication", "health marketing", "behavioral experiment", and "overeating", combined with keywords related to consumer behavior such as "healthcare consumer behavior", "decisional process", "self-monitoring", "food styles", "communication stimuli", "nudging". After selecting the final set of keywords, we launched a series of queries combining the selected keywords, according to database-mining criteria, for the purpose of extracting the best articles useful for the complete description of the state-of-the-art that contain words, such as "business", "management", "marketing", "consumer" or "advertising" and the abstract (Tranfield et al., 2003).

A query was for example: "Title-Abs (("obesity" and "consumers") and ("marketing" or "advertising" or «communication»)) and pubyear > "2000" and < "2022" and (limit-to (doctype, "ar") or limit-to (doctype, "cp")) and (limit-to (language, "English"))).

Results. The document analysis resulted in three most prominent topics namely 1) Products' label for obesity prevention; 2) Technology-aided prevention; 3) Marketing and communication strategies.

For each prominent topic, four sub-topics have been identified. Specifically, for the products' label for obesity prevention, we identified labelling, packing features, definition of food and variety of assortment. The results showed how nutritional labeling induces consumers to make food choices that reduce fat intake during each meal (Wansink and Chandon, 2006). Moreover, providing calorie counts on restaurants' menus has a very strong visual impact that affects the decision-making process by reducing calorie intake by 24.4% (Dallas et al., 2019). The characteristics of the packaging and the variety of the assortment also influence eating style as the palatability of the food is conditioned by the size of the packaging (Chandon, 2013; Koo and Suk, 2016; Wansink and Kim, 2005). Furthermore, the presence of more options available increases the amount of consumption (Kahn and Wansink, 2004; Raynor et al., 2006).

Consumers perception of the food quality has a strong impact the name given to the product: Indeed, empirical evidence suggests that, for the same amount of fat, sugar, and carbohydrates, a food product with an unhealthy name is perceived as more caloric than the same food with a healthy name (Cardello et al., 2012; Irmak et al., 2011; Oakes, 2005).

Regarding technology-aided prevention, we associated four sub-topics namely mobile and web apps, electronic food self-regulation, text messages, DTx. Technological progress is an important ally for the prevention of obesity, it promotes behavioral interventions of food self-regulation (Berry et al., 2021; Patel et al., 2021). The development of mobile apps and websites may improve self-monitoring of lifestyle, calorie intake, and physical activity (Butryn et al., 2020; Patel et al., 2018). However, most available apps lack a solid scientific foundation and input from healthcare professionals (Stevens et al., 2014). Furthermore, studies have shown how sending daily text messages (SMS) remind a user to engage in healthier behaviors promoting a decrease in BMI for obese and overweight people (Burke et al., 2011; Faghanipour et al., 2013; Shaw and Bosworth, 2012; Silina et al., 2017). Finally, DTx are comparable to traditional therapeutic treatments; therefore, prior to their commercialization for the purpose of measuring their safety profile and clinical efficacy, they must be approved and certified by regulatory authorities (Hong, 2021). Specifically, DTx in the United States are regulated by the Food and Drug Administration (FDA) (Patel and Butte, 2020) and in Europe by Medical Devices Regulation (EU) n. 2017/745 of the European Parliament and Council (Lang, 2017). It is quite acknowledged therefore that DTx offer new treatment opportunities as they ensure to biopsychosocial approach including medical treatment and lifestyle changes (Kim and Choi 2021).

Regarding marketing and communication strategy, our review highlighted four subtopics: Communication in advertising, nudging, focus on the consumer healthcare behavior, obesity in the new generations. Existing empirical evidence suggests that the application of communication and marketing strategies have a strong impact on the promotion of healthy lifestyles (Worsley et al., 2014; Smeesters et al., 2010). However, it is through the integration of regulatory interventions - e.g., appropriate nutrition labeling of foods (Wansink and Chandon, 2006), banning junk food from schools (Dority et al., 2010) - that there is a maximization of the positive results through the creation of nudging health (Roberto et al., 2014).

In conclusion, the current state-of-the art show how appropriate marketing and communication strategies can guide consumers' healthy behavior and how technology, ensuring self-monitoring of lifestyles, is a valuable tool for combating and preventing obesity.

Research limitations. *Despite the promising insights related to the emerging topics and the future avenue for research, our contribution has some limitations. For instance, we only considered English articles and thus, other relevant contributions might have been neglected. Moreover, almost all the experiments of the quantitative papers were conducted with Western consumers. It would be interesting to know if the same experiments with Eastern consumers, endowed with clear cultural differences, might lead to different results.*

Managerial implications. *This research suggests to marketers, physicians, practitioners, nutritionists, politicians, and managers of the health sector how to organize health care for paths of care and prevention. Leveraging advanced analytical algorithms and combining diverse healthcare data, we suggest industry leaders design a healthcare service that harnesses the potential of technological progress not only for the development of new digital therapeutics but also for the collection of health data. DTx extend the care capacity of doctors and enable home care that provides the added benefit of privacy by lowering the stigma associated with the administration of some therapies. We recommend a political effort because, from a legislative and regulatory perspective, there is still no centralized European approval process. The global digital therapy scenario moves at different paces as individual nations, with extremely diverse healthcare systems, draw up processes, requirements and regulatory standards generating strong entry barriers for DTx. Also in Italy, especially following the Covid-19 emergency, interest in the adoption of new digital therapeutics has grown. However, this momentum is dampened by the lack of a legislative framework that regulates clinical validation. We propose the establishment of a fast-track regulatory path that sets out clear rules for the conduct of clinical trials, greater certainty on the timing of approval, medical prescription, and reimbursement.*

Originality of the paper. *The paper provides new insights into the greater potential of technological progress in the healthcare sector. It is the first paper that presents a range of the most effective digital tools for the fight and prevention of obesity such as mobile apps, websites, text messages with particular attention to the development of digital therapeutics. DTx and communication strategies are presented in a healthcare marketing perspective with the aim of an assisted prevention focused on the cognitive behavioral element of therapy that leads to the development of effective health nudging.*

Keywords: *obesity; overeating; digital therapeutics; communication; consumer healthcare behavior; behavioral experiment; digitalization.*

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Ecosystem Emergence when Supply, Demand, and Incentives are scarce: The Case of the Clinical Trials Ecosystem for Rare Diseases

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Framing of the research.

“Do you know how many children die every year from choking on french fries? Many more than from Adrenoleukodystrophy. You see, ours is what is known as an orphan disease, too small to be noticed, too small to be funded, especially with the iron hand of Reaganomics”.
(Prof. Nikolais’s quote from the movie Lorenzo's Oil)

In recent years there has been a growing and consistent interest in business ecosystems to study their emergence (e.g., Hannah and Eisenhardt, 2018), management (e.g., Adner and Kapoor, 2010), and disruption (e.g., Ozalp, Cennamo, and Gawer, 2018). Scholars have also examined when ecosystems are better than markets (Jacobides, Cennamo, and Gawer, 2018). While markets are characterized primarily by transactions, ecosystems are characterized by complementarities of value creation and interdependences, and by specific dynamics between ecosystem actors (e.g., Cozzolino, Corbo, and Aversa, 2018; Jacobides et al., 2018). When supply and demand are scarce and incentives are limited, markets are less likely to emerge (e.g., Autio and Thomas, 2014; Murthy and Madhok, 2021; Navis and Glynn, 2010). Similar conditions of small/scattered demand, supply bottlenecks, and limited incentives are largely overlooked by scholars, but we submit that ecosystems can still emerge. Contexts characterized by such conditions can be important, as is the case of “rare diseases” where both patients and clinical trial participants are few in number and often difficult to identify. Therefore, the investigation of ecosystem emergence as a solution to non-market emergence is both theoretically relevant and practically valuable, especially for those cases where the ecosystem in question produces goods or services that have important societal implications. To help fill this theoretical and practical lacuna, we investigate the following research question: What are the processual mechanisms enabling ecosystem emergence in conditions when a market would not emerge, such as when supply, demand, and incentives are scarce?

The phenomenon guiding our investigation is the emergence and evolution of the clinical trials ecosystem around rare diseases, a revelatory case (Yin, 1994) for our research questions, as shown below. The clinical trial focus was chosen because this is the most important and expensive phase in drug development. Over the past two decades, pharmaceutical firms have outsourced most of their clinical trials to so-called clinical research organizations (CROs), which conduct clinical trials on patients on behalf of pharmaceutical companies. Clinical trials are a critical component of the pharmaceutical value chain, not only from a regulatory perspective but also because they allow for building direct relationships with patients - a factor that is particularly vital when it comes to rare diseases. This interdependence is key for our research: we believe that it is important to study the interdependent relationships between CRO, pharmaceutical companies, and patients / patient organizations, extending prior studies focused only on pharmaceutical companies and biotech startups (e.g., Arora and Gambardella, 1990; Rothaermel, 2001) and contributing to the broader perspective of ecosystem research (Hannah and Eisenhardt, 2018; Jacobides et al., 2018).

Purpose of the paper. *Our purpose is to examine an important phenomenon - rare diseases and related clinical trials - to advance ecosystem emergence literature. The phenomenon presents new challenges that have not been examined by prior literature. Based on data from the European Union DG Health and Food Safety:*

Any disease affecting fewer than 5 people in 10,000 in the EU is considered rare. Although this might appear small, it translates into approximately 246,000 people. Most patients suffer from even rarer diseases affecting 1 person in 100,000 or more. Approximately 5,000-8,000 distinct rare diseases affect 6-8% of the EU population i.e., between 27 and 36 million people.

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As it can be understood, there are challenges that prevent the market of clinical trials for rare diseases to emerge in the first instance. If the demand from patients is rare and scattered, pharmaceutical companies do not have an economic incentive at spending money and time on similar cases. Scientists do not have an intrinsic motivation type of incentive because they would rather be willing that their name is associated with the solution to cancer and other big problems. Therefore, supply is also scarce because producers lack sufficient incentives due to the limited and scattered demand (from final patients).

Early on in our study, we found that a solution to this problem has been offered by patient associations and the families of people with rare diseases. They represent a sort of social movement phenomenon (e.g., Pacheco, York, Hargrave, 2014) or in general actors facing a problem and having a huge motivation to solve the problem by themselves. Therefore, in our research, we investigate how similar actors have worked together with other important actors for the emergence of the ecosystem for clinical trials around rare diseases. Media and regulators are important actors on which patient associations put pressure. At the same time, the CROs are the other critical actors as they need to attract enough participants to successfully execute clinical trials related to drugs for treating rare diseases. The challenge in attracting similar patients is that they are scarce in numbers and often dispersed worldwide. Specifically, with respect to that last feature, CROs have evolved their structure adopting a platform-based approach (HBS Digital Initiative, 2018)¹. Following this platform perspective and with respect to the CROs, patients (as clinical trial participants) are seen as input (i.e., part of the supply equation) rather than part of the demand side (though admittedly they are both at the same time), and so the access to this rare input strengthens the platform firm. Hence, in our context, CROs can be considered as platform firms, with clinical trial participants as critical input and pharma firms as buyers. This has important scale implications: the more numerous and more diverse a patient pool a CRO has at its disposal, the more valuable that pool becomes for pharma. This, of course, heightens the importance of the CRO's relationship with patient associations, who act as important gatekeepers in this ecosystem.

As it can be seen from above, the purpose of our research is twofold: 1) to explain a societally important phenomenon from which many actors including managers and policy makers can learn; and 2) to contribute to the theoretical literature on ecosystem emergence and platforms, market failure, and related studies on non-market actors.

Methodology. Since we know relatively little about how ecosystems with small and scattered demand or supply can emerge and be managed, we conducted a historical and longitudinal study (see Ansari, Garud, and Kumaraswamy (2016) for a similar approach in an ecosystem study). We are collecting a mix of archival material (secondary data) and face-to-face interviews (primary data) - some of which have already been conducted. Secondary data include industry reports published by leading consulting companies, specialized magazines and blogs, newspapers, press releases, pre-recorded media interviews, annual reports, and strategic plans related to pharmaceutical and biotech firms, CROs, patient agents, regulators, and other ecosystem actors. Primary data consist of some integrative face-to-face interviews to be conducted with managers working for two leading multinational pharmaceutical firms which recently increased their focus on rare diseases, with CROs, patient organizations, and other key actors. Sample key actors in the ecosystem are Pharm-Olam and Ergomed (for the CROs), Eurordis and NORD (for the patient associations), Roche and Amgen (for the pharmaceutical companies), and FDA and EMA (for the regulators). Our sampling strategy of two pairs of firms per ecosystem actors is a re-elaboration of Eisenhardt's cross-case study method (Eisenhardt, 1989; see also Yin, 2009). We have started analyzing our data using Gioia's method (Gioia et al., 2013) of first-order and second-order coding and progressive theoretical abstraction with the scope to understand the mechanisms between emerging constructs and develop a process model of ecosystem emergence under challenging conditions. Table 1 presents a summary of the couples of the key ecosystem actors sampled for the study.

Tab. 1: Sample Key Actors in the Focal Ecosystem.

Ecosystem Actor Type	Sample Actors	Description	Est.
CRO	Pharm-Olam	Specialized in life-threatening therapeutic areas such as oncology, hematology, infectious disease, rare disease, allergy, and autoimmune	1994
	Ergomed	Focused on rare diseases, provides a full range of clinical research services across all stages and types of clinical trials.	1997
	Eurordis	EURORDIS is a non-governmental patient-driven alliance of patient organisations representing 1000 rare disease patient organisations in 74 countries.	1997
Patients Association	NORD	It is the voice of 30 million people affected by rare diseases throughout Europe. Patient advocacy organization dedicated to individuals with rare diseases and the organizations that serve them. NORD, along with its more than 300 patient organization members, is committed to the identification, treatment, and cure of rare disorders through programs of education, advocacy, research, and patient services.	1983
	Roche	Swiss multinational healthcare company that operates worldwide under two divisions: Pharmaceuticals and Diagnostics	1896
Pharma	Amgen	American multinational biopharmaceutical company headquartered in Thousand Oaks, California. One of the world's largest independent biotechnology companies,	1980
	FDA	Federal agency of the Department of Health and Human Services. The FDA is responsible for protecting and promoting public health through the control and supervision of food safety, tobacco products, dietary supplements, prescription and over-the-counter pharmaceutical drugs (medications), vaccines, biopharmaceuticals, blood transfusions, medical devices, electromagnetic radiation emitting devices, cosmetics, animal foods & feed and veterinary products.	1906
Regulator	EMA	Agency of the European Union (EU) in charge of the evaluation and supervision of medicinal products. Prior to 2004, it was known as the European Agency for the Evaluation of Medicinal Products or European Medicines Evaluation Agency (EMA)	1995

¹ <https://digital.hbs.edu/>

Results. *Preliminary empirical results show that the rare disease and clinical trial ecosystems present interesting characteristics that inform our theoretical understanding of ecosystem emergence. First, we found that ecosystems around rare disease solutions for patients successfully emerged, thus avoiding a “blocking from the start” effect (e.g., Ozcan and Santos, 2015), despite the rarity conditions regarding demand, supply, and incentives. The small number of affected patients and the paucity of treatments for diseases induce an additional lack of funding opportunities² which represents a tangible issue (Hartman et al, 2020). From a purely economic point of view, serving geographically disperse and “rare” patients may be unprofitable. However, the obstacles represented by difficulties in gathering the required financial resources from a few customers are partly neutralized through beneficial regulatory measures for developing and marketing pharmaceuticals for rare diseases such as the European orphan drug designation regulation³, highlighting the societal and ethical importance of this ecosystem: developing or not developing drugs for rare diseases can make the difference between living or dying.*

Pharmaceutical firms found it advantageous to outsource rare disease clinical trials for two key reasons. First, the heterogeneity and multitude of rare diseases require distinct specific skills and capabilities in running clinical trials with these cohorts, which are costly to develop and maintain. Consequently, pharmaceutical firms do not find it opportune to heavily invest in developing those capabilities for small numbers. Hence, the aggregation of the clinical trial phase to third parties (i.e., the CROs) allows for a more efficient allocation of resources. Second, and relatedly, clinical trials are the costliest part of medical R&D (Wouters, McKee, and Luyten 2020). Economies of scale through specialization are particularly important in this phase and can be obtained through developing dedicated physical infrastructures for trial recruitment and execution, and through fulfilling the stringent quality controls required by medical regulators such as the FDA or EMA. Those two key caveats, taken altogether, led to a progressively increasing propensity of pharmaceutical firms in externalizing the clinical trial stage to CROs.

However, even CROs would struggle to reach satisfactory profitability conditions in rare diseases without support from three different actors. Our initial finding is that patient associations play a primary role in the new ecosystem emergence by promoting an active search and aggregation process of the few and scattered affected patients, who ultimately constitute an essential input for clinical trials. Without patient associations’ support, for CROs it would be very difficult and resource-consuming to find enough candidates for clinical trials. These associations manage, in many cases, to help recruit participants to the clinical studies, permitting, in turn, to fulfill the regulatory requirements in terms of sample size. In addition, we observed that many rare disease patients (or patients’ associations) are even more knowledgeable than medical professionals themselves, which has some implications for trial designs, reporting, and the power structures of the ecosystem, as the firms that are ‘closer’ to the patients (the CRO, in many cases) may have an upper hand. The director of a pharmaceutical company in our sample told us:

We understood that when rare diseases are taken into consideration, the patient almost knows more than the doctor. This has radical implications for our business model [...] (Business Unit Director, Leading Pharmaceutical Firm)

A second but equally important role, based on our initial findings, is played by regulators, i.e., the interventions of policy-makers aimed at ensuring the proper functioning of the ecosystem, with the ultimate goal of promoting the well-being of rare disease patients. Hence, a beneficial mix of crowdfunding activities and governmental/supranational organizations’ incentives can allow an ecosystem with rare demand and supply to successfully emerge. Specifically, local governments and supranational organizations (such as the EU or the UN) are systematically supporting in different ways clinical trials for rare disease drugs, including direct financial support, grants, market exclusivities, and tax exemptions. In this way, regulators play the role of enablers in the new ecosystem’s emergence. A third important role is played by investors, including commercial banks, venture capitalists, and business angels, who have shown an increasing propensity in investing in the development of rare disease medications, which are now known in the industry as ‘niche blockbusters’. These three “supporting ecosystem actors”, which are mutually interdependent and reinforcing their effectiveness and commitment to the new ecosystem, allowed CROs to gradually acquire more power. This was reflected in CROs’ unique relational capital with patients’ association and a deep level of specialization, not only from an intangible (capabilities) point of view but also in the tangible infrastructure continuously developed and improved to better accomplish clinical trials for rare diseases. Such a specialization and growing expertise in their core activities made CROs even more appealing for pharmaceutical firms for an externalization standpoint, but also more powerful compared to them.

In sum, we found that starting from an initial period when pharmaceutical companies were conducting their clinical trial for rare diseases in-house and a pure market solution was not feasible, a new ecosystem has emerged thanks to a variety of actors complementing each other. In particular, patient associations have played a crucial role of non-market actors, regulators have enabled the ecosystem emergence, and the CRO organizations have become platform firms matching scarce demand with scarce supply, at the potential long-term disadvantage of the former ecosystem hub - the pharmaceutical firm. In our more extended version of our initial research, we also derived a preliminary process model summarizing the findings exposed above.

² In this case, patients’ associations contributed to address the challenge. For example, we mention the important phenomenon of crowdfunding initiatives undertaken by patients’ associations and families (Young and Scheinberg, 2017).

³ <https://www.ema.europa.eu/en/human-regulatory/overview/orphan-designation-overview>

Research limitations. *At the current stage of this research, we have started to combine archival material and semi-structured interviews in the setting of clinical trials for rare diseases, but we have yet to complete the full study. However, our preliminary findings were already interesting and novel, and we expect that additional interviews and data analysis will corroborate and extend our results. A second limitation, intrinsic to qualitative studies, is the lack of large sample evidence of our results. We necessarily needed to sample select two cases for each ecosystem actor (two pharmaceutical companies, two regulators, two patient associations, two CROs) to enable us to do a cross-case comparison and to learn from differences and similarities among cases (Eisenhardt, 1989; Yin, 1994). A research opportunity for other scholars is to corroborate and extend our findings using quantitative methods.*

Managerial implications. *This paper allows managers to understand how ecosystems can emerge to solve specific problems when challenging conditions exist such as rare/scarce demand and supply and missing incentives, a phenomenon overlooked by the existing literature. Similar conditions are so challenging that markets do not offer a solution. However, we show that ecosystems offer a solution to the market failure problem due to specific actors and interdependence relationships.*

Based on our findings, we suggest to managers that non-market ecosystem actors (such as people suffering from rare diseases, patient associations, and regulators) play a critical role in activating a process of emergence of a new ecosystem. Managers and decision-makers shall learn how non-market actors can work in synergies - as our study shows - to solve problems for which market actors would miss sufficient incentives. A second major takeaway for managers relates to the role of intermediaries (complementors) and their possible transformation into a platform to manage an ecosystem. In particular, we showed that when demand and incentives are scarce, core suppliers (e.g., pharmaceutical companies) find it increasingly convenient to externalize some operations to complementors (e.g., Clinical Trial Organizations - CROs). Moreover, similar complementors are likely to offer a solution to the scarcity of demand and incentive problems if they organize themselves as platform organizations. For instance, CROs were found to connect patients, patient associations, regulators, and pharmaceutical companies. Managers shall also be aware that externalizing to complementors playing the role of platforms in the new ecosystem can create the conditions to be disrupted. The externalization to CROs triggered a progressive power flow from suppliers to complementors, which constantly become more powerful till covering the role of competitors. In this way, a value chain can be partially disrupted, with the support of a mix of prior complementors and non-market actors. A final managerial implication can be about how to use social movements to mobilize change. The CRO organizations used the patient associations (e.g., a social movement actor) to enable an ecosystem emergence that otherwise would not have occurred.

Keywords: *Ecosystem emergence; demand and supply conditions; platforms; rare diseases; clinical trial ecosystem*

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The sustainability advantage of state-owned firms from emerging markets

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Framing of the research. *State ownership is commonly seen as being detrimental to the success of firms. There is a long tradition in economics and management studies of arguing that state-owned companies tend to be less profitable than private firms, reflecting an overall competitive disadvantage. A common reason is that state-owned companies suffer from a multi-level agency problem in which politicians interfere with normal business decisions and impose political objectives that undermine the achievement of business goals and profitability desired by citizens (Cuervo-Cazurra and Li, 2021). Another common explanation is that state-owned companies are created to address market imperfections and provide public goods that are socially desirable but unprofitable, leading to the emergence of a liability of stateness (Musacchio and Lazzarini, 2018). However, some scholars argue that state-owned companies benefit from their privileged access to the government, for example, helping them in their international expansion (Duanmu, 2014). Thus, we have empirical and theoretical tensions about whether state ownership is good or bad for companies.*

Therefore, in this paper, we provide another solution to the debate by building on agency theory (Jensen and Meckling, 1976) to propose that state-owned firms have a sustainability advantage over private firms because of their mandates to address market imperfections and build public goods. Specifically, we propose that state-owned firms are faster in adopting sustainability codes than private firms because their principals' goals are aligned with sustainability. We add depth to this idea by arguing that the relationship is accelerated by external principals' expectations at home and abroad. In particular, we argue that the speed in adopting sustainability codes is accelerated for state-owned firms in democratic home markets and for state-owned firms operating in multiple host markets because of the wider diversity of external stakeholder expectations for state-owned companies to focus on sustainability.

Purpose of the paper. *State-owned firms are created to provide public goods and solve market imperfections, placing them in a pole position towards implementing sustainability. A common explanation for the government to create state-owned companies is that there is a need for addressing market imperfections that cannot otherwise be solved through regulation, i.e., mandates or constraints, or incentives, i.e., subsidies or taxes, i.e., to private firms. This is commonly the case of public goods with important externalities in which the government wants to reduce the negative externalities (e.g., pollution) or promote the positive externalities (e.g., health) and feels compelled to create a firm that addresses this because the private sector lacks the incentives or ability to do so.*

State-owned companies tend to be associated with low profitability because they are expected to achieve a wide diversity of social goals by citizens and politicians. This is especially the case in emerging markets in which the government suffers from imperfections in their ability to monitor misbehavior and thus results in companies that are used by politicians to achieve political goals. However, this focus on addressing market imperfections and providing public goods positions state-owned companies in emerging markets in a leading position to address sustainability issues. State-owned companies have already in their mission solving externalities and supporting social causes. Thus, when new sustainability requirements emerge, they can quickly adapt to those, given that it is part of their corporate culture and managerial attitudes toward solving social needs. They can clarify their focus on sustainability through the adoption of sustainability standards that make explicit what companies have been doing in the past. This requires companies to evaluate activities and assess how they are in compliance with a particular set of criteria created by the standard-setting entity. State-owned companies can easily evaluate their current activities in response to the new sustainability standard, helping them adopt it quickly. Additionally, state-owned companies have the incentive to clarify how they are contributing to society's development in a more explicit way by adopting sustainability standards quicker. It can enable managers, as well as the politicians influencing them, to justify that even if the state-owned companies are not very effective or efficient in their use of resources and thus run large losses, they are nevertheless contributing to

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sustainability as they are able to be among the first to adopt the sustainability standards. We summarize these ideas in the following hypothesis:

Hypothesis 1. State ownership is positively related to the speed of adoption of sustainability standards by emerging markets firms.

We add depth to this idea by analyzing how this relationship is strengthened for firms that face a diversity of external principals in the home and host markets.

The ability of external principals to put sustainability pressure on companies depends on whether the market is a democratic one. In a democracy, individuals feel free to seek their interests and align with others in the pursuit of these, knowing that they have rights to free speech and assembly that enable them to organize and ensure that companies are matching expectations for corporate social responsibility. Additionally, the free press helps identify companies that misbehave and thus creates a check on misbehavior and additional pressure on all types of companies to embrace sustainability. We summarize these arguments in the following baseline hypothesis:

Hypothesis 2a. Home market democracy is positively related to the speed of adoption of sustainability standards by emerging markets firms.

Additionally, in a democracy, civil society and interest groups can express their preferences for sustainability and social development and thus push state-owned companies towards adopting sustainability codes faster as part of their social mandates. In a democracy, the perception that state-owned companies are created for the benefit of society enables interest groups to pressure the government to redirect the state-owned firms towards sustainability and thus accelerate the adoption of sustainability standards. In a democracy, politicians depend on the periodical expression of support of citizens through votes to continue in power, making them more responsive to a variety of interests and interest groups in their requests for actions by state-owned firms. Additionally, in democracies, the existence of a free press also keeps a check on state-owned companies and further increases the pressures on these firms towards sustainability, accelerating the adoption of sustainability standards by state-owned firms. These ideas support this hypothesis:

Hypothesis 2b. Home market democracy strengthens the positive relationship between state ownership and the speed of adopting sustainability standards by emerging markets firms

The diversity of markets in which the firm has operations can induce it to engage in sustainability and accelerate its adoption of sustainability standards. Investing in a few host markets can induce the company to rethink its sustainability attitudes but not enough to try to change its sustainability as this will create complexity and additional costs for the firm. However, as the number of markets in which a company's operations increases, they encounter a wider diversity of expectations regarding their behavior, which create additional incentives for the company to rethink how it approaches its sustainability as there are increasing numbers and variation in the expectations of the external principals. Additionally, with operations in multiple markets, the firm might learn of new expectations and superior practices in terms of sustainability that it can incorporate into its operations, facilitating its ability to adopt new sustainability standards faster. The ideas support the following baseline hypothesis:

Hypothesis 3a. The diversity of host markets with foreign direct investments is positively related to the speed of adoption of sustainability standards by emerging markets firms.

The host markets' diversity of external principals will also induce state-owned companies to accelerate the adoption of sustainability standards to match the additional expectations. As the diversity of principals increases with the higher number of markets in which the state-owned company has operations, it is faced with new expectations regarding its ability to serve local communities. State-owned companies tend to be viewed with suspicion in host markets by both the government and in some cases individuals because of their association with the foreign government, especially when this foreign government is perceived to be unfriendly. State-owned companies in the host market might be perceived as not just companies providing products and services or employment and investment to the local communities, but also as instruments of the foreign governments to exercise undue influence in the host market. In fact, many governments establish additional constraints on investment by foreign state-owned companies. As a result, state-owned companies that face a large variety of external principals in host markets might use the adoption of sustainability standards as a way to signal that they are superior in their focus on solving societal needs and thus compensate for the negative perception that they have across host markets. These ideas lend support to the following hypothesis:

Hypothesis 3b. The diversity of host markets with foreign direct investments strengthens the positive relationship between state ownership and the speed of adoption of sustainability standards by emerging markets firms.

Methodology. We investigated the research question in the context of a sample of 245 firms selected from Fortune Global 2000 list that comprises 245 companies headquartered in eight emerging markets (i.e., 29 from Brazil, 74 from China, 51 from India, 18 from Malaysia, 15 from Mexico, 25 from Russia, 19 from South Africa, and 14 from Thailand). After merging the data, our sample contained an unbalanced panel dataset of 3,356 firm-year observations for 245 firms, observed between 2000 and 2018.

To measure companies' speed of adoption of the UNGC principles at a given time t , the variable $UNGC$ takes the value 0 during the years before the firm's adherence to the UNGC, and 1 at the time t when the firm becomes a UNGC member.

We measured whether the firm is state-owned or not with a dummy variable (SOE) which takes the value 1 if the government is the largest stakeholder, the value 0 otherwise. $HomeDemocracy$, is a dummy variable that takes the value 1 if the Polity IV Project Institutionalized Democracy Score of the home market is higher than 6, 0 if the score is lower than 6 in a given year. We measured $HostMarketsDiversity$ as the number of markets where the firm has made

capital investments up to year t , either by setting up new affiliates (i.e., greenfield and brownfield investments) or by way of cross-border merger and acquisitions.

We controlled for the logarithm of the amount of GDP per capita ($HomeGDPpc$) as well as for whether in the home market a UNGC Local Network has been set with a dummy variable ($HomeUNGNetwork$). We also controlled for the number of human rights treaties ratified by each home market in each year ($HomeHRtreaties$), which proxies the extent to which each home market cares about human rights. We included Performance measured as Return on Assets, SlackResources measured as the ratio of equity to debt, and Leverage measured as the ratio of debt to sales since prior research shows that firms' financial characteristics are related to the adoption of CSR initiatives. We included the size of the firm ($Size$), proxied by the log of total sales at time t , since larger companies tend to face greater public scrutiny and external pressures which may affect the adherence to UNGC. We also accounted for whether firms are part of a BusinessGroup with a dummy variable, which takes the value 1 for firms being part of a group, and the value 0 for independent companies since these firms may have specific governance structure which may affect their CSR practices. We further controlled for firm age (Age) measured as log of the number of years since the company foundation. Finally, to control for industry effects we used dummy variables, using the Standard Industrial Classification.

As for the estimation procedure, the adherence to the UNGC decision in general is not a frequent event at the firm level. In our sample indeed only the 34% of the firms adhered to the initiative in the 2000-2018 period. In order to take into account these issues, the most appropriate estimation approach to relate the speed of adherence to the UNGC to firm and home market characteristics is a survival model, which aims to estimate, for each time period t , the hazard of a firm to participate in the UNGC, conditional on the fact that this event hasn't occurred up to year $t-1$. Duration models have the advantage that they allow for "right censoring" of the data: - firms may experience the event after the end of the period of observation. Since the event of interest can be observed only in discrete time intervals (i.e., in years) we adopt a complementary loglog duration model with firm's specific random effects that account for the correlation structure among the multiple firm-level observations in our longitudinal dataset.

Results. Table 1 shows the estimation results. In Model 1, the coefficient of SOE in this model is positive and significant ($b = 0.936, p < 0.05$), indicating that state-owned firms adopt UNGC earlier than non-state-owned firms. The estimated hazard ratio is about $\exp(b) = 2.550$, which means that, on average, state-owned firms have a hazard to adopt UNGC that is more than twice higher than the one of non-state-owned firms. Hypothesis 1 is therefore supported. The coefficient of HomeDemocracy in this model is positive and significant ($b = 2.099, p < 0.01$), which means that firms based in a democratic market adopt UNGC earlier than those based in a non-democratic market. Hypothesis 2a is therefore supported. The coefficient of HostMarketsDiversity in this model is positive and significant ($b = 0.063, p < 0.1$), indicating that the higher the number of markets where firms have FDI the higher the speed of UNGC adoption. Hypothesis 3a is therefore supported. Model 2 presents the results for Hypothesis 2b. We found that the coefficient of HomeDemocracy is positive but not significant ($b = 1.127, p > 0.10$), which means being based in a democratic or non-democratic market does not affect the speed of UNGC adoption. The coefficient of SOE is not significant ($b = -0.299, p > 0.1$). However, the interaction term between SOE and HomeDemocracy positively affect UNGC participation ($b = 2.084, p < 0.05$), which means that the hypothesis is supported. This result indeed confirms that state-owned firms based in democratic markets adopt UNGC quicker than non-state-owned firms based in the same markets. Model 3 contains the result for the main test of Hypothesis 3b, which predicted that the level of diversity of host markets where firms have FDI positively moderates the (positive) relationship between state-ownership and the adoption of sustainability standard. The coefficient of SOE is positive and significant ($b = 1.594; p < 0.01$) which means that for non-internationalized firms, state-ownership increases the hazard of UNGC adoption. The coefficient of HostMarketsDiversity is positive and significant ($b = 0.139, p < 0.01$) which suggests that for non-SOEs, the higher the number of international markets where they have FDI operations the more they speed up the UNGC adoption, with $\exp(b)-1 = 0.149$, which means that the hazard of UNGC adoption increases on average by 14.9% every time a non-SOE internationalizes in one additional market. The coefficient of the interaction term between SOE and HostMarketsDiversity is negative and significant ($b = -0.175, p < 0.01$), meaning the hypothesis is not supported. We ran several robustness checks on our key variables measuring the diversity of home and host markets stakeholder demands. In all cases, results are consistent with the main analysis.

Tab. 1: Estimation results

	(1)	(2)	(3)	(4)
SOE	0.936** (0.472)	-0.299 (0.672)	1.594*** (0.522)	0.520 (0.686)
HomeDemocracy	2.099*** (0.668)	1.127 (0.693)	2.067*** (0.641)	1.251* (0.680)
HostMarketsDiversity	0.063* (0.037)	0.054 (0.036)	0.139*** (0.048)	0.126*** (0.047)
SOE* HomeDemocracy		2.084** (0.895)		1.716** (0.848)
SOE* HostMarketsDiversity			-0.175*** (0.060)	-0.162*** (0.060)
HomeGDPpc	0.114 (0.268)	0.168 (0.270)	0.144 (0.253)	0.182 (0.258)
HomeHRTreaties	0.159 (0.101)	0.184* (0.104)	0.127 (0.098)	0.154 (0.102)
HomeUNGCNetwork	0.588 (0.408)	0.591 (0.412)	0.671 (0.414)	0.657 (0.420)
BusinessGroup	-1.090 (0.872)	-1.190 (0.878)	-1.231 (0.813)	-1.307 (0.832)
Age	0.062 (0.264)	0.032 (0.268)	0.049 (0.249)	0.018 (0.255)
Performance	0.042* (0.023)	0.041* (0.023)	0.044* (0.022)	0.043* (0.023)
Size	0.034*** (0.012)	0.039*** (0.012)	0.037*** (0.011)	0.041*** (0.012)
SlackResources	-0.239 (0.517)	-0.207 (0.505)	-0.198 (0.484)	-0.179 (0.480)
Leverage	0.158 (0.459)	0.176 (0.449)	0.156 (0.427)	0.165 (0.423)
Time	0.281 (0.174)	0.279 (0.175)	0.246 (0.165)	0.254 (0.169)
Time ²	-0.016** (0.007)	-0.017** (0.007)	-0.015** (0.007)	-0.016** (0.007)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Constant	-9.495*** (3.330)	-9.382*** (3.274)	-9.376*** (3.134)	-9.256*** (3.127)
Observations	3,346	3,346	3,346	3,346

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Research limitations. *The limitations of our work provide opportunities for further research. First, our empirical analysis is based on a limited sample of large public companies in eight developing countries, and it is necessary to interpret our results in the context of this boundary condition. Second, state-ownership as measured in this paper provides little information on the magnitude and quality of state investment and the corporate strategies behind such an ownership structure. Unfortunately, data on the percentages the state owns and how they changed in the cohort we analyzed, is not available for all the companies in our sample. We would therefore recommend that future research use more refined measures of what constitutes an SOE. Third, our measure of internationalization breadth relies only on foreign direct investment deals, and counts the number of different countries into which the firm has expanded up to a given year. Further research might explore different dimensions of internationalization strategies which could affect firms' adoption of sustainability strategies.*

Managerial implications. *The paper has important implications for managers. Managers of state-owned companies are commonly criticized as not being successful overseers of the firms because their companies tend to have lower profitability. The arguments presented here provide a counterargument by explaining how they can indeed be good overseers of the firms as they direct them towards the goals of the broader society and the achievement of sustainability that benefit not just the owners but a broad set of stakeholders.*

Originality of the paper. *These ideas contribute to two streams of research: agency theory in its study of state-owned firms, and sustainability strategy in its study of sustainability codes. First, in terms of theory, we question the universality of the traditional view of state-owned companies as suffering from multi-level agency problems that create additional conflicts and objectives (Cuervo-Cazurra et al., 2014) and create a disadvantage in comparison to private firms. We introduce the notion of aligning social objectives with sustainability goals providing an advantage for state-owned companies over private firms in emerging economies. Thus, future studies need to avoid assuming that state-owned companies will always suffer from serious agency problems that undermine their competitiveness and advantages. Instead, they need to analyze how their objectives might undermine particular outcomes, like profitability,*

while they may facilitate their achievement of other outcomes, such as sustainability. In other words, state-owned companies may not always suffer from a disadvantage of stateness; in some cases, they may enjoy an advantage as stateness (Cuervo-Cazurra and Li, 2021). This highlights the importance of challenging theoretical assumptions and, in the case of agency theory, moving it away from the widely-held assumption that owners are interested in just profit maximization and incorporate a wider variety of objectives for shareholders, such as sustainability in the case of state-owned firms.

The arguments also contribute to a better understanding of sustainability strategy by bringing the importance of owners' objectives in sustainability decisions. Much of the literature on sustainability has focused on the drivers of sustainability or how sustainability contributes to financial performance (Matten and Moon, 2008). The comparison between private and state-owned companies helps better understand the importance of ownership in sustainability strategy and how the alignment of objectives in state-owned firms results in a sustainability advantage. Future studies can extend this idea to analyze how some companies may be more inclined toward sustainability by external pressures from stakeholders and the internal preferences of their owners. Owners' predisposition toward sustainability results in firms being better prepared and ready to engage in sustainability when the opportunity to certify the sustainability credentials of the company appears.

Keywords: sustainability; state ownership; standards; democracy; host market diversity; emerging markets.

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Relationship between CSR and FDI: a systematic review

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Framing of the research. *‘Corporate Social Responsibility (CSR) is the voluntary integration by companies of social and environmental concerns into their relevant operations’ (EU Green Paper, 2001). Increased global competitiveness has pushed companies to improve resource management, particularly those that generate competitive advantage, such as Corporate Social Responsibility (Sánchez Torné et al., 2020). On the other hand, Foreign Direct Investment (FDI) are investments that reflect the objective of obtaining a lasting interest by an investor in one economy in another economy’ (OECD, 2021). The lasting interest implies that a long term relationship exists between the investor and the firm, and that the investor has a significant influence on the way the firm is managed CSR and foreign direct investment are two topics that have a strong relationship with each other. In particular, the social value of sustainable investment is becoming more and more relevant; in fact, investors are increasingly inclined to invest in companies that promote corporate responsibility and more generally are sensitive toward environmental issues (Chipalkatti et al., 2021). For this reason, by improving environmental, social and governance (ESG) performance, the company can retain and approach an increasing number of consumers and investors, creating a gain in the medium to long period (Hwang et al., 2022; Misiuda & Lachmann, 2022). In this sense, empirical evidence shows how ESG performance positively influences foreign investment inflows; more specifically, how corporate governance related ratings are more impactful than social and environmental ratings (Alregab, 2022). Moreover, FDI data provide a good measurement of most of the real economic activities of the company (Wacker, 2016). As a result, readers have also become more intrigued by the topic of sustainability. The growing awareness of the strategic importance of sustainability and CSR for companies has played a significant role in this trend (Cooney et al., 2022; Teerikangas et al., 2021). Companies recognize the long-term benefits of integrating sustainability and CSR into their operations and strategies, such as improved reputation, increased stakeholder engagement, and better risk management (Chollet & Sandwidi, 2018; Hwang et al., 2022; Khuong et al., 2021; Louche et al., 2010). Additionally, consumers are becoming more conscious of the sustainability commitments of individual companies and are increasingly making purchasing decisions based on these commitments. CSR can be an important aspect of FDI, as it can help companies to mitigate the negative impacts of their operations and enhance their reputation with stakeholders (Aguilera-Caracuel et al., 2017; Choukroune & Donde, 2022; Nyeadi et al., 2021; Sheng et al., 2022). Thus, understanding the relationship between CSR and FDI is crucial for firms, governments, and researchers.*

Purpose of the paper. *In recent years there has been a considerable increase in the adoption of corporate policies aimed at improving all aspects in the field of sustainability (i.e., all corporate social responsibility policies). The objective of this paper is to investigate through a literature review the relationship between corporate social responsibility and foreign direct investment, using FDI as an indicator of the degree of internationalization achieved by the company. This review analysis will be carried out taking into consideration only the studies conducted at the company level. After conducting preliminary analyses we will proceed to the reading of the abstracts to select the research topic and to determine the focus or perspective to be taken in the study. This step is crucial as it allows to refine the research question and to define the specific aims and objectives of the study. The review will focus on analyzing the main studies that have been conducted on this topic. It will analyze the methodology approach used in these studies, such as whether they are qualitative or quantitative, and also we will examine the data structure, such as whether cross-sectional or panel data was used. Additionally, we will study sample characteristics, such as sample size, firm characteristics, year of study, and the country of study. These details can provide insight into the generalizability and relevance of the findings. Furthermore, we would like to identify the main themes addressed by the studies and study their temporal evolution. This will enable us to understand the changes and trends in the research on this topic over time and identify any shifts in focus or priorities.*

Methodology. *The state of the art analysis was conducted following Callahan (2014) and Moher et al. (2009). First, keywords were sought that would capture articles useful for research, and these were found through analysis of articles that previously addressed the topics under consideration (Ibeh et al., 2012; Rondi et al., 2022). Next, the*

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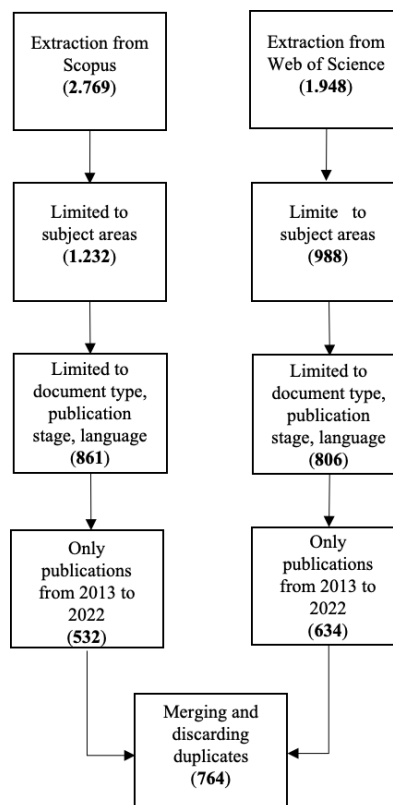
following search key was used among title, keywords, and abstract, with the goal of collecting the literature regarding CSR and FDI, and the industry field, we selected a set of keywords for each topic. To find the articles that simultaneously discuss these three aspects, the topics are linked by an AND-type relationship: CSR AND FDI AND Firm. A set of keywords were selected for each topic, which as shown in Table 1 are linked by OR-type relationships.

Tab. 1: Selected keywords

Topic	Keywords
CSR	(sustainab* OR (corporate AND social AND responsibility) OR csr)
FDI	(merge* OR brownfield OR greenfield OR acquisition* OR (joint AND venture) OR FDI OR (foreign AND direct AND investment))
Firm	(firm* OR compan* OR enterprise*)

After obtaining the results from Scopus and Web of Science (respectively 2.769 and 1.948 publications), we applied inclusion criteria to narrow down the field to the macroareas of Business, Economics, Management and Business Finance, resulting in 1.232 papers on Scopus and 988 on Web of Science. We further refined our selection by considering only papers published in English language and focusing on finished publications in the categories of Articles and Review Articles. This resulted in 861 papers on Scopus and 806 on Web of Science. To ensure a recent perspective, we limited our search to publications from the last 10 years, i.e., from 2013 to 2022, which resulted in 532 papers on Scopus and 634 on Web of Science. Finally, we removed duplicates by merging the results from Scopus and Web of Science, resulting in a final sample of 764 publications. The Graph 1 summarizes the results of this selection.

Graph 1: Publication selection process



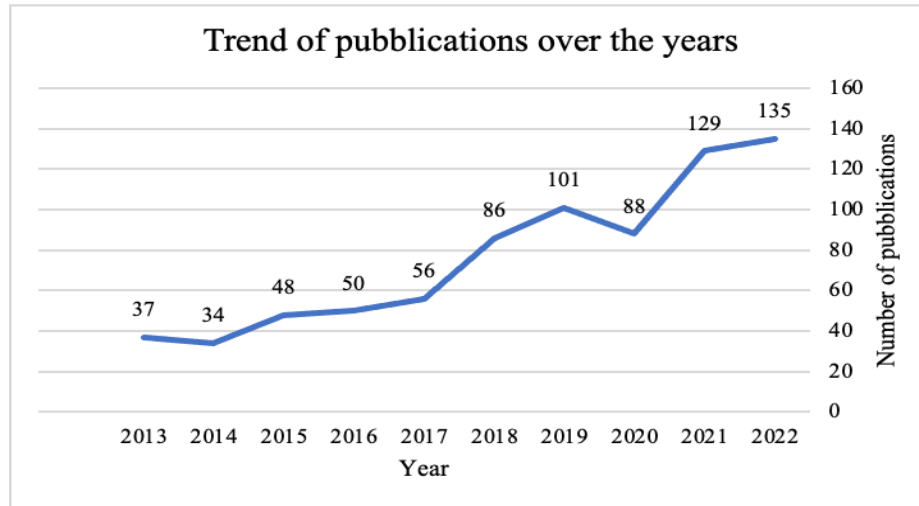
After extracting the abstracts, an initial exploratory analysis was performed, we studied the trend of total publications and by type, broken down by articles and reviews, we identified the author most active on the topic, we identified the journals in which it is published most and we studied the co-occurrence of keywords using VOSviewer.

Next, we began to analyze the abstracts of the articles to make a selection based on the topics covered by the articles. We implemented a “traffic light” system in which discarded papers were classified as red, uncertain papers as yellow, and papers approved for study as green. The yellow ones will be reanalyzed at a later stage to understand whether to exclude them or keep them in the study.

In order to achieve the most accurate analysis possible and to minimize errors, all abstracts were personally analyzed by two of the authors. This made it possible to compare any discrepancies and obtain more accurate results.

Results. The data depicted in Graph 2 demonstrates a consistent upward trend in the number of publications pertaining to the concepts of CSR and FDI over the past 10 years. This increase in publications reflects the growing interest among researchers in studying the relationship between these two topics. The number of publications grew from 37 in 2013 to 135 in 2022.

Graph 2: Trend of publications



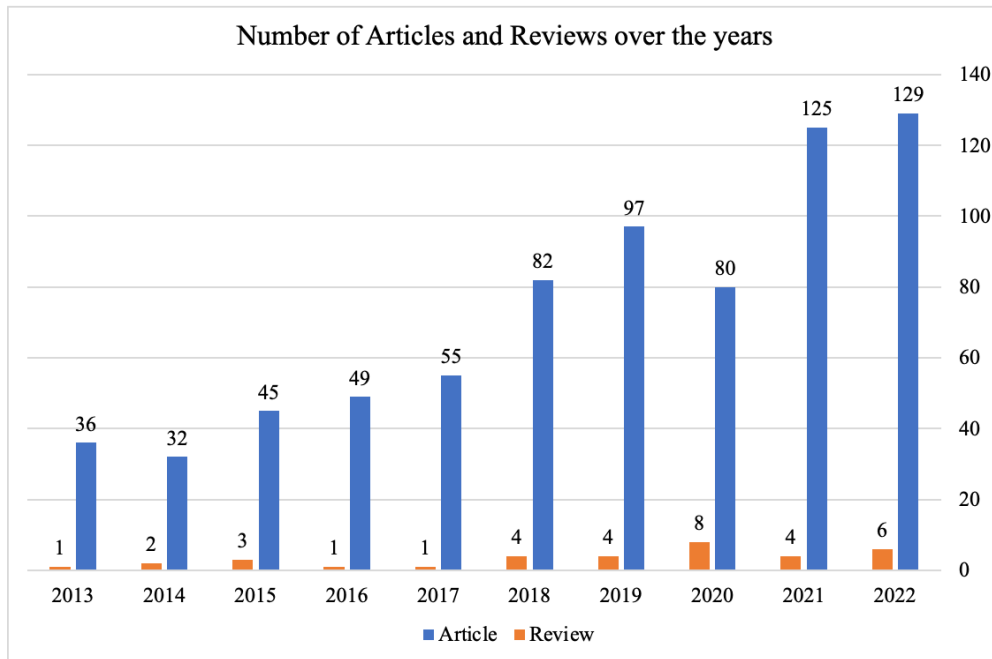
The analysis of the journals in which the majority of articles on CSR and FDI are published, as presented in Table 2, reveals that they primarily originate from the fields of industry, environment, and business. This indicates that the articles being analyzed will likely center around the relationship between CSR and internationalization, and how CSR can affect a company’s internal performance. From Table 2 we can see that 54 publications were made in the “Journal of cleaner production” and they account for about 7.06% of the papers, followed by “Business strategy and the environment” with 17 publications, the other 18 journals vary from 13 to 6 articles each. The other papers are distributed over a total of 432 journals and have at least 6 publications.

Tab. 2: Reference journals

Source title	Numbers
Journal of cleaner production	54
Business strategy and the environment	17
Journal of world business	13
Journal of international business studies	12
Journal of business ethics	11
Technological forecasting and social change	11
International business review	10
Strategic management journal	10
Journal of business research	10
Corporate social responsibility and environmental management	9
Management decision	9
International journal of production research	7
Journal of knowledge management	7
Journal of corporate finance	7
Journal of management studies	7
Resources policy	7
International journal of emerging markets	7
Resources, conservation and recycling	6
Emerald emerging markets case studies	6
Entrepreneurship and sustainability issues	5

The analysis of the type of documents reveal that they are divided into two categories, Article and Review. Specifically, there are 730 articles and 34 reviews. This classification can provide insight into the nature of the research being conducted and the level of knowledge on the topic. In this case, the majority of the documents being analyzed (730 out of 764) are articles, which suggests that there is a significant amount of new research being conducted on the topics of CSR and FDI. The presence of 34 reviews among the analyzed documents suggests that there is a growing interest in reviewing and synthesizing the existing knowledge on the topics of CSR and FDI. As illustrated by Graph 3, the trend in the number of articles and reviews on the topic of CSR and FDI has been increasing for articles and constant for reviews over the years under consideration.

Graph 3: Number of publications over the years



This classification of documents highlights that the research on CSR and FDI is active and dynamic, with a mix of new findings and synthesized knowledge. This is important to consider when interpreting the analysis results, as it can provide a more comprehensive understanding of the topic.

Tab. 3: Authors in multiple publications

Author	Documents
Zhang Y.	6
Shams S.	5
Liu X.	4
Li Y.	4
Chen L.	3
Khan Z.	3
Krishnamurti C.	3
Lee S. - H.	3
Liu M.	3
Ridzuan A. R.	3
Wang X.	3
Wu J.	3
Yang Z.	3

From the Table 3 above it can be seen which are the main authors of the articles identified through the search key used. It can be appreciated how multiple authors considered have published several articles on the topic. This assumes a high degree of specialization and makes the reading and classification of the results obtained even more interesting. Only 13 authors present more than 3 publications on the topic and only one Zhang Y. has 6 publications followed by Shams S. with 5 publications.

We decided to analyze the occurrences of the keywords selected by the authors of the articles (Figure 1). To make this graph we set the minimum number of occurrences as 4 which allowed us to display 115 out of 2506 keywords used by authors. This is useful for a visual and equally effective representation of the relationships between the keywords selected by the various authors. As expected, terms such as “corporate social responsibility,” “FDI,” and related synonyms are among the most used keywords. Within the image we can also identify which are the main topics under study, respectively:

- keywords related to foreign direct investment and internationalization issues;
- keywords related to environmental aspects;
- keywords related to innovation in the green field;
- keywords related to investment and supply chain.

potential benefits of these levers to gain competitive advantage. With a deeper understanding of the interplay between CSR and internationalization, managers can make informed decisions that can positively impact their organizations in the long run.

Originality of the paper. Given the large number of articles produced on the topic of CSR and FDI, it is essential to periodically conduct systematic reviews to identify the key findings, gaps in the literature, and potential areas for future research. This can help researchers to identify areas where more research is needed and to focus their efforts on the most critical issues related to CSR and FDI. Additionally, it can also help practitioners, policymakers and other stakeholders to understand the current state of knowledge on a topic and to make informed decisions. To the best of our knowledge, our study is the only one that addresses this particular relationship between CSR and FDI limited to the last 10 years, and we believe it can fill a gap in the literature by providing insights for future research on the topic.

Keywords: Corporate social responsibility; foreign direct investment; literature review, sustainability

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Exploring Countries' Cargo Commercial Power

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Framing of the research. *Firms worldwide are facing times of uncertainty due to current issues emerging in the 5.0 era. In the last decade, the business society had assisted to the rapid development of technological tools, the high degree of digitalization, and diffuse globalization together with pandemics, wars, and recessions that have spread worldwide, generating monetary shocks, and influencing the exchange rate (Koray and McMillin, 1999). Examples can be found in the wine sector (Carrasco et al., 2023), energy (Chen et al., 2023; Cheng et al., 2023; Fartash and Ghorbani, 2023), aerospace (Caliari et al., 2023), baby foods (Mota-Castillo et al., 2023), trade (Panta et al., 2023), aquaculture (Jaikumar et al., 2023), and agricultural commodities (Cheng et al., 2023). In this rugged storyline, the international trade has globally suffered, finding new threads and opportunities bringing to a redefinition of commercial standards and spending basket compositions, to establish a competitive advantage (Porter, 1980). Considering national accounts, the trade balance is one of the most significant (Panati and Golinelli, 1991). Its value corresponds to the difference between the value of exports and that of imports. Thus, the balance makes it possible to analyze the ability of a country to be able to trade in a global context (Alexander, 1952; Greenwood, 1984; Haynes and Stone, 1982; Ju et al., 2010). Elucidating, the trade balance represents the degree of attractiveness of its goods towards foreign countries (Baharumshah, 2001; Shirvani, and Wilbratte, 1997). Finding a trade surplus is not always mirroring a proper and sustainable business activity (Davis and Weinstein, 2002; Rose, 1990). In fact, a too positive balance could be signal of the country's inability to import or to express an adequate domestic demand (Bahmani-Oskooee, 1992). Consequently, national firms should differently evaluate their cargo commercial power in response to a commercial redefinition, i.e., liberalization or devaluation, of the compositions of shopping baskets, in terms of quantity, quality, origin, and extent of commercial traffic (Himarios, 1985; Lane and Milesi-Ferretti, 2002; Parikh and Stirbu, 2004; Upadhyaya and Dhakal, 1997). Thus, a need to identify an indicator to in-depth clarify the evaluation international trade for global firms emerges in the current scenario, not limited to a transactional evaluation (Moral and Ghoshan, 1996; Narayan, 2006). To better evaluate the trade balance, exploring measures such as quantity and weight of the shipment is crucial to assess a country's cargo commercial power, especially in the e-commerce and e-trade era (Liu et al., 2019). In the sea cargo sector, and so in airplane shipping, traders evaluate the capacity of the ship first and foremost assessing the volume employing standard units: twenty-foot equivalent (teu), representing the container, or forty-foot equivalent (feu), twice the container (theloadstar.com). Considering that vessels and planes convey a limitation on the amount of weight that can be carried, indicators such as teu and crafts, to express the max out charge of the load is, generally, measured in volume, and not in weight (Florido-Benítez, 2023; Skrucany et al., 2020). This can generate a bias in evaluating a country's cargo commercial power, together with a little consideration of the ratio within overall shipments.*

Purpose of the paper. *The purpose of the paper is exploring countries' cargo commercial power through a pilot study on the import supply chain of a US company, to explore the commercial traffic related to the main suppliers of beverage sector. In particular, the aim is exploring the commercial traffic considering shipments, weight, and teu to determine the possibility of building an indicator to assess a country's cargo commercial power. The study takes into consideration the different measurement units to conduct a specific analysis of exporting countries, and to evaluate the particularities of import and export after the Covid-19 pandemic. Thus, this research aims to examine what are the main metrics for evaluating the commercial strength in terms of cargo of a country.*

Methodology. *To explore the commercial traffic in the beverage sector, data on cargo's trades were derived from importyeti.com, an open-source platform with several data on the cargo supply chain of various companies worldwide. Data concerning the import of the selected company from 01-01-2021 to 31-12-2022 were scraped, recording 1,926 shipments, with a weight of 189,822,578 tons in 15,012 containers (expressed in teu). Data were thus organized in pivot tables and sorted to derive a local sum of firms belonging to a specific country. Descriptive statistics were derived, together with correlations, ratios, and other measures to assess the significance of the analyses. Computing those analytics, it was possible to establish a first step to profile countries' cargo commercial power, to further derive standard measures to build an indicator. Data have been finally plotted through several visualization methods showing the commercial traffic.*

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Results. Results showed interesting insights concerning suppliers in the beverage sector. In particular, ten countries resulted as suppliers for the selected firm, respectively: Belgium, France, Germany, Greece, Ireland, Italy, Panama, Portugal, Spain, Sri Lanka. After frequency, weight, and volume measures, the relative number of companies exporting in the country's market can represent a good indicator of both the attractiveness of a market for the parent company, and the suppliers' portfolio, encompassing subsidiaries and other suppliers. The average shipments were 96.7, with a standard error of 39.2, showing that the mean was strongly affected by extreme values, where the mode was equal to 1 and the standard deviation equal to 309. The average weight of the shipments was 9,491,128.9 with a standard error of 679,795.365, no mode and a standard deviation of 536,384. The average teu were 750.6 with a standard error of 53, a mode of 4 and a standard deviation of 2,398.79 showing a great variability in the distribution. Moving deeper, Belgium presented most of the firms with 7 companies exporting in the US beverage market (35%). In France there are 3 exporting firms (35), followed by Italy and Spain with 2 exporting firms (10%). Other countries have only one exporting firm, holding 5% of the cargo traffic each. Analyzing the shipments in detail, it is possible to find France as the country exporting the most in terms of count and weight (153286095 tons), shipping 80.7% goods in 12,087 containers. Belgium follows France in the list, shipping 20159421 tons of goods in 1585 teu (10.62%) and Panama is the third country in this chart with 14,334,301 tons of good shipped to the US market in 1,156 teu (7.55%). The top port where the goods were shipped from were Anvers with 4,227 shipments, Fos-sur-Mer with 3,828 shipments, Algeciras with 783 shipments, Balboa with 333 shipments, and Valencia with 284 shipments. According to these data, France is dominating the import scenario regarding beverage, and water, for one of the most consistent firms in the US market, and one of the first benefit corporations in the sector, while Belgium is the country with the most active port as an origin for imported goods in the American beverage market. This is for sure due to the large number of companies involved in the business in France, producing and exporting beverages overseas. Results from the correlation analysis showed a negative correlation between the number of firms actively exporting in the country of origin and teu ($\rho = -0.39$), the shipments ($\rho = -0.31$), and the weight of the shipments ($\rho = -0.32$). A positive correlation as found between the shipments and the weight of the shipments ($\rho = 0.98$), and no correlations were found between teu and shipments ($\rho = 0.02$), and through teu and the weight of the shipments ($\rho = 0.04$). Results show that, in this specific case, having a large number of firms exporting overseas negatively influence the number of teu and the shipments, together with the number of teu exported. Contrarily, containers seem to be independent from the weight of the shipments, and the number of shipments.

Research limitations. The limits of this research are to be found in the extremely limited sample and limited to a single company within the American market, even if this represents one of the few benefit corporations in the sector and therefore the study takes on an even more specific connotation. Another limitation is that of geographical sampling, which only took into consideration the American market without considering other markets for a comparison and to verify which countries were most active in exports, also considering the possibility of finding exporting countries with a differentiated composition of shipments. Over and above that, data relate to a period in which the import/export system was affected by the Covid-19 pandemic, and companies were in the first stage of recovery, talking in commercial terms. In the future, the research will consider more countries involved in the data extraction process, to further test the possibility of constructing an indicator through new metrics based on specific cargo composition parameters. Another limitation of the research lies in the composition of the sample, which sees only three dominant countries in terms of exporting companies, a gap that can be filled by widening the range of sectors and companies to be analyzed in the various countries. Considering that this is a pilot study, the results can be considered valid even considering the tests of significance and can be enriched by subsequent comprehensive studies in terms of geography and sectoral composition. Another limitation of this research is having a data structure suitable for a big data approach ($v > n$) but not having a sufficient volume to allow the effective application of artificial intelligence and machine learning methodologies. In the future, massive data collection will be carried out to apply predictive algorithms, useful for prospective and prescriptive analytics regarding international import/export.

Managerial implications. The managerial implications of this work embrace various points of view and applications of this analysis with respect to the international import/export dynamics of today. In particular, the substantial change that has affected the international export and import sectors in recent years, mainly caused by the Covid-19 pandemic and the wars that have emerged globally, is addressed in this research in terms of volumes of shipments from various perspectives, analyzing the correlations between the various units of measurement and which countries contribute more to exports to the United States of America than to the beverage sector. In fact, this study aims to be a trailblazer for a future deep and comprehensive exploration of imports and exports with respect to various sectors and various countries under study. In particular, the analysis of the countries conducted through the use of various units of measurement can be a first step for the subsequent construction of a commercial indicator that represents the commercial strength of the countries in terms of import/export cargo. The analysis of the exporting countries will therefore be considered with respect to the crossing of the units of measurement, which in fact represent a very sensitive indicator when it comes to shipments, and which does not always see a possible standardization of the metrics. To boot, this research takes into consideration the commercial traffic in terms of shipments, weight, and container (teu), thus highlighting the main characteristics of exports by country, and taking into account the degree of geography. In fact, the results of this study and of this approach could be useful for managers in evaluating the commercial strength of the various countries and therefore adopting appropriate outsourcing and internationalization strategies also based on the strength of an exporting country. Notwithstanding, it will be possible to evaluate incoming and outgoing logistics with respect to various parameters taken into consideration. Together with this, the assessment

of the current commercial traffic in the beverage sector sheds light on how international markets have redefined themselves or not, and which can subsequently be compared with data derived from historical series to better understand the evolution of the sectors. In particular, this study shows how few countries have sufficient commercial strength to hold a substantial share of the market, and how among these one dominates the world scene, namely France, with a strong market share (80.7%), although this country is neither the one with the largest number of exporting companies, nor the one from which, at a logistical level, the largest quantity of shipments departs, possessing the second port in terms of exports. In fact, it is Belgium that excels in terms of main port of derivation and exporting companies. This evidence highlights a new useful aspect for both researchers and practitioners, namely that of having to consider various factors when evaluating the commercial strength of a country, which cannot be limited to volumetric factors. Specifically, it seems obvious that the commercial strength of a country in terms of cargo exports must take into consideration in a different way the quantitative aspects of the goods shipped, and the logistical ones such as for example the main export centers and the number of exporting companies present on the territory. In a future construction of a commercial indicator, this could constitute an important aspect of differentiation, to separate the commercial force between the in-house one, and therefore territorial and linked to the points of origin of the export, and the effective one which can be calculated on the goods imported from a specific sector of a specific country. This research could be useful in determining which countries are the hub of commercial traffic with respect to a specific sector of an importing country, and the analyzed results could be treated in the future with artificial intelligence and machine learning models that will lead to an optimization in logistics and evaluation terms of international import/export. To date, the pilot study has shown how with respect to international commercial traffic, some companies in the beverage sector are influenced by logics of oligopoly with respect to the countries from which to import raw materials and goods necessary for in-house industrial production.

Originality of the paper. The originality of this research can be found in the approach, which employs a digital data collection, from platforms which, compared to modern analytics, give the possibility of obtaining data in open-source form, which can be analyzed to obtain useful insights into the commercial traffic of a given country. The approach takes into consideration different units of measurement such as the number of shipments, volume, and containers (teu), to determine the commercial strength of a country's cargo exports. In particular, the approach is original because it represents a schematic profiling of countries, which is not limited only to descriptive analyses, but also considers the correlations between the units of measurement to evaluate how best to interpret the results of commercial traffic. A peculiarity of the analysis is to work on a big data type distribution, which uses data with greater variability than the number, and which allows you to start laying the foundations for a future analysis of machine learning and artificial intelligence, which can be considered a big data analysis once the right numbers are obtained to test a different methodology. Into the bargain, the study analyzes in an original way the determinants of commercial cargo traffic to be able to construct an indicator with the units of measurement taken into consideration. In fact, the study mainly served to understand how variables such as shipments, weight, and TEUs are distributed across countries, and by analyzing these specifically, it will be possible to evaluate a new standard indicator that expresses the commercial strength of countries in terms of cargo. Nevertheless, the research is one of the first to evaluate the commercial traffic of the food and beverage sector in the American market after the Covid-19 pandemic and can be replicated in various sectors and countries for the purpose of profiling import and export after a global recession. Another peculiarity of this study is the joint approach which evaluates not only the units such as weight, volume, and number of shipments, but also the logistical aspect of the territory and the effective evaluation of the metrics in relation to each single village. This has made it possible to evaluate the strength of the countries not only in descriptive terms, but also in cognitive terms, to derive summary indicators in the future useful for assessing the commercial strength of a specific country, and which takes into consideration both the incoming than outgoing cargo traffic.

Keywords: Cargo; Commercial Power; Export; Import; International Marketing; Trade.

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Websites

<http://www.importyeti.com>

<https://theloadstar.com/sea-freight-teu-feu-doesnt-air-freight-meu-leu/>

Appendix

Tab. 1: Summary results

FIRM	COUNTRY	SHIPMENTS	WEIGHT	TEU
1	France	1,397	136,967,118	10,808
2	France	142	16,292,637	1,277
3	Panama	117	14,334,301	1,156
4	Belgium	99	7,401,625	588
5	Belgium	68	6,820,170	536
6	Belgium	40	5,320,494	413
7	Germany	30	1,124,289	103
8	Belgium	7	510,780	40
9	Spain	9	359,839	30
10	Sri Lanka	1	206,999	18
11	Italy	2	89,640	8
12	Portugal	4	68,992	7
13	Spain	2	67,230	6
14	Belgium	2	52,560	4
15	Ireland	1	43,956	4
16	Italy	1	42,470	4
17	Greece	1	39,346	4
18	Belgium	1	27,472	2
19	France	1	26,340	2
20	Belgium	1	26,320	2

Tab. 1: Results by country

COUNTRY	SHIPMENTS	WEIGHT	TEU
Belgium	218	20,159,421	1,585
France	1,540	153,286,095	12,087
Germany	30	1,124,289	103
Greece	1	39,346	4
Ireland	1	43,956	4
Italy	3	132,110	12
Panama	117	14,334,301	1,156
Portugal	4	68,992	7
Spain	11	427,069	36
Sri Lanka	1	206,999	18
Tot.	1,926	189,822,578	15,012

Corporate heritage marketing: a bibliometric-based literature analysis

GIUSY MIGNONE*

Framing of the research. *In recent years, scholars have devoted increasing attention to the topic of corporate heritage marketing. Originally the term heritage was associated with the cultural dimension of society; in other words, it was used to indicate the set of tangible and intangible works, expression of a community's identity which had to be preserved over the time. Only in the last decades the term heritage has entered the management literature (Napolitano and Marino, 2016). At first, it was introduced in studies on corporate longevity, where heritage is viewed as a potential source of competitive advantage for firms relying on a long and glorious past (Riviezzo et al., 2015). Then, it extended its reach, and it was also used to identify a new way of communicating the uniqueness of the company and its products to clients (Napolitano et al., 2018). Thus, corporate heritage has become the core of a specific marketing literature stream.*

Burghausen and Balmer (2014b, p. 394) defined corporate heritage as the set of “all the traits and aspects of an organization that link its past, present, and future in a meaningful and relevant way”. For example, the figure of the founder or entrepreneurial family, the value system, the people who have made a product a brand name over time, the processing techniques, the traditions, etc., are all these elements that represent the heritage of an organization (Riviezzo et al. 2021; Mosca, 2012). It follows that heritage has, above all, a social meaning and expresses an organization’s identity (Burghausen and Balmer, 2014a).

According to scholars in this research field (Montemaggi, Severino 2007; Martino 2013; Burghausen, Balmer 2014; Napolitano et al., 2018; Garofano et al., 2020; Riviezzo et al. 2021), the ability to strategically interpret the legacy acquired from the past is recognized as a potential source of competitive advantage. In fact, corporate heritage is considered an important asset, useful for implementing successful differentiation strategies and building long-lasting bonds with all the organization's stakeholders. In this perspective, “heritage marketing is seen as an elective choice of companies aiming to enhance their history and shared values, for purposes of generating a sense of belonging in the consumer and creating a lasting emotional bond, for strengthening ties with external stakeholders and building feelings of solidarity with internal stakeholders, and for motivating employees to spread the organizational culture and substantiate the company's identity” (Riviezzo et al. 2021, p.11).

Research on corporate heritage focused on the study of different aspects: corporate brand identity and its dimensions (Urde et al., 2007), management, activities and tools (Burghausen and Balmer, 2014a; Napolitano et al., 2018; Riviezzo et al. 2021), corporate memory (Burghausen and Balmer, 2014), corporate heritage identity stewardship (Burghausen and Balmer, 2015), and also on conceptualization and evaluation of brand heritage (Urde et al., 2007; Hakala et al., 2011; Pecot et al., 2019). Existing literature appears fragmented (Sacco and Conz, 2023) and systematization is highly required.

Purpose of the paper. *This article analyzes the state of the art of research on corporate heritage marketing. The main aim of this study is: (1) to get a comprehensive overview of the research topic, mapping the different fields of study; (2) to uncover emerging trends in articles and journal performance; (3) to explore the intellectual, conceptual and social structure of the specific domain. To reach these objectives, we conducted a bibliometric analysis to identify authors, research institutes and journals contributing to a large volume of publications to identify patterns of collaboration and components of research.*

Methodology. *The main aim of this study is to analyze the state of the art of research on corporate heritage marketing through a bibliometric analysis. Analyzing the bibliometric structure of a specific body of literature has gained immense popularity across disciplines (Aria and Cuccurullo, 2017) because it allows the researcher to sift through large amounts of data (Wallin, 2012) and make an objective contribution compared to other types of reviews (Snyder, 2019). Indeed, while systematic literature reviews might be flawed by scholarly interpretation biases (MacCoun, 1998), as they rely on qualitative techniques, the bibliometric approach can avoid or mitigate such biases (Donthu et al., 2021). Moreover, it is a suitable method for science mapping at a time when scholars are feeding voluminous and fragmented streams of research (Aria and Cuccurullo, 2017). The results that can be obtained from the bibliometric analysis are manifold. According to Donthu et al. (2021), bibliometric studies can help advance a field in new and meaningful ways, as it allows scholars to: gain a comprehensive overview, identify gaps in knowledge, derive new ideas for inquiry, and position their intended contributions to the field.*

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To our knowledge, the literature on heritage marketing has not yet been reviewed, and neither it has been analyzed with a bibliometric approach.

For this study, we adopted a rigorous, transparent, and reproducible protocol of the research, typically used for systematic literature reviews (Tranfield et al., 2003; Postael et al., 2020), and we followed the guidelines of bibliometric analysis (Donthu et al., 2021; Oliveira et al., 2019; Aria and Cuccurullo, 2017; Merigó and Yang, 2017). The research was carried out in February 2023.

In order to detect the most appropriate keywords for our research, we started by reading the first seminal articles in the domain of heritage marketing. This process allowed us to identify the most commonly used keywords within these studies. Thus, we collected bibliographic data from the Scopus database repository using the following boolean search: "corporate heritage" OR "brand heritage" OR "heritage brand*" OR "use of the past" OR "use of the history" OR "organizational memory" OR "corporate heritage marketing" OR "heritage marketing" OR "heritage marketing management" OR "corporate heritage identity" OR "organizational heritage identity". These words are consistent with the definition of corporate heritage marketing.

First, we searched for these words in the title, abstract and keywords. The analysis resulted in 2,108 documents. Then, we introduced some filters. Due to variability in the peer-review process, conference papers, book reviews, and notes were not considered in this review. We limited our analysis to articles, books, and book chapters written in English. Lastly, we did not restrict our search to any specific subject area or time.

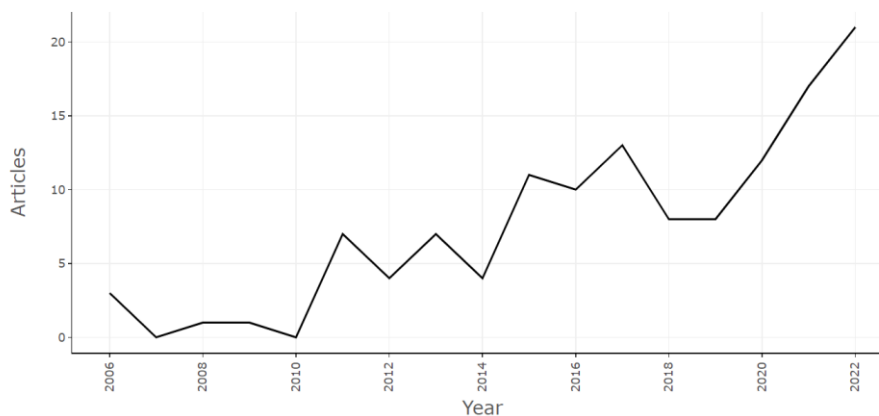
The final query was as follows: TITLE-ABS-KEY ("corporate heritage" OR "brand* heritage" OR "heritage brand*" OR "use of the past" OR "use of the history" OR "organizational memory" OR "corporate heritage marketing" OR "heritage marketing" OR "heritage marketing management" OR "corporate heritage identity" OR "organizational heritage identity") AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "ch") OR LIMIT-TO (DOCTYPE , "re") OR LIMIT-TO (DOCTYPE , "bk")) AND (LIMIT-TO (LANGUAGE , "English")).

Overall, this protocol of research yielded 1,134 documents. The research process continued. In order to select relevant documents, we analyzed all the abstracts of our dataset; in some cases, it was also necessary to deepen the full text. Only papers that explore the value of heritage (brand and corporate heritage) and the use of the past and heritage as strategic asset have been selected. This screening allowed us to choose a final sample of 131 documents.

Results. The first result of this study is the dataset extracted from the Scopus database, with the inclusion criteria described above. The sample is composed of 131 documents, in particular: 107 articles, 22 book chapters, and two books.

The growing interest in research on heritage marketing began to develop over the last decades, with particular progress evident after 2014.

Fig. 1: Annual Scientific Production



Source: Author elaboration

As shown in figure 1, scientific production started in 2006, with the publishing of the first two articles and a book. The graph shows that the research topic has been around for 17 years and has developed with an annual growth rate of 1.71%. 58% of all articles on this topic were published in the last five years, and a large part was published last year. 2022 is the year that recorded the highest number of productions, equivalent to 21 documents. This result allows us to demonstrate an ever-growing interest towards the topic.

An initial analysis of the data shows a considerable number of authors involved, exactly 222: the single-authored documents are 23, while the average number of authors per document is 2.05. There is a relatively significant international co-authorship rate, 32.06%.

As for the authors, Table 1 shows that the most prolific in terms of publications are Balmer JMT (17 articles), Pecot F. (13) and Merchant A. (10), followed by Burghausen M. and De Barnier V. (both with 8 papers). Regarding the authors' production over time, Balmer JMT has been confirmed as the most prolific author: his publications cover a period that goes from 2009 to 2023. 2015 is the year in which he published more articles, exactly 4.

Tab. 1: Most relevant authors

Author	N° of articles	N° of citations	Author's affiliation
Balmer, JMT	17	754	Brunel Business School, Uxbridge, United Kingdom
Pecot, F	13	137	TBS Education, Barcelona, Spain
Merchant, A	10	173	University of Washington, Tacoma, Milgard School of Business, Tacoma, United States
Burghausen, M	8	308	Essex Business School, Colchester, United Kingdom
De Barnier, V	8	70	Universite de la Nouvelle-Caledonie, Noumea, New Caledonia
Chen, W	4	64	Brunel Business School, Uxbridge, United Kingdom
Miller, D	4	67	Griffith University, Department of Marketing, Brisbane, Australia
Rose, G	4	37	University of Washington, Tacoma, Tacoma, United States
Rose, GM	4	45	University of Washington, Tacoma, Tacoma, United States
Rose, M	4	21	University of Alaska Anchorage, College of Business and Public Policy, Anchorage, United States

Source: Author elaboration

Overall, the total number of citations is 3.246, while the average number of citations for each document is 24.78. If we explore the most cited papers on a global level¹, the articles with the highest number of citations were by Leigh TW, Peters C. and Shelton, 2006 (355 citations); Schultz M. and Hernes T., 2013 (277 citations); Spiggle S., Nguyen HT., and Caravella M., 2012 (185 citations); Micelotta E.R. and Raynard M., 2011 (151 citations); and Balmer JMT., 2011 (115 citations). If we consider only local cited documents², the most cited papers are: Balmer JMT, 2011 (49 citations); Hudson BT, 2011 (44 citations); Burghausen M. and Balmer JMT, 2014a (37 citations), Hakala U., Lätti S., and Birgitta Sandberg, 2011 (37 citations); and Hudson U. and Balmer JMT 2011 (30 citations).

It is worth highlighting the most cited references: the most cited article is “Corporate Brands With A Heritage” (36 citations), published by Urde, M., Greyser, S.A., and Balmer, J.M.T., on the *Journal of Brand Management* in 2007. This paper is not part of our sample (because not present in the Scopus database), even if it is considered one of the first seminal works on this topic. The other most cited articles are: Hudson B.T., 2011 (31 citations); Balmer JMT., 2011 (28 citations); Blombäck A. and Brunninge O., 2009 (21 citations); Balmer JMT, Greyser S.A. and Urde M., 2006 (19 citations).

The reference scientific journals of the analyzed literature are: “*Journal of Brand Management*” with 13 papers, followed by “*Journal of Business Research*” (11), “*Developments in Marketing Science: Proceedings of the Academy of Marketing Science*” (11), “*Corporate Communications*” (6), and “*European Journal of Marketing*” (5). These five journals also represent the so-called “nucleus”. Using Bradford's Law, the bibliometrics software allows to highlight the scientific journals that have devoted the most attention to the topic. The function divides all citations of a topic equally into three zones. The core zone (zone 1) gathers the highest number of citations with the smallest number of journals, while the second zone requires more journals to obtain the same number of citations and so forth (Locatelli et al., 2021); therefore, the third zone will have the bulk of journals. The core zone (or nucleus) comprises five scientific journals, while zone 2 and zone 3 comprise 26 and 43 journals, respectively.

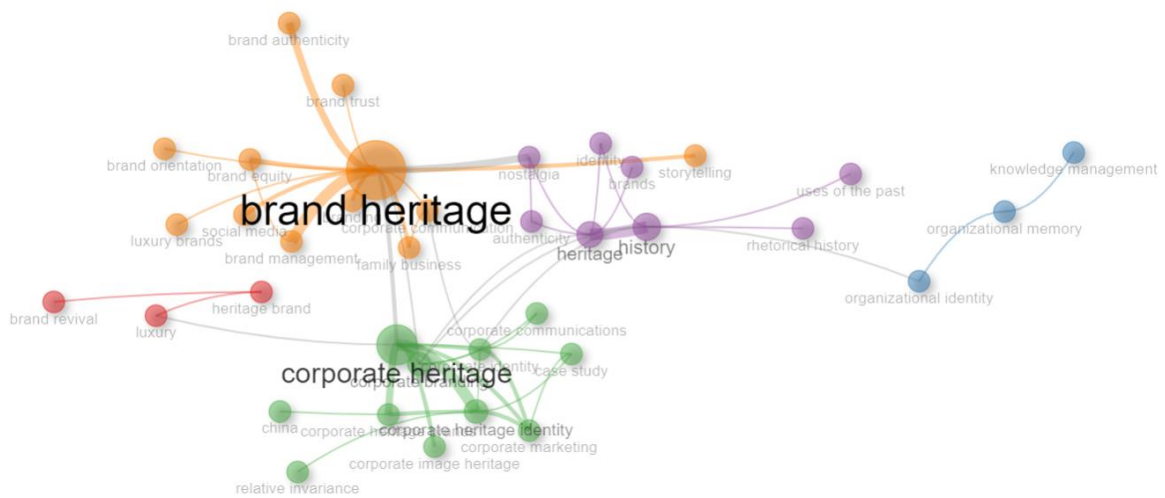
Concerning the country's scientific production, the analysis allowed us to identify countries where the most knowledge is concentrated: the UK came first with 60 works, followed by the USA (39), France (32), Italy (18), and China (14).

The analysis continues with the deepening of knowledge structure precisely, we analyzed the conceptual, intellectual, and social structure of the sample selected. First, we analyzed the co-occurrence network based on the author's keywords to understand the conceptual structure of our sample. This structure is examined to identify the topics covered by a research field and helps to understand the most important issues.

¹ The “most global cited documents” function measures the number of citations a document has received from documents contained in the entire database.

² The “most global local documents” function measures the number of citations a document has received from documents contained in the analyzed collection.

Fig. 2: Conceptual structure: co-occurrence network graph

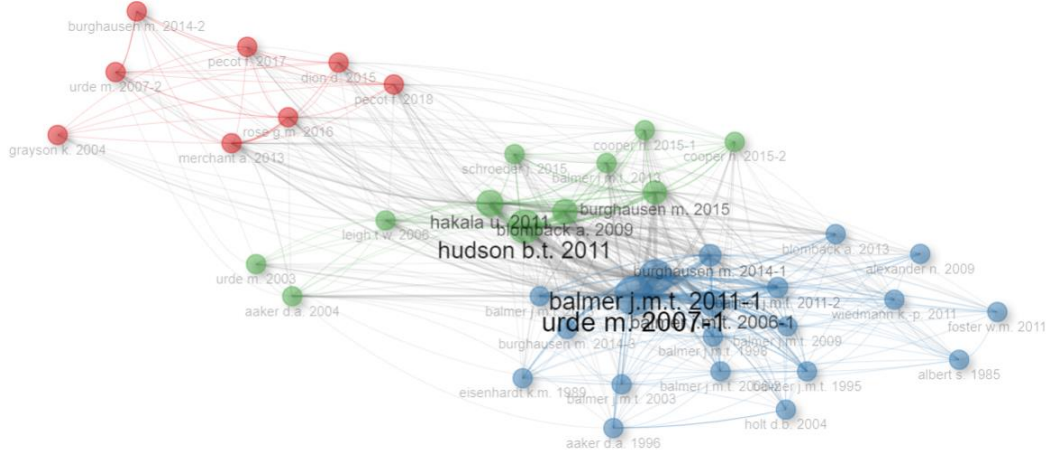


Source: Author elaboration

As shown in Figure 2, the analysis led to the identification of five different clusters. In this type of graphic, the nodes (or vertices) represent the keywords, and the lines (also called edges or links) represent the relations among keywords nodes (Locatelli et al., 2021). The size of each node is related to the number of documents containing that specific keyword, while the thickness of the lines is determined by the magnitude of the correlation between the two nodes. The most influential clusters are two: the orange cluster represents the heritage brand-related field, and the green cluster, slightly smaller than the first, represents the corporate heritage-related field. The purple cluster is close to the heritage brand topic and seems strongly linked to it through the nostalgia node. This cluster also highlights the strongly linked both history and heritage, so the purple cluster can be traced back to using of the past/history in the strategic key. The two little clusters are more or less of the same size and can be traced back to the "organizational memory" and "brand revival" research streams.

Second, we deepened the main intellectual structure of the research topic. Also, in this case, the intellectual structure was represented by graphics through nodes and lines, where each circle represents a document and the lines on which articles have been cited together in the same paper. As a result, the diameter of these circles is proportional to the number of citations, and the documents with similar co-citation profiles tend to be in close proximity (van Eck and Waltman, 2010). When two articles are cited in the same paper, that means they are closely related because they belong to the same topic area or because their topic areas are connected.

Fig. 3: Intellectual structure: co-occurrence network graph



Source: Author elaboration

Figure 3 shows the area of the most cited documents. These focus mostly on heritage as a part of corporate brand identity (Urde et al, 2007; Balmer J.M.T., 2011; Burghausen and Balmer, 2014a), on brand heritage framework (Hakala et al., 2011; Hudson B.T., 2011), and on the use of heritage or corporate history in the communication

activities (Blombäck A., 2009). The thickness of the lines demonstrates the close correlation between these subject areas.

Finally, the analysis of a social structure made it possible to identify the network of collaborations between countries. As highlighted previously, the countries where knowledge is most concentrated are UK, USA, and France. These three countries hold meaningful collaborations with each other. USA scholars collaborated most frequently with scholars from Spain, Germany, and Korea, while UK scholars collaborated with scholars from Canada, Italy, India, and Denmark.

Research limitations. This study is not without limitations. In particular, the conventional limits due to the research method are highlighted. First of all, in order to be able to carry out a bibliometric analysis with the Bibliometrics software, only one database was considered (SCOPUS of Elsevier database); therefore, it is necessary to take into account the possible incomplete search of the works present in the literature (Visser et al., 2021). Second, we limited our analysis to documents written in the English language. In this case, the possible incomplete search of the published works on the topic under investigation must be considered; the contributions written in other languages may have been underestimated. Third, bibliometrics analysis is a method that allows a summary of a large quantity of bibliometric data to present the state of the intellectual structure of a research topic or field (Donthu et al., 2021), and it does so by using a quantitative approach. It is a purely quantitative analysis that does not allow deep investigations of the contents, but its application is limited to performance analysis and clustering (Mukherjee et al., 2022). This is an inherent limitation of bibliometric reviews, which tend to focus more on citations, authors, and affiliations and less on theories and structures (Paul and Criado, 2020).

This paper represents the first step of a wider research project. Starting from these results, we will proceed to a qualitative analysis of the documents included in the final sample to systematize the existing literature on corporate heritage marketing and to identify any gaps that could be addressed by future research.

Managerial implications. In recent years, heritage marketing has gained interest within the research community, but at the same time among practitioners and managers.

From a theoretical point of view, the paper offers an overview of the existing literature on corporate heritage marketing. It provides preliminary insights that may support further studies in this field; therefore, it promotes the advancement of knowledge. As stated before, heritage is a potential source of competitive advantage for firms. Further research in the field of heritage marketing could support entrepreneurs and managers in defining appropriate heritage marketing strategies.

Originality of the paper. To the best of our knowledge, this is the first study to analyze literature on corporate heritage marketing. As a result, this is also the first study that investigates the bibliometric structure of this specific topic.

The bibliometric analysis presents areas within which scholars study the “corporate heritage”, the trend in the number of publications from year to year, the countries where the knowledge is concentrated, the most relevant journals for literature review, the most cited and prolific authors, etc. As a result, this paper is useful to researchers in the field. This analysis offers a helpful guide to upcoming scholars, providing information on which journals to consult and which authors are most relevant.

Keywords: heritage marketing; corporate heritage marketing; use of the past; bibliometrics analysis

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The localization of corporate museums in the cities: Some hints from a qualitative analysis

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Framing of the research. *Over the last years, corporate museums have attracted a noticeable interest among marketing scholars (Danilov, 1992; Nissley and Casey, 2002; Piatkowska, 2014; Carù et al., 2017; Wu, 2017; Iglesias et al., 2020) who have explored several research paths ranging from the relationship between companies and corporate museums (Gilodi, 2002) to the setting up of corporate museums (Montemaggi and Severino, 2007), from the social experiences (Rihova et al., 2015) to the relevant, novel, surprising, informative and engaging interactions (Poulsson and Kale, 2004) that corporate museums can offer to customers/visitors.*

The most important aspect, on which marketing scholars seem to agree, is the strong relationship occurring between companies and their corporate museums. According to Bonti (2014), this strong relationship reveals itself also in reference to practical choices, such as the fact that corporate museums are located next to the company's headquarters or factories and are run by the company itself. With due exceptions, very often localization of corporate museums is close to the company's headquarters or factories.

The above-mentioned due exceptions catalyze attention since they lead to question a largely shared assumption. From an extended literature review, in fact, it comes out that localization of corporate museums in cities is an underestimated topic of research. Only few scholars have already tried to investigate the choice about the localization of corporate museums in the cities (Lepawsky, 2008; Capriotti, 2010). Most of them briefly cite where corporate museums are located.

Purpose of the paper. *The choice to focus attention on the localization of corporate museums in the cities is due to the fact that they are effective marketing tools (Danilov, 1992; Amari, 1997; Griffiths, 1999; Gilodi, 2002; Nissley and Casey, 2002; Montemaggi and Severino, 2007; Stigliani and Ravasi, 2007; Montella, 2010, 2014; Bonti, 2014; Piatkowska, 2014) and if the settlement of corporate museums is not properly evaluated, then it might conflict with the image, the message, and the intrinsic values that customers recognize to brands. Corporate museums, in fact, exist only in reference to the company (Gilodi, 2002). They are implemented in order to celebrate the successes achieved by the company in the past and, at the same time, to differentiate the company from competitors in the present and in the future (Gilodi, 2002; Pulh et al., 2019). As such, they are "exclusive" and "selective" marketing tools (Gilodi, 2002, pg. 17).*

According to the above premises, the main aim of this research is to investigate the nexus "corporate museum-city" - i.e. the relationship between corporate museums and the cities or, in other words, the choices about the localization of corporate museums in the cities - and to offer two research propositions that need to be properly discussed by other marketing scholars in order to proceed with further empirical investigations.

Methodology. *In order to offer two research propositions related to the nexus "corporate museum-city", the case-study methodology is adopted. This methodology was proposed at the end of 1980s when Eisenhardt (1989) proposed to build theories from case studies. In the following years, several scholars used this methodology (Dyer and Wilkins, 1991; Yin, 1994; Flyvbjerg, 2006; Eisenhardt and Graebner, 2007; Lee et al., 2007; Baxter and Jack, 2008) thus affirming its relevance in management studies. Of course, caution is always required when selecting the cases to investigate, reporting the results and offering research propositions (Baxter and Jack, 2008).*

For a start, attention is focused on the criteria of selection of cases to analyze. Two different corporate museums have been selected. The criteria at the basis of this choice are:

- *They both refer to the fashion industry (Steele, 2008; Jung and Yim, 2018);*
- *Their brands are well known all around the world (Iannone and Izzo, 2017; Jin and Cedrola, 2017).*
- *They represent the so-called "made in Italy" (Bertoli and Resciniti, 2013; Aiello et al., 2015);*
- *They have put into practice two different choices about localization of their corporate museums.*

The selected corporate museums that are going to be analyzed are: Armani/Silos and Gucci Museum or Gucci Garden.

Results. *The present extended abstract aims to propose two research propositions about the nexus "corporate museum-city". For this reason, two selected cases of corporate museums located in urban areas are presented in the following lines and the research propositions (the findings of this research) are expressed soon afterwards. For each of*

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selected cases, a short review of the origins of the company is presented (particular attention is paid on the stories of founders that create the strong or weak relationship with the city). This review is necessary to figure out the possible reasons of the localization of corporate museums.

The first case selected for the present research is Armani/Silos.

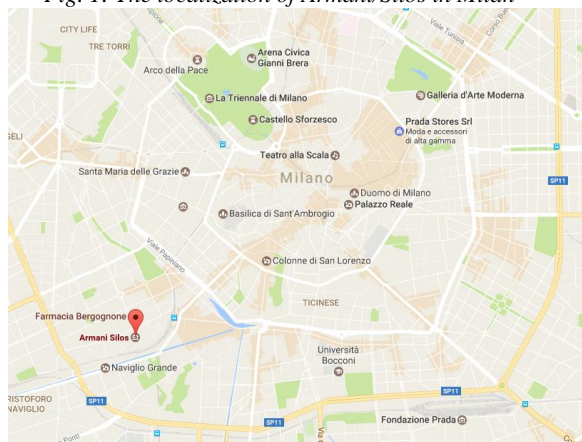
Giorgio Armani was born in Piacenza, Italy, in 1934. He became interested in fashion in 1957, when he left the school of medicine at the University of Piacenza to become a buyer for the La Rinascente chain in Milan. In 1964 Armani met Nino Cerruti, owner of Hitman, the Italian men's clothing producer. After a brief period to see how Armani worked with materials, Cerruti asked him to restructure completely the company's approach to clothing. Armani worked with Cerruti for six years, developing a simplified form of menswear that could be reproduced in series. In 1973 his friend Sergio Galeotti persuaded him to open a design office in Milan, at 37 corso Venezia. This led to a period of extensive collaboration, during which Armani worked as a freelance designer for a number of fashion houses, including Allegri, Bagutta, Hilton, Sicons, Gibò, Montedoro, and Tendresse. The international press was quick to acknowledge Armani's importance following the runway shows at the Sala Bianca in the Pitti Palace in Florence. The experience provided Armani with an opportunity to develop his own style in new ways. He was now ready to devote his energy to his own label, and in 1975 he founded Giorgio Armani Spa in Milan with Sergio Galeotti. In October of that same year he presented his first collection of men's ready-to-wear for spring and summer 1976 under his own name. He also produced a women's line for the same season. In 1978 Giorgio Armani dressed Diane Keaton on the night of the Oscars and two years later Richard Gere for his role in the film *American Gigolò*: thanks to this, he became the most recognizable world symbol of Milanese fashion. After that, everyone knows the story of Giorgio Armani and his maison (Sollazzo, 1999; Celant and Koda, 2000; White, 2000).

In this vein, it is very interesting to analyze the relationship with the city of Milan. The historical location of the company is in via Borgonuovo 21 where, up to 2002, fashion shows took place. In 1996, two new locations are open - in Via Borgonuovo 11 and 18 - where the main offices took place. In 2001 headquarters are moved from via Borgonuovo 21 to via Bergognone 59. The new headquarters, located in the Nestlé disused factory comprehends also the Armani/Teatro, designed by the world famous Japanese architect Tadao Andō.

In that area, in 2015, in order to celebrate the 40 years of his career, Giorgio Armani decided to open the museum "Armani/Silos" about history of his collections. In the occasion of the opening, Giorgio Armani explained the name of the building: "I have chosen the name silos because there the people stored grain, things for living. And so is the food, even the clothes need for living" (<https://www.armanisilos.com/>). The Japanese architect Tadao Andō projected also this building, just like the other ones in via Bergognone. The selection of clothes tells the story and the aesthetics of Giorgio Armani and it is divided into themes: at the ground floor there is the section of Stars and the section dedicated at Daywear. At the first floor there is the section of Esotismi. At the second floor there is the section Cromatismi and at the third (and last) floor there is the section Luce.

Armani/Silos is a marketing tool, of course, but it is an instrument useful to celebrate the brand. The marketing tools chosen by the company never celebrate the city of Milan. The connection between the company and the city is relevant in reference to the basket team (Armani Milano) and to the hotel managed by the company (Armani Hotel Milano). According to the above, the relationship between the company and the city does not seem to close. In this vein, it is important to remind that Giorgio Armani, together with several very important fashion designers - such as Gianni Versace, Krizia, Paola Fendi, Valentino Garavani, Gianfranco Ferré, Mila Shon, Ottavio Missoni, Franco Moschino and Luciano Soprani - made Italian fashion industry and the city of Milan well known in the world (Bucci, 2002). They all were part of a cultural movement that took place in Milan. Accord to the above, the location of Armani/Silos enhances more the history of the company and less that of the city (see Figure 1).

Fig. 1: The localization of Armani/Silos in Milan



Source: google maps.

From the case of Armani/Silos it is possible to derive the following research proposition:

PI: If brand history is not strictly linked to a city, then location of corporate museum is driven by brand and it is expected to be close to brand headquarters.

The above research proposition is perfectly in line with the idea that corporate museums are located next to the company's headquarters or factories (Bonti, 2014; Matricano, 2017). This choice strengthens the image, the message, and the intrinsic values that customers recognize to brands (Gilodi, 2002).

The second case selected for the present research is Gucci Museum or Gucci Garden.

While working as a porter at the Savoy Hotel in London, Guccio Gucci was really impressed by the luxurious luggage of international guests at the hotel and so he decided to create his first collection of leather luggage. After coming back to Florence (his city), and together with three of his sons, they started their own leather workshop in Via della Vigna (in the centre area of Florence) in 1921. The business idea was "to underline the pinnacle of Italian craftsmanship and the unsurpassed interest in quality and attention to detail" (<https://www.florenceinferno.com/the-gucci-museum/>). That was the origin of the Gucci brand.

For many years, Guccio Gucci has been working in his leather shop in Florence in order to increase popularity of Gucci brand. Over time, the number of products offered to customer has been growing (in particular suitcases and travel bags) and more and more customers were asking for Gucci products. Only in 1938 Gucci expanded his business to Rome and in 1951 in Milan. In 1953 the company grew overseas with the opening of the Manhattan store.

Despite the international growth, the brand has always been linked to Florence. When, in 1955, the logotype of the brand was modified there was a clear reference to the Florentine Middle Ages and to Renaissance time. Undoubtedly, this choice has contributed to make the brand a distinctive expression of "made in Italy". It was only in 1960 that Aldo Gucci (one of the three sons of Guccio) designed the symbol with the two crossed "G", a clear reference to the initials of the founder. The logotype still continued to celebrate the city of Florence.

Nowadays, the story of Gucci brand is well known all around the world and - in particular - is celebrated in Gucci Garden. Gucci Garden, in fact, was opened in 2011 (it was called Gucci Museum) to celebrate its 90th anniversary of the brand. The museum is in the heart of Florence's Piazza della Signoria and it includes a permanent exhibition dedicated to the theme of Travel. The first floor is dedicated to the representation of some themes and icons. The second floor is focused on the evolution of the double G monogram (this exhibition is called Logomania). The last floor is dedicated to the Bamboo handbags, an iconic Gucci product. Since 2018 the museum has been turned in an exhibition celebrating the brand and hosted in the Gucci Garden (<https://www.gucci.com/it/it/store/gucci-garden>). The location - in Piazza della Signoria - is still the same.

Beyond the exhibitions in the museum/garden, what is relevant is the choice about location. In reference to this, Jessica Dysart (<https://www.theflorentine.net/2011/10/27/gucci-museum-a-review/>) argues: "The location of the Gucci Museum makes sense for another reason: Guccio Gucci, who founded the company in 1921, was a native Florentine. The first Gucci store opened its doors in Florence, selling classic leather luggage pieces inspired by the rich, elegant patrons of the Savoy Hotel in London". In this vein, Suzy Menkes, a reporter of New York Times interested in fashion industry titles her article "Gucci Feeds Its Florentine Roots" (<https://www.nytimes.com/2011/09/28/fashion/gucci-opens-a-brand-museum-in-florence.html>). As noticeable, the choice about location of museum is not of secondary importance according to some experts in the field. A very important aspect that is worth pointing out in reference to this is that the headquarters of Kering Group, a world leader group in apparel and accessories that owns a portfolio of powerful luxury and sport and lifestyle brands - including Gucci - are not in the same area. According to this, the choice about location of Gucci museum in Piazza della Signoria needs to be properly evaluated. The celebration of Florence, of Florentine Middle Ages and of Renaissance time in the first logotypes of Gucci brand (up to 1960s) and the choice about location of Gucci Museum in the hearth of Florence are a clear example of an unbalanced nexus "corporate museums - cities" where city seems to prevail over brand. The relevance of the city - celebrated by the brand - positively affects the brand itself by reverse. Tourists interested in visiting Galleria degli Uffizi, Basilica di San Lorenzo, Basilica di Santa Maria Novella and Ponte Vecchio can find Gucci museum close by (see Figure 3).

Fig. 3: The localization of Gucci Museum in Florence



Source: google maps.

From Gucci case study it is possible to derive the following research proposition:

P2: If brand history is strictly linked to a city, then location of corporate museum is driven by the city and it is expected to be in the city centre.

The above research proposition differs from the assumption that corporate museums are located next to the company's headquarters or factories (Bonti, 2014). In the above case, in fact, the relationship between company and city does not seem to favor the company in comparison to the city. It is clear that the city prevails over the company. It seems that the city can be the driver able to convey tourists towards corporate museums and this makes them unintended visitors of the exhibition (Trueman et al., 2004; Kavaratzis, 2009; Carù et al., 2017). In this case, the city itself is a brand that can attract and convey tourists towards different destinations (such as corporate museums).

The proposition about Gucci Garden - even if in contrast with the general assumption about localization of corporate museum close to the company's headquarters or factories (Bonti, 2014) - is in line with a new trend of research that aims to disclose and understand territorial identity (Capello, 2019). More and more often, in fact, cities are going to be considered as drivers of inclusive growth (Trullén and Galletto, 2018). They can create valuable synergy in communication and tourism development (Patsiou, 2019) and promote their image all over the world - historic cities are advantaged in this sense (Shirvani Dastgerdi and De Luca, 2019). Of course, this new role of cities - as centre of a valuable ecosystem - is particularly relevant in reference to fashion companies (Bellini and Pasquinelli, 2016) that can exploit the country of origin effect by underlying the "made in" production (Bertoli and Resciniti, 2013; Aiello et al., 2015; Iannone and Izzo, 2017; Jin and Cedrola, 2017). A very interesting topic that scholars are investigating just deals with city of Florence as it can be read in a recent article authored by Lazzeretti and Oliva (2018) and titled "Rethinking city transformation: Florence from art city to creative fashion city".

Research limitations. The present extended abstract discloses some limitations that need to be properly analyzed. The first and main one deals with used methodology and expected outputs. As already said, noticeable caution is required when selecting the cases to investigate, reporting the results and offering research propositions (Baxter and Jack, 2008).

The second limitation deals with selection of cases. Armani/Silos and Gucci Garden are two cases that refer to one industry (i.e. fashion industry) and to one country (Italy). Corporate museums launched by companies operative in other industries (linked to physical resources localized in a specific place) and in other countries (aiming to celebrate a city and thus opening corporate museums with a touristic aim) might undergo different dynamics and this might prevent generalization of results.

The third limitation deals with the passage from a theoretical analysis to an empirical research. Several obstacles might arise and they could prevent from developing a set of independent/dependent variables useful for the research aim pursued.

Managerial implications. Theoretical propositions about the nexus "corporate museum-city" (and probable empirical investigations that can derive from them) can have relevant implications in reference to marketing and urban development arenas. By investigating "who affects whom", in fact, it is possible to derive some intriguing insights (Grodach, 2008; Vivant, 2011).

If the cities affect the localization of corporate museums, then marketing managers can leverage local tourism to increase brand awareness (Trullén and Galletto, 2018; Capello, 2019; Shirvani Dastgerdi and De Luca, 2019). It seems rational to hypothesize that tourists can become unintentional visitors of corporate museums because of easiness in finding the corporate museum (Patsiou, 2019). In this case, marketing managers should think of intriguing exhibitions able to attract tourists and make them prefer the exhibition rather than other sites of interest (Bellini and Pasquinelli, 2016).

On the contrary, if the brands affect the localization of corporate museums, then tourists/visitors intentionally move in the city to find the corporate museum. In this case, awareness of brands - disclosed through corporate museums - can be a driver for urban development. The case of Armani/Silos, situated in via Bergognone, in the Southern part of Milan, is a clear example. Visitors interested in the museum go there intentionally just to see the exhibition since few other sites of interest are localized there.

Implications of this preliminary study, then, are relevant both for marketing managers and representative of urban institutions. Despite priority of relevance, what matters is that corporate museums and cities can nurture their awareness reciprocally. Corporate museums are catalysts of visitors while city centers are catalysts of tourists. If reputation of brand prevails, then new areas of cities could be developed. If reputation of city prevails, then corporate museums might get advantages in terms of image and reputation.

Originality of the paper. The present extended abstract is original for three main reasons. Respectively they are: the launch of the nexus "corporate museum-city", the relevance of empirical evidences, and the mix of different fields

First, the nexus "corporate museum-city" can open up new paths of research that - from the marketing perspective - should focus on the localization of corporate museums and investigate their effectiveness since they are new marketing tools that companies are exploiting more and more (Piatkowska, 2014; Carù et al., 2017; Wu, 2017; Iglesias et al., 2020).

Second, this extended abstract derives from practical evidence rather than from theory. Practical choices made by companies (such as Armani and Gucci) are at the basis of this research. This gives value to the research since it aims to catch an empirical phenomenon and to formalize it (Eisenhardt, 1989; Flyvbjerg, 2006; Eisenhardt and Graebner, 2007; Lee et al., 2007; Baxter and Jack, 2008).

The third and last aspect of originality consists in the fact that this study perfectly fits with a new trend of research that investigates territorial identity (Capello, 2019) and underlines the role of the cities (Trullén and Galletto, 2018) - in particular historic cities (Shirvani Dastgerdi and De Luca, 2019) - since they can support the development of several companies and, in particular, of fashion companies (Bellini and Pasquinelli, 2016).

Keywords: *corporate museum; city; localization; Armani; Gucci.*

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The influence of parental Dietary Behaviors, food literacy and chronotype on Children's eating habits and psychometric factors

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LEOPOLDO TRIESTE**

Abstract

The study aims to investigate the relationship between various psychometric characteristics, such as eating habits, food literacy, chronotype, chrono nutrition, and anthropometric variables, such as age, Body mass index (the range to value the normal or overweight or obesity status) and education, within family units consisting of parents and children. The goal is to analyse the drivers of children's BMI and eating habits, by investigating the interdependence between their dietary patterns and their families' environment. Total of 190 parents complete an online survey comprising validated questionnaires and anthropometric data concerning themselves and their children. The results show that the higher the food literacy was in parents the healthier was eating habit of children, although the better eating habits do not necessarily correspond to a lower child BMI. The chronotype of parents also influenced the children's chronotype, and parents with a morning chronotype reflect positive eating behaviours in their children. Results confirm the growing part of the literature focusing on the role of chrono nutrition and chronotype in weight-related issues. As obesity is a complex disease, these new prospective emphasise the role of psychometric variable to impact daily eating habits. We provide new cues to extend the current literature on social campaigns - which split children and adults - by suggesting the relevance to integrate the communication strategy to families as a target unit. In conclusion, the study sheds light on the complex relationship between psychometric characteristics, anthropometric variables, and familial environment in determining children's eating habits and BMI.

Framing of the research. *The World Health Organization has declared that in European countries childhood obesity is about to become a public health problem (World Health Organization. Regional Office for Europe n.d.). After Covid-19 the trend is getting higher (Pietrobelli et al. 2020) and the institutions need to face this trend mainly for two reasons, on one hand the presence of obesity in childhood represent an important risk to maintain obesity in adulthood and on the other hand obesity represent, in general, an important risk factor for several disorders (Simmonds et al. 2016). The overweight and obesity are complex diseases where internal and external variable matches (Jebeile et al. 2022). The internal variables are expressed by non-modifiable characteristics as sex, age, and genetic predispositions. The external ones refer to environment for example the eating habits, the society, the children care and school (Jebeile et al. 2022). These external ones represent the main working area of health social campaign, that focuses to improve and to change the obesogenic environment to reduce and counterbalance the impact of internal risk factors. For example, in Australia a social campaign targeted on children was conducted at school to prevent childhood obesity using an informative campaign providing concept in a caching way (Colin Bell et al. 2013). In Italy the ViviSmart campaign, a social marketing-oriented campaign was conducted to improve nutritional skill of child through interactive lessons and ludic activity involving school and parents obtaining benefits for their eating lifestyle (Nosi et al. 2021).*

In the last decades, a little part of literature is providing interesting results on the relationship between BMI or metabolic risk and some psychometric variable, that are manifestation of internal characteristics; however, the interesting peculiarity is that we can partially modify them changing habits and even if they can impact on external environment, social campaigns have never used these variable to impact habit's change. Psychometric variables refer to chrononutrition and chronotype; the first one, the chrononutrition, refers to the relationship between three element that are the circadian rhythm of the biological function of the body, the meals timing and the nutrients consumption

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(Johnston 2014; Oike, Oishi, and Kobori 2014). The chronotype is the attitude of a person to be more active during the day and emerging evidence suggest a relationship between chrononutrition and chronotype. (Almoosawi et al. 2019)

The review of Mazri and colleague assumes that adults more active during the evening (evening-chronotype) tend to have bad eating habits associated to obesity, contributing to obstacle the achievement of a healthy lifestyle (Mazri et al. 2020). Felső and colleague asses that a lack of sleep and a change in the circadian rhythm affect food metabolism functions, predisposing individuals to develop obesity and metabolic disorders (Felső R 2017). Consuming the meal at inappropriate times of day leads to an alteration of biological processes such as insulin secretion, lipid metabolism and blood pressure (Katsi et al. 2022). The chrononutrition appears relevant and really interconnected with lifestyle and dietary pattern. For instance, the evening chronotypes performed worse than intermediate and morning chronotypes in the food literacy score (Trieste et al. 2021) and this accentuates the need to better understand the relationship between these parameters considering a broader view. Regarding children, the morning chronotype predominates in childhood, shifting towards eveningness around puberty ((Jankowski 2015). Childhood and adolescence represent a vulnerable period and if they are not well directed, they risk establishing inadequate dietary patterns. The psychometric aspects are poorly taken in consideration even if they could impact on eating habits. They can represent a new prospective to ameliorate dietary pattern also in the social campaign along with other variables.

Purpose of the paper. The aim of this paper is to investigate if and how the lifestyle of parents can impact their children's habits. Specifically, we are interested in comparing the daily mealtimes (chrono nutrition), the attitude to be more active in a certain part of the day (chronotype), the food knowledge (food literacy) and the anthropometric variables (age, sex, education) of the parents with the same variables of their children. These insights could provide relevant knowledge for developing effective social marketing strategy capable of improving positive behavioural changes.

Given these premises the research hypotheses are:

H1. The food literacy is associated to a specific psychometric or anthropometric determinant such as BMI and chronotype in adults.

H2. Different chronotype in child can reflect differences between the child's anthropometric and eating habits.

H3. The parent's chronotype influence the child's chronotype and his eating habits.

Methodology

Participants

We enrolled a total of 190 parents in our study. To be eligible for inclusion, parents had to have child between 2 and 13 years old. They were recruited through school groups, sports associations, or social networks and we reached out respectively 179 (94,2) mothers and 11 (5.8) fathers. To collect data, we sked them to complete the questionnaire gathering information referred to themselves and to their child. We send them a link to fill the online questionnaire structured in Italian. The data collection lasted one month from 30/04/2021 to 25/05/2021. Participants live in Italy and most of them (89.5%) in Piemonte. Parents given the informed consent to participate.

Survey

Data were collected with an online survey and it lasts 20 minutes. Survey has validated questionnaires and anthropometric aspects concerning children's and parent's characteristics.

The validated questionnaire adopted for parents were:

- the chronotype, that asses in which time of day the subject is most active with the Italian version of the reduced morning-evening questionnaire (rMEQ)(Natale et al. 2006);
- the chrononutrition that study the rhythm of the eating behaviour (Veronda et al. 2020)
- the Self Perceived Food Literacy (SPFL) to investigate 8 domains on food habits and food purchases (Poelman et al. 2018)

The validated questionnaire adopted for children were:

- Childrens Chronotype Questionnaire (CCTQ) Werner & C.
- The eating habits, using ten questions about the frequency consumption of several food, where each question could be rated 0 or 1, and the final score was the media of answers. The closer the score was to one the higher was the eating habits.

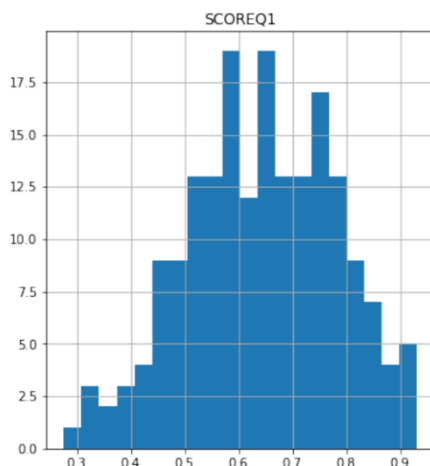
The anthropometric data collected were level of education, residence and BMI (weight/ height²) considering different scoring for paediatric (Harrington et al. 2013) and for adult group (Ministero della salute Italiana 2021)

Results. The sample of parents was characterized by a median age of 39,5 years and the majority of subjects were Italian (96.9%). Other participants came from Albania, Romania, Switzerland, France and Spain. Concerning the Italian participants, 149 were born in the north Italy (Piemonte, Lombardy, Liguria and Emilia-Romagna), 18 subjects were born in centre Italy and 17 in south. However, of all those participants the 89.5% lives in north-Italy. Slightly more than half of parents declared to have a university degree (52%), the 4.7% and 42.9% have a middle school licence and high school diploma respectively. Only one individual stated to possess a primary school licence. Of these subjects, 33%, 62 participants, had attended courses providing information on nutrition. We included these question in the survey to assess if participant had received any nutrition education because previous conducted study found that subjects with specific nutrition education reported higher levels of nutrition literacy, regardless of gender (Trieste et al. 2021). Furthermore 169 subjects (89%) stated to be employed, only 2.1% were unemployed, one individual retired and 8.4%, declared to be housewives. Then, we calculated parents' BMI based on weight and height. Results show that most of participant are within the range of normal weight, 5 subject are in the underweight category (BMI < 18.5). 52

subjects (27%) are considered overweight, 11 subject are withing first degree obesity ($30 < BMI < 40$) and 4 are within second degree obesity ($BMI > 40$). BMI was calculated also for children but in a different way from adult. We have considered the BMI distribution according to the corresponding percentile of growing. 7.4% of child were overweight and 13.7% had obesity.

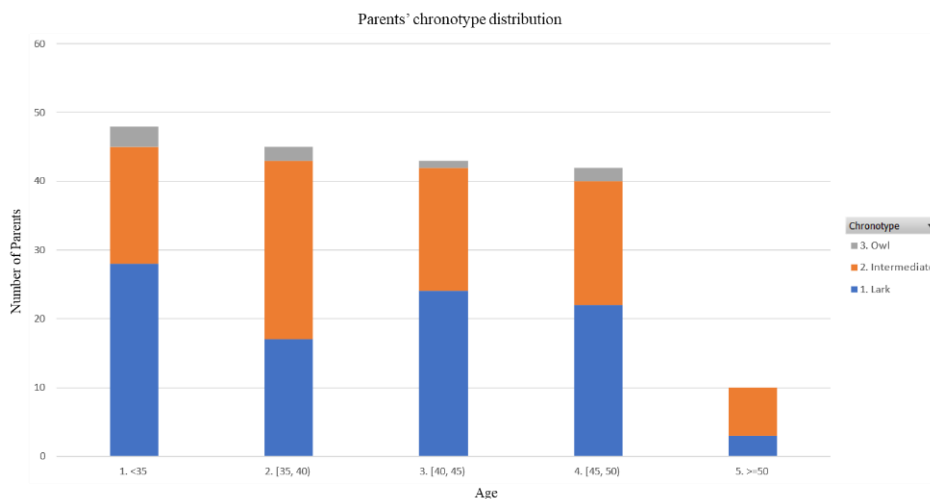
The level of food literacy was investigated for parents, and the scoring system range from zero to one, where zero represents the lowest value of food literacy and one the highest. The results, shown in Figure 1, depict a clear prevalence of parents with medium to high level of food literacy.

Fig. 1 Food Literacy Score



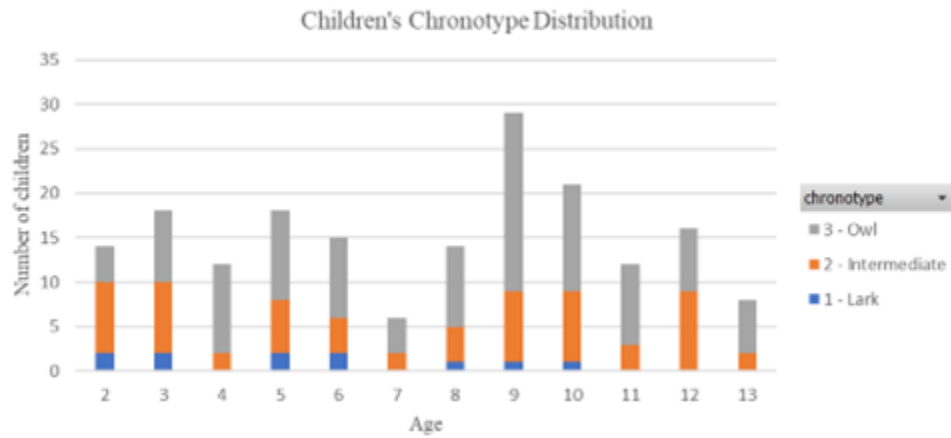
The chronotype of the adult sample is composed of 8 evening type, 69 morning type and 111 intermediates. Figure 2 summarised the results where the evening chronotype are indicated as “owls” and the morning type as “larks”. The distributions don't reflect the general population distribution, usually characterized by 70% intermediate, 15% morning type and 15% evening type (Bazzani et al. 2022).

Fig. 2 Parent's chronotype



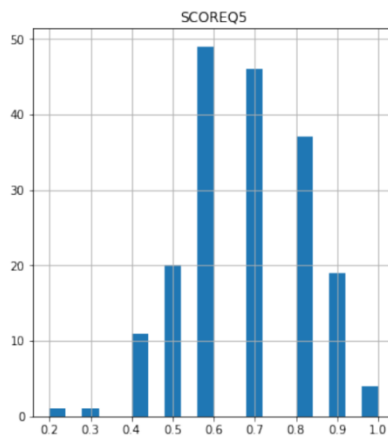
The chronotype distribution changes among children with a prevalence towards a serotonin chronotype, shown in Figure 3. Only 12 children have a morning chronotype and they are between 2 and 6 years old, accordingly with literature studies. The average age of the owls is about 8.5 years, while the larks are on average about 6 years old. Usually, in the first few years of life (0-5 years) the morning type predominant, whereas towards the age of 8 years old there increase the percentage of intermediates and evening type (Almoosawi et al. 2019).

Fig. 3 Children's chronotype



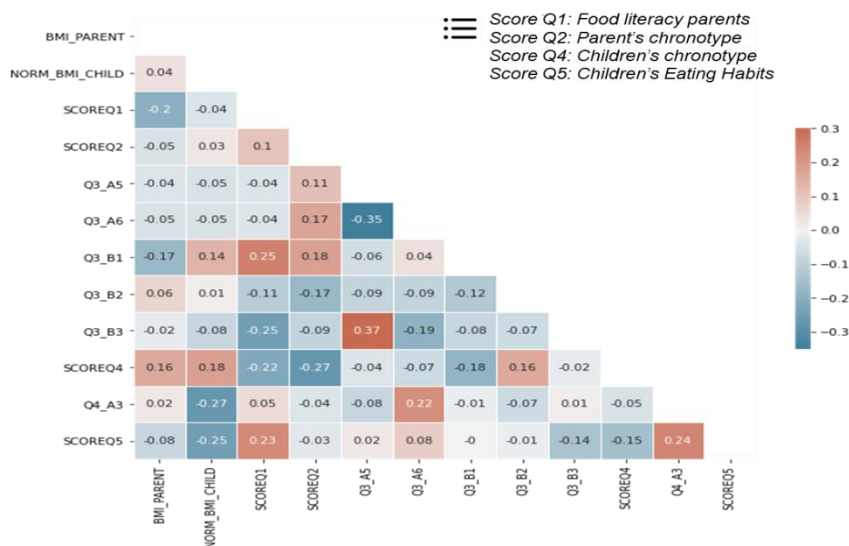
Moving toward children's eating habits (Figure 4), in our sample the majority of children have good eating habits. The scoring assume value from zero to one where lower score indicated poorer eating habits, and higher score closer to one indicate healthier eating habits.

Fig. 4 Score of children's eating habits,



We analysed the data from questionnaire using a statistical software (R program). We carried out linear regressions to highlight possible relations between variables studied. The first step was to perform a correlation analysis between scores to study the existing relationships for psychometric and anthropometric characteristics of participants as shown in Figure 5. The analysis was conducted using Pearson's correlation method (value between +1 and -1, where +1 corresponds to perfect positive linear correlation, 0 corresponds to no linear correlation and -1 corresponds to perfect negative linear correlation). We fixed p-value score $\leq 0,05$, and homoscedasticity values > 0.5 to analyse variables.

Fig 5. Pearson correlation coefficient



The results show that the food literacy can predict the BMI value of parents assessing the first hypothesis. Food literacy and BMI are significantly related in an indirect way, when food literacy grows the BMI decrease (p -value < 0.047 , homoscedasticity > 0.54). Figure 6 also shows some outliers in the linear relationship regression, and they correspond to subjects with BMI > 30 . We decided to re-analyse data excluding the outliers and we obtain better results as shown in Figure 7. Obesity is a complex disease where internal and external factors play together, excluding these subjects we have the possibility to study the role of food literacy in the contents of normal weight. Food literacy is a powerful variable that can help the maintenance of weight. When obesity is present, the food knowledge does not be longer sufficient to determinate behavioural chance. Doesn't emerged other psychometric or anthropometric relationship with food literacy.

Fig. 6: Relationship food literacy and BMI parents

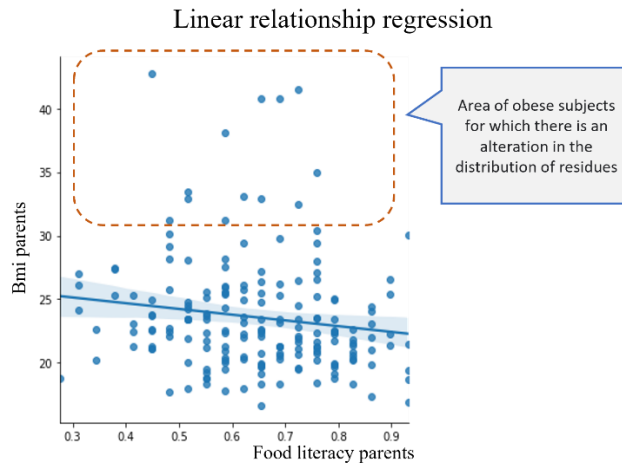
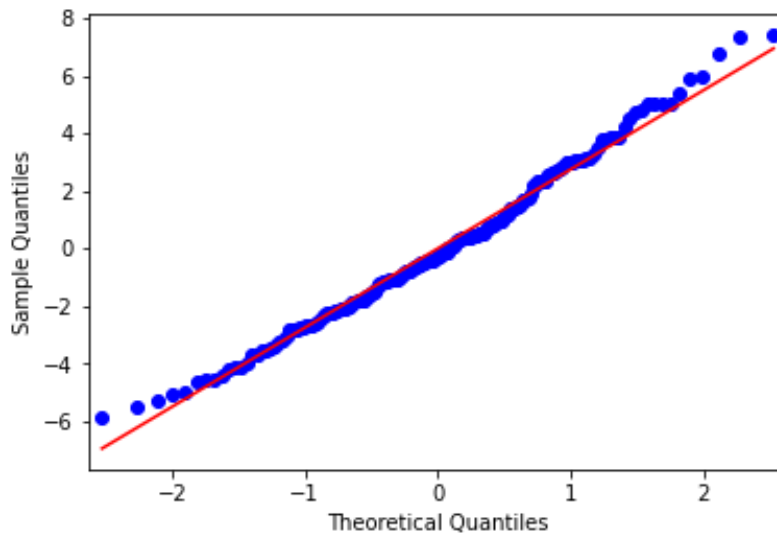


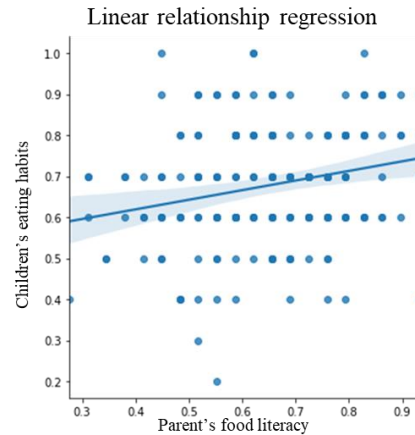
Fig.7 Q-Q Plot – Residue distribution eliminating BMI>30.



We can affirm that eating habits can influence BMI and chronotype's children. As the parent's case, the children's eating habits are statistically related to BMI in an indirect way (p -value < 0.009 , homoscedasticity > 0.513 , normal distribution of residues > 0.702). Also, chronotype is related to eating habits (p -value 0.02 , homoscedasticity > 0.72 , normal distribution of residues > 0.62).

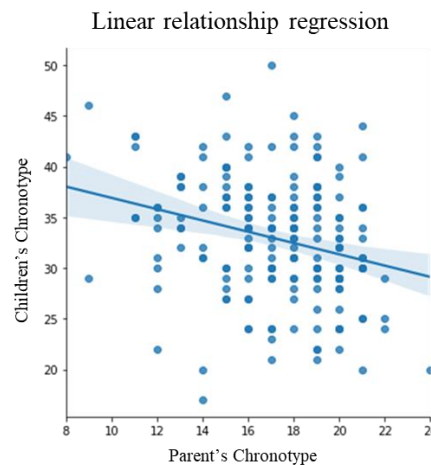
A strong relationship emerged between parent's food literacy and children's eating habits confirming the third hypothesis (p -value < 0.001 , homoscedasticity > 0.44 , normal distribution of residues > 0.73) (Fig. 8)

Fig. 8: Relationship parent's food literacy and children's eating habits.



For the children's and parent's groups resulted a significant relationship (p -value < 0.0002 , homoscedasticity > 0.72 , normality of residue > 0.81) (fig. 9). We tested the relationship also for BMI but it doesn't emerge values statistically significant.

Fig. 9: Relationship parent's chronotype and children's chronotype



Research limitations. There are limitations to consider when interpreting the results of the study. The first one is the reduced sample size that reduce the generalizability of our finding to the Italian population. Additionally, we have to consider that the group is not really heterogeneous as the subject involved were recruited from common places for example the neighbouring residence, the same sport club or children's school. Again, these could imply that the taken sample does not reflect the diversity of the Italian population. Furthermore, we asked parents to answer questions on behalf of their children, which may have introduced the social desirability bias and it has an impact on the truthfulness of the answers. In that case the main risk is that the subject answers base on his own perception and memory. Although our study presents limitations, this research is fundamental in establishing a starting point for future research. In the future we plan to expand the sample and to make it more heterogeneous. Furthermore, we would like to investigate the psychometric variable adopting more accurate tools, for example to apply neuroscience technique as actigraphy to monitor sleep quality and to use food diary to collect eating habits. These instruments were not used for this study because this was an exploratory pilot study.

Managerial implications. Considering obesity one of the most impactful causes of a lot of disease as cardiovascular, cancerogenic, respiratory issues both for adulthood and childhood (Kumar and Kelly 2017; Pi-Sunyer 2002), the main goal of institution is to reinforce primary and secondary prevention approach. Most of the social campaign work on the environmental characteristics to induce a positive behavioural change. For example, one of the most used appoache is to increase the awareness and the knowledge of healthy lifestyle; these campaigns appear to be useful and consistent, however our results suggest an integrative prospective. Results also consider the relevance of the psychometric variable as the chronotype and chrono nutrition highlighting their impact on the daily lifestyle, even if they are variable related to internal characteristics. Using that variable to create a targeted communication to adult and children could be useful to impact on dietary change. We believe that our work would have an important contribution for social campaign programmes in establishing a more personalised communication towards their target group. Furthermore, we strongly believe the familiar content should be consider as a new target unit. It's important

emphasise the parental role and improving the familiar environment to impact indirectly also the dietary. Change the familiar environment first, makes the best condition for apply the knowledge of good eating habits.

Originality of the paper. Considering the literature, we chose to focus on determinants that influence dietary habits directly and indirectly within the family unit (parent/child). Few studies focus on the influences of the parent on the child and, there are no research studies that analyse dietary habits in a family unit by also taking the chronotype into account. Our novelty lies in having studied the impact of psychometric variables (chronotype and chrononutrition) in the family unit with the aim of being able to use these results in the future to better understand how to set up the communication of a behavioural change in eating habits campaign. Therefore, to the best of our knowledge no prior study correlated, anthropometric psychometric variable for example, the parent's food literacy with the child's chronotype or BMI. In improving diet quality and health of future generations, we suggest studying family's eating habits and to define areas of intervention. The way parents behave influences, even unintentionally, the upbringing and behaviour of children, creating a pattern of habits that they are likely to carry into the future. Therefore, society should contemplate this aspect considering also the parent's involvement in social campaign to encourage them to adopt virtuous behaviour to set up best conditions to behavioural change in their children.

Keywords: Parents, children, dietary behaviours, food literacy, chrono nutrition, psychometric profiling, nutrition education

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Virtual reality engagement ed esperienza di marca nel metaverso

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Inquadramento della ricerca. Il metaverso è un ambiente virtuale tridimensionale, interattivo, persistente e interconnesso, in cui gli utenti possono vivere esperienze sociali, politiche, economiche e culturali (Park e Kim, 2022). Si configura, quindi, alla stregua di una realtà alternativa, che consente agli utenti di vivere anche esperienze virtuali di marca (Lee e Cho 2022), sulla base delle cosiddette tecnologie immersive, quali l'Augmented Reality, la Mixed Reality e la Virtual Reality (Ko, 2017). Quest'ultima può giocare un ruolo preminente nell'esperienza dell'utente mediata da tecnologia (Han et al., 2022), grazie alla sua capacità di creare un ambiente virtuale totalizzante e ricco di stimoli sensoriali attraverso i quali è, ad esempio, possibile rafforzare la brand image (De Gauquier et al., 2019).

Considerando il metaverso basato sulla Virtual Reality (VR), è stato messo in luce come questo ambiente innovativo e coinvolgente rappresenti un'interessante opportunità in ottica di marketing esperienziale (Pengnate et al., 2020), favorendo un significativo impatto sul consumatore in tutte le fasi del customer journey (Yoo et al., 2023), nonché, più nello specifico, un'opportunità di branding (Vernuccio et al., 2023).

Lo sviluppo di una piattaforma in VR da parte di Meta, proprietaria delle reti sociali più utilizzate dai brand e dai consumatori (come Facebook e Instagram), insieme all'aumento delle vendite dei visori del 241,6%, registrato durante il primo semestre del 2022 rispetto allo stesso periodo del 2021 (Shirer et al., 2022), enfatizza ulteriormente il potenziale ruolo della VR nell'innovazione della brand experience (Han et al., 2022). Ciononostante, la letteratura accademica sull'esperienza di marca nel metaverso VR-based è ancora nelle sue fasi iniziali, avendo finora delineato un quadro conoscitivo piuttosto parziale e prevalentemente teorico. Alcuni Autori affermano che il metaverso, essendo un ambiente altamente immersivo, poli-sensoriale, interattivo e personalizzabile, possa offrire un'esperienza di maggiore valore (Dwivedi et al., 2022; Spajić et al., 2022). Altri studi propongono una visione più focalizzata, concentrandosi sulla progettazione di una specifica piattaforma di metaverso, in grado di stimolare determinate risposte del consumatore durante la shopping experience (Shen et al., 2021), limitatamente ad esempio alla purchase intention (es. Patil et al., 2022) o alla customer satisfaction (Hwang e Lee, 2022).

Osservando, invece, la più ampia letteratura sulla VR, si può riscontrare come siano state analizzate diffusamente le risposte sia non comportamenti che comportamentali dei consumatori legate all'esperienza virtuale di marca. In particolare, tra le risposte percettive più rilevanti che sono state indagate richiamiamo: la vividness (Kim e Ko, 2019); l'interactivity (Mütterlein, 2018); la mental imagery (Cowan et al., 2021); la telepresence (Breneman et al., 2022) o presence; il flow (Kim e Ko, 2019; Cowan et al., 2021). A queste variabili, si affianca lo studio, ancora ad uno stadio iniziale, di un'altra risposta del consumatore, ossia il VR engagement (es. Pengnate et al., 2020), da intendersi come un costruito multi-dimensionale specifico del contesto mediale VR-based, che può manifestarsi quando l'utente interagisce direttamente con i contenuti di un ambiente virtuale (medium), vivendo un'esperienza di attivazione psicologica verso lo stesso (Papagiannidis et al., 2013), orientata al raggiungimento di uno o più obiettivi personali (Calder et al., 2016). Nell'ultimo decennio, la letteratura di marketing ha posto l'accento sulle diverse dimensioni dell'engagement, in primis le dimensioni cognitive, emotiva e comportamentale (Hollebeek et al., 2011). Facendo riferimento specifico ai contesti medialti VR-based, la concettualizzazione proposta dal contributo teorico di Hollebeek et al. (2020) consente di declinare la multidimensionalità dell'engagement verso il contesto mediale VR-based (VR engagement) su quattro fondamentali versanti: 1) cognitive VR engagement, che si estrinseca nel livello di elaborazione mentale attivata dalle interazioni in VR; 2) emotional VR engagement, legato al livello di 'affettività' brand-related che si sviluppa grazie alle interazioni in VR; 3) behavioral VR engagement, consistente nel livello di energia, impegno e tempo che viene raggiunto nelle interazioni in VR; 4) social VR engagement, sintetizzabile come l'investimento sociale dedicato alle interazioni in VR.

Tra gli studi empirici di marketing che ad oggi hanno approfondito l'engagement verso la VR, solo Violante et al. (2019) hanno tenuto in considerazione la sua multidimensionalità, proponendo delle linee guida per il design di un ambiente immersivo (un supermarket in VR) in grado di esercitare, grazie alle sue caratteristiche tecnologiche, un

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elevato impatto sul consumer engagement espresso nelle dimensioni cognitiva, emotiva e comportamentale. Altri studi di marketing hanno proposto, invece, una prospettiva parziale sul VR engagement, interpretandolo principalmente nella sua dimensione cognitiva (Papagiannidis et al., 2013; Pengnate et al., 2020).

Alla considerazione circa la scarsità di studi empirici sul VR engagement soprattutto in ottica multidimensionale, si aggiunge l'evidenza di un ulteriore gap conoscitivo: questo concetto non è stato mai studiato nell'ambito dell'esperienza di marca nel contesto mediale del metaverso VR-based. Di conseguenza, la prima domanda di ricerca del presente lavoro è la seguente:

RQ1: Quali dimensioni del VR engagement possono essere sviluppate attraverso un'esperienza di marca vissuta nel metaverso?

Il VR engagement, oltre a potersi configurare come un costrutto multidimensionale "context specific", potrebbe avere una relazione con diversi outcome di marca, quali ad esempio la brand trust e la brand loyalty, in analogia con quanto emerso sinora dagli studi condotti in altri contesti esperienziali di marketing (es., Leckie et al., 2016; Samarah et al., 2022). Sebbene un tema emergente negli studi sulla VR experience riguardi le conseguenze di branding (es., De Gauquier et al., 2019; Cowan et al., 2021), con riferimento al VR engagement nel metaverso, l'unico studio ad oggi rinvenuto sul potenziale legame tra il VR engagement e gli outcome di marca, è il contributo teorico di Hollebeek et al. (2020). Secondo il framework proposto dagli Autori, il VR engagement multidimensionale sviluppato durante l'esperienza di "virtual customer journey", influenzerebbe in modo diversificato a seconda della dimensione interessata, le diverse componenti della "brand relationship quality" nella fase successiva all'esperienza.

Alla luce di queste considerazioni riguardo al potenziale ruolo del VR engagement nello sviluppo di outcome di branding legati all'esperienza di marca nel metaverso, formuliamo la seguente domanda di ricerca:

RQ2: Quali risultati di branding sono connessi al VR engagement multidimensionale nell'ambito di un'esperienza di marca nel metaverso?

Metodologia. Al fine di rispondere alle domande di ricerca, si è fatto ricorso a un approccio metodologico qualitativo esplorativo, con interviste in profondità. Sono stati coinvolti utenti aventi esperienza pregressa con le tecnologie immersive di VR e appartenenti alla Generazione Z (età compresa tra i 18 e i 27 anni) (Francis e Hoefel, 2018), essendo il segmento che ha mostrato tassi di adozione delle tecnologie di VR superiori rispetto alle generazioni più adulte (Jayaraman, 2022). Inizialmente, gli intervistati sono stati selezionati applicando la "key informant technique", e, successivamente, la "snowball sampling strategy", raggiungendo la saturazione teorica del dato (Glaser e Strauss, 2017) mediante 14 interviste. Il set d'indagine finale è equamente diviso tra uomini e donne, mentre risulta eterogeneo riguardo alla professione (es., studente, UX designer, impiegata in agenzia di comunicazione, insegnante).

La brand experience posta alla base dell'indagine è quella proposta da Nike Jordan (brand che si rivolge principalmente ai target generazionali più giovani), con l'ambiente di marca "Jumpman Zone", fruibile nel metaverso VR di Fortnite. Accessibile dal 2021, "Jumpman Zone" consente agli utenti di collezionare diversi accessori ("skin") del brand Nike Jordan con cui personalizzare il proprio avatar. A tal fine, l'utente deve completare molteplici sfide legate allo sport del basket, afferenti a quattro diversi portali di difficoltà crescente. Tutti gli intervistati hanno vissuto per la prima volta l'esperienza di Nike Jordan durante lo svolgimento dell'intervista, utilizzando un proprio visore di VR (Sony PlayStation VR2 o Oculus Quest 2) connesso alla console Play Station 5 oppure al PC. L'esperienza vissuta attraverso il visore ha consentito agli intervistati di avere una visualizzazione in modalità "schermo" e di giocare con il proprio avatar, senza avere, tuttavia, una prospettiva in "prima persona".

Con lo scopo di raccogliere risposte spontanee, è stata redatta una traccia d'intervista semi-strutturata composta da domande ad ampio respiro, volte a rilevare, in primo luogo, l'expertise e la conoscenza pregressa del brand Nike Jordan. Dopodiché, gli intervistati hanno indossato il visore per vivere la brand experience selezionata. Specificatamente, è stato chiesto agli utenti di completare il primo dei quattro portali presenti nell'esperienza, che, a sua volta, ha richiesto il completamento di quattro livelli di gioco.

Accedendo all'esperienza, gli utenti si sono trovati in una prima area caratterizzata dalla presenza di oggetti 3D attinenti sia allo sport del basket sia alla marca, come il brand logo riprodotto sul pavimento. In questa area, gli intervistati hanno visualizzato i quattro portali. L'accesso al primo di questi ha condotto l'intervistato in una stanza contenente un'installazione di scatole sovrapposte fino al soffitto e quattro porte, relative a ciascun livello di gioco. In ogni livello, gli intervistati hanno effettuato tiri al canestro dentro un grande campo da basket. Il superamento dei quattro livelli ha concluso l'esperienza interattiva in VR. In seguito, sono state formulate nuove domande finalizzate a rilevare le diverse dimensioni del VR engagement vissute durante l'esperienza di marca, così come le risposte degli utenti verso il brand Nike Jordan.

Tutte le interviste, della durata media di 50 minuti sono state condotte mediante sistemi di videoconferenza nel mese di dicembre 2022. L'analisi del corpus ottenuto tramite la trascrizione di ciascuna intervista è stata eseguita applicando la thematic content analysis (King e Horrocks, 2010). Nello specifico, seguendo il percorso logico di progressiva astrazione, sono stati individuati, anzitutto, i "descriptive codes", ovvero i temi più puntuali, proseguendo con gli "interpretive themes" e gli "overarching themes". Il processo di codifica è stato svolto separatamente da due membri del team di ricerca e in seguito confrontato. Inoltre, per garantire un livello accettabile di affidabilità, i risultati sono stati confermati da due esperti codificatori indipendenti, rivelando un "agreement ratio" soddisfacente (89%).

Risultati. L'analisi tematica del contenuto ha consentito di individuare alcuni temi chiave (overarching themes e interpretive themes) che, da una parte, qualificano le dimensioni del VR engagement attuabili attraverso un'esperienza di marca nel metaverso (RQ1), e, dall'altra parte, definiscono i risultati di branding raggiungibili in associazione con

le diverse dimensioni del VR engagement, vissute effettivamente durante la stessa esperienza (RQ2). In particolare, con riguardo alle dimensioni del VR engagement, sono state astratte le tre dimensioni più analizzate in letteratura, ossia: cognitiva, emotiva e comportamentale. Per quanto concerne i risultati di branding connessi al coinvolgimento sotto i diversi profili, sono stati elicitati i seguenti temi: brand recall, brand familiarity, brand attitude, brand trust e brand self-connection.

Inoltre, attraverso il processo di astrazione induttivo sopra descritto, sono emerse due ulteriori tematiche, la brand attitude (BA), ex-ante ossia pre-esperienza, e la percezione di immersione maturata nel contesto virtuale grazie all'esperienza di Nike Jordan (VR brand-related immersion). Queste variabili percettive del consumatore si sono rivelate dei fattori individuali in grado di condizionare in modo combinato tanto le dimensioni del VR engagement espresse dagli intervistati, quanto i connessi risultati di marca. Infatti, il grado di apprezzamento generale verso il brand (Nike Jordan), manifestato dai rispondenti prima di vivere l'esperienza virtuale di marca, ha mostrato avere effetti diversi a seconda della valenza (atteggiamento verso la marca positivo vs. negativo) e dell'intensità (atteggiamento verso la marca forte vs. debole). Al contempo, lo stato psicologico di immersione sperimentato dall'utente all'interno dell'ambiente di marca in VR, legato al senso di completo assorbimento cognitivo nelle attività svolte, alla concentrazione mentale in queste ("absorption") e alla facilità nel compierle ("fluency") (Mütterlein, 2018), si è palesato come un fattore condizionante il VR engagement e i risultati di marca, a seconda del livello di intensità (percezione di immersione elevata vs. bassa).

Analizzando qualitativamente la ricorrenza combinata dei temi sopra richiamati, è stato possibile delineare un framework integrato che rappresenta sei diversi vissuti esperienziali degli intervistati (Figura 1), caratterizzati da mix di differenti dimensioni di VR engagement attivate e diversi risultati di marca (risposte percettive brand-related espresse dagli intervistati), nel quadro delle condizioni di brand attitude ex-ante (positiva vs. negativa, forte vs. debole) e percezione di immersione nella VR brand-related (forte vs. debole). Di seguito, proponiamo una breve descrizione dei vissuti esperienziali di marca nel metaverso emersi dall'analisi.

Fig. 1: VR engagement multidimensionale e risultati di branding nel metaverso

Brand attitude ex-ante - Valenza	Positiva	VR engagement parziale: Cognitivo & Emotivo / Emotivo & Comportamentale Risultati di marca: ↑ Brand familiarity ↑ BRQ (Trust)	Full VR engagement: Cognitivo, Emotivo e comportamentale Risultati di marca: ↑ Brand attitude ↑ BRQ (Trust, Self connection)	Forte	Percezione di immersione
	Negativa	VR engagement comportamentale Risultati di marca: ↑ Brand recall	VR engagement parziale: Cognitivo e comportamentale Risultati di marca: ↑ Brand attitude	Debole	
		VR engagement comportamentale Risultati di marca assenti	VR engagement assente Risultati di marca assenti		
		Debole	Forte		
Brand attitude ex-ante - Intensità					

1. I rispondenti che hanno mostrato un'attitudine ex-ante verso il brand positiva e forte, insieme ad un'elevata percezione di immersione nell'esperienza di marca virtuale, hanno vissuto un pieno VR engagement, con l'attivazione di tutte le tre dimensioni: cognitiva, manifestando interesse e attenzione verso l'ambiente in VR e le connesse attività di marca; emotiva, principalmente attraverso il divertimento, le emozioni di gioia, sorpresa e un'ispirazione di tipo edonistico; comportamentale in termini di intenso impegno nelle azioni del gioco virtuale di Nike Jordan. Circa i connessi risultati di marca, l'esperienza di VR engagement con l'ambiente di Nike Jordan è stata associata ad un ulteriore rafforzamento della BA dei rispondenti totalmente coinvolti, insieme a un miglioramento della brand relationship quality (BRQ), in particolare con riguardo alla brand trust, ossia la convinzione che il brand abbia qualità specifiche che lo rendono affidabile (Delgado-Ballester e Luis Munuera-Alemán, 2005), e alla self-connection, ossia la misura in cui il consumatore si riconosce nel brand e si sente in connessione con esso (Smit et al., 2007).

2. Una seconda fattispecie esperienziale riguarda i rispondenti caratterizzati da attitudine pre-esperienza verso il brand positiva, ma intensità debole, e con una percezione di immersione elevata. Questo gruppo di rispondenti ha sviluppato il VR engagement parzialmente, sperimentando solo due dimensioni di coinvolgimento in modo combinato: cognitiva ed emotiva oppure emotiva e comportamentale. In termini di risultati di marca, i rispondenti hanno verbalizzato un potenziamento della brand familiarity, la conoscenza della marca che riflette le esperienze dirette e

indirette del rispondente con la stessa, attraverso le associazioni che avvengono nella sua memoria (Campbell e Keller, 2003), nonché un rafforzamento della BRQ, ma limitatamente alla brand trust.

3. In terzo luogo, dall'analisi del contenuto è emerso come anche i rispondenti con attitudine precedente verso il brand positiva e forte, ma con una bassa percezione di immersione durante l'esperienza abbiano vissuto un VR engagement parziale, stavolta sia cognitivo, in termini di maggiore interesse, sia comportamentale, in termini di maggiore impegno nelle azioni previste dall'esperienza virtuale di marca. La BA verso Nike Jordan è stata ulteriormente rafforzata, mentre non è stato evidenziato un miglioramento della BRQ.

4. Il quarto vissuto esperienziale riguarda i rispondenti che hanno manifestato un'attitudine pre-esperienza verso il brand positiva, ma con bassa intensità, insieme a una bassa percezione di immersione. In questo caso, il VR engagement è stato circoscritto unicamente alla dimensione comportamentale, espressa tramite un maggiore impegno nell'azione durante la fruizione dell'esperienza. Non vi è stato un rafforzamento della brand familiarity, come nel "vissuto 2.", caratterizzato anch'esso da una BA debole, ma solo un consolidamento del brand recall, ovvero la capacità del consumatore di ricordare la marca in una determinata situazione (Prashar et al., 2012).

5. Nel quinto vissuto, l'attitudine precedente verso il brand è negativa, ma in modo piuttosto debole (si tratta quasi di indifferenza), e le percezioni di immersione sono deboli. Anche in questo caso, come per il "vissuto 4.", gli intervistati hanno provato un VR engagement solo comportamentale, in completa assenza di risultati di marca.

6. Infine, è emersa una sesta e ultima area che riguarda i rispondenti con un'attitudine fortemente negativa verso il brand prima dell'esperienza, nonché una percezione assai debole di immersione. In tal caso, possiamo evidenziare come non sia stato vissuto alcun tipo di engagement verso il contesto virtuale di marca e non vi siano state implicazioni in termini di risultati di marca.

Alla luce dei risultati, viene ad evidenza come la brand attitude e la percezione di immersione siano determinanti nel condizionare l'ampiezza del VR engagement e le connesse implicazioni di branding. Infatti, nel primo vissuto (Figura 1), caratterizzato da brand attitude positiva e forte ed elevata immersione, ricorrono tutte le condizioni per sperimentare il livello più completo di engagement e raggiungere dei risultati di marca particolarmente significativi (ulteriore rafforzamento della BA e miglioramento della BRQ). Nel caso del secondo vissuto, invece, nonostante vi sia una BA positiva e un'elevata immersione percepita, la debolezza della BA di partenza sembra incidere riducendo l'ampiezza del VR engagement (dove la costante è la dimensione emozionale) e determinando un effetto di branding più in termini di maggiore familiarità (conoscenza) e di maggiore fiducia, senza un rafforzamento della BA.

Nel terzo vissuto, la debole percezione di immersione sembra condizionare il VR engagement, che è solo cognitivo e comportamentale e mai emotivo. Inoltre, viene rafforzata solo la BA (già forte), mentre non vi sono conseguenze sulla qualità relazionale tra utente e marca. Nel quarto caso, la duplice condizione di debolezza dell'immersione e della BA (comunque positiva) sembra incidere sulla riduzione del VR engagement alla sola sfera comportamentale e sui risultati di marca, ridotti al solo miglioramento del ricordo di marca. Nel quinto vissuto, la debolezza e la negatività della BA, insieme alla scarsa percezione di immersione hanno reso questa esperienza non solo estremamente limitata sul versante del coinvolgimento (comportamentale), che sembra relegato all'impegno nella meccanica del gioco virtuale, ma anche priva di qualsiasi implicazione di branding.

L'immersione sembra quindi influenzare l'ampiezza del VR engagement e la qualità relazionale, in condizioni favorevoli di BA. La brand attitude sembra incidere: 1) con la sua positività o negatività sulla presenza/assenza di risultati di marca; 2) con la sua forza o debolezza sul tipo di risultato di marca. Entrambi i fattori incidono sul manifestarsi delle dimensioni specifiche del VR engagement.

Limiti della ricerca. I limiti del presente lavoro suggeriscono fruttuose linee di ricerca future.

In primo luogo, i dati sono stati raccolti concentrando l'attenzione sull'esperienza di marca "Jumpman Zone" di Nike Jordan, che presenta come principali limitazioni l'assenza di una dimensione sociale e una visione non completamente immersiva. Pertanto, future linee di ricerca potrebbero approfondire le risposte del consumatore con riferimento a differenti esperienze di marca nel metaverso VR-based, caratterizzate da una totale immersione (visualizzazione a 360°, prospettiva "in prima persona") e da dinamiche di interazione many-to-many tra gli utenti, in modo da poter osservare lo sviluppo anche della dimensione del VR engagement di tipo sociale, ritenuta imprescindibile in ambienti di metaverso (Yoo et al., 2023).

Inoltre, in questo studio, si è concentrata l'attenzione su utenti appartenenti alla Gen-Z con esperienze pregresse di utilizzo delle tecnologie di VR. Di conseguenza, futuri lavori empirici potrebbero analizzare l'esperienza di utenti con livelli inferiori di expertise appartenenti ad altre classi generazionali (es., Millennials, Gen-X).

Infine, la natura esplorativa del presente lavoro, basato su tecniche di analisi qualitativa del contenuto, non consente di ipotizzare e verificare relazioni di causa-effetto tra le variabili indagate, né di generalizzare i risultati ottenuti. Quindi, invitiamo i ricercatori accademici ad adottare disegni quantitativi causali per identificare e testare le relazioni che sussistono tra i concetti emersi.

Implicazioni manageriali. Il framework concettuale proposto rappresenta uno valido strumento conoscitivo, utile per i manager coinvolti in attività di progettazione di brand experience nel metaverso VR-based, poiché delinea le diverse risposte cognitive, emozionali e comportamentali dei consumatori in questo specifico contesto esperienziale. In particolare, si evidenziano i ruoli dell'immersione percepita e della brand attitude ex-ante, che possono favorire o vincolare, fino ad ostacolare, il raggiungimento del VR engagement multidimensionale e degli obiettivi di branding. Nello specifico, poiché la percezione di immersione sembra esercitare un'influenza significativa sulla piena manifestazione del VR engagement multidimensionale e sulla qualità relazionale, emerge l'esigenza per il management

di creare un'esperienza virtuale di marca di qualità, capace di favorire la percezione di immersione basando, ad esempio, il disegno della stessa su fattori tecnici riconducibili alla User Experience Design (“grafica 3D”, “suono spazializzato”, “usabilità”, “physical comfort”) (Vernuccio et al., 2023). Inoltre, poiché la BA ex-ante sembra incidere particolarmente sia sulla percezione di specifiche dimensioni del VR engagement sia sul raggiungimento di peculiari risultati di marca, si consiglia ai marketing manager di rivolgere l'esperienza principalmente a target di utenti caratterizzati da un atteggiamento positivo e forte verso la marca. Inoltre, a monte, suggeriamo di creare campagne di comunicazione volte a migliorare e rafforzare la BA.

Originalità del paper. Il nostro studio esplorativo si colloca nell'alveo della letteratura di marketing, all'intersezione del filone di studi sul media engagement con quello sull'esperienza di marca nel metaverso VR-based, contribuendo ad avviare un'analisi sia sulle specifiche dimensioni del VR engagement in questo innovativo contesto sia sui principali risultati di branding connessi al VR engagement. Nello specifico, la ricerca analizza empiricamente tre dimensioni del VR engagement, cognitiva, emotiva e comportamentale, percepite durante la brand experience nel metaverso VR-based. Inoltre, si individuano una varietà di risultati di branding, quali brand recall, brand familiarity, brand attitude, brand trust e brand self-connection, connessi alle dimensioni del VR engagement emerse durante l'esperienza.

In termini di contributo accademico, questo studio indaga per primo il VR engagement multidimensionale a livello empirico nell'ambito di un'esperienza di marca che esula da finalità di acquisto, contribuendo a colmare il primo gap individuato nella letteratura accademica di marketing che, ad oggi, ha indagato il VR engagement esclusivamente in prospettiva o parziale (Papagiannidis et al., 2013; Pengnate et al., 2020) o concettuale (Hollebeek et al., 2020), oltreché in ambiente di shopping con finalità commerciali dirette (Violante et al., 2019). Peraltro, il presente lavoro è il primo che indaga le variabili individuali in grado di condizionare gli esiti della brand experience all'interno dell'ambiente innovativo del metaverso VR-based.

Il secondo elemento di originalità risiede nell'aver avviato l'analisi della connessione tra il VR engagement e il raggiungimento di una varietà di risultati di marca, contribuendo ad arricchire la letteratura accademica che, attualmente, non ha studiato empiricamente questa associazione. In particolare, sono state rilevate combinazioni diverse di dimensioni di VR engagement, nonché risultati di branding peculiari associati alle differenti dimensioni del VR engagement, a seconda sia della valenza e dell'intensità della BA ex-ante sia dell'intensità dell'immersione percepita. Con riferimento alla BA, i nostri risultati sono indirettamente supportati da precedenti studi empirici condotti nei contesti dell'advertising (es., Lee, 2010) e dei social media (es., Jahng e Hong, 2017), che hanno messo in evidenza il ruolo della BA ex-ante quale variabile in grado di alterare le risposte dei consumatori ad uno specifico stimolo di marketing. Ad esempio, lo studio sperimentale di Lee (2010) mostra come un messaggio pubblicitario con intento persuasivo riesca ad indurre risposte cognitive (es., “perceived ad persuasiveness”) e attitudinali (es., “ad attitude”) nei soli utenti con BA ex-ante positiva (vs. utenti con BA ex-ante negativa). In modo simile, Jahng e Hong (2017) dimostrano come in situazioni di crisis communication, un tweet di scuse da parte del brand possa migliorare la corporate reputation e la purchase intention quando gli utenti hanno una BA ex-ante di intensità elevata, mentre l'effetto è significativamente inferiore se i consumatori mostrano bassi livelli di atteggiamento preesistente verso la marca.

Riguardo all'immersione percepita, il presente studio mette in evidenza per primo il ruolo di questa variabile nel condizionare la percezione del VR engagement multidimensionale e la varietà di risultati di branding ad esso connessi, contribuendo ad arricchire la letteratura accademica di marketing che, al meglio della conoscenza acquisita, ha individuato solo la “satisfaction with the VR experience” (Mütterlein et al., 2018), il “recall of information” (Shen et al., 2021) e la “continuance to usage VR devices” (Dehghani et al., 2022) quali conseguenti dell'immersione percepita in ambienti di marca basati su VR.

Parole chiave: metaverso; VR engagement; brand experience; brand results; brand attitude; immersion

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Dyadic Journeys: una prospettiva combinatoria sull'attivazione simultanea di consumatori e altri attori rilevanti nel processo d'acquisto

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Inquadramento del lavoro. *Il concetto di customer decision journey ha assunto, nel corso del tempo, una sempre maggiore rilevanza teorica ed empirica. Si è, inoltre, progressivamente arricchito di importanti elementi concettuali rispetto ai primi rudimenti di definizione, che dai modelli classici sul processo d'acquisto (Kotler 1967, Howard and Sheth 1969) ha condotta a partire dagli anni 90 alla sua formalizzazione (Meyer e Schwager 2007) di maggiore risonanza manageriale (Court et al., 2009). L'evoluzione concettuale del modello, tuttavia, non si è di certo interrotta. La complessità dei cambiamenti nei processi decisionali di consumatori iper-connessi e immersi in contesti sociali sempre più articolati, si è a lungo focalizzata sul ruolo fondamentale attribuito agli attori che compongono il processo decisionale d'acquisto: il consumatore stesso, chi offre il prodotto/servizio e tutti coloro che, più o meno coinvolti nell'offerta del prodotto/servizio, il cliente incontra durante il proprio "viaggio" decisionale.*

Il presente lavoro introduce il concetto di dyadic journeys e contribuisce alla letteratura esistente investigando le implicazioni sul disegno e sulla gestione di decision journeys in mercati complessi, per natura dei beni scambiati, nei quali il comportamento del consumatore è fortemente influenzato dal ruolo di molteplici altri stakeholders. Sono mercati in cui lo scambio di valore avviene esclusivamente in presenza della piena attivazione di molteplici interazioni, e in particolare di alcune interazioni diadiche tra il cliente e l'agente esterno, erogatore di servizio e di raccomandazioni ad alto valore percepito. All'interno della diade, i due soggetti arrivano al momento decisionale provenienti da traiettorie spesso differenti, stimolate da azioni manageriali tra loro separate e spesso in capo a funzioni differenti, e si completa solo se entrambe le parti sono state opportunamente attivate nel momento del loro incontro. Tali relazioni, identificate all'interno di una rete o vissute come incontri indipendenti ed estemporanei, vengono approfondite prendendo l'esempio del settore farmaceutico e automotive. Viene quindi discussa la rilevanza manageriale che un'analisi di tutte le sfaccettature della dyadic journey può avere nel guidare il cliente verso l'obiettivo desiderato dell'azienda.

Inquadramento e Customer Journeys. *Negli ultimi decenni il concetto di consumer journey - o customer journey - è stato teoricamente ed empiricamente studiato e utilizzato in modo analitico e approfondito da ricercatori, accademici e practitioners (Tuenrat et al, 2021).*

I primi articoli accademici che nominano al loro interno termini quali customer journey (e i connessi touchpoints) risalgono agli anni 90 e la letteratura attuale ne conta più di 150 (Tuenrat et al, 2021). Nonostante, dunque, l'ontologia di questo costrutto sia relativamente recente, in realtà esso stesso si sta profondamente trasformando insieme ai cambiamenti che i consumatori apportano al proprio processo decisionale - consapevolmente o come una conseguenza delle mutazioni nell'ambiente che vivono.

La grande attenzione che il mondo scientifico e l'industria nel suo insieme ha riservato a tale tema è dovuta all'importanza che questo strumento ha dimostrato di avere nel dissezionare, amplificare e modellare l'esperienza del consumatore: poiché "ciò che le persone realmente desiderano non sono prodotti, ma esperienze soddisfacenti" (Abbot 1955, p.40), ciò risulta fondamentale per le aziende al fine di migliorare la customer experience e mantenere un importante vantaggio competitivo (Lemon e Verhoef, 2016).

Larga parte dei modelli empirici utilizzati si è per lungo tempo basata su approcci lineari, anche collegati alla scienza comportamentale, al modello AIDA (Attenzione-Interesse-Desiderio-Azione) (Vollrath e Villegas, 2021) e alla serie di passaggi sequenziali che i clienti compiono prima di arrivare alla decisione di acquisto (Perrey e Mazzù, 2011). I rapidi cambiamenti tecnologici e sociali e la proliferazione dei touchpoints hanno generato i presupposti per l'evoluzione dei tradizionali processi decisionali del consumatore (Giorgino e Mazzù, 2018). Nell'ultimo decennio, molti ricercatori hanno ampliato l'approccio tradizionale derivato dall'AIDA, verso modelli che enfatizzano l'importanza delle relazioni con i consumatori (McTigue, 2019). L'evoluzione deriva dall'osservazione che i consumatori non si limitano ad acquistare brand come transazioni isolate, ma li acquistano sulla base di una

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percezione del valore formata dalla totalità delle proprie esperienze con il marchio (Edelman 2010). Questo aspetto, trascurato nei modelli derivati dall'AIDA, è incluso nel modello circolare del percorso decisionale del consumatore proposto Court et al. (2009). Nei nuovi Customer Decision Journeys (CDJ), il processo - dominato dalle interazioni digitali - implica la presenza di rilevanti fasi non lineari ed iterative, in cui i brand entrano ed escono dal decision-set (Court et al., 2009). Questo "processo decisionale e il modo in cui i consumatori ricercano, interagiscono, acquistano e interagiscono con prodotti e brand" (Court et al., 2009) evidenzia la sequenza che un cliente attraversa per accedere o utilizzare l'offerta di un'azienda, consente di analizzare il comportamento dei consumatori e di costruire prodotti ed esperienze differenziati in base alle esigenze e ai desideri del cliente. La nuova struttura del CDJ cambia profondamente la modalità con cui si forma il set competitivo nella mente dei consumatori, generando importanti conseguenze nell'utilizzo dei touch-points, nell'allocazione del budget e nella misurazione complessiva dell'efficacia delle azioni di marketing (Giorgino e Mazzù, 2018). Il ritorno economico, sociale e reputazionale ricercato dalle imprese nella loro interazione con i clienti, si collega quindi direttamente alla capacità di sviluppare e modellizzare Consumer Decision Journeys efficaci.

La rilevanza che questo tema ha assunto negli anni proviene anche dalla visione sempre più accettata e diffusa nell'accezione di marketing consumer-centric: si ritiene infatti che, il processo che porta il consumatore ad acquistare un prodotto o alla fruizione di un servizio si manifesti in un percorso complesso il quale, per poter essere compreso appieno e sfruttato efficacemente dalle aziende, deve vedere il consumatore al centro come attore protagonista di tale moto (Crosier e Handford, 2012). In questo contesto, un ruolo centrale è dato dalla comprensione della rilevanza e dell'influenza sviluppata dai vari stakeholders coinvolti nei journeys individuali del consumatore. L'intenso uso di dispositivi digitali permette infatti di aumentare considerevolmente la frequenza con cui i clienti sono esposti alle informazioni sulle diverse categorie ed in cui cercano o si confrontano con molteplici stakeholders. Questa continua interazione ed esposizione ai messaggi, ha un impatto fondamentale sulla durata, l'intensità e la sequenza delle fasi del processo decisionale del cliente e consente ai consumatori di modificare potenzialmente più volte opinioni e preferenze, fino all'ultimo momento prima dell'acquisto del prodotto.

Comprendere a fondo e mappare la customer journey è quindi un esercizio fondamentale per i marketers allo scopo di spostare la propria attenzione dall'offerta ai consumatori e di concentrare i propri sforzi su quei punti di contatto in cui massimizzare le proprie risorse per l'incontro con il cliente potenziale (Halvorsrud e Kvale, 2017). Il customer journey diventa il processo che intraprende il consumatore, dalla fase di preacquisto a quella di post acquisto (Rosenbaum et al, 2017), per accedere e fruire dell'offerta di un'azienda; descrive quindi tutti quei momenti in cui il consumatore e l'azienda stessa entrano in contatto (Fostald e Kvale, 2018). Il customer journey può essere quindi inteso come una "costellazione di touchpoints" (Halvorsrud e Kvale 2017, p.2), ovvero momenti o eventi in cui il consumatore e l'ente che offre il prodotto o il servizio entrano in comunicazione. Un touchpoint viene definito come tale se ad iniziare la comunicazione tra i due soggetti è il consumatore o l'azienda stessa, se l'incontro è circoscritto e delimitato nel tempo - anche se può essere asincrono - e se avviene tramite un canale scelto dal consumatore (Halvorsrud e Kvale 2017). Applicando il concetto di customer journey alla fornitura di servizi, emerge come il touchpoint non rappresenti esclusivamente l'incontro tra chi offre il servizio e chi ne fruisce, ma piuttosto che tale definizione si possa estendere anche all'evento di interazione e comunicazione tra il consumatore e qualunque altro attore che è rilevante all'offerta del servizio stesso (Zomerdijs and Voss, 2010). In particolare, l'avvento delle tecnologie ha profondamente cambiato il modo in cui i consumatori ricevono stimoli, prendono consapevolezza dei propri bisogni, reperiscono informazioni e quindi si imbarcano nel viaggio verso l'acquisto. Si sono moltiplicati i canali a disposizione e quindi anche le opportunità di incontro con gli attori fondamentali del processo (Flavian et al, 2019). Questi comportamenti causano la proliferazione di momenti in cui i consumatori "interagiscono con un marchio, prodotto o servizio, anche se da remoto, per formare o cambiare un'impressione su quel particolare marchio, prodotto o servizio, rispetto ai propri concorrenti" (c.d. moment of truth, Carlzon, 1987). L'ipotesi è che il successo di un prodotto/servizio riguardi la capacità di gestire le interazioni con i clienti del proprio brand nonché di generare un risultato positivo nelle interazioni più rilevanti, dove è necessario avere una performance superiore, per evitare che il consumatore possa prendere in considerazione prodotti/servizi alternativi. La presenza del digitale introduce cambiamenti rilevanti (es., gli Imagery moment of truth), dove la tecnologia permette di riprodurre nella mente del consumatore esperienze precedentemente basate su interazioni reali, con interazioni virtuali che danno forma a emozioni, esperienze e soddisfano bisogni che spesso si sovrappongono o si sostituiscono a quelli reali, con lo stesso livello di soddisfazione per i clienti finali (Giorgino e Mazzù, 2018).

Il nuovo customer journey ha quindi preso strutturalmente il posto del funnel tradizionale rendendo il processo molto più fluido, ma anche cronologicamente più diversificato (Grenwal e Roggeveen, 2020). In un sistema già di suo complesso, inclusivo di un grande numero di attori che entrano in contatto con mezzi diversi e in diversi luoghi e tempi, l'avvento delle tecnologie frammenta ancor di più la customer journey spargendo i vari touchpoints che la compongono tra i molti canali, le tante piattaforme e i differenti media disponibili (Varnali, 2019). I consumatori non seguono più una linearità nel processo decisionale ma piuttosto saltano da un incontro all'altro entrando e riuscendo dalla journey e creando delle scorciatoie al suo interno (Lemon e Verhoef, 2016). Questa maggior flessibilità complica inevitabilmente il processo di channel management delle aziende (van der Veen e van Ossensbruggen, 2015). In sintesi, il nuovo Customer Decision Journey tiene conto della complessità del nuovo contesto, fatto di un numero crescente di momenti della verità e di un proliferare di touchpoint e bisogni dei clienti, in cui i responsabili del marketing sono tenuti a migliorare le proprie competenze per padroneggiare il processo decisionale in una situazione iterativa, non lineare e ciclica.

Per questo motivo, la crescente complessità dei decision journeys, specialmente in alcuni settori, rende ad oggi difficile un'appropriata mappatura nel processo di acquisto che il consumatore intraprende per soddisfare i propri bisogni. Ciò avviene maggiormente in talune industrie in cui per quantitativo di attori coinvolti, di accessibilità al prodotto o servizio, di molteplici canali di informazioni, per la rilevanza della decisione presa, ma anche per la complessità dovuta all'attenzione delle istituzioni e della normativa, una customer journey più tradizionale diventa anacronistica. In particolare, in settori in cui la transazione di valore finale viene attivata esclusivamente in presenza di interazioni diadiche tra il consumatore ed un professionista esterno, erogatore di raccomandazioni che presentano un elevato impatto economico o emozionale sulla vita del consumatore. L'interazione diadica tra un fornitore di servizi e un cliente è un fattore determinante nella soddisfazione del cliente per il servizio (Solomon, 1985).

Sulla base della teoria dei ruoli e connesso alle componenti critiche dei service encounters, questo lavoro vuole quindi fornire una prima analisi introduttiva della modellizzazione e rilevanza dei dyadic journeys e delle conseguenti interazioni in ambiti ad elevata rilevanza personale della raccomandazione effettuata dall'erogatore del servizio, come ad esempio avviene nel settore farmaceutico e dell'automotive.

In questo contesto, tra i nodi propri della customer journey caratterizzati da maggior complessità, vi è il cosiddetto service encounter: abbracciandone una più ampia visione, si potrebbe definire come un incontro inserito all'interno di una serie di scambi ed interazioni in un periodo di tempo ampio che avvengono tra il consumatore e i diversi attori che contribuiscono all'esperienza stessa. Difatti, analizzare il solo incontro tra l'offerente del servizio e il consumatore finale rischia di non tenere in considerazione tutte quelle interazioni che inevitabilmente influiscono su questo scambio e sull'andamento della journey in senso più ampio. Osservando questi incontri dal punto di vista del consumatore, tutti gli attori che fanno parte della journey e che contribuiscono all'offerta del servizio sono in realtà collegati tra di loro anche se il consumatore finale ci interagisce in modo indipendente: nasce così il concetto di service delivery network (SDN), definito come "due o più organizzazioni che agli occhi del consumatore sono responsabili di provvedere ad un servizio interconnesso" (Tax et al. 2013, 455). La relazione tra i vari attori che fanno parte di questo network e l'interazione con il consumatore, comportano una vera e propria co-creazione di valore che vede il consumatore finale non più come recipiente e destinatario passivo del messaggio e dell'offerta del servizio, ma come personaggio attivo e propositivo nella creazione di valore per se stesso e per il network (Varnali, 2019). Quanto efficacemente il consumatore riuscirà a partecipare attivamente alla co-creazione collaborativa e inter-relazionale di valore all'interno del network dipenderà dalla sua percezione di familiarità e affidabilità del servizio (Tax et al., 2013).

La moltitudine di figure all'interno della journey del consumatore priva l'azienda di una porzione di controllo sul processo decisionale del potenziale cliente, ma non la deresponsabilizza: diventa infatti compito dell'azienda stessa fornire a tutti gli attori presenti nel SDN gli appropriati strumenti per accompagnare il consumatore nel suo viaggio all'acquisto (Barile et al., 2017). Poiché un SDN è come un sistema autopoietico, ossia un apparato dove ciò che accade in ciascun touchpoint contribuisce alla produzione di valore o alla trasformazione negli altri nodi focali della journey (Varnali, 2019), analizzare i dyadic journeys e inserire le più tradizionali relazioni diadiche tra consumatore e offerente all'interno del network, permette di avere una più ampia visione e più approfondita conoscenza di tutte le forze che effettivamente influenzano il consumatore durante il proprio journey. Tra le dimensioni che caratterizzano i service delivery networks, è presente il grado di libertà che il consumatore ha nella scelta dei providers, e la complessità dell'offerta del servizio (Tax et al., 2013).

Oltre ai diversi stakeholders che fanno parte del processo decisionale del consumatore, ci sono altre figure che possono condizionarlo anche non facendo parte del network di servizi: infatti, spesso le decisioni d'acquisto non avvengono in solitaria, ma piuttosto il consumatore si lascia influenzare da relazioni sociali ad oggi ancor più facilitate dalla tecnologia. Hamilton et al. (2020) definiscono questi ulteriori ed importanti attori "travel companions", ossia coloro che interagiscono con il consumatore durante una o più fasi della sua customer journey che ha quindi una natura estremamente interattiva. L'avvento dell'Internet of Things e dei social media accorcia le distanze e facilita l'influenza di quei compagni di viaggio che potrebbero sembrare più fisicamente distanti e quindi impossibilitati dall'esercitare potere sulla scelta del consumatore: in realtà la suggestione c'è ed è bidirezionale. Talvolta l'influenza è tale poiché la decisione d'acquisto riguarda direttamente anche il travel companion: in quel caso si tratta di una vera e propria joint journey, come tra due partner che devono acquistare un'automobile familiare o nel caso in cui uno dei due sia potenzialmente esposto ad un problema di salute.

È sempre bene ricordare, ancor di più nei casi di processi congiunti, ma in generale in tutti quei percorsi che prevedono l'interazione tra più attori, che questi ultimi possono tra loro riportare diversi livelli di esperienza, competenza, coinvolgimento, empatia e preferenza, creando asimmetrie nel processo decisionale (Burns e Granbois, 1977). Persino la percezione di influenza differisce tra gli attori: infatti, nei processi decisionali congiunti che prevedono un'interazione tra professionista e cliente, è il cliente a percepire di avere un maggior ascendente sulla scelta rispetto a quanto il professionista crede che il cliente stesso abbia (White e Johnson, 2001).

I nuovi processi decisionali, caratterizzati da forti interconnessioni - si parla in questi casi di concatenazione di diversi customer decision journey (Giorgino e Mazzù, 2018)-, ci porta a ipotizzare che in alcune categorie di prodotto, i decision journeys possano essere modellizzati in maniera appropriata solo a fronte della comprensione delle interazioni diadiche tra consumatore ed erogatore della raccomandazione nel momento della loro interazione.

Applicazioni empiriche e implicazioni manageriali. *La complessità e la moltitudine di attori coinvolti in determinati settori impedisce di costruire una customer journey lineare e più tradizionale, incoraggiando invece un percorso più articolato.*

Nel settore farmaceutico, in cui il prodotto deve essere prescritto da un professionista sanitario spesso non coinvolto nell'azienda che propone il farmaco o la cura, la relazione medico-paziente ricompre un grande ruolo nel processo decisionale. Questo comporta che le peculiarità dell'interazione tra i due, hanno un grande impatto sulla scelta finale e per tale motivo è necessario approfondirle. Infatti, è stato dimostrato come la fiducia nella relazione interpersonale tra medico/paziente può portare a significativi miglioramenti nella salute generale del paziente (Petrocchi et al., 2019). Tale fiducia non è scontata nella natura della relazione, ma piuttosto viene costruita nel rapporto e può essere agevolata grazie a una convergenza tra le percezioni che paziente e medico hanno della relazione stessa (Petrocchi et al., 2019). In questo caso le asimmetrie sono evidenti: i medici hanno una consapevolezza diversa di sé e delle proprie capacità comunicative rispetto alla percezione che ne hanno i clienti: si vedono come individui singoli e diversi gli uni dagli altri, credono di comportarsi in modo ragionevolmente simile da un paziente all'altro - mentre i pazienti hanno percezioni molto diverse tra di loro rispetto allo stesso medico e tendono a vederli più o meno similmente (Kenny et al., 2010). Ciononostante, nessuno delle due parti si concentra durante la propria capacità comunicativa durante l'incontro: il paziente cerca di dare voce alle proprie difficoltà, mentre il medico si concentra sulla diagnosi creando una divergenza tra i due (DePaulo et al., 1987).

Il medico, che fa parte di un service delivery network, viene inevitabilmente influenzato dal resto della rete - assicurazione sanitaria, case farmaceutiche, altri professionisti specialisti, medici di base ecc. (Tax et al., 2013): questi fattori, insieme a quelli menzionati prima, hanno un impatto sull'esperienza del consumatore e quindi a guidare la sua journey. Tali interazioni dovrebbero dunque essere esplorate per segmento alla luce delle aspettative e dell'angolo di riduzione del peso per differenti tipologie di prescrittori.

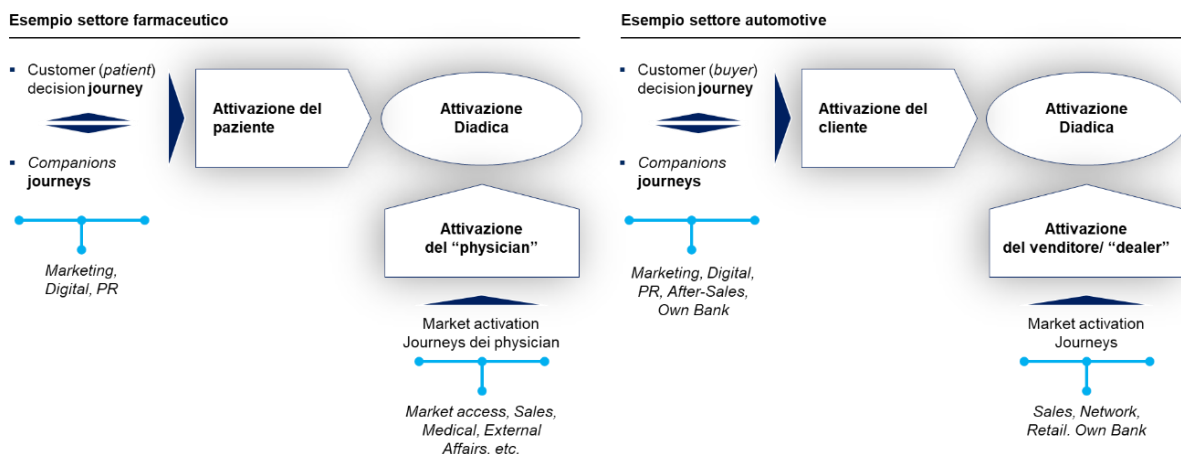
In particolare, un'attivazione diadica che risulti positiva nella generazione di valore per entrambe le parti, si deve concentrare sulla contemporaneità generata dalla doppia attivazione di due journeys differenti: da una parte il paziente e dall'altra il professionista. In questo contesto, nel caso i journeys del paziente e del medico non arrivino contemporaneamente all'attivazione nel momento del loro incontro, si generano limitazione all'attivazione diadica.

In un primo caso, possiamo osservare la casistica del paziente che si reca dal medico avendo già completato un processo di active evaluation delle alternative a disposizione, e con una propria chiara opinione su quale sia la cura migliore da seguire. In tal caso, il paziente si aspetta che il prescrittore fornisca la cura attesa; tale medico, nel momento dell'incontro/visita deve però aver già completato un processo che lo porta a considerare la raccomandazione implicitamente suggerita dal paziente, come valida alternativa perseguibile dal punto di vista professionale. In caso contrario, il medico fornirà una raccomandazione differente da quella attesa dal paziente (e dal suo network di companions), che potrebbe non essere seguita dal paziente, che andrà quindi in cerca di ulteriori raccomandazioni che possano confermare le aspettative proprie e del suo network di stakeholders. In questo caso, l'attivazione del paziente è stata completata da parte dell'azienda, tramite la corretta gestione dei touchpoint rilevanti nel customer journey, ma non è stata completata l'attivazione sul medico da parte dei journey collegati al modello di go-to-market dell'azienda stessa.

Un secondo caso, complementare, è rappresentato dal medico che è stato opportunamente stimolato dal sistema tradizionale di market activation in ambito farmaceutico, ed è quindi pronto a raccomandare una certa tipologia di cura a fronte di solide evidenze scientifiche, che incontra un paziente (ed indirettamente il suo network di companions) non attivato. In tale caso, la raccomandazione fornita da parte del prescriber potrebbe non essere pienamente seguita e accettata da parte del paziente, generando ad esempio dubbi e una minore aderenza alla terapia inferiore rispetto agli standard desiderati.

Nel caso in cui, nel momento dell'incontro, quindi, entrambe le parti che giungono all'incontro da journeys differenti, non siano pienamente attivate, non si completerà la transazione di valore: il prescrittore darà infatti una raccomandazione che potrebbe non essere seguita dal paziente o scoraggiata dal suo network di companions (Figura 1).

Fig. 1: Il modello di attivazione diadica - Esempi



In maniera simile, nel settore automotive, il journey di un consumatore passa prevalentemente tramite due canali: la distribuzione centrale che tramite le funzioni vendita, o decentrata che avviene tramite dealer autorizzati stadi (Diez 2012). La figura del dealer diventa dunque fondamentale all'interno del network di offerta dell'azienda, nelle fasi di configurazione, consultazione, test drive, negoziazione e conclusione del contratto (Bacher e Manowicz, 2020). In questo caso, l'attivazione diadica avviene gestendo opportunamente l'incontro tra due journeys: quello del cliente che arriva alla scelta e quello del venditore che deve essere pronto - e con gli strumenti opportuni - a guidare in maniera opportuna la chiusura della negoziazione. In questo settore, nonostante il processo si stia sempre più digitalizzando negli anni e i diversi touchpoint si spostano sempre più online, la relazione diadica tra consumatore e "agente" continua ad avere un'importanza rilevante per indagare il processo d'acquisto del settore. Ulteriori spunti suggeriscono come, grazie all'intelligenza artificiale, l'avvento di agenti virtuali nel settore possa modificare il panorama, ma non l'importanza di questa figura all'interno del processo decisionale del consumatore (Bleicher, 2022). La digitalizzazione ha però modificato il processo e il modo in cui i due attori principali si relazionano tra loro nelle diverse fasi: di fatto, le informazioni riguardo le automobili che suscitano l'interesse del consumatore, sono molto più facilmente e velocemente reperibili di prima e i consumatori stessi le utilizzano per portarsi avanti nel processo decisionale (MillwardBrown Digital 2013). Ciò diminuisce l'asimmetria di informazioni tra il consumatore e l'agente, ma al tempo stesso muta le aspettative della relazione tra i due (Bauer, 2018).

Diventa quindi fondamentale analizzare e comprendere l'effettiva journey del consumatore dall'insorgenza del bisogno alla fase di post-acquisto e fidelizzazione tenendo in considerazione la moltitudine di fattori che ne entrano in relazione e la influenza diventa fondamentale in settori di complessità intrinseca e crescente quali quelli analizzati. Poter cogliere questi articolati processi e saperli interpretare, può essere molto utile per utilizzarli a proprio vantaggio. Un'approfondita conoscenza della customer journey del consumatore, dei suoi companion, dei SDN e degli altri fattori che contribuiscono ad essa può infatti portare a evidenti miglioramenti nella gestione della qualità dei servizi e del fallimento dei servizi stessi, nella relazione con il cliente, nell'orientamento dell'offerta e nel design del processo (Tax et al., 2013). Più in generale, una customer journey in cui il consumatore viene messo al centro in ogni touchpoint e le relazioni che vive in questi punti d'incontro vengono ottimizzate per soddisfare i suoi bisogni, contribuiscono a una migliore esperienza e quindi a una maggiore soddisfazione del cliente (Lemon e Verhoef, 2016) nel caso in cui vengano rivisitate e pianificate in ottica diadica.

Originalità del paper, limitazioni e sviluppi futuri. Questa ricerca contribuisce alla letteratura esistente in due modi. In primo luogo, introduce in concetto di dyadic journey, fondamentale nello sviluppo teorico ed empirico in alcuni settori in cui i due soggetti centrali responsabili della transazione di valore consumatore-azienda arrivano nel momento decisionale provenienti da traiettorie differenti, stimolate da azioni manageriali separate, basate su journeys differenti e spesso in capo a funzioni differenti, e si completa solo se entrambe le parti sono state opportunamente attivate nel momento del loro incontro. In secondo luogo fornisce una prima base per collegare i concetti di decision journey con i service delivery networks, migliorando la comprensione degli elementi situazionali di non attivazione dei customers.

Opportunità per ricerche future potrebbero prevedere, oltre all'analisi delle customer journey in settori alternativi, la verifica empirica di come tali asimmetrie tra i due attori possano essere appianate e la divergenza di percezione diminuita fino a giungere a un cronologicamente contestuale consenso di intenti.

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Art and Business for Social Innovation: the case of *Magnifico!*

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Framing of the research. *Given the urgency and relevance of the Sustainable Development Goals of Agenda 2030 (UN, 2015), contemporary society is witnessing the growing importance of associating traditional economic indicators with broader indicators that also take into account the environmental and social dimensions of value.*

In this regard, social innovation is a concept that has gained much prominence in recent years and has gained increasing attention from researchers and practitioners (Oeij et al., 2019). One of the most widely accepted definitions in the literature is one that describes it as “an innovative solution to a social problem that is more effective, efficient, sustainable or just than existing solutions and for which the value created is primarily for society as a whole rather than for individuals” (Phills et al., 2008, p. 36). Similarly, the Organization for Economic Cooperation and Development defines social innovation as “the design and implementation of new solutions involving conceptual, process, product or organizational change, with the ultimate goal of improving the well-being of individuals and communities” (OECD, 2022, p. 20). Social innovation, therefore, not only supports business innovation, but simultaneously creates well-being and enhances the quality of life of individuals, territories, and communities. Like traditional innovation, understood in the technological sense, social innovation also supports and fosters the competitiveness of firms, but it differs from it in that the innovation process is not only aimed at creating economic value, but also at creating new social structures and generating lasting change at the system level (Zahra et al., 2009; Phillips et al., 2017; Solis-Navarrete et al., 2021). The profit generated by social innovation is not an end in itself but becomes a means for the creation of social value (Zahra et al., 2009). In this sense, social innovation represents an immensely unexploited opportunity for businesses (Phillips et al., 2015).

The process leading to the generation of social change is similar to the traditional innovation process; thus, it starts with the recognition of an entrepreneurial opportunity, which is evaluated and subsequently implemented (Kickul and Lyon, 2020; Oeij et al., 2019) and yet ends with the diffusion of change at the system level (João-Roland and Granados, 2020). In addition, the potential of the entrepreneurial opportunity is understood and evaluated as both the potential for economic value generation and social value generation (Kickul and Lyon, 2020). Thus, the product of social innovation must necessarily address social problems and needs currently unmet by existing solutions and must also benefit traditionally excluded or marginalized groups (Gasparin et al., 2021). Finally, social innovation, at all stages of the process, cannot ignore the role of relationships and networks (Phillips et al., 2015; 2017; Mion et al., 2022). The network in which the social innovator is embedded provides a better understanding of currently unmet needs, ensures greater access to resources, and the subsequent transfer of these resources. Finally, the network allows for social change to be diffused and disseminated throughout the territory and community, and for the social value generated to benefit the many different stakeholders involved (Moore and Westley, 2011; Phillips et al., 2017). In this regard, the literature has also emphasized that diversity is a strength in social innovation, and that the network should certainly include other social innovators or social entrepreneurs, but it cannot disregard the involvement of other firms, professional figures, institutional actors, the community, and the territory where the innovation and social change take place (Phillips et al., 2015; Mion et al., 2022).

Despite being little explored, the relationship between social innovation and art can be profitable in involving businesses in the creation of social well-being. The mission of art operating in business is not only to create value for the enterprise, it is above all to create forms of interaction that have their central value in art-based interventions for the benefit of a social community that does not necessarily revolve around the enterprise itself.

Art in Business has multiple implications, or “roles”, from the economic one, played mainly in galleries and the art market, to the aesthetical, but also organizational, inspirational and innovative, social and ethical, experiential (Darsø,

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2004; Knell, 2004; Hagtvædt and Patrick, 2008; Gilmore and Pine, 2009; Berthoin et al., 2015). When art enters the enterprise system according to the so-called aesthetic-inspired discourse (Berthoin et al., 2015), it approaches social innovation due to its nature to lead the enterprise beyond its branding and profit interests and its endemic openness to the social benefit of the enterprise's role.

Strategies to include Art in Business are characterized in increasingly stable and long-term art-based partnerships (McNicholas, 2004; Lewandowska, 2016). However, they still clash with a business model that tends to conceive art as an ancillary tool. Indeed, the relationship between Art and Business is characterized by the complex interrelation of creativity, innovation, authenticity, and values, which are often instrumental in achieving business objectives, from business performance to corporate image (Bourdieu and Haacke, 1995; McNicholas 2004; Pelzer, 2006; Hagtvædt and Patrick, 2008; Schiuma and Carlucci 2018). Therefore, apart from the wide variety of Art in Business engagement models, which can range from patronage, sponsorship, collaboration, CSR to Social Alliance, it is essential to focus on the approach adopted by the enterprise prior to the artistic collaboration, as it often simply adapts to the business model based on management needs, its performance metric, organizational culture and decision-making style (Cook and Weinstein, 2011). That which Lotte Darsø (2004) refers to as the "industrial paradigm", a condition whereby the business is not able to replace the command-and-control approach that defines the processes in the industrial economy of goods and services, even when its product is knowledge, service or experience. The intention is not to condemn a strategy that includes a competitive advantage for the enterprise, as the process always stems from the recognition of a business opportunity. Nevertheless, it is necessary for it to understand the importance of freedom of artistic expression to avoid artistic intervention being forcibly programmed on the basis of conventional business needs. The risk is that of fueling a one-sided view of the relationship between Art and Business, which in this case risks mystifying artistic content to a mere commercial operation (Bourdieu and Haacke, 1995; Pelzer, 2006). It is precisely social innovation that operates this shift. In fact, social innovation approach does not conform, but rather expands the business model. It aspires to effect a deeper change that does not derive from the business's nature, instead influencing its vision and mission for the real benefit of the context.

Therefore, it is crucial to distinguish between the business conception of creativity and the authentic artistic creation (Darsø, 2004). Affine with social innovation, the latter goes beyond the results expected by the enterprise and, to some extent, beyond its interests, as it derives from the intervention carried out by the artist on the basis of suggestions, inspiration, personal research and deepening of the project and context, to which the enterprise must allow itself to be led. Social innovation emphasizes the importance of Art and Business processes as the effective part in developing entrepreneurial interventions within the social context. Without such a strategic vision, the Art and Business project would not work. In fact, in the absence of social change processes, such as cross-sectoral involvement and dialogue, sharing of resources, exchange of expertise and skills etc., the artistic product would be "withered" too, showing only the commercial product of the enterprise - reverting to the business conception of creativity. In both cases, the benefits may be difficult to immediately translate into managerial terms, except at the level of justification of expenditures, which focuses on the profit between revenue and results. It is social innovation that strategizes this relationship, encouraging the involvement of the management organization in the operation to enrich the assessment of expected results with holistic factors that go beyond technical performance indicators, solving the dilemma that "not everything that can be counted counts, and not everything that counts can be counted" (Antal et al., 2015). This is essential to overcome the "industrial paradigm" and initiate a process of sense making, an alternative value system underpinning a new business culture (Qualizza et al., 2019).

Purpose of the paper. Considering previous literature, this research aims to explore the link between Art and Business for social innovation and shared value creation.

Italy is a country where art and artistic heritage certainly contribute to the generation of economic value, constituting more than 17 percent of the national GDP (Nomisma, 2021; Nethex, 2021). Art and Business strategy canalizes energies and skills in the territory through the transversal work of the artist and their ability to consider situations, urgencies and contingent needs, which find the epiphany in the artwork and can elevate collective sensitivity by generating a bridge of positive actions (Cavallarin, 2021). The core business of the wellbeing economy is precisely that of creating value and appropriate forms, and no one knows more about the processes for doing that than artists (Adler, 2006). Art raises questions without providing certain answers, but it always responds to certain needs, a basic prerogative of social innovation. As David Glassberg (2001) states "[a]rtists and writers have the power to make places for others, to transform otherwise ordinary environments into "storied" places".

Empowered by the support of the enterprise, art is able to "transform the ordinary" to the benefit of the enterprise itself, in accordance with multiple implications it has in business - economic, aesthetic, organizational, innovative, inspirational, ethical. It fosters creative innovation; it creates image return, brand reputation and value enhancement, producing new market value; it brings organizational well-being in terms of learning and performance; it conveys well-being deriving from the aesthetic and ethical implications of the artwork etc.

Moreover, set within the dynamics of social innovation strategy, art enables to combine these enterprise's perspectives of interest with the community's needs, fostering a transformative process in the context as well, through its action. This is because Art in Business works primarily as an experience-based process that involves and engages people, as it "tends to meet different needs that are subjective, idiosyncratic, context-specific and time-related" (Schiuma e Carlucci, 2015). Therefore, artistic interventions enable the site to be reinvented as "the town square for informed exchanged ideas" (Black and Farley, 2020). This concept, developed by Hilde Hein, concerns the relationship between

art and cultural heritage, yet it can be applied to the relationship between Art and Business as well, since it is focused on the process of engaging the social context prior to the tangible enhancement.

However, it is equally unclear how this value can be generated outside of the Cultural and Creative Industries (Tricarico et al., 2020). Moreover, it is unclear how this economic value can be considered as a means rather than an end for the creation of social value (Zahra et al., 2009) from which the territory and society can benefit. Ultimately, the role of art and culture as catalysts for territorial development remains little explored due to the complexity of measuring the outputs generated, while the definition of the intersection between art, culture, cultural heritage on the one hand and social innovation on the other hand remains open and uncertain (Tricarico et al., 2020).

Furthermore, the great variety of actions, models, and projects that can be adopted according to stakeholders, context, and characteristics of which the process of social innovation within the business project is precisely the common denominator should be clarified.

To fill this gap in literature and practice, the research aims to present a model of social innovation, defined as “the design and implementation of new solutions involving conceptual, process, product or organizational change, with the ultimate goal of improving the well-being of individuals and communities” (OECD, 2022, p. 20). The aim of the research is therefore to explore how the link between Art and Business generates social change and how it enables the co-creation of both economic value for enterprises and social value for the territory and the community. Precisely, the study aims to answer the Research Question:

RQ: How do Art and Business together create social innovation and shared value?

Methodology. To answer the research question and explore the ways in which Art and Business create social innovation and shared value, a qualitative approach was adopted. The qualitative approach is considered appropriate for exploratory research (Saunders et al., 2009), as it allows for in-depth exploration of a social phenomenon and the collection of data in their natural state, without manipulation or intervention during the process (Corbin and Strauss, 2015). Specifically, a multiple case study was adopted (Yin, 2003) and 43 Italian firms were selected as the unit of analysis. In selecting the firms, a purposive sampling approach (Patton, 2002) was adopted, which consists of selecting “information-rich” cases that best answer the research questions and present themselves as good examples of the phenomenon of interest. Firms then, varying in size, location, and industry, were selected for the initiatives and activities they had put in place aimed at enhancing the link between Art and Business. Each case was then documented in detail, and each initiative was subjected to a SWOT analysis. SWOT analysis is a strategic planning tool, which consists of systemizing the strengths, weaknesses, opportunities and threats of an enterprise or project. Also given its relative ease of use, SWOT is a frequently used planning tool in both scientific literature and management practice by enterprises (Helms and Nixon, 2010). Subsequently, the SWOT matrices of the different initiatives to enhance the Art and Business link were analyzed through a thematic content analysis (Miles et al., 2014), aimed at identifying the common traits among the different projects, mapping the different lines of intervention that constitute the process of social innovation based on the Art and Business link, and systematizing the areas where shared value, both economic and social, is created.

The data analysis thus made it possible to develop a best-practice model of social innovation, where the link between Art and Business enables the generation of social value addressing the needs not met by the existing system.

Results. Results enabled to answer the Research Question of the study and enabled the development of a best-practice model where Art and Business jointly bring economic and social value, namely the *Magnifico* project! Specifically, the results made it possible to:

- a) Identify 9 lines of intervention through which the social innovation process is developed;
- b) Identify 4 areas where shared value is co-created and generated.

There are 9 lines of intervention that enable the link between Art and Business to bring social innovation and shared value, as depicted in Figure 1.

1. Patronage

The enterprise offers its economic, financial or technical and fabril support to artistic, cultural or social interventions. Prerogative of such intervention, for the purpose of developing an adequate process, is the identification of the enterprise with the vision and values promoted by the initiative, to which are added the benefits in terms of advertisement and brand reputation.

2. Art in the factory

The enterprise provides space and/or technical knowledge. It can make a more or less direct contribution to the creation of the artwork - even depending on its core business - in which employees and collaborators can participate, and the results are exhibited to external visitors too. Moreover, the enterprise can place such works of art on its headquarters, which has a positive impact on human well-being and productivity. Finally, the enterprise can use art to create unique, handcrafted and customized products with greater added value and ethics than those offered by competitors.

3. Generation of value in the territory

The enterprise actively operates as a major player in its home territory by recognizing, preserving and enhancing its identity through projects that generate lasting benefits and create well-being in terms of community quality of life, following the Anglo-Saxon concept of give back.

4. Art awards

The company periodically presents an award to the artists who best interacted with and interpret its values, mission and vision.

5. Creation of new artworks (urban regeneration)

The enterprise takes part in initiatives to promote sustainable development and/or urban regeneration projects through the creation of art installations, the development of infrastructure or the redevelopment of specific areas through bottom-up public and participatory art projects.

6. Commissioning/Artistic Consultancy

The enterprise develops a partnership, sometimes exclusive, with the artist whose work it is commissioning. In other cases, it is the enterprise itself that offers art commissioning and consulting services, recognizing art as an important source of business.

7. Creation of shared art venues

The enterprise contributes to create spaces available to the community, in which art and culture prompt encounters, dialogue, and innovation. Such shared spaces can be restored urban areas, the corporate headquarters itself or that of a foundation that the enterprise decides to open.

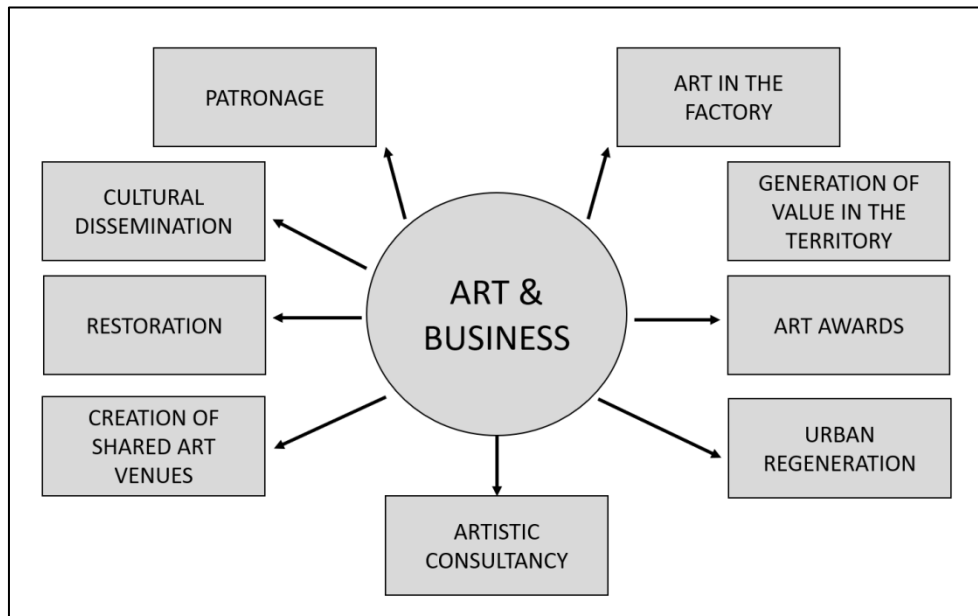
8. Restoration

The company financially and/or technically supports the restoration of monuments of great historical, artistic, architectural and/or cultural value for its home territory or nationwide. The choice regarding the monument to be restored can be made internally within the company or as a result of user consultation on dedicated platforms.

9. Cultural dissemination

The enterprise undertakes initiatives or actively supports some cultural dissemination projects. The spaces used for this type of activity are often the company's own headquarters or a foundation opened by the company.

Fig. 1: Lines of intervention



Source: authors' adaptation on *Magnifico! All the Good of Italy* by PG&W, Daniela Cavallo and Jacopo Ghidini for Fondazione Accademia Carrara.

The output of the social innovation process triggered by the link between Art and Business is the co-creation of value in the following 4 areas (reported in Figure 2): Business; Workplace; Territory; Society.

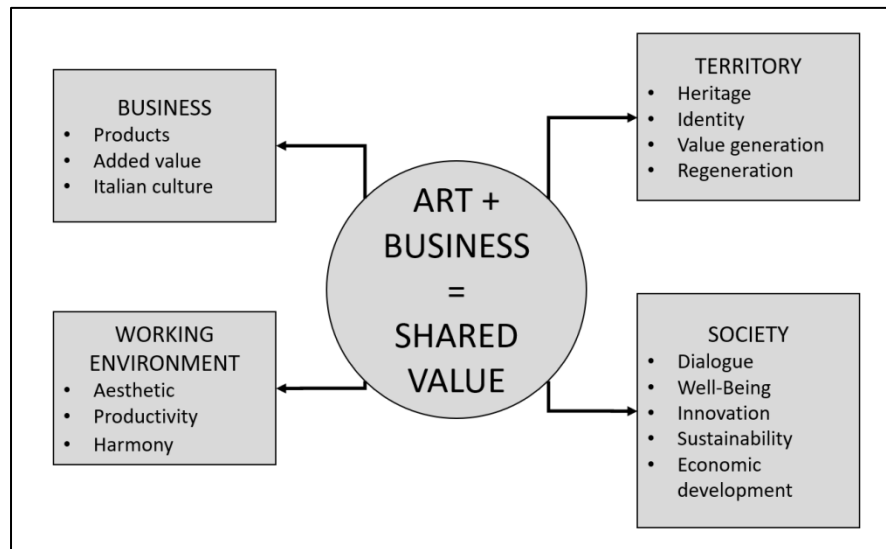
Business: Art and Business link primarily generates economic value for the enterprise itself, enhancing its brand identity, its connection with the territory, and its local roots, allowing the valorization of the made-in-Italy also on an international competitive context. Social innovation thus supports the competitiveness of innovative enterprises.

Workplace: Art and Business link improves the quality of the working environment, including but not exclusively from an aesthetic perspective, and thus increases organizational well-being, as well as the productivity of employees and collaborators. Social innovation thus fosters change in an ethical and human sense, improving the work environment, and in an indirect way it promotes enterprise competitiveness.

Territory: Art and Business link expresses in non-market strategies and policies too, and thus in the concrete enhancement of the territory, identity, and local roots, thanks to public and participatory art projects, cultural regeneration, and through the recovery of the territory's cultural heritage. Social innovation involves the local and territorial productive fabric, fostering inclusivity and strengthening local identity values, generating change in relations between different stakeholders in the territory.

Society: Art and Business link expresses in non-market strategies and policies, thus overcoming the traditional limits of measuring wealth through new indicators of well-being. In this regard, social innovation fosters the implementation of ethical and sustainable actions that improve sustainability, quality of life and the Well-Being of the local community.

Fig. 2: Shared value co-creation



Source: authors' adaptation on *Magnifico! All the Good of Italy* by PG&W, Daniela Cavallo and Jacopo Ghidini for Fondazione Accademia Carrara.

Given the lines of intervention and the areas of value generation, it is possible to elaborate a social innovation model based on the link between Art and Business, namely the *Magnifico!* project.

Magnifico! is a project inspired by the figure of “Lorenzo the Magnificent” and was created at the behest of the Fondazione Accademia Carrara, the foundation responsible for managing the artistic and cultural heritage of the homonymous art gallery in the city of Bergamo (Northern Italy). *Magnifico!* aims to create a new paradigm in the relationship between Art and Business, with tangible and measurable benefits for both. *Magnifico!* systematizes the network of relationships, skills, knowledge, and good practices implemented by innovative enterprises, with the ultimate goal of disseminating them on a national scale (João-Roland and Granados, 2020).

In this sense, *Magnifico!* is framed as a model of social innovation based on the link between Art and Business since it transcends the traditional concept of beauty, promotes Well-Being, leads to real change in the social and relational structures of the system (Phillips et al., 2017), and responds to currently unmet social needs (Phillips et al., 2008).

Magnifico! is the entity that monitors, protects, and promotes the best practices of the social innovation process and makes it possible that the value co-created by the Art and Business link is not only economic value but also social value (Zahra et al., 2009).

In addition, *Magnifico!* makes it possible for the creation of social and shared value to be participatory and accessible to even the most marginal stakeholders (Gasparin et al., 2021), such as small businesses, micro-enterprises, and artisans. In line with the social innovation process, it is the entire relational network of the territorial system that leads to the co-creation of value (Phillips et al., 2015).

Research limitations. The research has some limitations. In particular, the composition of the “pilot” sample has some limitations both in terms of numerosity and representativeness of the population. As the present research is still a work in progress, future steps will need to expand the unit of analysis and involve more examples where the link between Art and Business leads to the generation of social innovation and shared value. The research will also need to broaden the sample to encourage comparison and involvement of enterprises and deepen the knowledge of needs currently unmet by the existing system, so as to guide future developments of the *Magnifico!* project based on perceived problems and opportunities. Moreover, given the important role of the relational network in fostering social innovation in all its stages, from the recognition of the opportunity to the diffusion of the Innovation, the *Magnifico!* project will certainly need to extend the involvement to not only corporate but also institutional stakeholders, also with the aim of enhancing diversity.

Managerial implications. The research has important practical implications for enterprises and entrepreneurs. Given that the link between Art and Business generates value first and foremost from an economic standpoint, it is crucial for enterprises to invest in Art and Business. Second, the Art and Business link also supports business competitiveness indirectly by improving the organizational environment and thus increasing employee productivity. Similarly, Art enables businesses to expand their relational capital (Phillips et al., 2015; 2017), increasing their trust and reputation.

Art can and must be considered for all intents and purposes as a resource to be leveraged (leverage), such as through supporting the creation of artworks, organizing events, collaborations, or consultancies.

*On a management development strategy basis, the Art and Business project works on several levels. The project itself generates change by fostering new insights, recover and re-elaborate the contents present in the territory, adopting a transformative approach. If the project is reiterated, it can regenerate the context, changing its prerogatives, fostering widespread creativity to the point of creating new activities and business opportunities. Additionally, it prevents the so-called “intervention fatigue”, when communities get tired of outsiders coming in for short-term projects and then leaving (Breen 2020). Finally, it does not merely “artificate” the business product, instead it initiates a process centered on the existing activity while connected to a more progressive and relational *modus operandi*, contributing to the creation of new spirit of place (Markevičienė, 2012).*

On the long term, the project fosters a true system change, which is always to be understood as a process and not a result nor a phase. Such change involves the social fabric because art creates unconventional, permanent and long-lasting solutions that involve all sectors and processes of public and private life (Cavallarin, 2021). However, it primarily involves the business because “when knowledge and competencies become the main asset, the real value of organizations is no longer material products, controlled by the business, but knowledge in people’s heads and bodies” (Darsø, 2004).

However, proper resource management necessarily involves the possession of appropriate skills, which consist of the ability to organize and combine resources. There are two implications coming from the two spheres that constitute the Art and Business project: the role of the curator and the role of the manager.

The artist’s vision skills are the first pillar on which the Art and Business project is built. It is up to the curator, the professional between the organization and the artist, to work out which artist is most suitable for the project and to enter into a dialogue with the enterprise, and it is up to the curator to design a program consistent with the aims of the business and community oriented at the same time, leading the ethical action of the enterprise for the benefits of the community (Shaw et al., 2020).

The enterprise’s ability to pay attention is the basis on which the relationship between Art and Business operates. A key implication for fostering a system change is to integrate more holistic aspects of management to business education, which promote core values such as shared perspectives, passion, morale, imagination, flexibility, and creativity as new drivers of strategic organizational value (Adler, 2006; Melé and Sanchez-Runde, 2011; Maleško and Tjurđju, 2016).

*A further practical implication concerns the possibility of replication of the project also by small businesses, and artisans. A peculiar characteristic of social innovation is precisely that it addresses categories traditionally “excluded” from innovation processes (Gasparin et al., 2021), and *Magnifico!* on the contrary promotes the accessibility of art and the value it generates. Moreover, for the very purpose of the long-term durability of the Art and Business strategy, it is equally important to start small with respect to projects that can be developed along the way (Darsø, 2004).*

*Finally, the research offers important social implications. As *Magnifico!* is a best-practice model of social innovation, the economic value generated by the link between Art and Business is not an end but a means (Zahra et al., 2009) for the broader generation of social value for the local area, through the enhancement of local roots, identity values, and through the interaction and involvement of the local community. The link between Art and Business also generates important spillovers for society, fostering inclusiveness, improved quality of life and Well-Being also in line with the achievement of the Sustainable Development Goals.*

Originality of the paper. *The research contributes to the literature by responding to the need identified by previous literature (Tricarico et al., 2020) to explore the link between Art and Business by presenting a model, *Magnifico!*, that systematizes the process by which Art and Business lead to social innovation and shared value generation. In fact, the research emphasizes that Art can and should be considered in all respects as a key resource, on which it is possible not only to base competitive advantage, but which leads to the generation of additional benefits, co-created and shared also with the territory and society at large.*

*The originality of the research lies in the contamination between different disciplines, with a view to crossing over and enhancing diversity, which is at the heart of social innovation. In fact, research is only possible through the joint use of different and complementary theoretical frameworks. On the one hand, the research adds to the literature on social innovation by presenting a model that also includes art as a source of social innovation, while on the other hand it exposes a system of innovation, *Magnifico!*, oriented toward the Well-Being of society as a key to development on which to orient the Art and Business project field on a national scale. The creation of a model based on the sharing of best practices and the gradual development of guidelines delineated among context, stakeholders, nature of the business and goals is meant to foster the creation of a broad spectrum of theoretical reference points capable of covering an equally broad range of case studies, bringing order to a literature that is extensive but lacking in shared parameters.*

Keywords: *Art and Business; Social Innovation; Shared value; Well-Being; Society; Territorial development.*

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Focusing Exaptation Processes by Microfoundational Lens: a Historical Analysis

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Abstract

Despite the increasing contributions in exaptation, no studies hitherto focused their attention on what might support the various steps of exaptation process leading to radical innovations. Thus, adopting a microfoundational approach we expect to shed new light on how latent functionalities and/or unused resources might emerge, triggering exaptation, as a source of innovation. Basing on the historical analysis of five cases of radical exaptation (as the Gutenberg press, the Triode, the Jukebox, the Microwave oven, and the Glass fiber), our research aims to build a model depicting what routines and capabilities come to light in each one of the exaptation sub-processes - i.e. “functionality emergence”, “deliberate selection”, and “adaptation” and how they act in the defined sub-processes. As this extended abstract represents a preliminary draft of our research, in this extended abstract we will focus our attention on the microlevel origins of routines and capabilities - i.e. individuals, processes, and structure - that played a key role in the three sub-processes of exaptation. The preliminary results of our historical analysis will be reported. A narrative description of how the radical exaptations we analyzed were developed will show the role that individuals, processes, and structures levels of microfoundations played in the three main processes of “functionality emergence”, “deliberate selection”, and “adaptation”.

Framing of the research. Sources of new functions and corresponding artifacts mainly lie in i) the discovery of a new phenomenon in the science and technology fields, thus resulting in the design and development of new artifacts and processes, and ii) the expression of a need driving the formulation of functions, then translated into new artifacts (Arthur, 2009). A third source of novelty generation is represented by exaptation defined as an evolutionary process “by which features acquire functions for which they were not originally adapted or selected” (Andriani et al., 2017, p. 320). Deriving from biology, exaptation has led to the recognition that any object —whether it be an asset, technology or resource -has indefinite uses and “latent functionality” (Dew et al., 2004; Cattani, 2005; Cattani, 2006; Andriani et al., 2017), involving internal and external search processes or arising from individuals’ serendipitous discoveries, rather than from deliberate strategies (Garud et al., 2018). Exaptation can determine the interaction between an artifact and a context, which may bring alternative new uses/functionalities and unexpected results linked to the discovery of new uses for existing resources (Beltagui et al., 2020). However, given the manifold possible uses for any resource, there is no way to fully account for all the market opportunities related to exapted products or processes (Andriani and Cattani 2016; Felin et al., 2016) as well as many uses cannot meaningfully be anticipated and delineated (Felin et al., 2021). In order to make exaptation more concrete, thus increasing the opportunities to identify new uses for existing resources, the literature on exaptation tried to observe this as a discontinuous evolutionary process (Andriani and Cattani, 2016, p. 116) articulating it in distinct sub-processes: i) the emergence or association of a new function with an existing artifact, process, and ecosystem, ii) the deliberate selection of a new functionality as the basis for an innovative product, and iii) the adaptation as a process in which innovative products are transformed because of user selection (Andriani and Carignani, 2014, p. 169). Despite the increasing contributions in the field of exaptation, no studies hitherto concentrated the attention on what might support each step of exaptation process leading to radical innovations. Thus, focusing on the microfoundational approach (Felin et al., 2012) we expect that this approach may shed new light on how latent functionalities and/or unused resources might emerge, triggering exaptation, as a source of innovation. In management studies, microfoundations are almost defined as to the micro-level phenomena or mechanisms, such as individuals, processes, and structures, and/or their interactions, that can be considered the causes of the emergence, function, and dynamics of routines and capabilities (Feldman and Pentland, 2003; Salvato, 2003; Hoopes and Madsen, 2008; Miller et al., 2012). The adoption of microfoundations approach for investigating exaptation processes is grounded on the idea that routines and capabilities emerged from microlevels of individuals,

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processes, and structures drive differences in the competitive behaviour and performance of firms (Coff, 1997, 1999; Johnson and Hoopes, 2003), and represent key constructs in a number of management fields, notably in technology strategy and management (Felin et al., 2012; Palmiè et al., 2022). A set of microfoundations may thus serve as causal explanations for the origin of a routine or capability, or, alternatively, it might affect the development, operation, maintenance, and/or change of a routine or capability without necessarily contributing to its creation (Garud et al., 2010; Vergne and Durand, 2010). As a result, some microfoundations may be temporally prior to others, and their analysis require the consideration of both initial conditions and evolutionary processes (Felin et al., 2012). In light of these peculiarities of microfoundations, we might expect that a microfoundational approach could provide inspiring insights in studying exaptation processes, and that this kind research could greatly benefit from the adoption of a historical method. Combining microfoundations' and exaptation's literature, we thus developed a frame for data collection and preliminary data analysis. The frame was a table (Tab. 1), where columns were the three sub-processes of exaptation, and the rows were microlevels of routines and capabilities articulated in sub-sections (individuals, social processes, and structures).

Tab. 1: The theoretical frame

Microlevels origins of routine and capabilities / Exaptation sub-processes	Functionality emergence	Deliberate selection of the new functionality	Adaptation
Individual level elements - Motivation and attributes - Choice - Human Capital (skills, knowledge, experience, cognitive capacities) - Big Five Personality characteristics - Abilities (relational or integrational) - Mobility			
Process level elements - Rigidity of process - Flexibility or adaptation - Trial and error learning - Ad hoc problem solving Methods of coordination (formal and informal) and integration (cooperation and coordination; technology and ecology)			
Structure level elements - Design of decision-making activities (heuristic or rules) - Organizational structure form - Resource and organizational conditions			

Source: Authors' elaboration

Purpose of the paper. *Basing on the historical analysis of five cases of radical exaptation (as the Gutenberg press, the Triode, the Jukebox, the Microwave oven, and the Glass fiber), our research aims to build a model depicting what routines and capabilities come to light in each one of the exaptation sub-processes - i.e. "functionality emergence", "deliberate selection", and "adaptation" and how they act in the defined sub-processes. As this extended abstract represents a preliminary draft of the study, here we will focus our attention on the microlevel origins of routines and capabilities - i.e. individuals, processes, and structure - that played a key role in the three sub-processes of exaptation.*

Methodology. *With the aim to discover the existence of general patterns that interrelate microfoundations and exaptation process, we decided to adopt a historical method, as considered suitable to this aim (Gottschalk, 1951). Historical methods, indeed, seems to enrich qualitative case studies of innovation for two main reasons. Firstly, because they enable to follow the temporal order of roles played by the different agents (inventors, users, technologies, needs, etc.) involved in the innovation process, providing a longitudinal perspective on how these roles evolve over time (Page and Schirr, 2008; Rosenzweig et al., 2015). Secondly, because in historical methods collecting data from various independent sources is needed, in order to detail the sequence of events close to the time they occurred, to provide the necessary detail and, at the same, to guarantee a distance for capturing how innovation emerged from its technological, social, and institutional context (Hargadon and Douglas, 2001).*

Differently from random sampling in theory testing studies, sampling in historical approach requires selecting cases according to their likely contribution to existing theory about the investigated phenomenon. As a result, the focus can be on one or a small number of cases (Eisenhardt and Graebner, 2007), i.e., organizations, projects or processes developed across multiple temporal phases. Basing on these considerations, in our study we focused on five cases of historical radical exaptations picked from the literature (Andriani and Carignani, 2014). The five cases are the following: i) the Gutenberg press, the rotative type press exapted from the rotative press for winemaking (Johnson, 2010); ii) the Triode (De Forrest Audion), the amplification function exapted from the detection of radio signal (Nebeker, 2009); iii) the Jukebox, the coin-operated music-box exapted from the phonograph (Dew et al., 2004); iv) the Microwave oven, the cooking function exapted from the magnetron in radar system (Osepchuk, 1984); v) the Glass fiber, the Fiber optics exapted from the specialty glass (Cattani, 2005; 2006). These cases were selected because

considered explanatory cases of exaptation since they are classified in the literature as “radical” (Andriani and Carignani, 2014). According to Andriani and Carignani (2014) definition these represent “completely new system, built around the exapted module, that results in the emergence of a novel artifact with a new function and ultimately the creation of a new market” (p. 1612). Within the cluster of historical cases of radical exaptations, the five cases (in a list of seven) were selected as mostly fitting the criteria of a multiple historical case study analysis where highly diverse innovations allow the researchers to discover general patterns overcoming the risk of anecdotal selection bias.

Regarding data collection, historical research involves “collecting, verifying, interpreting and presenting evidence from the past” (Golder, 2000, p. 157). To overcome issues relative to the nature of historical data (e.g., incomplete, temporally remote records, created in specific historical contexts by various authors for reasons other than the researcher’s aim to answer a specific research question), in analyzing these documents we stuck to the tripartite approach articulated by Kipping et al. (2014). First, we performed a discriminating analysis of texts, in order to establish the validity and credibility of any historical document. We also considered the audience for the documents we analyzed, and we carefully identified the Author of the text, as well as its purpose and its institutional setting. We thus selected the sources that might contribute to our specific aim - as to say, identifying the patterns that interrelate microfoundations and exaptation process. Second, we triangulated our historical sources, basing on multiple sources. Triangulation furthermore was helpful to avoid ‘misuse’ of historical interpretations that lack criticality or empirical credibility (Perchard et al., 2017). Third, we followed the hermeneutic circle (Kipping et al., 2014), an iterative process of situating the texts within their historical context. It is important to note that the above processes were not necessarily performed in a linear manner, rather, they often co-occurred. As a consequence of this process, each source has been read by two researchers a minimum of three times, concretely forcing them to apply triangulation and follow the hermeneutic circle, as an iterative process of reading, coding, recoding, and rereading texts while considering all the microlevels origins of routines and capabilities supporting each exaptation sub-process.

Because of the fragmentary nature of the historical documents that represented the basis of our data collection, we felt the need of structuring our analysis to ensure rigorous application of source criticism, triangulation, and the hermeneutic circle (Corbett et al., 2007). So, we created a frame (Tab. 1) for guiding data collection. After completing this preliminary step, the contents of the table were analyzed to evidence patterns relating microfoundations and exaptations sub-processes in the five cases, using a narrative interpretation of our historical analyses (Thornton and Ocasio, 2008).

Results. In this section, we will report the preliminary results of our historical analysis. Since data collection is not completed yet, we would like to precise that these results are a draft of the main findings and consequent discussion that will be completed as soon as data collection and analysis will be integrated. A narrative description of how the radical exaptations we analyzed were developed will show the role that individuals, processes, and structures levels of microfoundations played in the three main processes of “functionality emergence”, “deliberate selection”, and “adaptation”. Thus, our results’ section will be articulated following the three exaptation sub-processes.

During functionality emergence, a new function of an existing artifact emerges and, thus, creates exaptation. This process is usually preliminary to the deliberate selection, since it represents the “technological pre-adaptation as the part of the firm’s technological knowledge base that is accumulated without anticipation (foresight) of its subsequent uses, though might later on prove valuable for alternative, yet unknown applications” (Cattani, 2006, p. 289). Analyzing the evolution of selected radical exaptations, individuals and processes levels of microfoundations seemed to play a crucial role in this step.

Functionality emergence for Gutenberg press was radically endorsed by motivations and human capital of its “inventor” Johannes Gutenberg, who, just back from a disastrous business venture manufacturing small mirrors with supposedly magical healing powers, immersed in the technology of Rhineland vintners (Johnson, 2010).

“Johannes Gutenberg was not interested in wine, he was interested in words, and his genius laid in borrowing a mature technology from an entirely different field, and putting it to work to solve an unrelated problem. We don’t know exactly what chain of events led Gutenberg to make that associative link (...). But it is clear that Gutenberg had no formal experience pressing grapes. His radical breakthrough relied, instead, on the ubiquity of the screw press in Rhineland winemaking culture, and on his ability to reach out beyond his specific field of expertise and concoct new uses for an older technology. He took a machine designed to get people drunk and turned it into an engine for mass communication” (Johnson, 2010, p. 153).

Similarly, in the case of Glass Fiber, the theoretical possibility of using light for communications purposes had been envisioned by two researchers, Charles K. Kao and George Hockham, from the Standard Telecommunications Laboratories (STL). The inventors didn’t act as the sole storage point of knowledge, but played a key role in facilitating the diffusion and recombination of skills and knowledge accumulated in otherwise distinct technological domains (Cattani, 2006), maybe as a sign of integrational ability.

Moreover, in the development of Glass Fiber, several firms had prior experience in glass manufacturing as a clear vantage point for producing optical glass fibers. However, even firms from the same origin industries exhibit a differential ability to take advantage of their prior experience across different domains, as a consequence of different purposive behavior.

“Firms, indeed, can differ not only with respect to their ability to leverage preexisting skills and knowledge, but also with respect to when and/or how quickly they decide to do so” (Cattani, 2006).

This was probably the sign that, despite motivation, ad hoc problem solving played a key role in functionality emergence.

In the case of Glass Fiber, also structure, in the form of organizational framework, contributed to functionality emergence, since Corning - the company considered responsible for inventing and developing the fiber optics technology - formed a research team to study the properties of optical waveguides to satisfy the needs of the British Post Office, which at the time operated the British telephone network and was trying to improve the national telecommunications infrastructure (Cattani, 2006).

In deliberate selection, after a new function of an existing artifact emerged, the existing artifact is converted into an innovative commercial offering. This requires the construction of a dedicated architecture around an exapted module (Andriani and Carignani, 2014). While in functionality emergence the process is almost serendipitous, in deliberate selection higher level of foresight starts guiding the efforts (Cattani, 2006). As in making functionality emerge, motivations, human capital and abilities at individual level were crucial also in transforming the existing artifact in innovative products.

In the Gutenberg press development, thanks to his training as a goldsmith, Gutenberg made some brilliant modifications to the metallurgy behind the movable type system, but without the press itself, his meticulous lead fonts would have been useless for creating mass-produced Bibles. Gutenberg was trained as a metallurgist, and had weak ties to the vintners' business, but, surprisingly, without that link, he would have merely a pioneering typesetter. It was by not restricting himself exclusively to the island of metallurgy, that he became a printer (Johnson, 2010). This revealed how skills and knowledge assumed a strategic role.

Similarly, in Triode development, in deliberate selection stage, various individuals with heterogeneous backgrounds other than the “inventor” De Forest gave their crucial contribution.

“[In Triode technology development] most important was the move from the “soft” tube, containing gas at low pressure, to the “hard” tube, with the enclosed space at high vacuum. De Forest had believed the gas necessary for the tube’s operation. He and others were misled by the fact that when used strictly as a detector of radio waves, the “soft” tube was indeed more sensitive than the “hard” tube. For the tube to function effectively as an amplifier or oscillator, however, a high vacuum was necessary. This was recognized in about 1912 by several engineers working independently: Harold Arnold at AT&T’s manufacturing subsidiary, Western Electric; Irving Langmuir at General Electric; and Alexander Meissner at Telefunken” (Nebeker, 2009).

For what concerns the process microfoundations level, Glass Fiber was illustrative of how they contributed to deliberate selection. Specifically, formal and informal methods of cooperation and integration were crucial in deliberate selection of this exapted technology.

“To test the properties of the new fibers his team was trying to develop, Maurer established a working relationship with Stewart Miller who at the time was the coordinator of research on optical communications at AT&T Bell Laboratories. Thanks to this collaboration, Maurer and his research group had the chance to promptly embrace the latest advances in light emission and detection. This corporate belief in supporting innovation contributed to creating an environment where new ideas and initiatives were consistently generated and errors/mistakes seen as valuable learning opportunities” (Cattani, 2006).

Furthermore:

“A well-established practice at Corning was to send out senior researchers to visit research laboratories and existing or potential customers, attend conferences, etc. When William Armistead was head of corporate R&D, two to three senior researchers who were well known in the scientific community and with a wide knowledge of Corning’s technical skills were asked to act as Corning’s R&D ambassadors. The main objective of having “technology scouts,” was to spur innovation by facilitating the acquisition and diffusion of knowledge, both technical and at the market level” (Cattani, 2006).

Regarding the structures, more than one radical exaptation benefitted from the creation of ad hoc organization structure forms along deliberate selection. It was the case of Microwave oven with the creation of the International Microwave Power Institute, and in the case of Glass Fiber with the development of a dedicated research team.

In adaptation of the exapted technology the new product based on an emergent functionality, gets transformed on the basis of users’ selection, and where users’ selection turns the functionality embedded in the new product/service into a market-driven function (Andriani and Carignani, 2014). The contribution of individuals’ human capital (skills, knowledge experience) was critical also in this stage.

In Triode development much of the advance that favored adaptation came from increased understanding of how the tube functioned.

“Walter Schottky of Siemens & Halske, G. Stead at the Cavendish Laboratory of the University of Cambridge, Henry J. Round of the British Marconi Company, and Harold D. Brown of Western Electric were leading contributors, but perhaps most influential was Irving Langmuir of General Electric. A Columbia University graduate who obtained a Ph.D. under H.W. Nernst at Göttingen, Langmuir began publication of his studies of vacuum tubes in 1913” (Nebeker, 2009).

Triode technology adaptation was then illustrative of how also process level of microfoundations -in the form of ad hoc problem solving as well as informal methods of cooperation -contributed as crucial.

“Though invented in 1906, the triode was little developed before 1912 (...). But in 1912 there began a remarkable development of the technical potentials of the device. Before the end of the Great War, it had found numerous applications and was being mass produced in huge quantities. This technical development and the proliferation of applications continued at a rapid pace in the decades after the war, to the degree that the world that emerged after the next Great War was, as a result of electronics, strikingly different in many respects from the world of 1914. Technology transfer was facilitated by collaboration by different companies on government orders and by sharing of techniques between allies” (Nebeken, 2009).

Regarding processes level sustaining adaptation, also Glass Fiber technology deserves attention, specifically by means of formal methods of integration.

“In 1977, Corning integrated vertically to cable production by creating Siecor, a joint venture with Siemens, which continues to be its manufacturing arm for optical cables. Searching for new markets, Corning formed several partnerships in the early 1970s with cable-makers such as Siemens in Germany, Pirelli in Italy, BICC in UK, public laboratories in France and Furukawa in Japan. In general, each partner was expected to develop waveguide components and cables. In return, Corning agreed to license its patents and know-how to make waveguides in the partner’s country” (Cattani, 2006).

Last, at structures level, organizational structure form revealed to be strategic in adaptation too. Specifically, in Glass Fiber development, as part of a strategy of continuously improving existing processes and new product development, Corning decided to establish a business unit devoted solely to the production of optical fibers (Cattani, 2006).

Managerial implications. *Following Andriani et al. (2017), this study highlights that exaptation can be concretely considered as a third way of novelty generation, by permitting to discover, explore, experiment and develop distant valuable business opportunities related to the emergence of latent functionalities from existing technologies. Specifically, the findings here presented underline clearly how exaptation can be a useful source of radical innovative solutions, by constituting a mechanism through which unexpected solutions “push” (Andriani et al., 2017, p. 1) the emergence of novel problems. Therefore, the potential discontinuity an exaptive products/services can generate in the technological and marketing process has an impact both on the macro and microenvironments (at industry level and firm level). In this perspective, at firm level, organizations may proceed to define and implement an exaptation strategy that concretely stimulate the exploration of internal and external products and technologies with the aim to discover and experiment new and unexpected field of application and, consequently, to consider new opportunities in term of activities and markets. Therefore, organization may consider that “exaptation effectively ‘enables’ a jump into distant and active areas of the space” (Andriani et al., 2017, p. 11).*

Additionally, the findings show how this interesting mechanism of innovation, thanks to the microfoundations, can be effectively triggered, specifying what and how individual, processes and structure components, including their complex interactions and relationships, may contribute to the emergence of exaptation with a radical nature. Indeed, once completed the historical analysis of the cases that we selected we should be able to underline how routines and capabilities develop in each one of the exaptation sub-processes (i.e., functionality emergence”, “deliberate selection”, and “adaptation”), by showing how various levels of microfoundations interact continuously to foster and improve those sub-processes. In this respect, our study will shed new light on how organizations may develop and reproduce those routines and capabilities that can conduct to the generation of novelty by enabling evolutionary technological processes. By observing the dynamics of intense interactions among the individual, process and structure components, organizations may proceed to the activation of learning processes because learning achieved in solving specific problems can become available for new fields of applications.

Research limitations. *The limitation of this study may open the door to future lines of research. Firstly, there are evident limitations related to the generalisability of the results derived by the exploratory multiple case studies. Accordingly, the results of the present analysis can be utilized to the further development of theoretical ideas regarding the novelty generation, particularly radical innovation, through exaptation processes, by assuming the theoretical perspective of microfoundations, but not to generalize about populations of firms or markets. This implies that there is a need for more systematic analysis of the microfoundations of routines and capabilities (individual, processes, and structure components) that characterize the complex sub-processes of exaptation, observed as important contributor to technological change and the exploitation of new market opportunities. Specifically, the analysis of the sub-processes in terms of routines and capabilities may shed new light on the evolutionary determinants of innovation dynamics. Another*

interesting area of future research may be studying complementarities between the different combinations of routines and capabilities for each sub-process of exaptation by providing new insights for the emergence of novelty.

Originality of the paper. This study has important implications in terms of theoretical framework and methodological approach. From a theoretical perspective, it is aligned with the existing scientific literature by emphasizing and substantially confirming exaptation as a potential way of innovation, capable to create entirely new markets, industries and phenomena. But the originality of this contribution resides in the first attempt of empowering the connection between exaptation and microfoundation of routine and capabilities, which has not been explored in the literature on technology and innovation management despite the well-investigated impact that microfoundations have on firm innovation performance (Felin et al., 2012). By considering the relevant potential of the microfoundations paradigm to advance the understanding of important phenomena (Palmiè et al., 2023), this study investigates exaptation sub-processes by identifying and exploring routines and capabilities developed within these specific processes, including their complex dynamics.

From a methodological point of view, the originality of this study resides in bringing together history and social theory (see Kipping and Üsdiken, 2014), by performing an in-depth historical analysis of the complex specificities and dynamics of the evolutionary processes of exaptation. In particular, the use of an historical approach is seemed particularly suited to investigate several examples of radical innovation through exaptation processes because this approach enriches and transforms our understanding about organizational phenomena, by overcoming trends of some theory to downplay the “exceptional value of the long-time span” (Braudel, 1980, p. 27).

Keywords: exaptation; microfoundations; individuals; processes, structures; historical approach

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The successful factors for SEZs' implementation: a systematic literature review

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Framing of the research. *In the scope of the industrial policy, SEZ concept no longer sounds so recent, considering its first implementation happened in the thirties in America and was widespread in 1978 during Deng Xiao Ping's Chinese government. The idea behind SEZ was the liberalization of Chinese trade, tax, and other policies nationwide, aiming to attract external investors (Wang, 2013). After the American and Chinese experiences, SEZs have been applied worldwide differently, revealing themselves as a proficient and boosting tool for local development, reaching the number of 5,4000 countries (UNCTAD,2019) with different forms aiming to suit local exigencies. Behind the SEZs' concept, there is the conception that they can pave the way for the country's economic growth, the attraction of foreign direct investments, the construction of production capacity, the diversification of the economy, the improvement of the competitiveness of local industry, the development of international trade, the limited-scale experimentation of specific industrial policies (Akinci and Crittle, 2008; Wang, 2013; Zeng, 2015). However, the literature contributions until now have been focused more on the final effects of SEZs, such as the growth of GDP, foreign investments, and the rise of demand for workers, without understanding the successful backing factors for these policies can be. Considering the SEZs' literature heritage, this paper aims to go over the academic contributions of the last twenty years and systematize them with a systematic literature review (SLR), which is still in progress.*

Purpose of the paper. *The paper's main objective will be to understand what is meant for SEZs' efficiency and what are likely the critical endogenous and exogenous factors of success for SEZs. Considering these results, the research aims to end with the determination of steering guidelines for a proficuous implementation of special economic zones by public institutions and guaranteeing their survival too.*

Methodology. *Although the interest in SEZs' application among researchers is rising, a systematic approach that synthesizes the drivers of success for special economic zones has yet to be put forward. Based on this gap, this research has been set out through the application of a systematic literature review (SLR).*

SLR suits the purpose of this study as it allows to review of the findings of both internal and external success factors for SEZ implementation, supported by the extant literature. In addition, it is the starting point for new research areas and domains as well as trends and implications for both theory and practice, thus shaping a rigorous future agenda and tracking the way forward for SEZ' adoption and its efficiency. The reliability and validity of SLR depend greatly on one or more significant novel research questions remaining unanswered in current scholarly research. Well-defined and articulated research questions permit researchers to design an effective research protocol aiming at identifying relevant academic articles and subsequently determining the study sample (De Menezes and Kelliher, 2011; Leonidou et al., 2020; Massaro et al., 2016; Nguyen et al., 2018; Petticrew and Roberts, 2008; Talon-Ballesteros et al., 2018; Xiao and Nicholson, 2013). The review acknowledges that some areas of major understanding can be identified in the debate on SEZ application in international industrial policy concerning (1) the concept of SEZ efficiency, (2) successful internal factors, and (3) successful external factors for the application. Considering the research gaps identified earlier, three research questions have been defined as follows:

- *RQ1. How is the literature on SEZ developing in its efficiency evaluation?*
- *RQ2. What are the internal success factors enabling SEZs' implementation?*
- *RQ3. What are the external success factors enabling SEZs' implementation?*

In details, the first research question aims to describe the state of the art in the current literature regarding this topic. The second research question has the goal to identify the focus of the existing literature on the relationship between internal factors and success of SEZ. The third question aims to detect the relationship the external factor and the success of SEZ. In this, the research will develop helpful insights that politics can take into consideration for developing successful economic policies.

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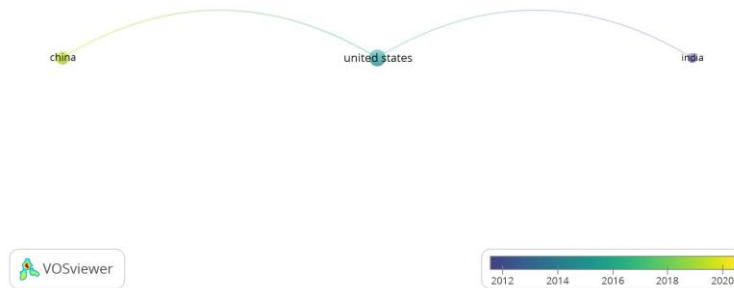
In the first step, the research time frame has been considered without any kind of restrictions to the attempt to gather all studies regardless of the SEZs publication, as Hsieh, Lee, and Tseng 2021 suggested. Thus, the first research results span from 1982 with the work of Fitting G. (1982) to 2023 with four papers of Chaisse (2023), Michael (2022), Dubinina (2022), and Chernyakevich (2022). Furthermore, all multiple disciplines such as business, marketing, management, political economy, psychology, and geography have been considered as multiple sources can derive more comprehensive interpretations in general (Baek et al., 2018). After that, inclusion and exclusion criteria for the study sample were detected to address what the study aims and questions effectively. The inclusion criteria were established based on the search string and search boundaries (Dada, 2018; Wang and Chugh, 2014).

After the application of the, the final sample to be analysed comprises 80 studies.

Descriptive Analyses Results. The preliminary results of the activity research are related to the performed descriptive analyses which will be described in detail below.

Geographical analysis of authorship data. This analysis aims to understand the geographical area of authorship by considering the distribution of the number of articles published in the countries examined. Looking at the Table 1, the United States has the highest amounts of publications, with 15, followed by the Russian Federation at the second position with 11 publications and China with 9. The two last places are occupied by the United Kingdom and India, respectively, with 9 and 5 publications. Surprisingly, as showed by Figure 1, any Southern European contribution has been detected by the analysis. Given these data, it is possible to understand that eastern countries have been more engaged in this topic, except the United States. This result is probably related to the historical pathway of this industrial policy that started with the American government in the thirteens, which has been the pioneer of this political innovation and drawing into it the other countries, as shown by the American highest score citation

Fig. 1: Geographical analysis of authorship data



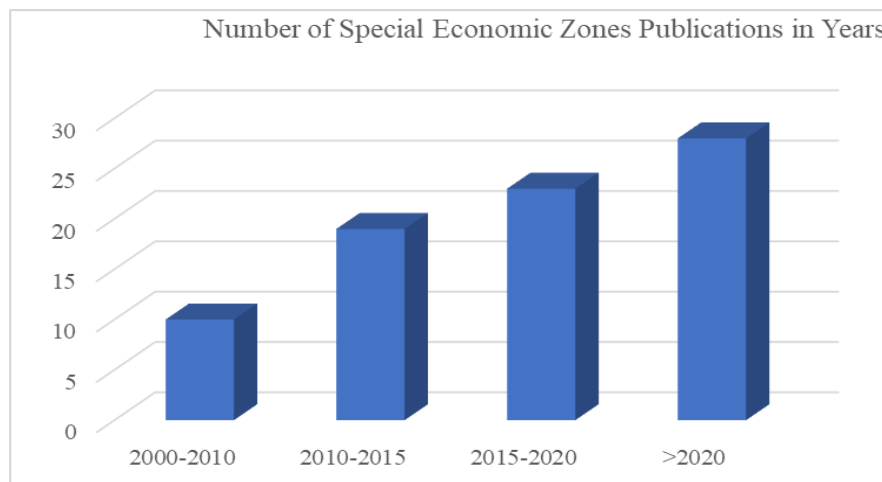
Tab. 1: N. Documents and citations of each country

Country	N.Documents	Citations
United States	15	184
China	9	63
India	5	82
Russian Federation	11	59
United Kingdom	8	128

Number of Publications. The starting point of SEZs’ publications was the beginning of the twenty-first century, with a markedly spread in the Asian continent. Until 2010, different publications set up the basis for future contributions, detecting both external and internal factors for SEZs’ implementations; the former refers to the relevance played by the external linkages (Namkoong, 2003; Ye, 2009) of the country adopting the SEZs, as well as their geographical position close to industrial poles (Lim, 2010) the latter, instead, deals with the positive effect guaranteed by a high level of industrialization of the areas in the cross-hairs of SEZs (Lim, 2010; Seshadri and Storr, 2010). After 2010, the analysis of success factors was carried out again by Zeng (2012), who detected different factors enabling the development of SEZs’ zones, such as: a strong commitment to reform and the pragmatism from top leadership; the preferential policies and institutional autonomy; the strong support and proactive participation of governments; the land reforms; the foreign direct investment (FDI) and the Chinese diaspora; the presence of technology learning, innovation, upgrading, and strong links with the domestic economy: the innovative cultures; clear objectives, benchmarks, and intense competition; location advantages. To this list can be added the innovation and technology rates of the country as a determinant for the success of SEZs because of its attractive force to foreign investment (Dziura, 2013; Maslikhina, 2015). A more detailed look at Figure 2 reveals that after 2015, the number of publications has considerably risen, growing to 47 per cent until the beginning of the twenties and reaching their highest peak after 2020. This time trend demonstrates that SEZs are currently under the spotlight of researchers, who are trying to detect the harvested results

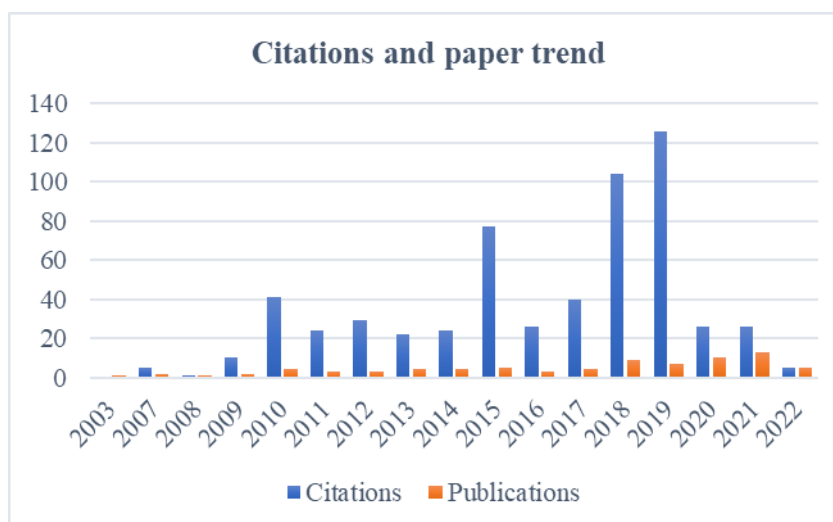
of this industrial policy and the factors enabling their overwhelming success. In these ten years, there are main trumping arguments detected by literature to set up an efficient and successful SEZ. First, many authors pointed out the necessity of stable governance and the definition of a specific SEZ framework, which can easily bridge and coordinate the private and public sectors (Hidayat and Negara 2020; Zaitseva et al., 2017; Doroz'yn'ski et al., 2021; Mukoreraet al., 2021). Other authors summarized this concept in; building a "one-window" (Bogoviz et al., 2016; Naeem et al., 2020), which consists of a space where investors can approach and be guided, and to take care of their exigences. Although, this implementation could be suitable with a special arrangement between provincial and federal governments, and all other departments involved. Apart from political concerns, several contributors revealed the importance of the economic sectors involved in the SEZ regulation, hinting at developing them in industrial production centres and innovation-hub (Zeng, 2016; Kuznetsov a and Kuznetsova, 2019). This last concept was demonstrated by several Russian contributions, which stress the gap between the different SEZs, focusing on the necessity of tourism SEZs to catch up to the others (Maslikhina 2016; Rostom 2019; Bagiryan et al., 2018; Kirillov et al., 2020). The most recent contributions have revealed the common conception that Chinese SEZs have been deemed the most successful examples of this industrial policy worldwide. That is why many countries have shaped their SEZs model taking into account the Chinese heritage, and in some cases, fallen into a das reception, as shown by Indian contributions (Alkon 2018; Jacopin, 2021; Agarwal, 2021; Goodburn and Knoerich, 2022). The growing interest in SEZs reveals that many fields must still be discovered and better analysed, stressing the need to uncover and synthesize the relevant literature using a systematic approach.

Fig. 2: Number of publications in years



Number of citations. Figure 3 compares the number of citations received over the years by the articles included in the sample and the number of publications published during the same period. The first significant year of citations was 2015, followed by the period between 2018 and 2019. Table 2 refers to the most cited articles until now and confirms that the most influential articles right now have been Lenner K. and Turner L., who focused on refugees SEZs (Lenner and Turner 2019). Considering previous research, the study has the necessity for more influential articles using a citation per year index (CPY) (Massaro, Dumay, and Guthrie 2016) as well as sufficient time for the recently published articles to "garner citations" (Dumay and Cai 2014). The analysis was also performed using CPY (i.e., a parameter obtained from the result of the number of citations divided by the time elapsed between the publication date and the end of the analysis period) is the article by Lenner and Turner 2019 with 60 citations. This work analysed the Jordan Compact policy instrument, which focused on the renewal of SEZs' framework. In reality, the conclusion of this work could be more promising since they pointed out the difficulty of refugee integration in SEZs' Syrian territories, especially for ethical issues and the hard work conditions newcomers have to accept. The article ranks first in terms of citation (60) and also its CPY was the highest (15). These metrics study the articles' impact over time, allowing researchers to understand the actual literature development observed in the field (Massaro, Dumay, and Guthrie 2016). The second and third places are occupied by the articles of Crane et al. (2018) and Alkon (2018), both published in 2018. However, Crane et al., 2018's work has been more influential, with a CPY difference of 1.8. Interestingly, in the last place, there is the Zeng (2012)'s works with a CPY of 2,1. This analysis has shown that more recent productions have been more influential than the older ones, especially those written between 2018 and 2019.

Fig. 3: Citation and paper trend



Tab. 2: number of citations and CPY

#	Authors	Title	Year	Cited by	Source	CPY	Rank CPY
1	Lenner K., Turner L.	Making Refugees Work? The Politics of Integrating Syrian Refugees into the Labor Market in Jordan	2019	60	Middle East Critique	15,0	1
2	Crane B., Albrecht C., Duffin K.M., Albrecht C.	China’s special economic zones: An analysis of policy to reduce regional disparities	2018	43	Regional Studies, Regional Science	8,6	2
3	Sampat P.	The ‘Goan Impasse’: land rights and resistance to SEZs in Goa, India	2015	40	Journal of Peasant Studies	5,0	5
4	Alkon M.	Do special economic zones induce developmental spillovers? Evidence from India's states	2018	34	World Development	6,8	3
5	Chaudhuri S., Yabuuchi S.	Formation of special economic zone, liberalized FDI policy and agricultural productivity	2010	30	International Review of Economics and Finance	2,3	9
6	Shokri A., Bayat A., Mahanpoor K.	Employing fenton-like process for the remediation of petrochemical wastewater through Box-Behnken design method	2019	25	Desalination and Water Treatment	6,3	4
7	Zeng D.Z.	China'S Special Economic Zones and Industrial Clusters: The Engines for Growth	2012	23	Journal of International Commerce, Economics and Policy	2,1	10
8	Zeng D.Z.	Global experiences of special economic zones with focus on China and Africa: Policy insights	2016	18	Journal of International Commerce, Economics and Policy	2,6	7
9	Bogoviz A.V., Ragulina Y.V., Kutukova E.S.	Economic zones as a factor of increased economic competitiveness of the region	2016	18	International Journal of Economics and Financial Issues	2,6	8
10	Jensen C.	The employment impact of Poland’s special economic zones policy	2018	17	Regional Studies	3,4	6

Common keywords. Table 3 shows the common keywords authors used to classify their articles and underlines the most critical areas in this domain. Following previous SLRs (Massaro, Dumay, and Guthrie, 2016, Armstrong, McCulloh, and Johnson, 2013; Ribièrè and Walter, 2013, keywords were extracted from the articles included in the study sample and then listed in a dictionary of terms. Similar keywords were aggregated in four clusters. The aggregation was done using the VosViewer software, creating a map based on the Scopus database, using occurrences that indicate the total number of times the keywords occur in all documents. The analysis showed us that the most frequent keywords were "Special economic zone" (with 50 occurrences) and "Special economic zone" (with 24 occurrences). The keyword Special Economic Zone(s) is redundant since it appears in three clusters with the "development" word twice. That is why SEZs are commonly conceived as an economic policy to boost the territorial development of disadvantaged territories.

Tab. 3: Common keywords

Cluster	Items	Keywords	Occurrence
Cluster 1	9	Competitiveness	3
		Economic policy	7
		Export	3
		Innovation	4
		Migration	3
		Political Economy	3
		Special economic zone (SEZ)	3
		Special economic zones (SEZs)	3
		trade policy	4
Cluster 2	5	economic transformation	3
		foreign direct investment	5
		industrial policy	4
		industrialization	4
		Special economic zones	50
Cluster 3	3	governance	3
		regional development	7
		Special economic zone	24
Cluster 4	2	economic development	5
		employment	3

Distribution of papers in journals. The distribution analysis of papers published in the journals included in the study sample demonstrates a high level of heterogeneity and interdisciplinarity. As a matter of fact, Academic journals of various fields have published few papers relevant to the topic under study, with a scale between 1 and 5. So far, the three top-ranked outlets in which the most significant numbers of papers were published are Transnational Corporation (with five publications); World Development with one publication as well as European Journal of development research with one publication. These articles have focused on the successful aspects of SEZs application, detecting the enabling factors and the favoring conditions. Against the tide, however, other contributions clearly emphasized the SEZ application's weaknesses and negative influence, showing the other side of the coin.

Analysis of the most influential authors. Figure 4 relates to the most influential authors on SEZ topic, and was performed with VosViewer, narrowing the analysis field down by filtering the ones who have published at least two documents. The results of the procedure reveal that Alkon M. has been the most influential right now, with his work on the spillover effect of SEZ application. In the second and third places are the Russian author Kuznetsov A. and Kuznetsov O., dealing with the Russian SEZ implementation.

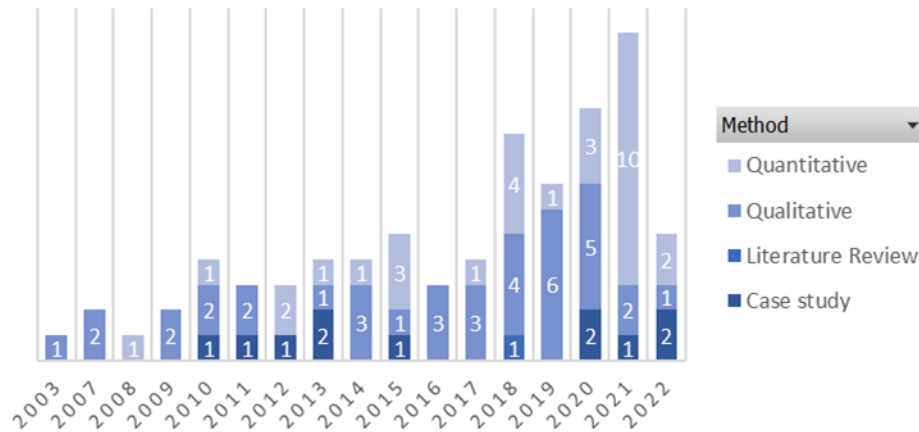
Fig. 4: Most influential authors

Authors	Title	Year	Cited by	Source	Country
Lenner K., Turner L.	Making Refugees Work? The Politics of Integrating Syrian Refugees into the Labor Market in Jordan	2019	60	Middle East Critique	Syria
Crane B., Albrecht C., Duffin K.M., Albrecht C.	China's special economic zones: An analysis of policy to reduce regional disparities	2018	43	Regional Studies, Regional Science	China
Sampat P.	The 'Goan Impasse': land rights and resistance to SEZs in Goa, India	2015	40	Journal of Peasant Studies	India

Analysis of adopted methodology. The study findings also identified the research methodology scholars applied to investigate SEZs' adoption in different countries. Figure 5 reports research methodologies used for each year of publication. The qualitative methodology was primarily applied in these studies to identify the successful framework for

SEZs' adoption. Also, quantitative methodologies have been developed, especially in recent years when data are finally available for models.

Fig. 5: Analysis of adopted methodology.



Bibliographic Coupling. A cluster analysis using bibliographic coupling was then conducted based on the interaction of the references included in each study paper. This is done to evaluate the bibliographic link, which is a link between two articles citing the same documents; only articles presenting the same references in their reference list were selected (Boyack and Klavans 2010). Using VOSviewer, the unit analysis included only papers having two references in common at the minimum. The analysis results consisted of 7 clusters with 36 papers, which are presented in Table 4.

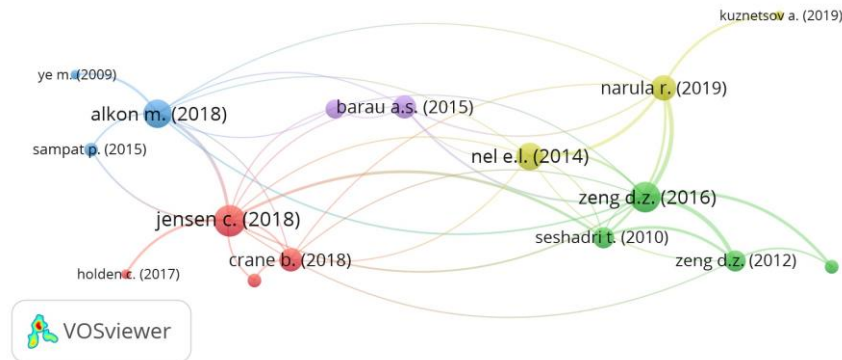
Tab. 4: Bibliographic Coupling

Clusters	Authors	Citations	Title
Cluster 1 (8 items-red)	Aggarwal et al.(2019)	8	SEZs and poverty reduction: evidence from Andhra Pradesh, India
	Alkon M.(2018)	34	Do special economic zones induce developmental spillovers? Evidence from India's states
	Barau A.S.(2015)	12	Using agent-based modelling and landscape metrics to assess landscape fragmentation in Iskandar Malaysia
	Chen X.(2019)	10	Change and continuity in special economic zones: a reassessment and lessons from China
	Hardaker S.(2020)	7	Embedded Enclaves? Initial Implications of Development of Special Economic Zones in Myanmar
	Song Y.(2020)	5	Effects of special economic zones on fdi in emerging economies: Does institutional quality matter?
	Xi Q.(20219)	16	The impact of special economic zones on producer services productivity: Evidence from China
	Ye M.(2009)	10	Policy learning or diffusion: How China opened to foreign direct investment
Cluster 2(7 items-green)	Cheong K.C(2013)	3	Hong Kong as charter city prototype - When concept meets reality
	Crane B.(2018)	43	China's special economic zones: An analysis of policy to reduce regional disparities
	Holden C.(2017)	14	Graduated sovereignty and global governance gaps: Special economic zones and the illicit trade in tobacco products
	Jensens C.(2018)	17	The employment impact of Poland's special economic zones policy
	Li D.(2021)	2	Land-use change and efficiency in laos' special economic zones
	Masiero G.(2017)	9	Going global in groups: a relevant market entry strategy?
	Shi L.(2015)	15	Spatial expansion remote sensing monitoring of special economic zones from 1973 to 2013
Cluster 3(6 items-blue)	Bui M.T.T.(2021)	4	Will manufacturing investors go to border zones? The case of central Thailand
	Dorożyński T.(2018)	7	Determinants of investment attractiveness of polish special economic zones
	Dorożyński T.(2021)	3	Governance of special economic zones and their performance: evidence from poland
	Horlings J.(2020)	8	Fishing, farming and factories: adaptive development in coastal Cambodia
	Maslikhina V.Y.(2016)	8	Special economic zones in Russia: Results evaluation and development prospects
	Naeem S.(2020)	7	Drivers and barriers for successful special economic zones (SEZs): Case of SEZs under china Pakistan economic corridor
Cluster 4(5 items-yellow)	Bach J.(2011)	17	Shenzhen: City of Suspended Possibility
	Goodburn C.(2022)	4	Importing export zones: processes and impacts of replicating a Chinese model of urbanization in rural south India
	He S.(2020)	4	A zone of exception? Interrogating the hybrid housing regime and nested enclaves in China-Singapore Suzhou-Industrial-Park
Cluster 5(4 items-violet)	Lenner K.(2019)	60	Making Refugees Work? The Politics of Integrating Syrian Refugees into the Labor Market in Jordan
	Sampat P.(2015)	40	The 'Goan Impasse': land rights and resistance to SEZs in Goa, India
	Grasset J.(2007)	4	The Special Economic Zones in India, between export growth and land speculation [Les zones franches de l'Inde,
	Seshadri T.(2010)	10	Knowledge problems associated with creating export zones
	Tantri M.L.(2012a)	4	Effectiveness of the Special Economic Zone policy over the Export Processing Zone structure in India: Trade performance at the aggregate level
	Tantri M.L.(2012b)	2	Did the metamorphosis from Export Processing Zones to Special Economic Zones improve the efficiency of trade enclaves in India?
Cluster 6(3 items-sky blue)	Chaudhuri S.(2010)	30	Formation of special economic zone, liberalized FDI policy and agricultural productivity
	Zeng D.Z.(2012)	23	China'S Special Economic Zones and Industrial Clusters: The Engines for Growth
	Zeng D.Z.(2016)	18	Global experiences of special economic zones with focus on China and Africa: Policy insights
Cluster 7(3 items-orange)	Kuznetsov A.(2019)	11	The success and failure of Russian SEZs: some policy lessons
	Narula R.(2019)	12	Using special economic zones to facilitate development: policy implications
	Nel E.L.(2019)	12	Re-spatializing development: Reflections from South Africa's recent re-engagement with planning for special economic zones

Figure 6 shows the clusters arising from the bibliographic coupling analysis after running 10 interactions, showing the strength of the closeness according to the number of references in each paper, including in the reference list. The software cluster technique works after running 10 interactions.

Based on these linkages, a content analysis will be performed aimed at detecting the principles research areas of SEZs.

Fig. 6: Cluster of intersected literature



Managerial implications. The basic idea is to develop a model which can easily fit in the territory of the countries which would implement SEZs for boosting their inner economy. The attempt is to figure out a model that can tailor itself to the contextual conditions that can affect the proper implementation of the SEZ. It is a fact that many countries have tried to adopt SEZs to seam the social divergences and disparities (Crane et al.,2018), considering the positive Chinese experiences. However, several authors have detected that starting directly from the Chinese SEZ model can fail because of a lack of preliminary understanding of the territorial conditions, lagging the expected positive effects and, in the worst cases, making the initial situation worse. Contributions regarding Indian experiences have dismally described these experiences, as witnessed by the works of Alkon (2018), Tantri (2012), who detected a negative spillover effect of this policy, and the falling back of the results comparing to the political expectations.

Future research steps. The research is still in progress, and it will continue with going deeply through the cluster analysis of the sample to systematize the main research areas developed so far. Alongside this method, content analysis will be performed too to detect future indications for scholars and practitioners regarding SEZs' implementation.

Originality of the paper. The paper provides a comprehensive SLR of the articles dealing with success factors and the efficiency of Special Economic Zones. Despite these issues' relevance and the increasing literature focused on them, research in this area is still fragmented and underexplored, requiring more systematic and holistic studies.

Keywords: special economic zones; SEZ; efficiency; success factors; innovation; business model.

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Renewable Energy Communities in Africa: evidence from a systematic literature review

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Framing of the research. Africa is vastly gifted with energy resources, especially renewable ones, but it performs really bad in terms of supplying of energy, leaving more than 660 millions of people without access (IEA, 2022b). Considering the demographic projections on the growth of the population, the rising energy demand in Africa represents one of the most significant challenges to sustainable economic growth (Adenle, 2020). An improvement in access to energy, especially in Sub-Saharan Africa (SSA), can lead to the enhancement in healthcare, life expectancy, recreation, education, and economic opportunities (Opuku et al., 2021). The main reasons for not accessing to energy, in Africa, are lack of infrastructure and poverty (IEA, 2022c). Moreover, the lack of energy is a form, outcome, and cause of poverty (Action, 2010). According to the International Energy Agency-IEA, the percentage of people without access, in Africa, increased in 2021 after declining for 6 years, due to the Covid19 shock (IEA, 2022c).

The IEA, in the Net Zero Emissions by 2050 scenario (NZE), illustrates a trajectory to achieve full access to electricity by 2030: more than half of the people gaining access by 2030 is doing this through decentralized solutions, including mini-grid and stand-alone systems, which are 90% based on renewable solutions (IEA, 2022a). Mini-grid solutions are emerging as a third alternative to rural electrification, coming between the option of large-scale grid extension and pico-scale stand-alone solutions (Pedersen, 2016). Especially in rural areas, where over 80% of the electricity-deprived live, mini-grids and stand-alone systems, mostly solar based, are the most viable solutions. (IEA, 2022d). In addition, micro-grids are considered a cost-effective and reliable energy option (Pedersen, 2016). Finally, in the last decade, the technological cost to supply rural communities through local renewable energy sources has dramatically dropped (Irena, 2018; Moretti et al., 2019). Therefore, decentralized renewable energies (mini-grid, micro-grid, stand alone, etc) represent an attractive alternative to grid extension (Mandelli et al., 2016).

There are several ways of managing decentralized renewable energy systems. One of these is when the local communities own, manage, operate, and maintain the plant (Peter et al., 2019). In the research conducted by Katre and Tozzi (2019), community-led model in developing community-based projects on decentralized renewable energies can be a factor of success. At the same time, Peter et al. (2019), in their work, identified some challenges related to community management of mini-grids, like initial investment, skills and financial and technical sustainability. On the other side, some scholars argue that the nascent energy systems in SSA offer an opportunity to collaboratively design energy communities and address energy access challenges present in many SSA countries (Ambole et al., 2021). In particular, the involvement of communities and local ownership can be a driver to create value and solve problems, such the economical and skills' ones (Ahlborg & Sjöstedt, 2015). Moreover, energy communities could also represent a response to barriers to the electrification of rural areas, such as the little interest from private sector (Ahlborg & Hammar, 2014).

Looking to the local communities' role in managing RE plant, the European Commission has recently presented the revised Renewable Energy Directive (2018/2001/EU) which is dedicated to renewable energies-RE and a light is turned on the role of citizen (Lowitzsch et. al, 2019). European Union, through the directive, gave a definition of Renewable Energy Communities (RECs) as a legal entity: (a) based on open and voluntary participation, autonomous, and effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity; (b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities; (c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits. Energy communities and consumer (co-)ownership in RE are essential cornerstones to the overall success of the energy transition (Lowitzsch et. al, 2019). RECs can foster the ecological transition (Dóci et al., 2015) and in Europe this seems to be one of the most recurrent motivations (Soeiro & Dias, 2020) to participate.

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Renewable Energy Communities, therefore, may represent, if applied and properly shaped taking into consideration the features of a different context such the African one, an epochal turning point in order to bring energy to those who are disconnected from the grid and ensure sustainability of the three pillars. RECs can help in achieving a just and fair low carbon transition, in line with the UN2030 Agenda on the SDGs, especially n.7 “Ensure access to affordable, reliable, sustainable and modern energy for all”.

Purpose of the paper. *Considering their possible role in enhancing energy access and pursuing environmental and social benefits, RECs can represent an innovative business model for electrification in Africa, able to “actively create and drive sustainable economic development in underserved areas” (Trotter & Brophy, 2022). Nonetheless, the majority of the studies have been conducted in the Global North and the RECs’ concept, as intended in Europe, may not work in Africa (Ambole et al., 2021). Therefore, this research aims at identifying the status of the art and the challenges for the development of RECs in Africa, especially concerning the management related issues. The study makes an important contribution to the management sector through a systematic literature review on the existing literature between 1985-2022. In doing this, the study relies on the theoretical framework developed by Bauwens et al. (2022), identifying the different dimensions of RECs, such meaning, energy activities and objectives. In particular, the objectives pursued by the RECs can be iconic of the possible impacts in terms of elements of sustainability of the business model. Regarding to the latter, we added to our analysis a dedicated part on the factors that affect the implementation of REC, such as managerial and financial issues, failure factors, and on the features of the eventual business models which have been adopted, when present.*

Methodology. *We carried out a systematic literature review according to Xiao and Watson (2017)’s methodological approach. We used Web of Science (Wos) and Scopus that are the two most used scholarly databases and cover most of the scientific contributions related to the field of investigation. Considering our aim, we were willing to include all the studies which provide insights on energy communities in Africa. We immediately realized that few studies covered the topic, therefore we had to use a set of words that goes a little beyond the strict “Renewable Energy Communities” expression. First, the literature search used the following keywords: “renewable energy communities”, “renewable energy”, “bottom-up initiatives”, “micro-grid”, “stand-alone”, “standalone”, “rural energy communities”, “energy poverty”, “Africa”, “developing countries”. Then, we realize, with an iterative process, that that set of keywords was too wide, bringing us to generic and broad results. Therefore, we decided to exclude “renewable energy”, “energy poverty”, and “developing countries”. At the same time, we needed to narrow the field to management studies or studies related to the management field, to limit the results in numbers, still high. In doing this, we used the options available in the two databases, selecting a specific topic/field of study, through a research area (WoS) or a sub-area (Scopus). We therefore decided to restrict our search to Business Economics, Development Studies, Government Law, Public Administration, Urban Studies, Energy Fuels, Science Technology, Environmental Sciences Ecology research areas (WoS), and sub-areas of business, social, economics, energy and engineering (Scopus). Lastly, we decided to only include studies written in English.*

We limited the publication date to 1985 and 2022, considering 1985 the possibility given by one of the two databases and aligning to that. With the final algorithm based on the keywords selected and the inclusion criteria, we found n. 194 on Scopus and n. 111 studies on Web of Science. The following step was a duplication check for avoiding overlapping between the two databases, which brought us to a first-step final selection n. 238 studies. After this step, we went through a selection of the articles, based on the title and abstract analysis. In case there was not unanimity among the team (two researchers were working in parallel), discrepancies within the team were discussed and resolved, also going through a full text read of the paper. Finally, a total of n. 33 studies were deemed relevant. Then, we obtained the full-text article for eligibility assessment. In addition, through backward and forward search, and recurring to most cited articles, we identified other additional articles (n.13). A total of n.46 articles was analyzed.

As anticipated, we used an electronic sheet to extract the data and to response to the purpose of our paper. Therefore, first we systematized the manuscripts considering the pertinence to some general information, as year of publication, journal, type of article, etc. Then, we extracted the information related to the dimensions and sub-dimensions proposed by Bauwens et al. (2022). Bauwens et al. (2022) identified various sub-dimensions related to the meaning of community: outcome, process, identity, actor, network, place, scale, technology. Then, the second category divides the energy-related community activities in three groups: supply-side activities, such as energy generation and distribution; to demand-side activities, including energy use, energy efficiency measures, and information and dissemination; integrated activities, when the two different sides are combined. Finally, the last category of observation are the objectives pursued by the communities. These could be various, such as economic, environmental, social, political, and infrastructural, or energy autonomy. In the second step of our content analysis, we add extraction dimensions, such as managerial and financial issues, failure and barriers, and other factors, essential to the purpose of our research.

Through the full-text analysis for the extraction of the data, we identified articles that were not fitting our purpose and we deleted them. The final number of articles used for the Systematic Literature Review was n. 39.

Results. *The analysis of selected paper is still ongoing. Therefore, we present some preliminary results.*

Most of the articles were published in the last decade with an increase in the last years, especially 2022. Both data indicates that the field of study has raised an increasing interest of scholars. At the same time, the concept of RECs has been developed and adopted in Europe but is not present in papers investigating experiences of energy communities (also non-renewable: i.e., with diesel power plant) or the involvement of local communities in the implementation of energy stand-alone installations in African countries. Finally, regarding the type of renewable energies (REs) studied,

the analysed papers mainly focus on solar and partially on hydro and hybrid powerplants (with diesel generator or biomass). Other REs are really rare, such as wind. Geothermal energy is absent.

Regarding the framework adopted from Bauwens et al. (2022), the dimension “meaning of communities” is generally not deepened in literature. This can be related to the type of articles (most of them are techno-economic studies). Considering the sub-dimensions “actor” and “network”, studies analyze mostly rural communities of villages, where the prevalent activities are related to agriculture and fishing. Regarding the scale observed, it includes micro-grid, off-grid, mini-grid, with plants that are small-scaled. Regarding “energy-related community activities”, they indicate a prevalence in use in comparison with production. Most frequent use purposes are domestic, agriculture, cooking purpose, but also water pumping, and some little business activities.

The dimension “objectives pursued by the communities” is giving interesting results. Environmental objectives are not the prevalent ones: REs are used because of their availability, not for sustainability reasons, even if some effects are of course beneficial for the local communities (i.e. clean cooking technologies). Economic objectives are pursued through REs, especially related to the possibility of enhancing the wealth of local communities, allowing commercial activities and businesses. Social objectives, directly pursued or indirectly resulting, are wide. Among the others, gender inequalities are reduced; education for children is more accessible; safety during dark hours is improved. Finally, political objectives are pursued, through the participatory approach described in a few articles. Other effects experienced by the local communities were enhancing people’s sense of well-being, through the possibility of communication and entertainment.

Regarding managerial and financial issues, what emerges is that there is not a unique or prevalent management model adopted represented in literature, while rather a variety of tentative solutions are proposed. Some scholars (Ambole et al. 2021) argued that “the sophisticated business models used by energy communities in the Global North (peer-to-peer, prosumer-to-grid, and organised prosumer group models) are not - yet - replicable in SSA” because of a lack of regulatory framework allowing to govern such complexity. In relation to the regulatory and policy aspects and business models, it has been observed that off-grid sector development plans in SSA have opened up the market for business and created opportunities for companies to innovate (Trotter, & Brophy, 2022).

Experiences of the involvement - with a real responsibility - of local communities in the management of the plant are present, such as, i.e., the creation of a village energy team, properly established and trained (Ahlborg, 2018). Local communities were also involved in the initial investment for the plant, even if not covering the total amount. Butu et al. (2021) promotes Community Based Organisations - groups of individuals with a common goal, are mainly formed to help otherwise poor individuals aggregate capital for varying purposes - with an active role in managing and financing the plant, also in contrast to banks that often charge farmers relatively high maintenance fees, even on their savings account.

Ensuring financial sustainability of the project is still a challenge, especially for the high investment cost of some components of installations, such as, i.e., batteries (Barelli et al., 2019; Camblong et al 2009; Gammon, & Sallah, 2021), or lack of funding - considering the diffused poverty of the rural context. Nevertheless, the willingness has been observed to be high in some rural villages (van Gevelt, 2016) and this can be an enhancing factor for their development.

Finally, other soft barriers are present, such as lack of skills to ensure the managing of the project at the end of the donor’s supervision, impeding the long-term perspective. In most of these projects, local communities are inadequately resourced to institute and manage their own projects (Ambole et al. 2021). In addition, regulatory barriers such as lack of a legal, regulatory and institutional framework promoting renewable energy communities hamper the implementation of projects.

Research limitations. The paper is affected by some limitations. First, the concept of RECs is not still directly addressed in scientific papers investigating initiatives for the development of renewable energies in rural and remote African context. Therefore, this literature review might overlook existing cases of RECs in African countries and already reported in grey literature. Second, our sample focused only on English scientific articles and published in journals as listed in Scopus and Web of Science.

Managerial implications. The paper provides a framework for implementing a management model to be replicated in rural and remote areas in African countries. Moreover, this study highlights the needs in terms of knowledge, financial resources, and technologies for developing effective renewable energy stand-alone initiatives in African countries.

Originality of the paper. The study contributes to the management field addressing both the new concept of RECs and a new field of research related to managerial aspects associated with the effective implementation of RECs in rural and remote areas. Moreover, to the best of our knowledge, there are not systematic literature reviews on this field.

Keywords: Renewable Energy Communities; Africa; local communities; rural communities, Energy access;

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Innovative nutraceutical products on the market: an acceptability evaluation of recently developed functional foods^{*}

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Framing of the research. Nowadays, consumers show a higher level of awareness, with respect to the past, in making their purchasing choices in the food market. In particular, consumers increasingly look for food products able to accomplish not only their basic functions related to nutrition (primary function) and sensorial satisfaction (secondary function), but also a tertiary function related to physical and mental wellness preservation and diseases prevention.

In this context, the market for functional foods is growing and developing. The functional food concepts emerged in the Eighties, in Japanese studies, but the precise meaning of the term is still ambiguous and not linked to a unique definition, also in relation to the dynamicity of the market and the continuous development of new products. A useful framework, in this sense, comes from Diplock et al. (1999): a food is “functional” if, for its nature or as a consequence of a particular process, shows a composition that is judged as beneficial for health. The definitions apply both in positive sense (in terms of presence of particular nutrients) or in negative sense (free from or with reduced content of elements potentially harmful for health). Functional foods represent a subset of nutraceutical products, a category that includes also food supplements. The difference between the latter and the former relies on the fact that supplements are additional elements for nutrition, rather than being foods themselves. Moreover, they also appear as different from functional foods since they are distributed in pre-measured forms.

The market for functional foods has experienced a noticeable expansion starting from the first decade of the XXI century. Following a literature review of the year 2014 (Özen et al., 2014), in Europe the distribution of functional food consumption was quite heterogeneous: in Countries such as Finland, Poland, Sweden, Cyprus and Spain these products were commonly consumed. In Italy, Belgium and Denmark they were not. Indeed, notwithstanding the awareness about the links between health and nutrition, for the Italian market, however, in that period the knowledge of nutraceutical products was limited, but with consumers showing a positive attitude towards the new product (Annunziata et al., 2009; Annunziata and Vecchio, 2011). Later studies, for Italy, demonstrate that not all the nutraceutical characteristics are equally important in driving consumer choices; moreover, more educated consumers tend to show higher attention towards the intrinsic products characteristics and to be more loyal to the brand. An issue, however, is represented by the negative role of price in driving consumers’ choices (Boccia and Punzo, 2019).

In parallel, issues related to the environmental sustainability of current approaches to food production have been widely debated in the recent years (Reisch et al., 2013), and Italian consumers show a certain sensitivity to this issue: for instance, Annunziata et al. (2019) find that households more used to the Mediterranean diet are more likely also to buy organic and local foods. Environmental attitude sometimes involves preferences related to other (non-nutritional) characteristics, such as packaging (Vergura et al., 2020).

In this context, the project XXX, funded by XXX, aims at applying, within an integrated platform, bioeconomy concepts to the production of functional foods and nutraceuticals, in a circular economy framework. The project, that involves academics belonging to different University and Departments, as well as several firms active in the food supply

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chain at local level, with different food specialization, adopts an interdisciplinary approach and aims at developing new nutraceutical ingredients to be included in innovative food products. At the time of writing, the project is in its ending phase, and the market evaluation of some representative products is ongoing and almost reaching the end of the data collection process. Therefore, this short paper describes a work-in-progress research. Most of the contents of this paper is included, or will be included, in the project deliverables (reports).

Purpose of the paper. This paper aims at presenting the result of the eighth work package (still work-in-progress) of project XXX, focused on the evaluation of the acceptability, by the market, of some innovative food products chosen among the output of the project, i.e. some final products incorporating the nutraceutical ingredients developed within the integrated bioeconomy platform that represents the object of the itself.

With the acceptability evaluation we aim at assessing which features are potentially relevant for consumers and, among these, we will focus on the role played both by the intrinsic characteristics of the products, especially in relation to their health purposes, and by the price.

Three types of questionnaires have been developed and distributed to different targets: potential consumers who have not tasted the products, consumers involved in direct trials under medical supervision, pharmacies.

The primary source of information is represented by questionnaires to potential consumers who have not tasted the products. This questionnaire mainly relies on closed-ended questions and choice scenarios, providing a detailed textual description of the innovative products characteristics. The questionnaire has been distributed online.

This information is complemented by a questionnaire (based mainly on closed-ended questions) distributed to a sample of responded directly involved in the medical trials of few of the final products, i.e. the use of some of the products for nutrition under medical supervision. In this case the questionnaire requires an evaluation after tasting the products.

Finally, another online questionnaire has been distributed to the pharmacies in the area of reference. The questionnaire is theoretical (products are presented by a verbal description only), organized with closed-ended and open-ended questions (the latter aimed at collecting, for instance, professional opinions on the products) and aims at assessing how the operators of one of the potential distribution channels evaluate the market perspectives of the products.

Among the products developed within the project, a set of product has been selected for testing; the selection criteria are related to the following points:

- Although the product is innovative, it has to be realistically described (together with its characteristics) to potential consumers who have neither seen nor tasted it yet;
- For consumers' evaluation, the product must have a "standard" (non-functional) alternative in the market to be compared with.

As mentioned, the variable to be tested mainly refer to the products characteristics and price, the latter also intended as consumers' willingness to pay for the products itself.

The products for which we will provide an empirical evaluation are:

- Different kinds of biscuits, whose receipts include different nutraceutical elements;
- An ice cream with probiotics;
- Legume pasta, with high concentration of proteins;
- Tomato mousse, with balanced omega 6 / omega 3 ratio, designed for people with eating problems.

Notice that, due to the particular products characteristics or to their development phase, not all the products have been tested in all the three questionnaires.

Methodology. In acceptability study, it is common to rely on questionnaire for consumers, where the respondent are asked to express their opinion or their appreciation in different way. It is common to ask to express the appreciation towards (or the importance of) certain characteristics assigning a score on a scale. Descriptive statistical analysis or statistical tests can subsequently be run on such data. For a similar approach, see for instance Bouasla et al. (2016), for pre-cooked gluten free pasta with legume flour; Hooper et al. (2019) for gluten-free fresh pasta with dry bean flour; Jayasena and Nasar-Abbas (2011) for pasta with lupin flour; Mridula et al. (2011) and Ramírez-Jiménez et al. (2017) for snack bars. We rely on this approach for the questionnaires addressed to the pharmacies and for respondents who tasted the products under medical supervision.

As to the questionnaire to potential consumers, we will rely on a consolidated methodology able to provide reliable evaluation of consumers' preferences, as well as (as long as a monetary characteristic is included in the analysis) the willingness to pay (WTP) for a product with specific features. The approach rely on choice experiments, where respondent are asked to choose what they would prefer among different scenarios defined on the basis of product characteristics (attributes), potentially presented with different levels. Since the data are collected by asking consumers how they would behave in certain situations, and not by directly observing their behavior on the market, choice experiments are often classified within stated preference methods. This approach is common for the evaluation of non-market goods (Louvière, in Bennet and Blamey, 2001), but can be employed with effectiveness also for other goods, including foods with particular characteristics (see Van Loo et al., 2011, for an application to organic chicken breast) and functional foods (Moro et al., 2015, evaluating an enriched yogurt; Boccia and Punzo, 2019, evaluating mini-drinks).

For the econometric analysis of choice experiments data, a widely used model is represented by the conditional logit model (McFadden, 1973; for the model definition we refer to Franses and Paap, 2001, whose notation is maintained).

The conditional logit model is suitable for modelling respondent discrete choice with more than two options (i.e. the situation in which the respondent has to define one preference among more than two alternatives), if some of the explanatory variables take values that differ across the options themselves (In our case, respondents are asked to compare each functional product with a “standard” (i.e. non-functional) comparable alternative. In addition an opt-out alternative is provided, allowing respondent of not preferring none of the product). Individual specific variables can also be included.

In simple case of a single regressor, the model expresses the probability that respondent i choses the option j , given the value assumed by a certain explanatory variable $w_{i,j}$ (and the element related to the intercept) as

$$Pr [Y_i = j | W_i] = [exp (\beta_{0,j} + \gamma_1 w_{i,j})] / [\sum_{l=1}^J exp (\beta_{0,l} + \gamma_1 w_{i,l})] \quad (1)$$

The model can be generalized in order to include several explanatory variables. When one of the variable captures a monetary attribute, such as price, the related coefficient can be employed for assessing the willingness to pay for a product with certain characteristics and, possibly, WTP can be correlated also with respondents characteristics.

In addition to the choice experiments sections, the questionnaire for consumers includes a wide section devoted to evaluate the general respondents' opinions and attitudes with respect to the relationship between nutrition and health, nutraceutical products and functional food, as well as environmental issues related to food consumption.

Results. At the time of writing, the data collection process is still not completely concluded and data analysis represents the next step.

With respect to the questionnaire to potential consumers, preliminary findings show a high variability of choices in the experiment, but with a certain level of acceptance of the scenarios proposing the functional food option.

As to the questionnaire based on products trials and from the questionnaire for pharmacies, the number of observations available from will not be sufficient for multivariate statistical analysis or for testing. The results, however, will provide descriptive insights useful for achieving a deeper understanding about the market potential of the products. For instance, with respect to the questionnaire for consumers tasting the products under medical supervision, preliminary results show a certain appreciation towards the products (in general, respondents like or do not dislike what they have tasted), but a limited propensity to buy the product if it was available on the market. In this sense, the price level represents an issue, although some respondents definitely states that the product do not correspond to what the usually prefer for consumption.

With respect to pharmacies, preliminary results suggest that most of the proposed products are actually perceived as new, with limited competitors on the market. The findings about the importance of the product characteristics are mixed, but sensorial attributes and price seem to play a relevant role.

Research limitations. A limitation of this research will be probably represented by the low response rate to the online questionnaires, that probably would prevent the possibility of applying inferential statistic analysis to the sample of pharmacies. With respect to the questionnaire to potential consumers, instead, the number of responses seems sufficient for econometric analysis, although the representativeness of the sample is not granted at the moment of writing.

Managerial implications. Notwithstanding the issue related to the samples dimension, we believe that our analysis will satisfy its primary purpose of giving insights on the expected behavior of consumers and distributors (pharmacies) if (or when) the considered products would be launched on the market, supporting the producer choice related to pricing and target market segment.

With the awareness of the limited generalizability of our results, our findings could represent a contribution to the empirical evidence on the attitude of Italian consumers with respect to nutraceuticals and functional foods, that could represent a support for other producer or marketers.

Originality of the paper. Our work will provide an updated contribution to the relatively scarce empirical evidence related to the attitude of Italian consumers towards functional foods and their willingness to pay. A strength of our contribution relates to the fact that we assess a plurality of new (and innovative) products from multiple perspectives (consumers tested through the online questionnaire, describing products they have not tasted; consumers who have tasted some products under medical supervision and therefore know that they are good for health; pharmacies used to dealing with consumers looking for the best, and often the cheapest, products to improve their health). This multiplicity of information sources will allow us to get a more complete evaluation of the market potential and of the target segment for the (possible) commercialization of the considered products

Keywords: functional foods, consumer preferences, acceptability.

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Nutrition, Marketing and Consumer Behaviour: a systematic bibliometric analysis

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Framing of the research. *Individuals that do not meet the recommended standard of fruits and vegetables (F&V) intake are at a higher risk of mortality (Gustafson et al., 2019; Glabska et al., 2020), obesity (Moran et al., 2019; Gustafson et al., 2019; Sutton et al., 2019; Charlebois et al., 2023), diabetes (Moran et al., 2019; Charlebois et al., 2023), heart diseases (Moran et al., 2019; Gustafson et al., 2019; Glabska et al., 2020) and some type of cancer (Moran et al., 2019; Gustafson et al., 2019; Charlebois et al., 2023). Furthermore, the absence of F&V in a diet contributes to a worsening of mental and social health (Charlebois et al., 2023; Glabska et al., 2020), thence F&V's important role in the treatment of mental illnesses (Glabska et al., 2020).*

Researches show that the consequences of a low intake of F&V do not only fall on the person but also on the healthcare costs of a country (Charlesbois et al., 2023; Ekwaru et al., 2017). For example, UK and Australia estimated the economic burden of a diet poor in F&V of, respectively, \$AU 269M in 2008 and £4.9M in 2006 (Ekwaru et al., 2017): considering that in most countries the optimal consumption of F&V still has not been reached (Yi et al., 2022; Polksky & Garriguet, 2020; Lin & Morrison, 2016), it is possible to assume that the burden is as substantial for most countries.

Numerous F&V have been considered as 'superfood', term used to identify foods with major health advantages, and their benefits come from the presence of vitamins, phytochemicals (Arumugam, 2021) fiber and complex carbohydrates (Glabska et al., 2020). Since the rise of healthcare expenses, governments have acknowledged the importance of a diet rich in F&V (Charlebois et al., 2023), but behaviors are difficult to change, especially if considered that differences among high-income and low-income population exist: the low-income bracket usually has a restricted budget and the most affordable choices in a grocery store are typically unhealthy options (Engel & Ruder, 2020; Sutton et al., 2019). The disparity between low-income and high-income individuals has been tried to be mitigated with the introduction of programs such as the American Supplemental Nutrition Assistant Program (SNAP), introduced in 1939, that give access to healthy food to the low bracket, using subsidies (Engel & Ruder, 2020). Taking into example the United States, even though SNAP is the costliest American program, serving more than 40 million individuals (Wilde, 2013), Americans still do not meet the recommended intake of fruits and vegetables (Kalmpourtzidou, 2020).

A change in the quality of diet at a young age is able to determine a reduced risk of diseases in the future, so, another factor to consider is the importance of F&V consumption in children and teenagers, also considering that children, teenagers, and students reportedly do not consume the recommended portions of F&V (Yi et al., 2022). Determinants of the underconsumption could be unavailability of F&V at home and scarce parental intakes (Moran et al., 2019). Despite most people make food purchases' decisions in supermarkets (Payne et al., 2014), this context is not ideal for F&V because of their perishability, time needed to cook the food, and minor promotions in comparison to branded products (Yi et al., 2022). In addition, COVID-19 played a drastic role in shaping consumers' shopping expenditures: purchases were not only influenced by personal choices and habits but also by social distance requirements. Thus, the sensorial experience started to be lacking, with a spill-over effect on the F&V department, which is, by nature, particularly sensitive to physical touch (Otterbring, 2022). However, Aksoy et al. (2021) affirm that the pandemic also had a positive unintended consequence, that is a growing interest in a healthier nutrition, related to the ingredients of foods and in order to have a strong immune system.

Besides the proven effectiveness of money incentives, as 2-for-1 (Moran et al., 2019), discounts (Moran et al., 2019; Sutton et al., 2019; Olstad et al., 2017; Waterlander et al., 2013) and coupons (Moran et al., 2019; Sutton et al., 2019), Shopper Marketing is another way to increase F&V purchases (Sutton et al., 2019). Shopper Marketing is defined by Shankar (2011) as the "planning and execution of all marketing activities that influence a shopper along, and beyond, the entire path to-purchase, from the point at which the motivation to shop first emerges through to purchase,

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consumption, repurchase, and recommendation". Regarding Shopper Marketing, there are different types of interventions that are often effective in promoting both purchasing and consumption of F&V, such as POP materials (Gustafson, 2019; Sutton et al., 2019; Fergus et al., 2021), grocery cart interventions (Payne et al., 2014; Payne et al., 2015, Wansink et al., 2017), taste tests or cooking demonstrations (Fergus et al., 2021; Sutton et al., 2019), and store layout (Shankar et al., 2011, Cardinali, 2009). Recently, researchers have also become more interested in the topic of nudging (Yi et al., 2022; Vecchio & Cavallo, 2019; Gonçalves et al., 2021; Broers et al., 2017), defined by Thaler and Sunstein (2009) as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" or more simply 'gentle pushes'. Nudges are important because intentions do not always turn into behaviors (Aiolfi et al., 2023) and they are able to modify the choice environment, with the goal of orienting individuals' behaviors, without imparting an order (Broers et al., 2017) or forbidding options (Yi et al., 2022). The effectiveness of nudges on F&V was verified in a meta-analysis proposed by Broers et al. (2017), that affirms that, among the different nudges available, to alter placement and to use combined nudges are the most effective ones for F&V. Furthermore, Gonçalves et al. (2021) study shows that nudges applied to F&V affect in a positive way the individuals considered as less healthy, whilst individuals considered healthy were negatively affected. Vecchio and Cavallo (2019) put in doubt the long-term effectiveness of nudges, but also keeping in mind that studies usually only evaluate short-terms results.

Purpose of the paper. Shopper Marketing, Nudging and Money Incentives are ways to increase purchases of fruits and vegetables in grocery stores. The purpose of this short paper is to frame the state of art on health problems and of in-store interventions aimed at enhancing healthy food choices providing a map of Keyword Co-occurrence, in order to confirm or deny the recent interest in new ways to increase fruits and vegetables purchase and consumption. The paper also aims at providing useful direction for future research in the field. The study proposes the following research questions:

RQ1: What is the evolution of the literature on Nutrition, Marketing and Consumer Behavior?

RQ2. Which are the most influential areas, countries and sources that have published documents on the research topic?

RQ3. What are the new trends on the topic?

Methodology. Although our work should be considered a preliminary effort to a deeper analysis, a systematic literature review approach was considered the most appropriate approach to analyze past research, in a way that is easily replicable. The topic of F&V has been studied from a social, economic and healthy perspective.

To better investigate the topic, we conducted a systematic bibliometric analysis, that uses statistical techniques to assess qualitative and qualitative shifts in a particular scientific field (De Bakker et al., 2005). Data mining was carried out on Web of Science (WoS) in February 2023, while the Data Analysis was conducted on VOSviewer version 1.6.19, defining the theme of health and food, via the following research query:

TITLE-ABS-KEY

Nutrition OR Health* OR Chronic Disease*

AND

TITLE-ABS-KEY

(In-store marketing) OR (Instore marketing) OR (Shopper marketing) OR (Intervention*)

AND

TITLE-ABS-KEY

(Consumer* Behav*) OR Purchas* OR Consum* OR Shopping

AND

TITLE-ABS-KEY

Grocery Store* OR Supermarket*

AND

LANGUAGE(English)

AND

Open Access

AND

Article or Review Article

AND

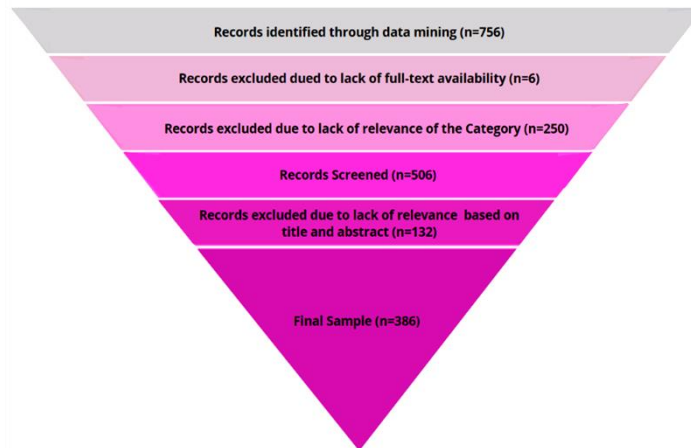
PUBLICATION YEARS

2015-2023

The results of the Data Mining were analyzed in terms of title and abstract to discard ambiguous or irrelevant results. In conclusion, from 756 contributions only 368 documents were used as the final dataset. A summary of the skimming process is presented in Figure 1. Based on these articles a preliminary analysis of their main characteristics has been carried out, by examining the Research Areas, the main Countries of Publication and the most Relevant Sources. Research Areas have been identified on WoS in the "Web of Science Category" section, while the main countries of publication and the most relevant sources have been identified on VOS Viewer.

An activity of data cleaning of the keywords identified by VOS Viewer was carried out on Excel to aggregate singular and plural versions of the same words and to aggregate acronyms and respective meanings.

Fig. 1: Data Mining Process



Source: Own elaboration

Results. The first set of findings are related to the analysis of the main characteristics of the articles selected for the VOSViewer Keywords Co-occurrence Analysis. The characteristics explored are Research Area, Country of Publication and Most Relevant Sources. The second set of findings is an analysis of the Keyword Co-occurrence Analysis followed by a definition and explanation of the clusters identified.

Research Area

To comprehend better who is interested in the topic analysed, Table 1 reports the articles published based on the research area. Nutrition & Dietetics is the most interested knowledge field, with 315 articles published, probably because the topic has a strong relevance with Food and with Obesity prevention and cure. Joining Nutrition & Dietetics in the theme of health there are the following research areas: Diabetes, Social Psychology, and Healthcare Policy. A cluster of areas could be found combining Smell & Taste Science, Neuroscanning, and Neuroscience: for example, in the Smell & Taste Science most articles dealt with labelling and shelf positioning, these kinds of articles give useful insights to understand whether different packaging or shelf allocation are valid methods to help consumers make reasoned choices. A smaller but still relevant group of knowledge fields is represented by: Management, Economic Theory and Economics. Lastly, a research area that might stand alone is Agricultural Policy that mainly deals with sustainability.

Tab. 1: Research Area

Research Area	Articles
Nutrition & Dietetics	315
Smell & Taste Science	12
Agricultural Policy	8
Social Psychology	7
Neuroscanning	6
Management	6
Diabetes	5
Healthcare Policy	4
Economic Theory	3
Neuroscience	1
Economics	1

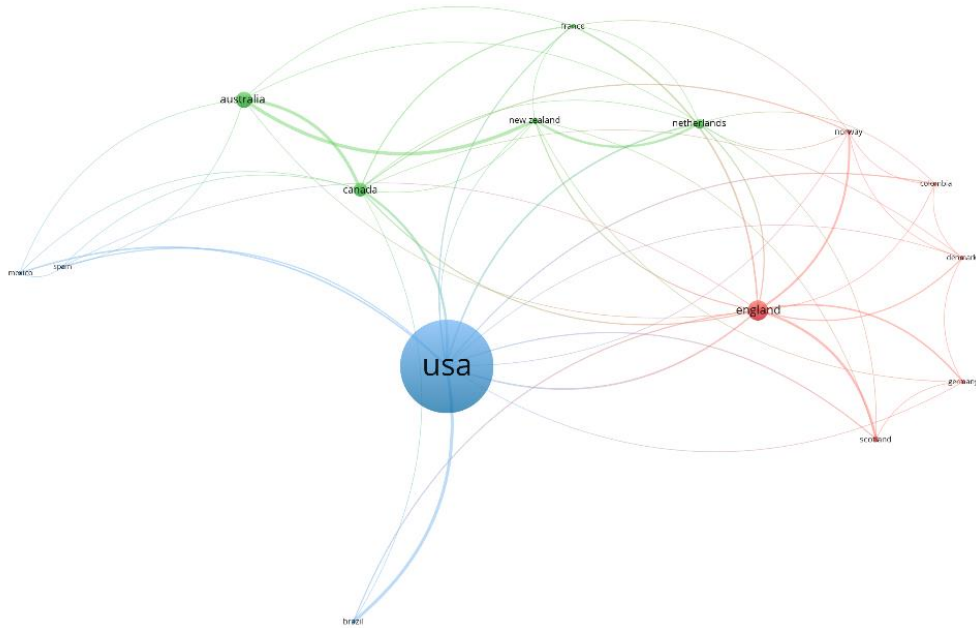
Source: Own elaboration on Web of Science results.

Country of Publication

Figure 2 illustrates a representation of the number of articles produced in different countries. As seen in the figure the country that produces most articles is the United States (228), followed by England (50), Australia (40) and Canada (35). The United States also is the country that collaborated with most of the other countries represented. A strong connection is present between Canada, Australia and New Zealand and the Netherlands.

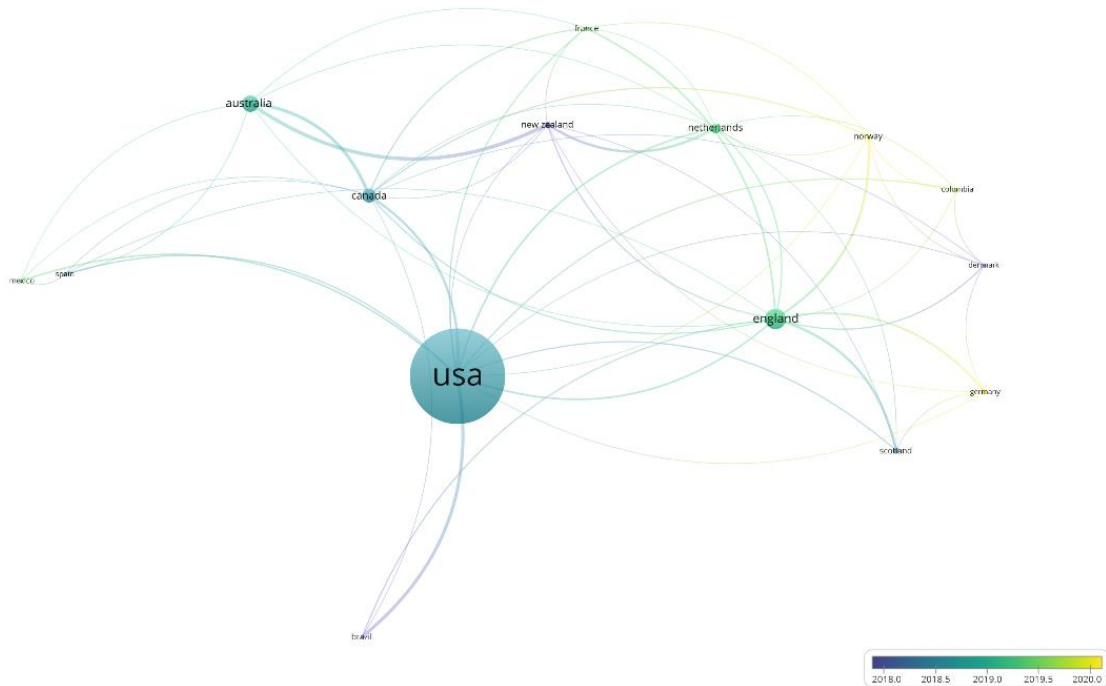
On the other hand, the Fig. 3 represents a graph of the countries that produced documents but based on the time when they were published. Based on the selected period of time, New Zealand and Denmark are the two countries that started to publish, while Norway, Germany and Colombia are the last countries that joined the conversation, and this might justify their small number of documents produced.

Fig. 2: Network Visualization of the most productive countries



Source: VOS Viewer

Fig. 3: Overlay Visualization of the most productive countries



Source: VOS Viewer

Most Relevant Sources

Table 2 shows the most cited journals based on the most relevant sources. If we look at the number of documents produced the top three sources are: *Public Health Nutrition* (47), *International Journal of Environmental Research and Public Health* (47) and *Nutrients* (30). However, it is notable that if we look at the citations per source, the rank is considerably different and the top three are *Public Health Nutrition* (1090), *International Journal of Behavioral Nutrition and Physical Activity* (607) and *Bmc Public Health* (458). All the sources are primarily focused on Health; some also have a component of Behavioral Nutrition.

Tab. 2: Most Relevant Sources

Source	Documents	Citations
Public Health Nutrition	47	1090
International Journal of Behavioral Nutrition And Physical Activity	27	607
Bmc Public Health	24	458
International Journal of Environmental Research And Public Health	47	446
American Journal of Clinical Nutrition	6	253
Bmj Open	5	214
Nutrients	30	164
Preventing Chronic Disease	12	145
Jmir Mhealth And Uhealth	6	130
Journal of Nutrition Education and Behavior	8	120
American Journal Of Public Health	5	117
Journal of the Academy of Nutrition and Dietetics	8	112
American Journal of Preventive Medicine	6	94
Appetite	7	76
Plos Medicine	5	65
Plos One	7	62
Preventive Medicine Reports	5	35
Health Equity	5	24

Source: Own elaboration on VOS Viewer

Keywords

Only 36 keywords met the threshold (with a minimum number of occurrences of 14 for a keyword). The keywords and their occurrences are presented in Table 3. The top 3 keywords are those who appeared the most and can be considered the focus of interest of the literature and they are Obesity (166), Fruits and Vegetables (103) and Intervention (90).

Tab. 3: Keyword Co-occurrence Analysis

Keyword	Occurrences	Total Link Strength
Obesity	166	542
Fruits and Vegetables	103	411
Intervention	90	282
Food Environment	82	301
Supermarket	72	253
Accessibility	56	251
Environment	52	222
Health	46	149
Healthy Food	45	187
Behavior	44	156
Diet Quality	42	159
Low-Income	40	159
Vegetable Consumption	39	154
Children	38	106
Store	38	146
Financial Incentives	37	132
Food Purchases	31	114
Association	29	124
Consumers	28	76
Neighborhood	28	130
Food Store	27	119
Disease	26	77
Food Deserts	24	98
Choice	21	68
Perception	20	74
Corner Store Intervention	19	82
Nudging	19	72
Price	18	63
Public Health	18	60
Snap	18	84
Food Choice	17	51
Communities	16	64
Socioeconomic Status	15	66
Weight	15	53
Disparities	14	58
Grocery Store	14	45

Source: Own elaboration on VOS Viewer

Clustering

VOS Viewer identified four clusters that are summarized in Table 4. 7

Tab. 4: Clusters and Items

Cluster	Name	Color	N° of Items	Keywords
1	In-store Intervention	Red	16	Behavior, Choice, Consumers, Disease, Financial Incentives, Food Choice, Food Environment, Food Purchases, Grocery Store, Intervention, Nudging, Perception, Price, Public Health, Socioeconomic Status, Supermarket
2	Vulnerable Groups	Green	12	Accessibility, Communities, Corner Store Intervention, Disparities, Environment, Food Store, Fruits and Vegetables, Healthy Food, Low-Income, Neighborhood, SNAP, Vegetable Consumption
3	Nutrition	Blue	7	Association, Children, Diet Quality, Health, Obesity, Store, Weight
4	Food Desert	Yellow	1	Food Desert

Source: Own elaboration on VOS Viewer

The first cluster is named “In-store Intervention”, it is the biggest cluster and it includes a vastity of keywords that can be connected to the step to develop an in-store intervention: from the analysis of the context (Public Health, Disease, Food Environment, Socioeconomic status, Behavior) and of the placement (Grocery Store, Supermarket) to the different available levers (Financial Incentives, Choice, Food Choice, Price, Perception). One particular keyword that emerged is Nudging, its appearance, even if small, confirms the emergence of this technique in relation to the theme of Health and Nutrition.

The second cluster is called “Vulnerable Groups” and it includes 12 items. The articles in this cluster deal with the disparities that exist, in terms of income, as the literature suggested different levels of income lead to diverse healthy food intakes. The most relevant keyword in this cluster is fruits and vegetables, sustained also by the presence of SNAP, that is the Supplemental Nutrition Assistance Program funded in the 1930s in the United States to give low-income individuals access to a better diet via subsidies to buy healthy food, such as fruits and vegetables.

The third cluster includes the most occurrent keyword, that is Obesity, it is composed by 7 items and mainly deals with health and nutrition matter. An important keyword of this cluster is Children, in fact many articles are focused on child obesity prevention and cure.

The last cluster is abnormal due to its composition. There is only one keyword: Food Desert. Food deserts are particular areas that do not have access to healthy and/or affordable food, they exist in socio-economically disadvantaged regions (Beaulac et al., 2009), however this item might stand alone since their existence and their meaningful influence on health and nutrition is debated (Zhen, 2021).

The results of the analysis suggest that marketing-related interventions, such as financial incentives, shopper marketing activities like corner store intervention, and the most recent nudging are relevant tools to increase the consumption of healthy food, such as F&V. Still, there are many obstacles that might prevent the effectiveness of those strategies: disparities in the population, socioeconomic status, food deserts, food environment, prices are just a few of the barriers to a decent quality diet.

Research limitations. This study is not without limitations. First, it represents a preliminary study of a larger research project. Second, we focused on findings based on keywords and we did not provide an exhaustive analysis of all the articles. Also, given the great extent of existent documents we also had to consider mainly articles and we selected a restricted time frame. Lastly, in order to provide a greater validity of the results, an empirical analysis would be needed.

Managerial implications. Although the managerial implications are based on partial results, we expect development of future research in the topic. In details, the present analysis on the research areas and the main sources demonstrates how the theme has been primarily observed in a medical optic. This paper confirms the existing gap of the topic in the marketing area: since the existence of the problems defined in the framing of the research and the scarce results obtained with traditional promotion that did not lead to an increase in consumption of healthier food, it is evident the necessity of exploring the potential of new techniques, such as Shopper Marketing and Nudging. In fact, the results suggested the emergence of new trends that companies should consider to be able to influence consumers towards the transition to a better quality of life. The theme of obesity, and chronic diseases in general, is relevant, and it does not only have a downfall on the individual, but it is a problem that concerns the entire society. Supermarkets under this point of view have an important strategic role that they must not take lightly, in fact most food choices are taken inside grocery stores. This is why, given its characteristics and relevance, the department of F&V should be considered more.

Lastly, governments and policy makers should put more effort in helping the vulnerable groups with more subsidies and incentives, because the existent social and economic disparities do not allow the same access to healthy food to all individuals.

Originality of the paper. *The literature on the theme of Nutrition, Health and relative Marketing Intervention is vast. However, to the extent of our knowledge, ours is the first attempt at trying to define the state of art of the chosen intersection of topics through the use of the VOS Viewer Software. The originality of the paper must be found in the selected method of analysis, also considering that, until now, the topic has been mainly studied under a medical perspective, while we have opted for a multi-disciplinary approach. To stimulate correct consumer behaviors, in fact, it is necessary to consider the knowledge coming from marketing and behavioral economics, in our case namely related to shopper marketing and nudging.*

Keywords: *Nudging; F&V; Retail; Health; Nutrition; VOSViewer*

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Digitalizzazione del settore healthcare e soluzioni di intelligenza artificiale. Un'analisi esplorativa

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Inquadramento della ricerca. L'emergenza sanitaria causata dalla pandemia di COVID-19 ha posto le basi per una radicale trasformazione del panorama sanitario. Lo shock di questa crisi ha sottolineato il ruolo fondamentale della digitalizzazione dell'assistenza sanitaria e dello sviluppo dell'e-health. L'intero ecosistema, infatti, deve essere in grado di adottare innovazioni per gestire la vasta gamma di dati disponibili, da cui estrarre le informazioni critiche per supportare un processo decisionale intelligente anche per le soluzioni di marketing (Zainuddin et al., 2013; Annanpera et al., 2015; Kraus et al., 2021; Iyanna et al., 2022). Ciò ha portato ad un ampliamento dei campi di applicazione delle soluzioni basate sull'intelligenza artificiale (IA) (Leone et al., 2022; Cannavale et al., 2022). L'IA è "l'intelligenza delle macchine, in contrapposizione all'intelligenza degli esseri umani o di altre specie viventi" (Weng et al., 2001; Meskò et al., 2018; Musacchio et al., 2020). L'intelligenza artificiale può anche essere definita come lo studio degli "agenti intelligenti", ovvero qualsiasi agente o dispositivo in grado di percepire e comprendere ciò che lo circonda e di conseguenza intraprendere azioni appropriate per massimizzare le possibilità di raggiungere i propri obiettivi (Wooldridge and Jennings, 1995; Wang, 2019; Dyer-Witheyford, 2019).

La digitalizzazione in sanità introduce vantaggi significativi nelle relazioni medico-paziente e nel coordinamento tra i vari attori coinvolti nell'ecosistema sanitario (Panch et al., 2018; Payne et al., 2018; Leone et al., 2021; Schiavone et al. 2022). L'indagine MIT-BCG del 2017 sui report IA riporta che il servizio clienti/pazienti è la seconda area funzionale più coinvolta. Queste tendenze sottolineano l'urgente necessità per i manager di applicare modelli nuovi e su misura per la progettazione di soluzioni di intelligenza artificiale che migliorino i servizi, le esperienze, i viaggi e i punti di contatto dei clienti/pazienti nel loro viaggio di cure, il cosiddetto "patient journey" (Robbins et al., 2013; Håkansson Eklund et al., 2019).

Un primo punto critico per lo sviluppo di tali modelli è realizzare, dal punto di vista manageriale, quale sia la tecnologia IA più utile per la progettazione e la gestione della patient experience e del journey. Come riportato in precedenza, l'IA è un dominio molto ampio, un termine generico sotto il quale sono compresi diversi rami tecnologici, soluzioni e servizi (Agrawal et al., 2019; Copeland, 2020). In effetti, i rami dell'intelligenza artificiale si riferiscono all'apprendimento automatico (ovvero apprendimento profondo, supervisionato, non supervisionato), apprendimento di processi naturali (ovvero estrazione di contenuti, classificazione, traduzione automatica, risposta a domande, generazione di testo), sistemi esperti, visione (ovvero riconoscimento di immagini, riconoscimento automatico visione), discorso (ovvero discorso a testo, testo a discorso), pianificazione e robotica (Simon, 2019; Siala and Wang, 2022). Tuttavia, le tassonomie tecniche non forniscono informazioni utili e dirette ai professionisti del marketing su ciò che queste tecnologie possono fare per i clienti. Una nuova tipologia di IA, recentemente apparsa nella letteratura sulla ricerca sui servizi, risolve questo problema. Questa categorizzazione delinea quattro tipi di IA (Huang and Rust, 2018). La più semplice è l'"intelligenza meccanica", adatta alla routine e comune. Il secondo livello si riferisce all'intelligenza e si chiama "intelligenza analitica", attraverso la quale i computer elaborano le informazioni per risolvere problemi e imparare da esse. Il terzo tipo di AI è l'"intelligenza intuitiva": in questo caso, le macchine possono pensare in modo creativo e fornire nuove soluzioni ai problemi. L'ultima e più sofisticata forma di intelligenza artificiale è l'"intelligenza empatica" mediante la quale le macchine apprendono e adattano il loro comportamento e la loro decisione in base all'esperienza. I quattro tipi di intelligenza artificiale possono migliorare notevolmente le funzioni e i meccanismi di funzionamento di qualsiasi punto di contatto tra l'organizzazione e i suoi clienti/pazienti.

Un'altra variabile critica da considerare per progettare servizi di IA efficaci sono i dati (disponibili per l'azienda o acquistabili dai fornitori) che la tecnologia deve elaborare per creare e offrire esperienze soddisfacenti ai clienti/pazienti in termini di co-creazione di valore (Vargo et al., 2008; Marcos-Cuevas et al. 2016; Mele et al., 2018).

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Il valore dei dati per la gestione della patient experience è ben noto. Ovviamente, i dati sono cruciali anche per qualsiasi servizio di intelligenza artificiale i cui dati sono il suo principale “input”. In generale, ricercatori e professionisti delle scienze sociali, come il marketing, possono prendere in considerazione più livelli di analisi e fonti di dati per sviluppare teorie o informare i processi decisionali, ossia: 1) dati a livello micro, che riguardano gli individui; 2) dati di livello meso, che si riferiscono a comunità, organizzazioni e categorie sociali (ad esempio, i sessi); 3) dati di macrolivello, che riguardano la società e il contesto istituzionale. L'attuale ascesa del paradigma digitale dei big data mostra che in diversi settori non solo le fonti di dati a livello micro (ad esempio, i clienti) ma anche a livello meso e macro sono molto importanti per la progettazione di servizi basati sull'intelligenza artificiale (Musacchio et al., 2020; Haefner et al., 2021).

Obiettivo del paper. Questo studio mira a proporre un quadro concettuale sui principali driver che hanno contribuito alla trasformazione digitale del settore healthcare, infatti, la domanda di ricerca è: “In che modo l'IA contribuisce al miglioramento del patient journey nel settore healthcare? Per raggiungere questo obiettivo, abbiamo seguito diversi passaggi. Il settore healthcare è stato raramente indagato dal punto di vista del miglioramento del patient journey grazie all'utilizzo di nuove tecnologie come l'IA.

Innanzitutto, abbiamo eseguito una review della letteratura sull'intelligenza artificiale e le sue diverse tipologie; successivamente, abbiamo sviluppato speculazioni teoriche (King e Walsh, 1993) incentrate sul ruolo dell'IA nel settore healthcare. L'analisi ha permesso di aggiungere una panoramica della produzione letteraria e del conseguente mutamento temporale che caratterizza questo argomento. Introducendo la letteratura sull'innovation management, è essenziale sottolineare il cambiamento sistematico e fondamentale nel modo in cui le imprese intraprendono attività innovative di organizzazioni coinvolte in settori di servizi. L'approccio esplorativo attraverso casi studio ha permesso di identificare alcuni filoni di ricerca (es. miglioramento nella customer/patient relationship management) che aiutano a chiarire le direzioni dello studio di settore. L'obiettivo è sviluppare un conceptual framework per indagare il ruolo dell'intelligenza artificiale come strumento a supporto delle relazioni sopra menzionate nel settore healthcare ormai digitalizzato.

Metodologia. Per affrontare la domanda di ricerca, il nostro studio utilizza un approccio qualitativo attraverso l'analisi di casi di studio (Yin, 2017). Questo approccio metodologico è fondamentale quando l'ambito della domanda di ricerca è “come” e quando l'indagine riguarda eventi contemporanei. Eisenhardt (1989, p. 534) ha attestato che gli approcci esplorativi sono adatti quando la ricerca “si concentra sulla comprensione delle dinamiche presenti all'interno dei singoli contesti”.

Abbiamo realizzato una selezione orientata all'informazione di tre casi estremi con lo scopo di indagare le migliori pratiche che adottano regolarmente le diverse tipologie di IA, concentrandosi in particolare sul settore healthcare.

I costrutti implementati in questo documento per analizzare come le soluzioni di IA supportano il miglioramento di servizi in ambito healthcare sono: (1) la complessità del settore esplorato in termini di collaborazioni e relazioni tra i diversi attori coinvolti (ad esempio policy makers, decision makers, pazienti, aziende sanitarie e farmaceutiche) e (2) le diverse iniziative di IA dei diversi attori coinvolti.

Le molteplici fonti di prova sono state triangolate per migliorare il valore e la solidità dei costrutti, infatti, abbiamo esplorato (Yin, 2017): 1) dichiarazioni dei manager 2) osservazioni dirette e artefatti fisici 3) documentazione online e documenti d'archivio ufficiali. La sezione dei risultati fornisce dettagli approfonditi.

In particolare, attraverso le dichiarazioni dei manager, abbiamo analizzato le modalità di utilizzo dell'IA per capire se questa tecnologia potesse migliorare il patient journey nel settore healthcare.

Attraverso osservazioni dirette, abbiamo analizzato le attività dei manager e altri attori coinvolti nelle soluzioni di IA durante le diverse fasi del patient journey. Infine, per rafforzare la nostra indagine, artefatti fisici (ad es. medical devices di IA) e altra documentazione online (ad es. stampa specializzata) hanno contribuito ad arricchire la raccolta di dati e la comprensione dei benefici e dei rischi promossi da questa tecnologia nel contesto healthcare digitalizzato.

Di seguito le informazioni principali sui casi selezionati:

- “Alira Health” (<https://alirahealth.com/>) è una società di servizi globale che fornisce un set completo di dati incentrati sul paziente e servizi tecnologici (es. soluzioni basate sull'intelligenza artificiale) per accelerare l'innovazione nel settore sanitario. L'azienda riunisce esperti negli Stati Uniti, nell'UE e in altri mercati con una profonda conoscenza delle caratteristiche locali del settore in termini di costruzione e sviluppo del mercato sanitario globale. Una divisione di Alira Health Ventures è impegnata in investimenti in nuovi prodotti e società nel mercato focale.
- Fondata nel 2015, “Pieces Technologies” (<https://piecestech.com/>) è un'azienda statunitense di tecnologia dell'informazione sanitaria e sociale, con sede a Dallas, che sviluppa software per l'analisi e la gestione dei dati dei pazienti in tempo reale. Pieces Technologies ha sviluppato due principali soluzioni basate sull'intelligenza artificiale. Innanzitutto, Pieces DS aiuta gli ospedali e i sistemi sanitari con l'uso dell'archiviazione dei dati nel cloud. L'obiettivo di questa soluzione basata sull'intelligenza artificiale è duplice, ovvero identificare un problema di salute in modo più rapido ed efficiente, oltre a fornire cure immediate al fine di massimizzare la co-creazione di valore tra fornitori e clienti. La seconda soluzione basata sull'intelligenza artificiale è Pieces IRISTM, un sistema di archiviazione dati che consente ai pazienti di essere assistiti fuori dall'ospedale. Questa tecnologia mette in collegamento le strutture sanitarie e i servizi territoriali, offrendo un programma di supporto oltre che di assistenza sociale nei casi in cui la malattia possa colpire la sfera emotiva. Pieces IRISTM supporta il paziente nello svolgimento delle cure post ospedaliere, migliorando le abitudini di vita per evitare di incorrere in ulteriori problemi di salute.

- “Aiforia” (<https://www.aiforia.com/>) fornisce a patologi e scienziati nei laboratori preclinici e clinici un potente software di intelligenza artificiale di deep learning per tradurre le immagini in scoperte, decisioni e diagnosi. I prodotti e servizi Aiforia basati su cloud mirano a incrementare l'efficienza e la precisione dell'analisi delle immagini mediche oltre le capacità attuali, in una varietà di campi, dall'oncologia alle neuroscienze e altro ancora.

Risultati. I casi analizzati hanno permesso di riassumere i risultati del presente studio in tre direzioni: 1) presenza di approcci “patient-centric”, 2) diagnostica di precisione e intelligent visualization, 3) modelli decisionali predittivi e di co-creazione di valore.

Dunque, i risultati dimostrano che le soluzioni AI sono progettate per consentire informazioni in tempo reale, consentendo ai professionisti di concentrarsi su un pool di pazienti molto più piccolo e ottenere un set di dati chiaro e completo. Inoltre, la raccolta e l'analisi dei dati mostrano che un'immagine più chiara delle informazioni sui pazienti consente una maggiore attenzione all'assistenza personalizzata e alle reali esigenze degli individui. Pertanto, grazie alla diagnostica di precisione e all'intelligent visualization aumenta il coinvolgimento dei pazienti ed evidenzia la necessità per gli ecosistemi sanitari di effettuare un radicale cambio di paradigma adottando un approccio basato sui pazienti e sui loro bisogni e adattando i loro modelli di business ai cambiamenti digitali. Le soluzioni IA non possono essere implementate indipendentemente dalle caratteristiche del contesto organizzativo e dalla gamma di esperienze vissute dall'organizzazione. Per ogni percorso del cliente, la propria gamma di soluzioni AI. Ispirandosi a Pieces Technologies, l'IA si è dimostrata difficile in termini di adozione clinica; quindi, quando si valutano le soluzioni di intelligenza artificiale, è fondamentale garantire livelli molto elevati di valori predittivi positivi e sensibilità a seconda del caso d'uso. Se i medici non si fidano dei risultati dell'IA o se il sistema è troppo sensibile e “eccessivo di allerta”, la soluzione non verrà adottata, soprattutto dai medici. Inoltre, i risultati dimostrano che i sistemi sanitari e le organizzazioni che forniscono i servizi ai consumatori/pazienti si trovano ad affrontare enormi sfide per quanto riguarda la vasta gamma di dati disponibili e la capacità di estrarre le informazioni più importanti che realmente informeranno il processo decisionale intelligente. Data l'enorme quantità di informazioni presentate ai team sanitari, il tempo per prevedere, identificare, attivare e monitorare gli esiti diventa sempre più difficile da gestire durante l'incontro di un paziente senza un sistema intelligente in grado di far emergere approfondimenti pertinenti e attuabili presso il punto di cura.

Limiti della ricerca. L'utilizzo della metodologia del caso di studio potrebbe non consentire la generalizzazione dei risultati ottenuti e può rendere lo studio sensibile al contesto. La ricerca futura potrebbe concentrarsi sull'analisi di casi in diverse località geografiche o implementare una tecnica quantitativa che consenta l'analisi di un campione rappresentativo dell'intera popolazione. Inoltre, la ricerca futura può essere sviluppata considerando la prospettiva di attori normativi di grande reputazione come agenzie governative, società scientifiche e altri decisori per comprendere l'idea istituzionale dell'ecosistema sanitario digitalizzato.

Implicazioni manageriali. Lo studio ha diverse implicazioni manageriali che possono essere preziose per i professionisti del settore per capire come organizzare i loro servizi di assistenza sanitaria in maniera digitalizzata. Ad esempio, gli ospedali potrebbero aumentare la credibilità e la rilevanza delle loro attività condivise sui vantaggi economici ed esperienziali dei loro servizi digitali proposti da un mediatore centrale della piattaforma digitale in grado di creare e fornire valore ai diversi stakeholder coinvolti nell'ecosistema. Inoltre, l'implementazione della sola tecnologia raramente crea risultati migliori e sostenibili a supporto di un ritorno sull'investimento (ROI).

Originalità del paper. Quello che si può apprendere dall'indagine esplorativa del settore healthcare è che le soluzioni IA oggi in ambito clinico richiedono supporto clinico e analitico da parte del fornitore di soluzioni IA per personalizzare, supportare e analizzare ulteriormente i dati oltre le informazioni in tempo reale fornite al team di assistenza. Inoltre, la capacità di iterare e implementare rapidamente nuovi algoritmi per il sistema sanitario dovrebbe essere richiesta anche a qualsiasi fornitore di soluzioni di intelligenza artificiale. Pensare all'IA come a un insieme di tecnologie da scegliere solo in base alle loro prestazioni significa non preoccuparsi dei clienti né tenere conto della natura mutevole delle loro esigenze. Un approccio corretto dovrebbe prevedere una scelta saggia bilanciando il lato performante della soluzione AI e il loro impatto sui clienti, spostandosi sempre più verso soluzioni AI intuitive ed empatiche. Nuove opportunità hanno modellato il mercato delle sperimentazioni digitali sui farmaci, monitorando lo stato dei partecipanti alla sperimentazione, la loro maggiore integrazione nel processo e così via. La scelta dei candidati più adatti ai test, così come il loro maggiore coinvolgimento in ottica di co-creazione di valore, aumenta la possibilità di ottenere risultati più corretti, richiesti dagli stakeholder del settore. A sua volta, la gestione dei dati è un collegamento chiave in un nuovo tipo di generazione di valore, nonché nella fornitura di valore per le parti interessate del settore.

Parole chiave: intelligenza artificiale; digitalizzazione; healthcare; approccio patient-centric.

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La comunicazione strategica della sostenibilità come elemento di differenziazione delle imprese e delle destinazioni turistiche¹

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Inquadramento della ricerca

Sostenibilità e turismo

Gli studi relativi alla sostenibilità nel settore turistico si sono sviluppati notevolmente negli ultimi decenni sia in ambito manageriale sia nella comunità accademica. In particolare, il tema risulta rilevante sia per le singole imprese del settore turistico che decidono di investire in pratiche orientate alla sostenibilità, anche con l'obiettivo di differenziarsi dai competitor e aumentare il proprio successo di medio lungo termine, sia per le destinazioni turistiche nel loro complesso che risentono, a livello di sistema di offerta turistica, delle azioni dei singoli operatori (Buhalis e Main, 1998; Kozak e Rimmington, 1998; Bohdanowicz, 2005). Alcuni studi infatti identificano l'investimento in pratiche sostenibili per le imprese (EMPs - Environmental Management Practices) una azione che influisce positivamente sia sull'azienda e sia sulla destinazione turistica nel suo complesso (Bagur-Femenias et al. 2015; Buffa et al., 2018). Questo anche in considerazione di una clientela sempre più sensibile al tema della sostenibilità (McClay, 2021), disposta anche a pagare un "premium price" per acquistare servizi ecologici o "green" (Rodriguez-Anton et al., 2012; Chang et al., 2015; Alonso-Almeida, 2018; Buffa et al. 2018). La sostenibilità rappresenta quindi per le imprese e per i territori una importante leva competitività e di differenziazione (Bohdanowicz, 2005; Vadakkepatt et al., 2021). Tuttavia, nonostante il moltiplicarsi degli studi sulla sostenibilità, la letteratura si concentra prevalentemente sugli aspetti più legati alla dimensione ambientale rispetto all'adozione di un approccio multidimensionale che consideri anche le sue altre dimensioni: sociale ed economica (Tölkes C., 2018, Franco et. al., 2021). Inoltre, una maggioranza degli studi si focalizza più sulle pratiche dei singoli operatori del turismo con particolare riferimento al prodotto (Tölkes C., 2018). Meno diffusi gli studi che considerano il tema della sostenibilità anche in considerazione degli effetti delle pratiche delle imprese sull'immagine della destinazione turistica nel suo complesso.

Un'impresa può essere considerata sostenibile se è in grado di sviluppare un vantaggio competitivo durevole, con un ritorno stabile nel tempo, e che garantisce un flusso di valore continuo agli apportatori di capitale e agli altri stakeholders; nel moderno sistema economico, questo vantaggio competitivo è sempre più ricercato nell'utilizzo di risorse immateriali, rinvenibili nei concetti di capitale strutturale e relazionale, quali conoscenze, competenze specifiche, abilità esclusive e sistemi di relazione interna ed esterna, che permettono all'azienda di instaurare relazioni di valore con gli stakeholder primari. In pratica, una strategia sostenibile finalizzata alla resilienza del business, mira a creare valore economico per i propri shareholders, e al contempo a contribuire alla creazione di una società veramente sostenibile in quanto incontra le esigenze delle attuali generazioni, senza sacrificare i bisogni e le opportunità di benessere delle future generazioni. In questi termini, una strategia veramente sostenibile è quella che integra la sostenibilità materiale, in senso multidimensionale, con l'abilità del business-model aziendale di garantire un impatto netto positivo sui valori economici, le risorse ambientali e i valori sociali.

Un'impresa resiliente è quindi in grado di creare valore per gli stakeholder nel tempo, ed è chiamata a monitorare i risultati (in termini di output e di outcome) e gli effetti delle decisioni strategiche intraprese sui processi e sulle risorse chiave che utilizza mediante indicatori di performance (finanziari e non finanziari); comunicare in modo strutturato ed efficace queste attività, e in particolare l'orientamento alla sostenibilità, l'impegno del management e i risultati ottenuti nel gestire i cosiddetti sustainability risk (Environmental, Social and Governance - ESG risk), può divenire uno strumento di differenziazione in chiave di comunicazione strategica. Questi tre criteri ESG danno la misura di quanto un'azienda sia sostenibile e responsabile con riferimento alle tematiche di impatto ambientale, di responsabilità sociale e di adeguati assetti di governance, e sono sempre più spesso anche considerati per valutare la solidità complessiva dell'impresa (Aksoy et al., 2019). Sono esempi di fattori ambientali l'investimento in riduzione delle emissioni inquinanti, l'uso di energia sostenibile, la tutela della biodiversità, ecc. Rientrano nella dimensione sociale la

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costruzione di un ambiente interno di lavoro di qualità, l'investimento sulla parità di genere, l'attenzione alla diversità e all'inclusione nella gestione delle risorse umane ma anche il rapporto con i partner dell'impresa e con la comunità nel suo complesso. Infine, il fattore "governance" si riferisce al comportamento etico e trasparente dell'azienda, all'adozione di adeguati e coerenti assetti di governo, in tema anche di concorrenza leale, delle policy adottate e delle procedure di controllo e di misurazione delle performance implementate in azienda.

La trasparenza e l'accountability sulle tematiche ESG è oggi una tendenza sempre più richiesta dai consumatori e dagli stakeholder di riferimento degli operatori di una determinata destinazione turistica, attuali e potenziali; sempre più spesso infatti, nelle loro scelte di consumo, anche i turisti valutano i rischi e la performance ESG degli operatori di una destinazione quando pianificano un viaggio, e pertanto, molte società della filiera di settore stanno allocando quantità crescenti di capitale e risorse per affrontare gli aspetti ESG e aumentare l'attrattiva della propria offerta. Anche gli investitori sono sempre più inclini a valutare la performance ESG di un operatore o l'orientamento alla sostenibilità di una determinata destinazione turistica quando conducono le proprie attività di due diligence finalizzate a valutare l'attrattività complessiva del finanziamento di progetti nel settore turistico.

Nel settore turistico le prestazioni ambientali misurano il modo in cui l'attività aziendale contribuisce al cambiamento climatico, all'inquinamento, alla biodiversità e all'esaurimento delle risorse naturali del mondo. In tutti i settori del turismo, le aziende affrontano altresì una crescente pressione per adottare pratiche socialmente più sostenibili; l'insicurezza e l'instabilità del lavoro nel settore dei viaggi e del turismo è un problema importante. Gli operatori del settore sono sempre più monitorati dagli stakeholder critici interessati ad apprezzare se e come stiano mettendo in pratica ciò che predicano in termini di promozione di condizioni di lavoro eque e corrette, della diversità, dell'inclusività e delle pari opportunità.

La sempre maggiore attenzione a questi aspetti immateriali che definiscono l'esperienza complessiva di un viaggio e caratterizzano, differenziandola, una destinazione turistica da un'altra, è anche riscontrabile dall'affermarsi della tendenza turistica emergente del "viaggio lento", sintomo ed evidenza della ricerca dei viaggiatori di esperienze sempre più significative e autentiche. Il viaggio lento, oltre all'evidente richiamo alla velocità del viaggio e ai tempi di permanenza presso una destinazione, evoca un significato più profondo, più ampio, in quanto il turista che soggiorna nelle destinazioni più a lungo, da conto della sua volontà/esigenza di stabilire una maggiore e più profonda connessione con la popolazione locale, la cultura, il cibo e la musica; ciò significa che viaggiare lentamente è anche più sostenibile per le comunità locali e l'ambiente (Kim et al., 2020). Questo è un ulteriore elemento che la comunicazione strategica della performance sui temi ESG di una destinazione può utilizzare in chiave di differenziazione. Recenti studi evidenziano come i turisti sono sensibili alle tematiche ambientali e sociali, quali la sicurezza, la tranquillità, il tasso di criminalità e violenza, l'integrità del territorio, la stabilità politica o regolamentare, e tendono quindi ad evitare destinazioni con bassi profili di tali fattori (Ballia et al, 2018; Demir and Gozor, 2018; Yap e Saha, 2013).

I viaggiatori di oggi hanno una notevole quantità di informazioni a disposizione per pianificare le proprie scelte di viaggio e di consumo, e sono anche consapevoli dei potenziali tentativi di greenwashing degli operatori di una determinata destinazione turistica; una non corretta, fuorviante o ingannevole disclosure della performance ESG potrebbe creare danni o effetti indesiderati all'immagine dell'azienda o dell'intera località/destinazione. Le imprese turistiche possono quindi pensare di adottare investimenti e attività ESG in chiave funzionale ad affrontare strategicamente e con pro-attività i fattori macroeconomici emergenti, o mega-trends, con l'intento di sviluppare leve di differenziazione rispetto ai competitors; la performance, per quanto riguarda gli aspetti ESG di un'impresa turistica, ha effetti sull'intera destinazione turistica e l'efficace strategia di comunicazione di questa performance può decretare la crescita e il successo della singola impresa ma anche della destinazione stessa.

Da un punto di vista teorico, la performance ESG degli operatori di una destinazione misura quanto tale località ha individuato e presidia i rischi correlati all'impatto ambientale, sociale e di governance degli operatori economici e degli stakeholder di riferimento (Crifo et al, 2017, Berritella et al, 2006, Hamilton et al, 2005); vista la natura iper competitiva del mercato turistico, piccole differenze nelle misure degli indicatori ESG e dei rischi correlati possono generare impatti significativi nelle scelte di consumo dei viaggiatori, e decretare così la preferenza e quindi il successo, di una destinazione rispetto ad una concorrente, caratterizzata da indicatori ESG peggiori o da una peggiore strategia comunicativa di tali performance.

Dall'analisi della letteratura sul tema emerge una prevalenza di studi volti a comprendere come i comportamenti dei turisti/consumatori siano prevalentemente influenzati da fattori di natura economica, quali i prezzi, il reddito, i tassi di cambio, i costi commerciali e di viaggio (Abedtalas e Topras, 2015; De Vita, 2014; Martins et al., 2017; Shafiullah et al, 2018); un minor numero di contributi si sono invece focalizzati sul ruolo degli elementi immateriali, non strettamente economici e correlati agli aspetti ambientali, sociali e di governance, che invece sembrano influenzare notevolmente le decisioni di consumo dei viaggiatori (Aksoy et al. 2022, Kim et Al, 2020). Recenti contributi hanno altresì evidenziato come la pandemia abbia agito da catalizzatore per una maggiore sensibilità alle tematiche legate alla sostenibilità ambientale, sociale e di governance delle aziende e del generale sistema di offerta turistica (Hassan, Meyer, 2022).

La comunicazione strategica della sostenibilità

L'immagine della destinazione, e come questa rappresenti un elemento di differenziazione, risulta un tema di particolare interesse soprattutto per l'influenza che questa può avere sulle scelte dei consumatori (Baloglu e McCleary, 1999; Buhalis, 2000; Beerli e Martin, 2004; Chen e Tsai, 2007, Kapferer, 2012). Come abbiamo precedentemente

argomentato, l'investimento in sostenibilità attuato da una destinazione turistica e dagli operatori di un territorio può contribuire alla differenziazione della propria immagine rispetto ai territori concorrenti (Ekinci, 2003). Questo però viene percepito dalla clientela, e considerato nelle decisioni di acquisto dei clienti, nel momento in cui la destinazione riesce a sviluppare una appropriata comunicazione della propria immagine. Molte imprese del turismo e territori adottano una strategia di comunicazione con un approccio più operativo, ossia utilizzano una serie di strumenti di comunicazione volti alla mera produzione e distribuzione del servizio. Più raro lo sviluppo di una comunicazione integrata e strategica. La comunicazione strategica è considerata un asset fondamentale per le organizzazioni moderne, specialmente quelle di grandi dimensioni. Tale approccio mette in relazione comunicazione, management e attività dell'organizzazione in chiave strategica superando i consueti confini esistenti tra le varie funzioni dell'impresa (Falkheimer et al. 2017). Il focus non è il prodotto in sé ma il brand dell'organizzazione inteso in senso olistico e le relazioni che esso genera con gli stakeholders e la comunità locale. Falkheimer et al. (2017) identifica quattro aspetti che giustificano l'importanza della comunicazione strategica nelle organizzazioni: sviluppare l'efficacia e la fiducia; consolidare, rafforzare oppure modificare l'immagine di marca presso i vari stakeholder; rafforzare e valorizzare l'identità e la cultura aziendale presso i dipendenti; favorire l'apertura e la trasparenza nei confronti delle altre organizzazioni, degli stakeholder e del pubblico in generale.

La letteratura sui temi della comunicazione e relazioni pubbliche sottolinea l'importanza della corporate communication nel processo di creazione del valore dell'impresa (Hallahan et al. 2007; Moss and Warnaby, 2010, Grunig and Grunig, 2011). Invernizzi e Romenti (2015) partendo dalla *Entrepreneurial Organization Theory (EOT)* (Alvarez e Barney, 2004) identificano un unico framework concettuale per integrare le dimensioni chiave della comunicazione strategica. In particolare, secondo gli autori, alle quattro dimensioni del modello EOT (Gatekeeping e networking; Orientamento all'innovazione, Leadership trasformativa; Enactment) corrispondono quattro dimensioni della comunicazione strategica: *Aligning, Energising, Visioning e Constituting*. Le attività di *Aligning* riguardano la comunicazione volta ad allineare le strategie dell'organizzazione con il suo ambiente mediante attività di analisi dell'ambiente e collegamento con gli stakeholder di riferimento. Tale approccio risulta maggiormente sostenibile non solo sul fronte interno ma in relazione alle aspettative degli stakeholder e dei pubblici esterni di riferimento (Lurati e Eppler 2006) perché crea un ponte (bridging) tra l'impresa e i suoi stakeholder (Van den Bosch e Von Riel, 1998). Nella pratica questo si trasforma in coprogettazione di attività e condivisione di strategie. Le attività di *Energising*, riguardano la comunicazione rivolta verso gli stakeholder interni dell'organizzazione. La condivisione degli obiettivi, delle strategie aziendali, soprattutto se è in atto un processo di innovazione, genera maggiore consapevolezza, coinvolgimento e responsabilizzazione del personale nel processo che si traduce nel miglioramento del clima interno e nella collaborazione nel raggiungimento degli obiettivi (Welch e Jackson, 2007). L'attività di *Visioning* riguarda l'azione di comunicazione agli stakeholder di riferimento interni ed esterni dei contenuti della strategia e delle più importanti decisioni aziendali e la comunicazione a supporto del business aziendale. Infine, l'attività di *Constituting*, secondo cui la comunicazione rappresenta un processo costitutivo dell'organizzazione (sense making) che influenza i processi cognitivi di interpretazione dell'organizzazione.

Nell'ambito della comunicazione strategica, la misurazione risulta una parte integrante del processo (Romenti, 2014 e 2016). In particolare, non si tratta della misurazione dei risultati delle singole campagne ma del valore complessivo generato dalla comunicazione a livello funzionale, organizzativo e sociale. Esistono vari tipi di misure della comunicazione. Le misure formative legate ai risultati di efficienza che misurano la capacità di raggiungere gli obiettivi (es. rapporto attività/output). Particolare rilevanza ricoprono le misure legate al capitale intangibile della comunicazione che presenta sei dimensioni: umana (competenze e skills delle risorse interne); relazionale (rete di relazioni interne ed esterne); organizzativa (stile di comunicazione e management interno che facilitano la comunicazione); narrativa (le conversazioni e le storie collettive relative all'impresa); reputazionale e di immagine (branding).

Vari studi hanno dimostrato che gli standard ESG prevedono una comunicazione generalmente diretta agli stakeholder (investitori e policy makers) più che alla clientela (Fernandez-Feijoo et al., 2014; Ioannou and Serafeim, 2017) mediante strumenti quali il Bilancio di Sostenibilità e l'Integrated Reporting. La comunicazione non si traduce quindi in corrispondente percezione da parte della clientela (Aksoy et al. 2022). Oltre a identificare le metriche per misurare la sostenibilità, le imprese dovrebbero essere in grado di comunicare la propria immagine e il proprio orientamento alla sostenibilità a tutti gli stakeholder, compresa la clientela attuale e potenziale, e la comunità locale. Esiste quindi un gap fra investimento dell'azienda in pratiche sostenibili e lo sviluppo della corrispondente comunicazione volta allo sviluppo della percezione di tali iniziative da parte della clientela (Peloza et al., 2012). Sul fronte della comunicazione, i clienti non riescono a cogliere il collegamento di come questi indicatori riflettano delle pratiche che impattano sulla loro effettiva esperienza (White et al., 2019). Inoltre, quando esistente, l'attività di comunicazione degli indicatori ESG è di tipo operativo e si concentra su singoli aspetti del servizio rispetto a considerare la sostenibilità come un elemento parte integrante dell'identità di un'impresa e di un territorio. Dall'analisi della letteratura, per quanto di nostra conoscenza, non esistono studi scientifici che applicano i concetti e le pratiche di comunicazione strategica alle imprese turistiche e alle destinazioni con particolare riferimento alla comunicazione della sostenibilità.

Obiettivo del paper. Alla luce delle considerazioni precedentemente esposte, il paper si propone di applicare l'approccio della comunicazione strategica, generalmente utilizzato dalle organizzazioni, alle imprese turistiche valutandone anche gli effetti sulle destinazioni turistiche. Una prima domanda di ricerca vuole comprendere la capacità di comunicare delle imprese che investono in sostenibilità.

RQ1: Le imprese che investono in sostenibilità (in particolare ESG) sono in grado di comunicare la propria immagine a tutti gli stakeholders compresa la clientela? La comunicazione adottata è adeguatamente percepita dalla clientela?

In particolare, con riferimento al tema della misurazione della comunicazione, partendo dai modelli di misurazione della comunicazione strategica esistenti per le organizzazioni, alcuni indicatori (KPI) sono applicati alla misurazione del valore generato dall'attività di comunicazione strategica delle imprese del turismo con riferimento ai valori quali la sostenibilità ambientale, sociale e agli elementi di governance (ESG).

RQ2: Quali indicatori sono utilizzabili dalle imprese del turismo per la misurazione degli effetti della comunicazione della sostenibilità?

L'applicazione dell'approccio della comunicazione strategica alle destinazioni risulta particolarmente complesso a causa della varietà degli operatori da cui è composta rispetto alla singola impresa, e alla multidimensionalità degli elementi oggetto di misurazione (Pike, 2005). Tuttavia, l'indagine vuole anche comprendere la ricaduta dell'investimento in comunicazione dei singoli operatori sull'immagine della destinazione nel suo complesso.

RQ3: Quale è l'impatto della comunicazione strategica della sostenibilità dei singoli operatori sulla destinazione turistica?

Il contributo intende evidenziare come il crescente interesse verso una rendicontazione strutturata dei rischi ESG da parte delle organizzazioni di impresa, in risposta anche al crescente interesse degli stakeholders, sia un elemento fondamentale nello sviluppo di strategie comunicative efficaci da parte del sistema della destinazione turistica. Ciò anche al fine di sviluppare leve di differenziazione, dei singoli operatori e del complessivo sistema di offerta turistica della destinazione. Al contempo l'obiettivo è definire le modalità di comunicazione della sostenibilità adottate, di norma più operative che strategiche e più rivolte ad interlocutori business che alla clientela finale (Aksoy et al. 2022). Risulta quindi interessante studiare le modalità di comunicazione adottate dalle imprese che investono in sostenibilità (ESG) per indagare le domande di ricerca precedentemente esposte e le potenzialità dell'adozione di un approccio di comunicazione strategica.

Metodologia. *In seguito alla revisione della letteratura è stato elaborato un questionario volto ad indagare le domande di ricerca (RQ1, 2, 3). In particolare, sono analizzate le pratiche ESG di un gruppo di imprese alberghiere che investe in sostenibilità e che ha integrato il concetto di sostenibilità nella propria cultura aziendale, e gli effetti in termini di percezione di tali pratiche da parte degli stakeholder. L'obiettivo come indicato precedentemente è comprendere l'efficacia della comunicazione nei confronti dei vari stakeholder e in particolare della clientela. Il questionario è suddiviso in tre parti: informazioni generali dell'intervistato, valutazione delle attività di comunicazione e delle attività di management suddivise nelle varie dimensioni ESG, effetti della comunicazione sulla destinazione turistica. I questionari sono stati testati su un gruppo di stakeholder e di clientela prima di procedere alla somministrazione.*

Risultati. *La ricerca si trova in fase di sviluppo e si trova ora nella fase di somministrazione dei questionari. Si prevede l'elaborazione dei risultati nel periodo giugno-luglio 2023. Possono quindi essere descritti in questa sezione i risultati che si prevedono di ottenere mediante l'analisi dei dati raccolti.*

Per quanto riguarda la RQ1 ci aspettiamo di riscontrare delle modalità di comunicazione più operative e rivolte maggiormente ad alcuni specifici stakeholder (bilancio di sostenibilità, bilancio integrato) con un gap quindi fra investimento in sostenibilità e rispettiva percezione della clientela. In merito alla domanda di ricerca RQ2 ci proponiamo di rilevare quali indicatori sono adottati dalle imprese per proporre opportuni metriche di misurazione della comunicazione adottando e applicando i modelli della comunicazione strategica con gli opportuni adattamenti. Infine, con riferimento alla RQ3, ci attendiamo un forte collegamento fra le azioni delle singole imprese e la destinazione turistica nel suo complesso con riferimento alle percezioni della clientela. La capacità di comunicare in modo strategico dei singoli potrebbe dunque impattare sull'immagine della destinazione turistica.

Limiti della ricerca. *Un primo limite della ricerca è la contenuta numerosità di imprese coinvolte nell'indagine dal punto di vista: del settore (imprese alberghiere); del livello qualitativo (generalmente di fascia alta); della collocazione territoriale (Nord Italia). Uno step di indagine successivo si propone di ampliare il numero di imprese coinvolte. Inoltre, la ricaduta delle attività di comunicazione sulla destinazione è studiata considerando la percezione che la clientela autonomamente indica nel questionario. Per il futuro potrebbero essere valutate impressioni più spontanee della clientela mediante l'analisi delle recensioni.*

Implicazioni manageriali. *I risultati di questo studio possono essere utilizzati dalle singole imprese del settore turistico per comprendere la percezione in merito alla propria attività di comunicazione, valutandone l'impatto strategico. In base ai risultati dell'indagine le imprese (sia quelle sotto indagine ma anche altre simili) potranno valutare l'efficacia della propria comunicazione strategica e decidere se adottare e comunicare gli indicatori proposti dallo studio.*

Dal punto di vista delle destinazioni turistiche, i risultati dello studio possono essere di interesse per i policy maker e per i responsabili delle attività di governance del territorio per comprendere l'impatto delle strategie dei singoli operatori sull'immagine della destinazione. L'idea del paper è anche quella di contribuire al dialogo fra operatori di un territorio in merito alle più opportune strategie di sviluppo.

Originalità del paper. *Un primo aspetto di originalità riguarda l'approccio multidisciplinare con cui il tema della comunicazione della sostenibilità è affrontato combinando gli studi sulla comunicazione strategica e quelli di management. Un secondo elemento riguarda lo studio della sostenibilità da un punto di vista multidimensionale che consideri non solo quella ambientale, come spesso accade, ma anche quella economica e quella sociale (Tölkes C.,*

2018, Franco et. al. 2021) e con particolare riferimento agli indicatori ESG. Un terzo aspetto riguarda lo studio degli effetti dell'azione dei singoli operatori sull'immagine della destinazione nel suo complesso, spostando quindi il focus dalle singole imprese alla destinazione. Infine, lo studio si focalizza sul ruolo degli elementi immateriali, non strettamente economici e correlati agli aspetti ambientali, sociali e di governance, che invece sembrano influenzare notevolmente le decisioni di consumo dei viaggiatori.

Parole chiave: sostenibilità; ESG; comunicazione strategica; turismo; bilancio di sostenibilità, integrated reporting; destinazione

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Il ruolo dei big data nella costruzione della *brand identity*

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Inquadramento della ricerca. *Le tecnologie 4.0 generano un'enorme quantità di dati, la cui corretta gestione impatta in modo significativo sulle dinamiche d'impresa (Mandelli, 2017). Controllare e interpretare i dati vuol dire, infatti, intraprendere azioni di digital analytics (Power, 2014; Wheeler, 2016), ovvero svolgere attività ed utilizzare strumenti che consentono la raccolta dei dati, al fine di sviluppare analisi, report, ottimizzazioni e previsioni, da cui discendono verifiche e valutazioni degli stessi, per la creazione del valore d'impresa (Phillips, 2014). In particolare, nell'attuale scenario imprenditoriale e competitivo, i big data si stanno configurando quale presupposto imprescindibile per il decision-making. Essi si riferiscono a grandi volumi di dati generati principalmente negli ecosistemi dei media digitali (Constantiou e Kallinikos, 2015).*

Basandosi sulla teoria della Resource-Based View (RBV), diversi studi evidenziano che i big data esprimono un potenziale per ciò che riguarda la loro funzione di risorse di valore per le imprese (Tien, 2013; Wamba et al., 2015). La corretta gestione, analisi e interpretazione dei big data, mediante strumenti di data mining (Liu e Shih, 2005) e con l'ausilio di machine learning (Bose e Mahapatra, 2001), rappresentano attività fondamentali per la competitività delle imprese (Sivarajah et al., 2017; Elia et al., 2019).

La crescente adozione dell'approccio data-driven nelle decisioni aziendali influenza inevitabilmente le pratiche di comunicazione strategica (Wiesenberg et al., 2017) e di brand management (Kallinikos e Constantiou, 2015; Mikalef et al., 2016). Nella nuova era di branding, focalizzata sempre di più sulla co-creazione negli ambienti digitali, l'ascolto strategico supportato dai dati fornisce importanti indicazioni sulla percezione del brand da parte degli stakeholder, nonché sulle loro aspettative e comportamenti. Tali informazioni consentono di sviluppare relazioni personalizzate tra il brand e gli stakeholder (Yan et al., 2022) e di orientare le strategie di brand building, influenzando la costruzione dell'identità del brand (da Silveira et al., 2013; Kornum et al., 2017; von Wallpach et al., 2017; Essamri et al., 2019).

In effetti, nel corso degli ultimi anni, le recenti ricerche sul branding hanno enfatizzato un approccio partecipativo e multi-stakeholder alla brand identity, interpretandola come un costrutto dinamico e multidimensionale (Kristal et al., 2020), facendone emergere la natura sociale (da Silveira et al., 2013; Wider et al., 2018; Essamri et al., 2019) e polisemica (Michel, 2017). È crescente la consapevolezza che i significati del brand sono il risultato di una varietà, in continua evoluzione e spesso ambigua, di interpretazioni che derivano da una moltitudine di attori coinvolti nel processo di costruzione del brand (Berthon, Pitt e Campbell, 2009). In questa prospettiva, sta emergendo la necessità di rivalutare i tradizionali framework di brand identity (Aaker, 1996; Kepferer, 1992), anche e soprattutto alla luce delle opportunità offerte dall'analisi dei big data.

Obiettivo del paper. *Sebbene nel corso degli ultimi anni la ricerca relativa al branding nell'era digitale stia ricevendo una crescente attenzione, sono ancora piuttosto limitati gli studi che approfondiscono il ruolo dell'approccio data-driven nei processi di cambiamento che coinvolgono il brand (McGuire et al., 2012; Aimè et al., 2022; Conte et al., 2022).*

Parallelamente, la letteratura sui big data si sta focalizzando sull'utilizzo degli strumenti di machine learning nelle pratiche organizzative da un punto di vista tattico (massimizzazione dei risultati di marketing operativo a brevissimo termine), trascurando l'impatto dei digital analytics sulle attività strategiche d'impresa (Grover et al., 2018) e sulla costruzione e gestione del brand (McAfee et al., 2012; Wiesenberg et al., 2017). Di conseguenza, si evidenzia un gap in letteratura su come la datafication possa influire sul processo strategico di brand building, tenuto conto dei cambiamenti che l'identità di marca sta subendo nei contesti digitali stakeholder-empowered.

Alla luce di tali considerazioni, il presente studio concettuale intende indagare il ruolo dei big data, e il loro impatto, nel processo di definizione della brand identity. Inoltre, il working paper si propone di approfondire in che modo i big data possano essere considerati una risorsa strategica per le imprese (Groover et al., 2017).

Metodologia. *Il presente studio si basa sul "theory synthesis design" di Jaakkola (2020). Attraverso la sintesi e l'integrazione di due flussi di letteratura, relativi al branding e ai big data analytics, vengono esplorate e ampliate le basi teoriche della brand identity, grazie all'adozione di un'unica prospettiva (MacInnis, 2011), ossia la teoria della*

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Resource-Based View (Wernerfelt, 1984; Barney, 1991; Peteraf, 1993). Tale lente teorica, coniugando gli studi di branding e di big data analytics, consente di concepire non solo il brand, ma anche i big data, come risorsa strategica in grado di creare valore per l'impresa e di sostenere il vantaggio competitivo (Mata et al., 1995; Groover et al., 2017). In ottica delle caratteristiche individuate dalla RBV, i big data sono una risorsa aziendale (Grover et al., 2017; Zhang et al., 2020):

- preziosa: le informazioni di valore derivanti dai big data consentono all'organizzazione di sviluppare nuove opportunità di business;
- rara: l'integrazione dei diversi dati (esterni ed interni) sono difficilmente reperibili dai competitor;
- inimitabile: i competitor non possono imitare, acquistare o sostituire ad un prezzo ragionevole le informazioni ottenute dai big data a livello aziendale;
- incorporata a livello organizzativo (*embedded*) e non sostituibile: la combinazione dei big data con altre risorse e capacità è integrata nei processi aziendali e non può essere sostituita da una risorsa alternativa.

La sintesi teorica proposta nel working paper consente una rilettura della Corporate Brand Identity Matrix (CBIM) di Urde (2013), che funge da strumento per esaminare l'impatto dei big data sulla costruzione della brand identity. Il framework di Urde è stato selezionato per la chiara distinzione tra le componenti interne, centrali ed esterne dell'identità del brand. Come tale, permette di coniugare le prospettive "outside-in" e "inside-out" e consente un approccio di definizione e allineamento della brand identity orientato al mercato, al brand o combinato (Urde, 2013). L'approccio orientato al mercato viene avviato considerando gli elementi esterni, vale a dire la value proposition, le relationship e il position. Nell'approccio brand-oriented, gli elementi interni (mission e vision, culture, competence) e il core (brand value e promise) costituiscono la base e il punto di partenza del processo di brand identity building. Nell'approccio combinato, infine, si considerano in modo integrato tutte le componenti della CBIM di Urde, presupponendo che la definizione di ciascun elemento si rifletta su quella degli altri e sul core, posto al centro della struttura di brand identity.

Risultati. La rilettura del framework di Urde, alla luce degli studi relativi all'approccio data-driven, fa emergere il ruolo d'impatto dei big data, in quanto risorsa strategica secondo la RBV, sulla costruzione dell'identità del brand. Tale impatto supporta la definizione delle componenti esterne (value proposition, relationship, position) e interne (mission e vision, culture, competence) e si riflette sul core, elemento centrale nella CBIM.

Nel modello di Urde, la value proposition è "the combinations of appealing arguments directed to customers and non-customer stakeholders [...] that should lead, consistent with a brand core, to a favourable relationship between customers and a favourable reputation" (Urde, 2013, p.753).

Adottando la lente della RBV, le indicazioni derivanti dai big data rappresentano una risorsa preziosa in grado di creare valore aziendale, in quanto consentono il miglioramento dei processi organizzativi, dell'esperienza del cliente e delle performance dell'impresa (Grover et al., 2018). I big data supportano i processi di innovazione del business model, creando modelli di business data-driven (Urbini et al., 2019; Teng e Lu, 2016) e agendo sullo sviluppo di una nuova value proposition, considerata uno degli elementi chiave dello stesso (Chesbrough e Rosenbloom, 2002; Osterwalder, 2004; Johnson et al., 2008; Woerner e Wixom, 2015). I digital analytics consentono infatti di raccogliere i feedback dei clienti e di interpretare una serie di informazioni che, oltre a permettere le strategie di profilazione, forniscono alle imprese input utili per adeguare tempestivamente l'offerta del proprio prodotto o servizio sulla base della domanda attuale e potenziale (Feng e Guo, 2018). Pertanto, con il supporto dei big data, si possono creare e veicolare nuove proposte di valore più in linea con le esigenze dei consumatori e più attrattive per ciascuno dei segmenti serviti. L'analisi dei big data fornisce inoltre informazioni sui prodotti e servizi dei concorrenti del settore, sui benefici attesi e sui costi della proposta di valore ipotizzata (Teng e Lu, 2016)

L'elemento della relationship del framework di Urde si riferisce al "the way an organization with brand delivers service to its customer, works with them and relates to them needs to be reflected in the corporate brand identity" (Urde, 2013, p. 753).

Nel contesto dello stakeholder relationship management, i dati generati e ottenuti nelle relazioni con i dipendenti, clienti, fornitori, ecc. rappresentano una risorsa inimitabile, in accordo con la RBV (Grover et al., 2018), che favorisce la creazione di valore all'interno e all'esterno dell'impresa, permettendo di sviluppare relazioni più efficaci con gli stakeholder. Una maggiore e migliore analisi, interpretazione e adozione dei dati consente di migliorare la corporate communication (Invernizzi e Romenti, 2013; Siano et al., 2015), facendo emergere nuovi approcci: data-driven supply chain nella comunicazione di filiera (Yu et al., 2016); data-driven human resource/talent management nell'ambito della comunicazione interna e di reclutamento (Sparrow et al., 2015) e del data-driven marketing connesso ai flussi di comunicazione rivolti ai clienti (Garg et al., 2011). La comunicazione di marketing è sicuramente quella che appare più matura per quanto concerne l'adozione dei big data analytics e che sembra offrire maggiori prospettive di crescita futura in termini di personalizzazione delle relazioni con i clienti (customer relation) (Wedel e Kannan, 2016). Inoltre, i big data supportano i sistemi di Customer Relationship Management, facilitano l'ottimizzazione delle strategie di engagement, migliorano l'esperienza dei clienti, in particolare la personalizzazione dei servizi e dei customer service (Anshari et al., 2019.; Zhang et al., 2020), nonché il customer lifecycle value (Columbus, 2016; Lee, 2017).

Nella CBIM di Urde, l'elemento del position "defines how management wants the corporate brand to be positioned in the market, and in the hearts and minds of key customers and non-customer stakeholders" (Urde, 2013; p. 746).

I big data, in quanto risorsa rara nella prospettiva della RBV, agiscono sul posizionamento ricercato dall'impresa in duplice modo. Innanzitutto, essi supportano il processo di ascolto delle opinioni e del livello di gradimento dei consumatori rispetto ai benefici offerti dal brand, migliorando così il posizionamento competitivo dei brand (Tirunillai

e Tellis, 2014; Sheng et al., 2017). Il social listening, ovvero l'ascolto sistematico dei social media, ad esempio, consente una migliore comprensione di come gli stakeholder percepiscono i valori e gli attributi (significati) connessi al brand (Aimé et al., 2022). Grazie ai big data e al social listening, il monitoraggio dell'ambiente esterno (in particolare della rete) potrebbe perciò contribuire alla ridefinizione o al rafforzamento del brand position. Attraverso l'analisi dei big data, il brand può essere, dunque, posizionato in modo più accurato e dinamico (Feng e Guo, 2018).

In secondo luogo, l'adozione dei big data analytics costituisce un segnale dal punto di vista simbolico, in quanto comunica agli stakeholder l'innovatività del brand, migliorando la sua percezione e ottenendo sostanziali effetti reputazionali derivati dal "signaling effect" (Clemos et al., 2017; Grover et al., 2018).

I big data, considerati come risorsa incorporata nell'organizzazione non sostituibile in linea con la RBV, va a impattare anche sulle componenti interne necessarie alla costruzione della brand identity, ossia sulla mission e vision, sulla cultura e sulle competenze.

La mission è fondamentale per l'identità del brand (Urde, 2013), in quanto rappresenta la ragion d'essere di un'organizzazione, al di là degli obiettivi puramente economici (Collin e Porras, 1998). Nell'approccio orientato al brand, la mission rappresenta tipicamente un punto di partenza nel processo di definizione della brand identity (Urde, 1994). La vision estende la mission, illustrando i principi ispiratori dell'organizzazione nella proiezione futura (de Chernatony, 2010). Nella costruzione dell'identità del brand, la mission e la vision sono fattori di commitment (Senge, 1990). I big data sono risorse incluse nella strategia d'impresa a lungo termine (Grover et al., 2018), considerato che supportano la definizione della mission e della vision. Sfruttare il valore dei big data ai fini della comprensione dell'evoluzione del contesto e del mercato di riferimento, consente di trasformare la vision e la strategia dell'impresa (Jobs et al., 2016).

Prendendo in considerazione la prospettiva di Urde (2013) relativa alla cultura, essa può essere intesa come l'insieme degli atteggiamenti, dei valori, delle credenze e dei comportamenti dell'impresa (Hatch e Schultz, 2001; Schroder e Saltzer-Morling, 2006). Da un punto di vista strategico, la cultura rappresenta un elemento di differenziazione e un potenziale vantaggio competitivo, in quanto fonte di ispirazione del brand e dei suoi prodotti/servizi e mezzo di comunicazione (Brexendorf e Kernstock, 2007; Kapferer, 2012). Grazie all'integrazione strategica dei big data nelle dinamiche d'impresa, è possibile configurare una corporate culture data-driven (Zhang et al., 2020). In accordo con Kiron e Shockley (2011), una cultura data-driven si basa su presupposti quali: i dati vengono considerati come una risorsa intangibile che ha valore per l'organizzazione; i membri del top management enfatizzano e sostengono l'analisi dei dati quando assumono le decisioni; l'impresa utilizza la tecnologia dei big data per ottenere approfondimenti data-driven.

Infine, Urde (2013) include le competenze come elemento particolarmente importante nella definizione dell'identità del brand. Esse comprendono le conoscenze, le capacità, i processi di un'organizzazione e le core competence (Prahalad e Hamel, 1990). La combinazione dei big data con altre risorse e capacità organizzative (conoscenze analitiche, talento umano, competenze ed esperienze con gli strumenti avanzati di gestione e analisi) fornisce un nuovo modo di sostenere il vantaggio competitivo, in quanto costituisce anche una risorsa rara, specifica per ogni settore e unica per ogni contesto d'impresa (Grover et al., 2018). Inoltre, l'adozione delle tecnologie abilitanti e l'utilizzo dei big data analytics stanno cambiando i profili professionali ricercati nell'impresa e stanno comportando un ampliamento delle competenze che includono la data science (Loebbecke e Picot, 2015). Quest'ultima può essere descritta come un set di regole fondamentali che supportano e guidano l'estrazione delle informazioni e della conoscenza a partire dai dati (Provost e Fawcett, 2013).

I big data agiscono pertanto sulla componente interna ed esterna (extended identity) e, di conseguenza, tale impatto si riflette sul "core" che riassume l'essenza dell'identità del brand.

Limiti della ricerca. Lo studio presenta le limitazioni tipiche di un paper concettuale, costruito su base meramente deduttiva, a partire dalla letteratura disponibile in materia. Le future ricerche dovrebbero esplorare i risvolti empirici. Si rende opportuno perciò indagare, in modo più dettagliato e specifico, il legame tra big data e branding, approfondendo se e come le organizzazioni utilizzano i big data nei processi di costruzione della brand identity. Per tale scopo, si potrebbe adottare un approccio metodologico integrato quali-quantitativo, mediante web survey e interviste in profondità con i manager di branding. Inoltre, sulla base degli input proposti nella rilettura del modello di Urde, future ricerche potrebbero focalizzarsi su nuovi e innovativi modelli di brand identity in grado di valorizzare il set degli strumenti 4.0. Infine, future ricerche potrebbero indagare il ruolo della comunicazione strategica nei processi delineati, considerando l'importanza delle attività di ascolto organizzato e strategico-riflessivo, dirette ad orientare la corretta assunzione delle decisioni strategiche (Siano et al., 2015).

Implicazioni manageriali. Dallo studio possono derivare, sul piano delle implicazioni manageriali, indicazioni e suggerimenti per le pratiche di branding nell'era dei big data. Innanzitutto, la revisione del framework di Urde proposta può accrescere la consapevolezza nei manager che un utilizzo dei big data come risorsa strategica può impattare sui processi di costruzione dell'identità del brand. Il brand manager, infatti, può avere indicazioni su come i big data possano supportare la definizione delle componenti esterne ed interne e, di conseguenza, del core. In particolare, i brand manager, attraverso l'analisi dei big data derivante dall'ascolto degli stakeholder, possono sviluppare nuove proposte di valore per favorire business model innovativi e rafforzare il posizionamento competitivo del brand (Sorescu, 2017). Inoltre, analizzando l'insieme delle interazioni dell'utente con il brand (attraverso le e-mail, le newsletter, i canali social), l'impresa può trarre informazioni utili in tempo reale sul comportamento dei clienti, fondamentali per impostare campagne multicanale di marketing più puntuali e precise, nonché messaggi tarati sulle esigenze di specifici target (Cheung et al., 2003).

Con l'integrazione dei big data nel contesto organizzativo, i brand manager possono predisporre anche le basi di una cultura data-driven che può aiutare il top management ad assumere decisioni lungimiranti che migliorano la competitività dell'impresa (Gupta et al., 2018; Sistla e Babu, 2013). Infatti, la cultura data-driven consente al brand di fornire ai propri stakeholder servizi ed esperienze personalizzate, raggiungendo livelli superiori di fidelizzazione e, di conseguenza, sviluppando relazioni efficaci a lungo termine con i pubblici (Helfert et al., 2002; Iglesias e Saleem, 2015).

Infine, l'introduzione dell'approccio data-driven nella costruzione della brand identity mette in luce la necessità di condivisione dei big data nell'ambito di tutte le funzioni organizzative e di formazione di team collaborativi (Horst e Duboff, 2015; Taylor et al., 2017). Per facilitare l'integrazione dei big data nei processi di brand, infatti, è necessario un costante dialogo e cooperazione tra diverse figure professionali (Chen et al., 2012). Il brand manager necessita, pertanto, di essere supportato dal data-scientist e data-analyst nell'implementazione del framework della brand identity rivisto sulla base dell'impatto dei big data, al fine di riprogettare e ringiovanire i processi di gestione del brand, integrando gli strumenti 4.0 (Yen e Valia, 2013; Taylor, 2017).

Originalità del paper. Il working paper costituisce il primo step nell'ambito di un campo di ricerca non ancora indagato. Lo studio contribuisce ad ampliare il dibattito sullo sviluppo della brand identity multi-stakeholder-oriented supportata da un approccio data-driven. Il working paper, di taglio interdisciplinare, propone una prima rivisitazione della brand identity building nel contesto di trasformazione digitale 4.0. Inoltre, contribuisce a estendere gli studi che, sulla base della Resource-Based View, identificano i big data come una risorsa chiave per l'impresa nei processi di branding.

Parole chiave: brand identity, big data, Resource-Based View, approccio data-driven.

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New Ecosystem view: made from the context or for the context

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Framing of the research. *This work tries to consider and combine evidence such as previously developed concepts and theories on ecosystems that we have selected, acquired, and analysed in relevant literature. This work considers the development and application of this approach in the global context, characterized by an heterogeneous participation usually indicated as the ‘crowd’ phenomenon according to their values, knowledge and intelligence exchanges, and sharing processes between actors and organisations aimed at developing new answers to social and economic needs (Hirschheim, 2008).*

The current changes to the social and environmental dimensions are stimulating several players to activate their knowledge in many different places and from several different perspectives, advancing our learning, and helping us to face the issue at hand (Chesbrough, 2014; Chesbrough, 2020) in a resource-sharing process (Chesbrough, 2003; West & Gallagher, 2006).

The relationships between heterogenous actors have become a source of innovation and it helps the creation of a collaborative context that may favour win-win solutions.

Regarding this trend, the past few years present a literature gap on the motivation of the ecosystem that focuses, prevalently, on the territory structural conditions and on its capacity to create a system of actors and infrastructures able to support the creation and development of innovative business processes (Alvedalen and Boschma, 2017; Spigel, 2017; Nicotra et al., 2018).

Therefore, studies on the evolution of the ecosystem concept carried on focusing their efforts on the structural aspects determining two main perspectives: the ecosystem-as-affiliation and the ecosystem-as-structure.

Moreover, in the last decade, these structural views focused on the form of the ecosystem, recognising the differences between the ecosystems characterised by network and platform affiliations and those identified by the activities their actors carry on in order to create or capture value. Regarding this scientific scenario, the authors tried summarising the ecosystem views in table 1.

In this vein, the more involved researchers, such as Moore (1996), and Iansiti and Levien (2004), consider the ecosystem as a community composed of economic actors (affiliation motivation) promoted by a focal driver firm (defining the structure) to develop innovation for the components and capture value, producing goods and services for consumers who are themselves members of the ecosystem.

The Innovation Ecosystem field (see Adner (2006), Adner and Kapoor (2010), but even other, more recent researchers such as Neumeyer and Santos (2018)) do not see the networking as the structure main characteristic, but it looks at a main mutual objective to focus the actors’ value propositions and reached through the affiliation represented by a multilateral set of partners.

Regarding the relevance of reaching a mutual objective, Adner (2017: 40) argued that this approach focuses on the breakdown of traditional industry boundaries, highlighting the rise of industry’s interdependence and convergence, and pointing out the potential for symbiotic relationships in productive ecosystems. As such, it allows more reflective and inclusive analyses of the complex dynamics of innovation that can link different agents in heterogeneous contexts.

Tab. 1: different ecosystem studies

	<i>Affiliation</i>	<i>Structure</i>	<i>Objectives</i>
Business Ecosystem Moore (1996), Iansiti and Levien (2004)	community composed of economic actors	promoted by a focal driver firm	to develop innovation for the components and capture value
Innovation Ecosystem Adner (2006), Adner and Kapoor (2010), Neumeyer and Santos (2018)	a multilateral set of partners	focal objective to materialise	value proposition

our elaboration

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In the authors' opinion, the recent pandemic crisis showed that an emerging social and/or economic ecosystem presents some new characteristics - e.g., it does not necessarily need a specific territory to support its innovations - and that the ecosystem motivation (i.e., its logic) development can be driven by, or it may be tightly related to, social, economic, and environmental needs of a specific territory, albeit a different one (Russell and Smorodinskaya, 2018).

So, considering that the relevant literature is prevalently based on two main concurring perspectives, the structuralist view versus the functionalist one, and the value-capturing (business ecosystems) versus value-creation (innovation ecosystem), in this work, the authors try to show that an ecosystem's ability to take form and create value in social, environmental and economic fields is impacted by the motivation/logic that lead the different ecosystem's actors to create relations between them.

Purpose of the paper. Borrowing from system theories, some researchers acknowledge "generativity" as the ecosystem property letting it show its capacity to produce unanticipated change through unfiltered contributions from broad and varied sets of audiences.

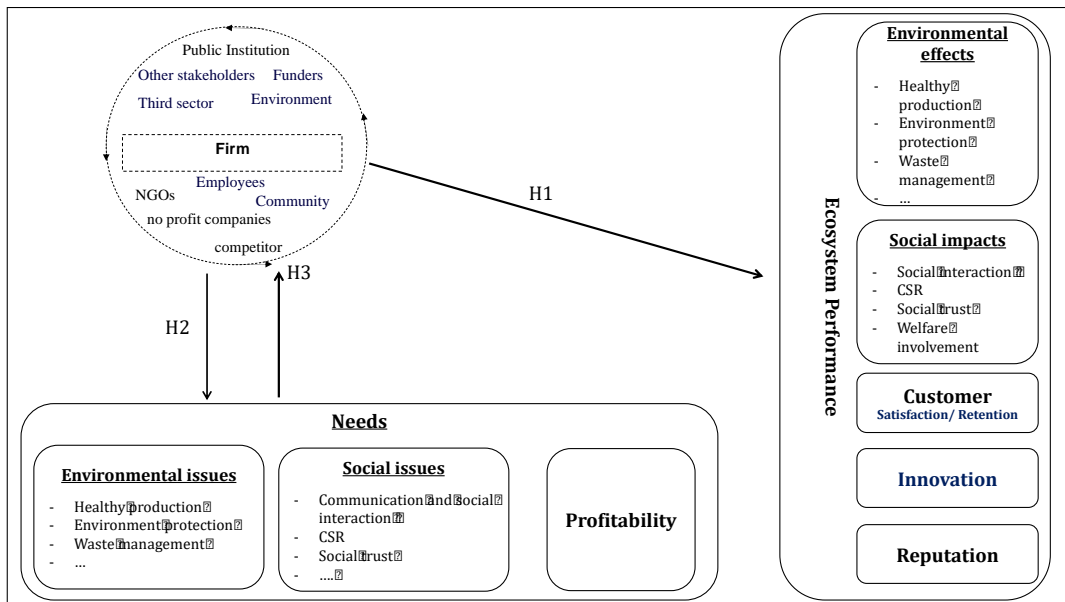
Regarding the system-producing capability, Adner (2017, pp. 42-43) argued that the different actors might have different plans and perceptions and they may use the joint value-creation effort as a general goal. Nevertheless, there are actors on whose participation the value proposition depends, regardless of whether or not they have direct links to the focal firm or the focal objective.

In this scenario, the authors synthesise the ecosystem role as a virtual or real context in which social and economic agents, in relations between them, create, through the interaction of basic activities, new opportunities to innovate to deliver new ways to respond to social, environmental and economic needs. These innovations will eventually lead to value-creation in society as the outcome of an ecosystem reached by intermediary outputs produced by the interaction of basic activities.

Considering that, increasingly, business is enlarging their role, showing social and environmental responsibilities/interests (Czinkota et al., 2020), the work aims to present the ecosystem as a virtual and/or real context where social and economic agents, and end-users share their knowledge to answer to both their own and the contextual social and economic needs by delivering completely new goods or services, or by adapting existing ones in new ways.

The study aims to claim the role of motivation in ecosystem development. The motivation could be based on needs deriving from the context or from the actors' commitment. This effort aims to fulfil a conceptual framework for scientific advancement to contextualise and match the ecosystem knowledge and the businesses' role in socio-economic change (see fig. 1).

Fig. 1: Conceptual framework



our elaboration

In a turbulent world, signed by a growing impact of the climate change and a higher risk of new pandemic crises, the firm's business model has to take into account the social, environmental and economic logic (D'Aveni et al., 2010; Minà et al., 2020). This changing model is fulfilled in strategic and competitive advantages based on shared resources, network externalities, knowledge spillovers, local endowments, and governmental support, creating a need for concepts beyond the firm-specific competitive advantage approach.

Regarding that, the authors argue that ecosystems must be conceptualised as open systems that are:

- hp1: capable of improving the state of another component through sharing or applying resources

On this trend, an ecosystem could be considered self-defined by boundaries, where the species live together in autarky. The boundaries could be physical or not, but they are associated with the engagement that connects the

components. The species, i.e., the agents, absorb both the needs and the necessary resources from the ecosystem and produce critical resources for others, which spillover within and beyond the ecosystem's boundaries.

- hp2: capable of improving the contextual state

Therefore, societal impacts refer to monetary and non-monetary outcomes, i.e., the social boundaries among entrepreneurial ecosystem actors. The social benefits can spillover into delivering new products and services that benefit society. The benefits and impacts may also relate to collective value creation and good public impacts (Cunningham et al. 2018).

- hp3: created according to bottom-up or stakeholdering motivations

The authors argue that the engagement between the different components with different motivations for value creating processes and to participate in the ecosystems processes characterises the ecosystem role as a whole within its specific context. These considerations could be connected to the more relevant business role in addressing social and environmental topics, highlighting two scenarios that differ in the ecosystem type according to the motivation.

Firstly, we could consider an ecosystem composed of related but heterogeneous agents, including businesses motivated by social, environmental and economic objectives. We can identify this scenario as an "ecosystem made for context".

Secondly, the pandemic era presented some cases in which different agents, such as when businesses, hospitals, public institutions and communities were subject to the same lack of surgical masks and/or intensive therapy ones, and they started sharing knowledge and skills to produce, and deliver, the needed answer. In this case, we consider an ecosystem created by a societal motivation that we can label as an "ecosystem made from the context".

Ecosystem made for the context

One of the most felt needs in the main works on the ecosystems as tools for value creation, prevalently the business ecosystem field, is the need for both theoretical and empirical research on entrepreneurs with economic, social, and environmental objectives (Lepoutre et al., 2013; Miller et al., 2012; Roundy, 2017; Thompson and Doherty, 2006).

In this trend, the entrepreneurs combine their multiple logics in strategies translated in different behaviours (ESG, CSR, for Benefit, and so on...), including both a market logic (i.e., an economic one), which emphasises generating profits through the sale of products or services that create value for consumers and a social-welfare logic, which emphasises creating value for groups of beneficiaries influenced by social problems (Dequech, 2013). Entrepreneurs, through the ventures they create in relationships with other social and economic actors, are addressing some of the most intractable problems facing society, such as homelessness, hunger, lack of access to education and medical services, and environmental degradation (Bornstein, 2007; Elkington and Hartigan, 2008; Czinkota et al., 2020).

Regarding those considerations, it could be useful to evoke Roundy's (2017) research that argued the following hypothesis: "As the density of entrepreneurs involved in social matters in an ecosystem increases, the attention to an entrepreneurial ecosystem will increase. So, we can consider that this ecosystem addresses neglected societal problems involving positive externalities".

This definition suggests that while business ecosystems (for example, Silicon Valley and other cases) may generate positive externalities to capture economic value, this type of ecosystem is addressed to the social, environmental and economic value creation.

The current most important case is represented by Openai, an AI research and deployment company aimed to ensure that artificial general intelligence benefits all of humanity.

Its mission is: "...We believe our research will eventually lead to Artificial General Intelligence (AGI), a system that can solve human-level problems. Building safe and AGI is our mission...." (<https://openai.com/research/overview>).

In this context, Openai developed a service produced by heterogeneous ecosystem components named ChatGPT (<https://openai.com/blog/chatgpt>):

hp1: capable of improving the state of another component through sharing or applying resources; "...We are governed by a non-profit, and our unique capped-profit model drives our commitment to safety. This means that as AI becomes more powerful...."

hp2: capable of improving the contextual state; "...we can redistribute profits from our work to maximize the social and economic benefits of AI technology..." that is summarised in the claim: Our mission is to ensure that artificial general intelligence benefits all of humanity (<https://openai.com/>)

hp3: created according to stakeholdering motivations: Developing safe and beneficial AI requires people from a wide range of disciplines and backgrounds linked by a mutual social aim.

Ecosystem made from the context

The current trend is progressively evolving toward a society in which social and environmental problems rise to greater importance: there is a growing wealth inequality, a relevant cutting phenomenon in the welfare field that declares failures at both the market and institutional level, and great advances are taking place in the field of technology and value co-creation.

In this trend, business social awareness arises as a possible solution to these obstacles, characterising a scenario in which critical events are drivers to stimulate different social and economic actors to create relations between them answering to contextual needs (Acs, et al. 2016; 2017; 2018).

Therefore, not only does the main objective of the sensitive to social and environmental issues entrepreneurs imply differences compared to the traditional trade-oriented ones but the reasons for this ecosystem motivation can be affected significantly by the context and provoke relevant stimuli regarding the creation of an ecosystem. Therefore, the determinants of ecosystem motivation are represented by critical events and different levels of social and economic development in the country (Adner, 2006; Adner and Kapoor, 2010; Iansiti and Levien, 2004; Moore, 1993, 1996; Iansiti and Levien, 2004; Teece, 2007; Guittard et al., 2015; Jacobides et al., 2018; Baldwin, 2008).

The cut in welfare expenses, especially in the last decades in capitalist countries, is stimulating the heterogeneous agents' involvement in developing social innovation processes that may help to answer the existing and the new social needs that the COVID-19 pandemic has brought (Mazzucato, 2011). For example, to deal with the COVID-19 pandemic, scientists, pharmaceutical companies, and government officials have launched several initiatives to find an adequate response to the pandemic evolution with an open stakeholder engagement process aimed at innovating and overcoming competitive challenges while satisfying social and environmental needs.

In the first months of the COVID-19 pandemic, Italian hospitals had to face a severe shortage of ventilators engaging several stakeholders, including companies, NGOs, universities, and even individual inventors to mass-produce a new "open" ventilator model, designed using a scuba-diving mask and 3d printing technologies, and tested leveraging not-medical technologies such as and the wind tunnels previously used for designing cars and planes.

In the concrete, Brescia Hospital didn't reach to recover new Covid infected because the intensive therapy respirators were insufficient and contacted an Italian company operating in the 3D printing industry named Isinnova. Innova produced a new respiratory capable of serving two patients supported by a doctor that projected a respiratory valve, Decathlon as a scuba drive masks supplier, and Brescia Hospital implemented the innovative respiratory mask.

hp1: capable of improving the state of another component through sharing or applying resources:

the spontaneous ecosystem improved the hospital's capabilities, increased the community's probability of receiving adequate healthcare, and improved the Isinnova reputation.

hp2: capable of improving the contextual state: *the ecosystem saved human lives even outside the initial territory.*

hp3: created according to bottom-up:

the various actors have started to answer to the local hospital needs and later on distributed the designs for the ventilators as patented-but open source models in order to let other actors in other places both starting producing and modifying it as needed

Methodology. *The research starts from the ecosystem focal literature highlighting gaps in some important aspects and then introducing other theories to bridge the observed gaps, showing the supplementary value (Jakkola, 2020).*

The present work represents a conceptual contribution to systematize the management and literature about ecosystem matter. The scientific effort produced a preliminary conceptual framework to consider how social and economic actors can tackle or be involved in critical events and can contribute to creating or participating in an innovation ecosystem.

Research limitations. *This paper is mostly a conceptual one that may be expanded, both considering more aspects, that the authors are not deemed as relevant and trying to use the resulting model to interpret some real cases.*

Originality of the paper. *The open processes described in this work sharply contrast with some of the rising nationalist trends we had seen in the first wave of the pandemic crisis when several countries did not have got easy access to vaccines, medical devices such as ventilators, masks, or even tests, so they were effectively excluded from participating in these processes. This may be considered as deeply short-sighted as trying to protect a single country may create an environment more sensitive to virus mutations while adopting a global perspective on public health works better - and faster (Chesbrough, 2020).*

Results. *Therefore, the authors argue that the post-pandemic era would imply more responsibilities for decision-makers in implementing new institutional arrangements and stimulating investments needed to drive social and economic trends towards fairer outcomes. Decision-makers must harness the momentum of the fourth industrial revolution to resolve pressing social, health, and environmental challenges, including climate change (Schwab and Malleret, 2020).*

Even if the conceptual framework presented in this paper highlights the benefits of the social open innovation processes, at the same time, it opens the road for some further research avenues. On one side, scholars should investigate how a company may and will implement these processes with a focus on the stakeholder engagement practices and how they can effectively enhance these companies' social role while creating win-win solutions in terms of new organisational forms and/or new business models that acknowledge the new roles of business in the modern society ever more characterized by a trend leveraging on collaborative intelligence and knowledge economy.

On the other side, scholars should look into the hindrances and the obstacles limiting the diffusion of these processes.

Managerial implications. *This is an open call to understand why managers neglect to consider as viable ones those planning approaches that take into account all the impacts derived by the production processes and by the use of the products and can tackle the value creation with a broader approach that is embedded in the vision of the various stakeholders that companies can engage.*

Finally, further research should look into new roles, such as those of the convenors, that may be needed to govern these new processes and to make them a viable option to meet economic goals without sacrificing the social ones at a broader scale.

Keywords: *ecosystem; ESG; engagement; stakeholder theory; innovation; social and environmental impacts*

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Can HR analytics improve HR management practices impact on organizational performance? An empirical CB-SEM approach

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Framing of the research. *In today's highly competitive business environment, organizations are constantly seeking ways to improve their performance and gain a competitive advantage (Abbate et al., 2019; Behl et al., 2022). To do so, one way that is increasingly deemed as crucial for organizations is to manage their human resources (HR) in a strategic way (Saviano, Maria Luisa et al., 2018; Ramos-González et al., 2022). In fact, to maximize their benefits, the HR practices implemented by organizations have to be aligned with their general strategy (Akwei and Nwachukwu, 2022). In order for this to happen, the HR departments of organizations are relying always more on new digital technologies. Among these, HR analytics has gained increasing attention in recent years (Di Prima and Ferraris, 2022; Margherita 2022). It is defined as «a proactive and systematic process for ethically gathering, analyzing, communicating and using evidence-based HR research and analytical insights to help organizations achieve their strategic objectives» (Falletta and Combs, 2021, p. 54). It is becoming an essential tool for HR professionals and business leaders alike, as it provides valuable insights into workforce trends (McCartney et al., 2021), identifies areas of improvement (Chalutz Ben-Gal, 2019), and helps to inform HR decisions (Marler and Boudreau, 2017). It also enables HR professionals and business leaders to understand employee behavior, to improve workforce planning, and to optimize HR practices to achieve organizational objectives (Tursunbayeva et al., 2018). By leveraging HR analytics, organizations can thus gain a competitive advantage by improving productivity (van der Togt and Rasmussen, 2017), employee engagement (Tursunbayeva et al. 2018), and retention rates (Chalutz Ben-Gal, 2019).*

In particular, HR analytics can positively moderate the relationship between HR management practices and organizational performance in several ways (Falletta and Combs, 2021). Firstly, HR analytics can provide organizations with real-time data and insights, which can help them to make more informed decisions about their HR practices (Cayrat and Boxall, 2022). This can lead to more effective HR practices, which in turn can lead to improved organizational performance (Rai and Singh, 2023). Secondly, HR analytics can help organizations to identify the specific HR management practices that are most effective in improving organizational performance. By analyzing HR data, organizations can identify which HR practices are most strongly associated with improved performance and focus their efforts on these practices (van der Togt and Rasmussen, 2017). This can lead to a more targeted approach to HR management, which can result in greater impact on organizational performance (Chalutz Ben-Gal, 2019). Thirdly, HR analytics can help organizations to identify areas for improvement in their HR practices. By analyzing HR data, organizations can identify areas where HR practices are not meeting expectations or are underperforming (Fernandez and Gallardo-Gallardo, 2021). This can help organizations to identify opportunities to improve their HR practices, which can lead to improved organizational performance. Finally, HR analytics can enable organizations to continuously monitor and evaluate the effectiveness of their HR practices. By collecting and analyzing HR data over time, organizations can identify changes in HR practices and their impact on organizational performance (Patre, 2016). This can help organizations to continuously improve their HR practices and maintain high levels of organizational performance over the long term. Overall, HR analytics can positively moderate the relationship between HR management practices and organizational performance by providing organizations with real-time data and insights, helping them to identify the most effective HR practices, identifying areas for improvement, and enabling continuous monitoring and evaluation of HR practices.

Despite the increasing interest in HR analytics by both academics and practitioners, some gaps can still be identified. First, previous research on HR analytics typically adopted a theoretical approach, without considering empirical evidence (Peeters et al., 2020). This is particularly true when it comes to HR analytics impact on organizational performance (Rasmussen and Ulrich, 2015; Marler and Boudreau, 2017; van der Togt and Rasmussen, 2017; McIver et al., 2018) thus calling for a more complete, evidence-based understanding of the link between the two constructs. A notable exception to this is represented by the recent contribution by McCartney and Fu (2022), who developed the first validated scale to measure HR analytics. However, as admitted by the two authors, their study presents some evident limitations which should be addressed by future research. In particular, they used a small sized,

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context-limited sample, as all examined organizations came from Ireland, thus exhorting future scholars to replicate their analysis in multi-industry, multi-sector and multi-country data sets.

Purpose of the paper. The objective of this study is to investigate from an empirical point of view the effect of an HR analytics data-driven approach guiding the implementation of HR management practices on the performance of organizations. More specifically, we will investigate the positive effect of four HR management practices (employee rewards and incentives, employee training, talent acquisition and knowledge sharing) on organizational performance, and the moderating effect of HR analytics on these relationships. By drawing on contingency theory applied to HR analytics (Harney, 2016), which claims that the HR management activities will increase their effectiveness accordingly with their degree of fitness with the specific organizational context, we hypothesize that:

H1: Employee rewards and incentives are positively related to organizational performance;

H2: Employee training is positively related to organizational performance;

H3: Talent acquisition is positively related to organizational performance;

H4: Knowledge sharing is positively related to organizational performance;

H5: HR analytics activities positively moderate the positive relationship between employee rewards and incentives and organizational performance;

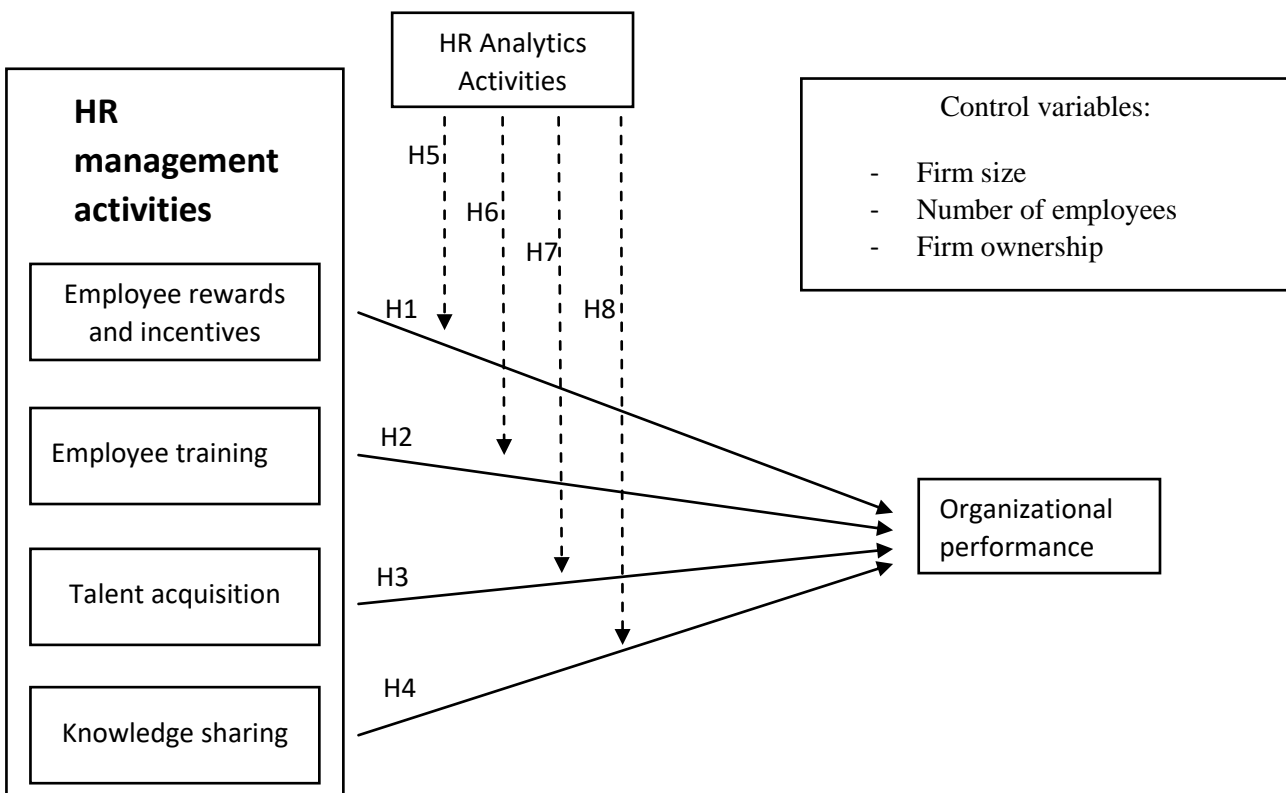
H6: HR analytics activities positively moderate the positive relationship between employee training and organizational performance;

H7: HR analytics activities positively moderate the positive relationship between talent acquisition and organizational performance;

H8: HR analytics activities positively moderate the positive relationship between knowledge sharing and organizational performance.

Our model and hypotheses are summarized in figure 1.

Fig. 1: Research Model and hypotheses



Methodology. We developed a self-administered survey to be completed by HR managers of European organizations which implemented HR analytics activities in the past three years. The online platform "Prolific" is being used to select participants which respect the aforementioned conditions and to deliver the questionnaire (Jabeen, et al. 2022).

Participants were informed that their answers will be anonymous, confidential, and used for scientific research exclusively. Attention check and reverse coded questions were inserted to assure answers' goodness. A pilot-test was conducted in collaboration with members of the Italian Association of Human Resource Directors (AIDP), from which emerged the need to rephrase the reverse coded questions to increase their clarity.

The questionnaire was developed by adapting items that had been previously validated in other studies to improve the validity and reliability of the study (Fink, 2003; Martin, 2005; Groves et al., 2013). For the same reason, each variable was assessed by using a multi-item structure, and their items were measured through a 5-points Likert scale

ranging from 1 (strongly disagree) to 5 (strongly agree), apart from organizational performance which will be measured through a 5-points Likert scale ranging from 1 (much worse) to 5 (much better) (Peter, 1979; Groves et al., 2013).

Employee rewards and incentives will be our first independent variable. It will be measured by 7 items taken from Heffernan et al. (2016). Employee training will be our second independent variable. It will be measured by a total of 8 items from Botelho (2020). Talent acquisition will be our third independent variable. It will be measured using 5 items from Mujtaba et al. (2022). Knowledge sharing will be our fourth independent variable. It will be assessed by 7 items all taken by Yang and Chen (2007)

Organizational performance will be our dependent variable. It will be analyzed based on two dimensions. The first will be operational performance and will be composed of two subdimension, product and service quality, which will be assessed by three items each, all taken by Akhtar et al. (2019). The second will be financial performance, and will be measured by three items taken by Kyrgidou and Spyropoulou (2013) and Real et al. (2014).

HR analytics will serve as the moderator of the relationship between the aforementioned HR management practices and organizational performance. It will be measured by a total of 14 items belonging to three main dimensions, namely high quality data, analytical competency and strategic ability to act. All items will be taken by McCartney and Fu (2022).

Finally, the model will include three control variables, which will be firm size (measured as the logarithm of sales) (Gimenez et al., 2012; Longoni and Cagliano, 2016), number of employees of the organization (Akhtar et al., 2019), and firm ownership (public vs private) (Do et al., 2018).

Data will be organized and processed through the IBM SPSS Statistics v.28 software, which will be used to derive the descriptive statistics and the correlation among variables, as well as to determine the normal distribution of data and that no multicollinearity or common method bias issues are present. SPSS AMOS v.28 will be then used to assess the validity and reliability of the measurement model, and to consequently verify the hypothesis. We will use the SEM technique to simultaneously assess multiple statistical relationship through visualization and model validation as, for example, in Chatterjee et al. (2022) or McCartney and Fu (2022). As it has been flagged as the most appropriate method for theory testing and confirmation in deductive studies (Hair Jr et al., 2017; Dash and Paul, 2021), a covariance based structural equation modelling (CB-SEM) will be used.

Results. As we are still in the data collection phase, analysis still have to be conducted. However, we can discuss about our expected results. First, we expect a positive relationship to exist between the aforementioned HR management practices and organizational performance. In fact, several studies already demonstrated the positive effect of employee rewards and incentives (Hussain et al., 2015), employee training (Omar and Mahmood, 2020), talent acquisition (Mujtaba et al., 2022) and knowledge sharing (Hsu, 2008) on organizational performance. More interestingly, we also expect HR analytics to positively moderate these relationships.

Regarding the relationship between employee rewards and incentives and organizational performance, HR analytics can provide insights into which rewards and incentives are most effective in motivating employees to improve their performance (van den Heuvel and Bondarouk, 2017). Through data analysis, organizations can identify which rewards and incentives are most effective for different employee groups and tailor their rewards and incentives programs accordingly (Chalutz Ben-Gal, 2019). This can lead to increased employee motivation, higher performance, and improved organizational performance. Consequently, we expect HR analytics to positively moderate the relationship between employee rewards and incentives and organizational performance.

In terms of employee training and organizational performance, HR analytics can provide insights into the effectiveness of training programs and identify areas for improvement (Barbar et al., 2019). By analyzing training data, organizations can evaluate the impact of training on employee performance and identify which training programs are most effective (Chalutz Ben-Gal, 2019). This can help organizations to design more effective training programs and ultimately improve organizational performance. Consequently, we expect HR analytics to positively moderate the relationship between employee training and organizational performance.

With regards to talent acquisition and organizational performance, HR analytics can help organizations to identify the best candidates for different job roles (Lam and Hawkes, 2017). By analyzing recruitment data, organizations can identify the most successful recruitment channels and recruitment sources for different positions (Chalutz Ben-Gal, 2019). This can help organizations to target their recruitment efforts more effectively and improve their recruitment and retention rates, which can lead to improved organizational performance. Consequently, we expect HR analytics to positively moderate the relationship between talent acquisition and organizational performance.

Finally, in terms of knowledge sharing and organizational performance, HR analytics can enable organizations to better manage their knowledge resources (Kashive and Khanna, 2022). By analyzing knowledge sharing data, organizations can identify knowledge gaps and opportunities for knowledge transfer and implement knowledge management strategies accordingly (Chaubey and Sahoo, 2019). This can lead to improved knowledge sharing and collaboration across different departments and teams, which can ultimately improve organizational performance. Consequently, we expect HR analytics to positively moderate the relationship between knowledge sharing and organizational performance.

Research limitations. This study presents some limitations which could be addressed by future research. First, our sample was composed of European organizations only. Future studies could replicate our research in other contexts to verify if some difference exist. Second, as our questionnaire was filled out by HR managers only, future studies could adopt a multistakeholder approach by taking into account the perspective of other HR analytics stakeholders as, for

example, the employees of the organization or the top management. Finally, as we adopted a cross-sectional design, future studies could adopt a longitudinal approach to collect data.

Managerial implications. This study will support practitioners from two main point of views. First, it will furnish them with useful insight regarding their HR management practices, as it will provide them with hints that will enable the maximization of their HR investments. Secondly, this study will provide HR professionals and business leaders with practical insights into how they can leverage HR analytics to improve the effectiveness of their HR practices and enhance organizational performance. In fact, the eventual confirmation of our hypotheses will further demonstrate the positive impact that HR analytics can produce not only within the HR management realm, but also on wider organizational outcomes as, in this case, organizational performance, thus furtherly increasing the acceptance of this practice at different organizational level. In fact, even if the popularity of HR analytics has been strongly increasing in the past years (McCartney and Fu, 2022), most organizations still not consider it as a relevant practice able to produce a real positive impact on them.

Originality of the paper. The contribution of this research will be threefold. First, it will contribute to HR management literature related to HR analytics by widening the number of studies that empirically investigated HR analytics impact on organizational performance. In fact, previous studies typically adopted a theoretical approach (Rasmussen and Ulrich, 2015; Marler and Boudreau, 2017; van der Togt and Rasmussen, 2017; McIver et al., 2018). By doing so, we will make a step forward towards a more complete, evidence-based understanding of the link between the two constructs. Secondly, we will answer the call by McCartney and Fu (2022), as we considered a larger, multi-industry, multi-sector and multi-country sample. By doing so, we will contribute to methodologically strengthen their conclusions, as we will demonstrate that they are generalizable not only to a wider, but also to a more heterogeneous sample. Finally, we will offer our contribution to contingency theory, as we will empirically demonstrate its applicability also with regards to a relative new topic as HR analytics.

Keywords: HR analytics; HR management; HR practices; CB-SEM; moderating effect

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Come il network aziendale influenza la performance finanziaria? Il ruolo di mediazione della sostenibilità aziendale

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Inquadramento della ricerca. *Nell'attuale contesto economico, sempre più interconnesso e veloce, le aziende si trovano di fronte a continue sfide che le spingono ad identificare nuove opportunità che le consentano di sviluppare e mantenere il loro vantaggio competitivo. In questo scenario, le aziende non possono operare in isolamento, bensì devono interfacciarsi sempre più con il contesto esterno di riferimento. Gli asset relazionali e le reti intra-aziendali risultano, dunque, cruciali per generare un vantaggio competitivo di lunga durata (Majchrzak et al., 2015; Melander, 2017).*

Secondo la prospettiva relazionale (Dyer e Singh, 1998), le relazioni che un'azienda instaura con l'ambiente esterno rappresentano risorse chiave che consentono di creare un forte vantaggio competitivo (Zaheer et al., 2010). In linea con questa prospettiva, la rete aziendale risulta essere un asset relazionale estremamente importante per le aziende, che grazie ad essa possono fare affidamento su risorse, informazioni e conoscenze esterne (Liu, 2020).

Tra gli attori organizzativi che favoriscono la creazione di reti aziendali è sempre più riconosciuta l'importanza del consiglio di amministrazione, in quanto meccanismo cruciale di governance aziendale. Più specificatamente, la teoria del capitale sociale e la teoria della dipendenza delle risorse (Pfeffer e Salancik, 1979) attribuiscono al consiglio di amministrazione un ruolo strategico nell'apertura delle frontiere aziendali e nel networking (Hillman et al., 2000). Infatti, attraverso gli incroci di amministratori, c.d. interlocking directorates, il consiglio di amministrazione instaura forti legami relazionali interaziendali. Studi precedenti hanno evidenziato che, sedendo contemporaneamente nel consiglio di diverse aziende, gli amministratori creano una rete esterna che può favorire la contaminazione tra aziende attraverso lo scambio di informazioni e risorse, accrescendo in tal modo il capitale a disposizione dell'azienda ed incidendo sulle performance aziendali (Hauser, 2018; Larcker et al., 2013; T. Zhao, 2021). Lo stesso amministratore che lavora contemporaneamente per due aziende diverse A e B ha, infatti, una maggiore probabilità di trasferire informazioni tra queste, creando così un collegamento diretto.

La ricerca sugli interlocking directorates è cresciuta notevolmente negli ultimi anni, anche grazie alla crescente quantità di fonti di dati che rendono tali informazioni più facilmente accessibili e maggiormente affidabili (Garcia-Bernardo e Takes, 2018). La letteratura si è concentrata in particolare sugli effetti di tali incroci sulle performance aziendali, mostrando una relazione positiva tra i due fattori (Hauser, 2018; Larcker et al., 2013; Martin et al., 2015; Smith e Sarabi, 2021; Zaheer et al., 2010; Zhao, 2021; Zona et al., 2018). Tuttavia, si conosce ancora poco in merito ai meccanismi sottostanti in grado di spiegare tale relazione. Sono pochi, infatti, gli studi empirici che hanno tentato di andare oltre lo sviluppo di un quadro concettuale per testare empiricamente come le reti aziendali, derivanti dalla condivisione di almeno un amministratore, impattino sulle diverse performance dell'impresa (Smith e Sarabi, 2021).

Obiettivo del paper. *Il nostro studio si propone di colmare questa lacuna ed estendere la letteratura sull'associazione tra rete aziendale e performance aziendale focalizzandosi su uno dei possibili meccanismi che può spiegare tale relazione, ovvero la sostenibilità aziendale (Broman e Robèrt, 2017; Centobelli et al., 2020). La transizione sostenibile rappresenta una sfida importante per le aziende, ma anche una scelta strategica per prosperare nel contesto competitivo in rapida evoluzione (Franco, 2021; Harrison et al., 2010; Mio et al., 2020). Gli studiosi hanno riconosciuto la sostenibilità aziendale come fonte di vantaggio competitivo (Bhuiyan et al., 2023; Walsh e Dodds, 2017) e hanno evidenziato la rilevanza delle risorse relazionali e dei fattori di rete quali driver delle performance di sostenibilità aziendale (Amui et al., 2017; Harjoto e Wang, 2020; Juo e Wang, 2022).*

Pertanto, la nostra ricerca mira ad analizzare l'effetto di mediazione della sostenibilità aziendale nella relazione tra la rete aziendale e la performance finanziaria, rispondendo alla domanda: "come interviene la sostenibilità aziendale nella relazione tra centralità della rete aziendale e performance finanziaria dell'azienda?"

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Rete aziendale e performance finanziaria

Diversi studi hanno analizzato il legame tra la rete aziendale e le performance finanziarie, dimostrando un'associazione positiva (Hauser, 2018; Smith e Sarabi, 2021; Zaheer et al., 2010; Zhao, 2021). In particolare, le reti aziendali fornendo l'accesso a nuove informazioni e risorse, che vengono scambiate tramite le interconnessioni dei consigli di amministrazione (Smith e Sarabi, 2021), la rete aziendale permette alle aziende di gestire e ridurre l'incertezza informativa, generando un impatto positivo sulle performance aziendali (Martin et al., 2015; Zona et al., 2018). Inoltre, l'aumento della disponibilità di risorse consente alle aziende di rispondere tempestivamente alle opportunità di investimento (Larcker et al., 2013), aumentando l'efficienza degli investimenti e portando a performance aziendali migliori (Zhao, 2021).

I benefici derivanti dalla rete saranno tanto più notevoli quanto più l'azienda occupa una posizione centrale all'interno della rete (Larcker et al., 2013). Infatti, un'azienda centrale ha più (o migliori) connessioni con altre aziende, beneficiando così maggiormente dei legami relazionali rispetto alle aziende che occupano posizioni più marginali nella rete. Il concetto di buona interconnessione è multidimensionale e la teoria delle reti sociali ha sviluppato diverse connotazioni di centralità, individuando quattro misure principali: centralità di grado (degree), centralità di vicinanza (closeness), centralità di autovettore (eigenvector) e centralità di intermediazione (betweenness) (Jackson, 2010; Larcker et al., 2013).

Sulla base di quanto sopra, ipotizziamo che la centralità della rete aziendale abbia un effetto positivo sulle performance finanziarie dell'azienda, come segue:

Ipotesi 1 - La centralità della rete aziendale ha un effetto positivo sulle performance finanziarie dell'azienda.

Rete aziendale e sostenibilità aziendale

Le aziende ben collegate possono accedere e facilitare la diffusione di informazioni più preziose sulle pratiche di sostenibilità (Homroy e Slechten, 2019). Attraverso le relazioni, le aziende possono accedere a risorse e informazioni esterne per superare la mancanza di risorse e competenze specifiche necessarie per garantire che l'impegno sostenibile delle aziende non sia solo simbolico ma si traduca in azioni concrete (Amui et al., 2017). Inoltre, le aziende ben collegate possono acquisire conoscenze sulle migliori pratiche di sostenibilità, favorendo così lo sviluppo sostenibile dell'azienda (Homroy e Slechten, 2019). Infatti, la rete svolge un ruolo essenziale come facilitatore della comprensione cognitiva nella condivisione delle best practice (Corazza et al., 2022). Le aziende centrali nella rete godono anche di una maggiore reputazione e fiducia. Pertanto, saranno proattive nell'adottare pratiche sostenibili per mantenere il loro status quo e aumentare i benefici dalla loro posizione centrale nella rete (Chahine et al., 2019). Inoltre, le aziende con reti più ampie possono avere una maggiore comprensione delle esigenze di una più ampia varietà di stakeholder e rispondere prontamente ad esse, raggiungendo così una maggiore performance sostenibile (Harjoto e Wang, 2020).

In linea con questi argomenti, recenti ricerche hanno evidenziato l'esistenza di una relazione positiva tra network aziendale e sostenibilità aziendale (Ding et al., 2022; Nandy et al., 2020; Harjoto e Wang, 2020).

In linea con tali ricerche, si ipotizza quanto segue:

Ipotesi 2 - La centralità della rete aziendale ha un effetto positivo sulla performance di sostenibilità aziendale.

Sostenibilità aziendale e performance finanziaria

La crescente attenzione verso le questioni di sostenibilità ha portato la ricerca accademica a concentrarsi sui benefici che essa può apportare alle aziende e un ampio filone di letteratura si è concentrato sulla relazione tra la sostenibilità aziendale e la performance. Sebbene alcuni studi abbiano dimostrato che la sostenibilità può danneggiare la performance finanziaria, la maggior parte della letteratura concorda sui benefici finanziari ne derivano (Atz et al., 2023; W. Lu et al., 2014; Miroshnychenko et al., 2017; Van Beurden e Gössling, 2008).

Precedenti ricerche hanno dimostrato, infatti, che privilegiando la sostenibilità le aziende possono migliorare la loro reputazione e immagine (Vishwanathan et al., 2020), creare nuove opportunità (Keskin et al., 2013), ridurre costi e rischi (Hockerts, 2015; Walsh e Dodds, 2017) e aumentare l'efficienza (Caiado et al., 2017). Inoltre, poiché i consumatori sono sempre più sensibili all'ambiente e alle questioni sociali, le aziende sostenibili hanno maggiori potenzialità di attrarre nuovi clienti (Walsh e Dodds, 2017; Testa et al., 2021).

Pertanto, ipotizziamo quanto segue:

Ipotesi 3 - La sostenibilità aziendale ha un effetto positivo sulla performance finanziaria dell'azienda.

Il ruolo di mediazione della sostenibilità aziendale

Ricerche precedenti hanno dimostrato che la sostenibilità aziendale può essere un meccanismo attraverso cui la rete aziendale può portare a una maggiore performance finanziaria (Chahine et al., 2019; Zhao, 2021). La posizione centrale nella rete consente all'azienda di sfruttare meglio il proprio capitale relazionale e sociale, ma è necessario ottenere legittimità per far sì che tale posizione di potere si traduca in un vantaggio competitivo (Di Maggio e Powell, 1983). Gli studiosi dell'istituzionalismo sostengono infatti che il successo e la longevità di un'azienda sono legati non solo alle sue pratiche commerciali interne, ma anche agli sforzi dell'azienda stessa per ottenere legittimità nel proprio ambiente istituzionale (Di Maggio e Powell, 1983). La sostenibilità aziendale diventa, quindi, un fattore importante per acquisire legittimità e trarre riconoscimento pubblico attraverso la creazione di valore ambientale e sociale (Ahn e Park, 2018). Sulla base di questi argomenti, ipotizziamo che quando il capitale relazionale si traduce in una sostenibilità aziendale elevata, l'azienda è in grado di stabilire la legittimità necessaria per ottenere una maggiore performance finanziaria. Questo ci porta a ipotizzare che la sostenibilità aziendale medi l'effetto del grado di centralità della rete aziendale sulla performance finanziaria. Pertanto, proponiamo la quarta ipotesi come segue:

Ipotesi 4 - La sostenibilità aziendale media l'effetto del grado di centralità della rete aziendale sulla performance finanziaria.

Metodologia.

Campione e dati

Lo studio è stato condotto su un campione di 958 aziende quotate europee, selezionate adottando un approccio di campionamento intenzionale, in cui i membri della popolazione vengono selezionati quando le loro caratteristiche corrispondono allo scopo della ricerca. In particolare, il nostro studio si è concentrato su tutte le aziende europee i cui direttori hanno ricoperto contemporaneamente una posizione in consigli di amministrazione di almeno due aziende diverse, e per le quali sono disponibili dati sulle performance finanziarie (misurate attraverso Tobin's Q) e sulla sostenibilità aziendale (misurate attraverso gli indicatori ESG). A tal fine, il campione è stato creato incrociando le aziende presenti in due database distinti, ovvero BoardEx e Refinitiv Eikon, con riferimento al periodo 2015-2020.

I dati sugli interlocking degli amministratori sono stati raccolti dal database BoardEx, mentre i dati sulle performance finanziarie e ESG sono stati raccolti tramite il database Refinitiv Eikon. Altre informazioni utilizzate come controlli nell'analisi sono state recuperate sia dal database BoardEx che dal database Refinitiv Eikon.

I dati di BoardEx sui network aziendali, generati dagli incroci tra consigli di amministrazione, sono stati utilizzati per mappare gli amministratori che hanno ricoperto contemporaneamente posizioni in più di un consiglio di amministrazione. Questi dati sono stati utilizzati per costruire una rete di aziende che hanno condiviso almeno un amministratore nel periodo 2015-2020, in cui le aziende europee costituiscono i nodi della rete. I nodi isolati, ovvero le aziende senza incroci di amministratori con altre aziende, sono stati esclusi dalla rete.

I dati di rete sono stati analizzati utilizzando il software UCINET per l'analisi delle reti sociali (social network analysis) al fine di calcolare quattro misure di centralità, ovvero degree, closeness, eigenvector e betweenness, come dettagliato in seguito.

Variabile dipendente

In linea con studi precedenti, abbiamo misurato la performance finanziaria delle aziende utilizzando l'indice Tobin's Q , uno degli indicatori finanziari più utilizzati e completi per descrivere la performance dell'azienda (Awaysheh et al., 2020; S. Kim et al., 2021; Minutolo et al., 2019).

Variabili indipendenti

Le misure di centralità della rete aziendale sono le variabili indipendenti nello studio. Basandoci sui dati della rete recuperati da BoardEx, ci siamo concentrati sulle quattro misure di centralità più comunemente utilizzate (Jackson, 2010; Larcker et al., 2013): (i) degree centrality; (ii) closeness centrality; (iii) eigenvector centrality; (iv) betweenness centrality.

La degree centrality misura il numero totale di connessioni dirette uniche che ogni nodo ha con gli altri nodi nella rete, fornendo indicazioni sul numero di canali di informazione disponibili. La closeness centrality misura la distanza di un nodo da tutti gli altri nodi nella rete sommando la lunghezza dei percorsi più brevi tra il nodo e gli altri nodi. Questa misura ci dice quanto facilmente un'azienda può raggiungere tutte le altre aziende nella rete. L'eigenvector centrality è una proxy della qualità delle connessioni di un'azienda nella rete, poiché misura la centralità di un nodo come funzione delle centralità dei nodi a cui è connesso. Essa indica, dunque, l'influenza dell'azienda nella rete, poiché considera la rete delle aziende correlate. Infine, la betweenness centrality misura il numero di volte in cui un nodo si trova sui percorsi più brevi (cioè la distanza geodetica) tra due altri nodi ed è una proxy del controllo dei flussi informativi di un'azienda nella rete o del suo potenziale di agire come intermediario nella sua rete.

Variabile mediatrice

In linea con le ricerche precedenti, abbiamo misurato la sostenibilità aziendale utilizzando gli indicatori di performance delle prestazioni ambientali, sociali e di governance (ESG) forniti da Refinitiv Eikon. Essi rappresentano una buona proxy per misurare la sostenibilità aziendale in quanto consentono di considerare la multidimensionalità delle questioni di sostenibilità, comprendendo diverse dimensioni.

Variabili di controllo

Abbiamo incluso diverse variabili di controllo nelle nostre analisi: (i) la dimensione dell'azienda, misurata attraverso il logaritmo naturale del totale degli asset aziendali; (ii) la dimensione del consiglio di amministrazione, ovvero il numero di amministratori presenti nel consiglio; (iii) il numero di amministratori indipendenti non esecutivi; (iv) il numero di donne nel consiglio di amministrazione; (v) l'età media del consiglio di amministrazione; (vi) l'età dell'azienda. Inoltre, abbiamo incluso le variabili dummy per paese e settore. I dati a livello di consiglio di amministrazione, nonché il settore e il paese sono stati recuperati da BoardEx, mentre la dimensione e l'età dell'azienda sono state ricavate da Refinitiv Eikon.

Risultati. *Per testare le nostre ipotesi, abbiamo eseguito un'analisi cross-sectional utilizzando un modello di equazioni strutturali (SEM). Infatti, nell'analisi di mediazione, la SEM è considerata un'ottima tecnica di regressione poiché consente di testare i vari modelli simultaneamente e consente controllare l'errore di misurazione (Iacobucci et al., 2007). Le analisi sono state condotte separatamente per ciascuna misura di centralità della rete, cioè degree, closeness, eigenvector e betweenness. Per migliorare l'interpretabilità dei coefficienti, tutte le variabili sono state standardizzate.*

I risultati mostrano un effetto diretto positivo e statisticamente significativo di tutte le variabili di centralità sia su ESG sia su Tobin's Q . Inoltre, si è riscontrato un effetto diretto positivo e significativo di ESG su Tobin's Q . Sebbene un effetto diretto significativo sia una conditio sine qua non per testare un effetto di mediazione, esso non è sufficiente per concludere che esista un'effettiva mediazione ed è necessario che anche l'effetto indiretto sia significativo (Rucker et al., 2011). Abbiamo dunque scomposto l'effetto totale delle variabili indipendenti sulla performance finanziaria mediata da ESG, evidenziando così gli effetti indiretti delle misure di centralità della rete su Q .

di Tobin. I risultati mostrano che l'effetto indiretto di tutte le misure di centralità della rete su Tobin's Q è significativo in presenza di ESG, sebbene sia inferiore rispetto ai rispettivi effetti diretti. Pertanto, possiamo concludere che ESG media parzialmente la relazione tra la centralità della rete aziendale e la performance finanziaria.

Limiti della ricerca. Dimostrando che la sostenibilità aziendale media parzialmente l'effetto della rete aziendale sulla performance finanziaria, contribuiamo ad approfondire la conoscenza dei meccanismi che spiegano il potenziale di creazione di valore della rete aziendale. Tuttavia, poter affermare che la mediazione è solo parziale significa che il lavoro deve ancora essere completato e che altri meccanismi potrebbero essere rilevanti (Hayes, 2018). Pertanto, ulteriori ricerche potrebbero esplorare altri meccanismi diversi che possono spiegare il legame tra rete aziendale e performance finanziaria.

Inoltre, abbiamo effettuato un'analisi sull'effetto della posizione di centralità della rete per ciascuna azienda all'interno della rete. Altri studi possono adottare una prospettiva di rete completa. Inoltre, mentre abbiamo effettuato un'analisi trasversale, ulteriori ricerche potrebbero applicare metodologie diverse per tenere conto dell'effetto temporale. Ad esempio, estendendo il periodo di indagine e utilizzando un'analisi dinamica delle reti sociali, gli studi futuri potranno analizzare se e come l'evoluzione delle reti aziendali modifichi i nostri risultati.

Inoltre, abbiamo utilizzato i punteggi ESG di Refinitiv Eikon per la sostenibilità aziendale. Pur essendo una fonte affidabile, le ricerche future potrebbero esaminare altre fonti di punteggi ESG, come Sustainalytics e MSCI.

Implicazioni manageriali. Lo studio fornisce diverse implicazioni manageriali. In primo luogo, i nostri risultati evidenziano i benefici derivanti dall'apertura dei confini organizzativi sia per la performance finanziaria sia per i risultati di sostenibilità delle aziende. Il successo della sostenibilità aziendale richiede, infatti, che le aziende partecipino a sforzi collaborativi, stabiliscano partnership e coinvolgano diverse parti interessate. Inoltre, lo studio suggerisce che le interconnessioni tra i consigli di amministrazione costituiscano una via preziosa per promuovere gli sforzi collaborativi per una maggiore sostenibilità. I risultati indicano che la qualità delle interconnessioni tra i consigli di amministrazione e la posizione nella rete svolgono un ruolo importante per le prestazioni finanziarie e di sostenibilità delle aziende. Le implicazioni manageriali suggeriscono di monitorare la posizione delle aziende nelle reti di interconnessioni dei consigli di amministrazione al fine di valutare le implicazioni strategiche delle diverse configurazioni di relazioni interorganizzative. I risultati suggeriscono, inoltre, di promuovere iniziative congiunte di sostenibilità nello sviluppo di interconnessioni tra i consigli di amministrazione, al fine di migliorare le prestazioni di sostenibilità, rafforzare le relazioni di rete e migliorare i vantaggi delle risorse. Inoltre, i risultati mostrano come la sostenibilità aziendale sia un meccanismo rilevante per tradurre i vantaggi delle interconnessioni tra i consigli di amministrazione in una migliore performance finanziaria.

Originalità del paper. I nostri risultati indicano che la performance dell'azienda, sia in termini di sostenibilità che di performance finanziaria, può essere migliorata attraverso una maggiore centralità nella rete aziendale e che la performance di sostenibilità può ulteriormente influenzare la performance finanziaria.

La nostra ricerca contribuisce ad ampliare la conoscenza sull'associazione tra la rete aziendale e le performance aziendali, analizzando uno dei possibili meccanismi che spiegano come la rete aziendale influisca sulle performance finanziarie. In particolare, il nostro studio dimostra che la sostenibilità aziendale interviene nella relazione tra la rete aziendale e le performance finanziarie, introducendo così un nuovo mediatore nella relazione e ampliando la ricerca precedente che si è concentrata sulla relazione diretta. Nello specifico, i risultati della ricerca mostrano che quando il capitale relazionale si traduce in alta sostenibilità aziendale, esso conduce a performance finanziarie superiori. Infatti, l'elevata performance di sostenibilità conferisce all'azienda la legittimità necessaria per crescere nel tempo, dimostrando il suo impegno verso la società e l'ambiente in cui opera (Ahn e Park, 2018).

Inoltre, studiando diverse misure di centralità, il nostro studio dimostra che diversi aspetti della centralità della rete sono rilevanti per conseguire un vantaggio competitivo.

Infine, introducendo l'effetto di mediazione della sostenibilità aziendale, il nostro studio espande la conoscenza sull'associazione tra sostenibilità e performance finanziarie, suggerendo che le aziende che si impegnano nella sostenibilità hanno un valore di mercato più elevato (Miroshnychenko et al., 2017). In questo senso, i nostri risultati avvalorano il "business case" della sostenibilità (Dyllick e Hockerts, 2002), evidenziando l'importanza della sostenibilità non solo come antecedente diretto delle performance finanziarie, ma anche come meccanismo cruciale per convertire i rendimenti relazionali in rendimenti economici.

Parole chiave: rete aziendale; interconnessioni del consiglio di amministrazione; sostenibilità; vantaggio competitivo; analisi delle reti sociali.

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Consiglio di amministrazione e sostenibilità aziendale: l'effetto dell'esperienza in sostenibilità e dell'età degli amministratori sulla performance ESG

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Inquadramento della ricerca. *La sostenibilità aziendale ricopre un ruolo di particolare importanza nella pratica manageriale e nel dibattito accademico, rappresentando una delle principali sfide per le aziende che sono chiamate a rispondere attivamente ai problemi sociali e ambientali che caratterizzano il contesto socioeconomico contemporaneo (Broman e Robèrt, 2017; Centobelli et al., 2020; Mio et al., 2020). Gran parte della letteratura ha posto l'attenzione sul ruolo della governance aziendale nel guidare le aziende verso una transizione sostenibile e particolare enfasi è stata posta sul ruolo del consiglio di amministrazione (CdA) (Aguilera et al., 2021; De Masi et al., 2021; Karpoff, 2021; Konadu et al., 2021; Liao et al., 2021; Naciti et al., 2022). Ricerche precedenti hanno infatti dimostrato che, grazie alla sua triplice funzione, il CdA influenza le strategie e i risultati aziendali, tra cui la performance sostenibile (Homroy e Slechten, 2019; Hussain et al., 2018; Walls e Hoffman, 2013). La letteratura ha studiato l'impatto di diverse caratteristiche del CdA sulla sostenibilità aziendale, privilegiando le caratteristiche facilmente osservabili, come il numero di amministratori, il genere, l'indipendenza del consiglio (Chams e García-Blandón, 2019; Cosma et al., 2021; De Masi et al., 2021; de Villiers et al., 2011; Naciti, 2019). Tuttavia, pochi studi si sono concentrati sulle caratteristiche più difficilmente osservabili, come l'esperienza pregressa degli amministratori, che possono influenzare in modo ancor più significativo l'orientamento sostenibile del CdA (Hashmi et al., 2022; Nathalia e Setiawan, 2022). L'esperienza rappresenta, infatti, un filtro cognitivo cruciale per l'elaborazione e la comprensione delle informazioni (Hambrick, 2007; Starbuck e Milliken, 1988), che influisce sul processo decisionale. Poiché l'impegno sostenibile implica che le aziende siano consapevoli della sostenibilità e sappiano come muoversi verso di essa, riteniamo che la precedente esperienza in materia di sostenibilità del CdA sia particolarmente rilevante nel guidare la performance di sostenibilità.*

Tra le caratteristiche dei consigli di amministrazione, la diversità in termini di età rappresenta un attributo importante che merita un'attenzione specifica data l'attuale tendenza a promuovere attivamente l'ingresso di amministratori più giovani nei CdA (Gardiner, 2022). Come riportato dal Census of Directors 50 and Under di PWC (PWC, 2018), nonostante siano ancora sottorappresentati nei consigli di amministrazione delle aziende, la presenza di giovani amministratori è aumentata negli ultimi anni ed essi sono particolarmente coinvolti nei comitati più innovativi, come quelli per la tecnologia e la sostenibilità. Tuttavia, l'età del CdA non è stata oggetto di attenzione in letteratura al pari di altre caratteristiche del consiglio, e le ricerche precedenti hanno prodotto risultati contrastanti sul suo effetto sui risultati aziendali, suggerendo un effetto contingente dell'età del CdA (Gardiner, 2022; Kagzi e Guha, 2018). In particolare, mentre i consiglieri più giovani sono più dinamici e proattivi nell'introdurre innovazioni, quelli più anziani sono meno disposti ad avviare cambiamenti strategici (Wiersema e Bantel, 1992). Pertanto, riteniamo che i consigli di amministrazione più anziani possano essere meno favorevoli a sfruttare l'esperienza degli amministratori in materia di sostenibilità per muoversi verso lo sviluppo sostenibile, indebolendo così la relazione tra l'esperienza dei consigli di amministrazione in materia di sostenibilità e la performance di sostenibilità dell'impresa.

Obiettivo del paper. *Questo studio si propone di ampliare la conoscenza sull'impatto del CdA sulla sostenibilità aziendale focalizzandosi su una caratteristica non ancora esaminata: l'esperienza pregressa in sostenibilità del CdA. In particolare, lo studio intende rispondere alle seguenti domande di ricerca: (1) Esiste una relazione tra l'esperienza*

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pregressa in sostenibilità del CdA e la performance sostenibile dell'azienda? (2) Tale relazione dipende dall'età del CdA?

Metodologia. Per rispondere alle domande di ricerca, abbiamo condotto un'analisi panel su un campione di 510 aziende europee quotate, analizzate nel periodo 2014-2020, per un totale di 1587 osservazioni. I dati sono stati raccolti tramite i database Refinitiv Eikon e BoardEx.

In linea con la ricerca precedente (Disli et al., 2022; Dremptic et al., 2020), abbiamo misurato la performance di sostenibilità aziendale attraverso gli indicatori ESG forniti da Refinitiv Eikon. Le informazioni sulle esperienze passate degli amministratori sono state ricavate dal database BoardEx. In particolare, l'esperienza in sostenibilità del CdA è stata misurata tramite gli anni di esperienza cumulativa degli amministratori in ruoli legati alla sostenibilità. Per individuare tali ruoli, in linea con lo studio condotto da Fu et al. (2020) abbiamo condotto un'analisi del contenuto della descrizione del ruolo fornita da BoardEx, utilizzando le seguenti parole chiave: sostenibilità/sostenibile, etica, responsabilità, ambiente/ambientale, ESG e CSR. Per testare la seconda ipotesi, abbiamo incluso nell'analisi la variabile moderatrice "età" del CdA, misurata come età media degli amministratori. Inoltre, abbiamo incluso nella nostra analisi diverse variabili di controllo relative ad aspetti del consiglio di amministrazione e dell'impresa, in linea con le ricerche precedenti: (1) la dimensione del consiglio di amministrazione, misurata come logaritmo naturale del numero totale di amministratori nel CdA; (2) l'indipendenza del CdA, misurata sia come percentuale di amministratori non esecutivi sia come dualità del CEO tramite una variabile dummy che misura il valore di 1 se il Presidente è anche CEO della società e 0 altrimenti; (3) la tenure del CdA, misurata come il numero medio di anni in cui gli amministratori hanno fatto parte del CdA; (4) la diversità di genere, misurata come percentuale di amministratori di sesso femminile; (5) la diversità di nazionalità, ossia la percentuale di nazionalità diverse all'interno del consiglio di amministrazione; (6) la dimensione dell'azienda, misurata tramite il logaritmo naturale dell'attivo totale dell'impresa; (7) il debito dell'azienda; (7) l'età dell'impresa.

Studi precedenti hanno dimostrato che le aziende assumono gli amministratori in base alla loro precedente esperienza (Harford e Schonlau, 2013). Pertanto, i CdA con esperienza in materia di sostenibilità non sono selezionati in modo casuale. Per risolvere questo problema di endogeneità, abbiamo applicato il propensity score matching (PSM) (Rosenbaum e Rubin, 1983), che consente di garantire che le aziende siano simili su tutte le variabili, tranne la variabile dipendente (ESG) e le variabili indipendenti di maggiore interesse (esperienza in sostenibilità ed età del CdA). In questo modo, il PSM permette di neutralizzare l'effetto di altre variabili e di dimostrare che l'esperienza in sostenibilità del CdA è associata alla performance sostenibile (Lu e Herremans, 2019). In linea con le ricerche precedenti, abbiamo adottato la tecnica di matching one-by-one nearest neighbor senza sostituzione con caliper 0,01 (Oyotode-Adebile e Raja, 2019). I risultati del test di bilanciamento del PSM confermano la validità del matching, risultando in campioni trattati (CdA con esperienza in sostenibilità) e non trattati (CdA senza esperienza in sostenibilità) comparabili dopo l'abbinamento. Inoltre, per risolvere il problema di potenziale causalità inversa, abbiamo utilizzato variabili esplicative ritardate al tempo $t-1$ (Joecks et al., 2013; Liu, 2018).

Per verificare le nostre ipotesi, abbiamo dunque condotto un'analisi di regressione panel sul campione abbinato risultante dall'analisi PSM. Poiché in un modello pooled OLS per dati panel può esserci eterogeneità non osservata, a prescindere dal numero di caratteristiche specifiche dell'azienda aggiunte, con conseguenti stimatori OLS distorti e incoerenti (Wooldridge, 2010), abbiamo testato il modello utilizzando un modello a effetti fissi, che il test di Hausman ha confermato essere preferibile rispetto a un modello ad effetti variabili.

Risultati. I risultati mostrano che l'esperienza pregressa in sostenibilità del CdA ha un effetto positivo e statisticamente significativo su ESG. In particolare, le aziende con CdA con grande esperienza in materia di sostenibilità raggiungono, in media, livelli ESG superiori dell'11% rispetto alle aziende con CdA meno esperti in materia di sostenibilità. Inoltre, i risultati evidenziano che l'età del CdA modera negativamente la relazione tra esperienza in sostenibilità e ESG. Complessivamente, i risultati mostrano che l'effetto dell'esperienza in sostenibilità del CdA sulla performance sostenibile dipendono dall'età del CdA. Infatti, tale relazione è positiva per le imprese con un CdA giovane, ma diviene negativa per le aziende con un CdA anziano.

Limiti della ricerca. Questo studio presenta alcune limitazioni che offrono spunti per sviluppi futuri. Per misurare l'esperienza in materia di sostenibilità, abbiamo considerato il totale degli anni di esperienza nei ruoli legati alla sostenibilità precedentemente ricoperti dagli amministratori. Tuttavia, l'esperienza in materia di sostenibilità può derivare anche da studi intrapresi o da esperienze personali, come attività volontariato, ecc. Pertanto, ulteriori studi potrebbero prendere in considerazione questi aspetti aggiuntivi. A tal fine, le ricerche future potrebbero integrare i nostri dati reperiti tramite BoardEx con fonti alternative, quali LinkedIn o altri social network.

Per valutare la performance sostenibile delle aziende, abbiamo utilizzato gli indicatori ESG forniti dal database Refinitiv Eikon. Sebbene si tratti di una fonte autorevole e ampiamente utilizzata in letteratura, la ricerca futura potrebbe esplorare altre fonti di dati ESG, come Bloomberg, Sustainalytics o MSCI per convalidare i nostri risultati. Inoltre, gli indicatori ESG rappresentano solo una delle possibili misure di sostenibilità e studi futuri potrebbero utilizzare misure alternative.

Infine, nel nostro studio ci siamo focalizzati esclusivamente sulle società quotate in borsa. Pertanto, studi futuri potrebbero espandere la ricerca valutando l'impatto dell'esperienza in sostenibilità del CdA delle società non quotate in borsa.

Implicazioni manageriali. I nostri risultati sottolineano il valore dell'esperienza specialistica degli amministratori e forniscono una guida adeguata per gli azionisti e gli investitori nell'adozione di una politica di selezione degli amministratori. In particolare, dimostriamo che i consigli di amministrazione con un'esperienza cumulativa sostanziale

in materia di sostenibilità producono performance di sostenibilità più elevate. Tuttavia, l'esperienza in materia di sostenibilità non è sempre utile per raggiungere gli obiettivi di sostenibilità e in alcuni casi può risultare addirittura dannosa. Pertanto, l'esperienza degli amministratori deve essere esaminata insieme ad altre caratteristiche del consiglio nelle politiche di assunzione, avendo particolare riguardo all'età degli amministratori. Infatti, i consigli di amministrazione più anziani sono meno disposti ad avviare cambiamenti strategici (Wiersema e Bantel, 1992), ostacolando l'innovazione dell'impresa (Chindasombatcharoen et al., 2023). Pertanto, potrebbero essere riluttanti a sfruttare l'esperienza dei consiglieri in materia di sostenibilità per implementare i cambiamenti che si muovono verso strategie sostenibili.

Inoltre, i nostri risultati sono rilevanti per le autorità di regolamentazione, in quanto le norme relative alla composizione dei consigli di amministrazione, in termini di diversità di background, o all'età degli amministratori (come le politiche di pensionamento) possono avere effetti significativi sulla performance delle imprese, come quella sostenibile.

Originalità del paper. Il nostro studio analizza una caratteristica del consiglio di amministrazione poco esplorata, ossia l'esperienza pregressa in sostenibilità degli amministratori, dimostrando che essa gioca un ruolo chiave come motore della performance di sostenibilità aziendale. In questo modo, rispondiamo alla richiesta di esplorare gli attributi cognitivi del consiglio di amministrazione (Kent Baker et al., 2020; Zattoni et al., 2022), che sono poco esplorati in letteratura perché più difficili da osservare.

Inoltre, in questo studio abbiamo combinato per la prima volta l'effetto dell'esperienza e l'effetto dell'età del consiglio di amministrazione sulla performance sostenibile, che in precedenza erano stati studiati in modo indipendente, esaminando l'effetto moderatore dell'età del consiglio di amministrazione sulla relazione tra esperienza in sostenibilità del consiglio di amministrazione e performance di sostenibilità dell'impresa. Dimostrando che l'impatto dell'esperienza di sostenibilità del consiglio di amministrazione dipende dall'età del consiglio, abbiamo contribuito a fare luce sui risultati inconcludenti relativi all'effetto dell'età del consiglio (Gardiner, 2022; Kagzi e Guha, 2018). In particolare, abbiamo evidenziato che l'età del consiglio di amministrazione non ha un effetto diretto sulla performance di sostenibilità, ma è un importante moderatore di altre caratteristiche del consiglio.

Parole chiave: Cda; Esperienza del Cda; Sostenibilità; Età del Cda; ESG.

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Investigating Knowledge Sharing Microfoundations: Exploring the Role of Job Satisfaction and Knowledge Sabotage

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Framing of the research. Drawing on the theoretical milestone offered by the knowledge-based view of the firm (Eisenhardt and Santos, 2002; Grant, 1996), in the current changing and digitized economic landscape the role of knowledge management is more important than ever as a critical factor driving business success and long-term sustainability (Deng et al., 2023; Matarazzo et al., 2020; Vallat et al., 2017). While considering knowledge management processes, intra-organisational knowledge sharing is certainly one of the most discussed due to its role in promoting information circulation and the transfer of know-how and skills, in order to create new knowledge and feed the company's intellectual capital (Bock et al., 2005; Presenza et al., 2017; Radaelli, 2011; Wang and Noe, 2010; Wang et al., 2014). From the dark side area of the subject, knowledge sharing has been shown to be hampered by a number of counterproductive workplace practices (Afshar-Jalili et al., 2021; Serenko and Bontis, 2016). One of these detrimental behaviours is knowledge sabotage, in which employees purposefully conceal critical information or share wrong knowledge to harm the organization or its members for a selfish purpose (Crino, 1994; Perotti et al., 2022; Serenko, 2019). It has been highlighted as the most extreme counterproductive behaviour against knowledge sharing due to its negative consequences on people who have been targeted and the direct or indirect impact on organization's knowledge management practices, business processes, or capacity to innovate (Analoui, 1995; Bennet et al., 2018; Santoro et al., 2019; Serenko, 2020; Serenko and Choo, 2020). However, this phenomenon remains murky in the knowledge management literature and requires to be further explored to unveil the unwholesome mechanisms that threaten knowledge sharing environments in companies, as well as to effectively face them.

The present study stands as a response to several literature gaps outlined previously thus raising the need of exploring those factors that may condition intra-organizational knowledge sharing in economic organizations, besides dealing with its counterproductive knowledge behaviours in more detail (Afshar-Jalili et al., 2021; Serenko and Bontis, 2016). In particular, it is highly required to shed light on the knowledge sabotage occurrences focusing on its individual and organizational antecedents and consequences (Ferraris and Perotti, 2020; Perotti et al., 2022; Serenko, 2019; Serenko and Choo, 2020). As such, this research also rides the call for supplementary studies that disclose knowledge sharing from a multilevel perspective (Foss et al., 2010; Radaelli et al., 2011).

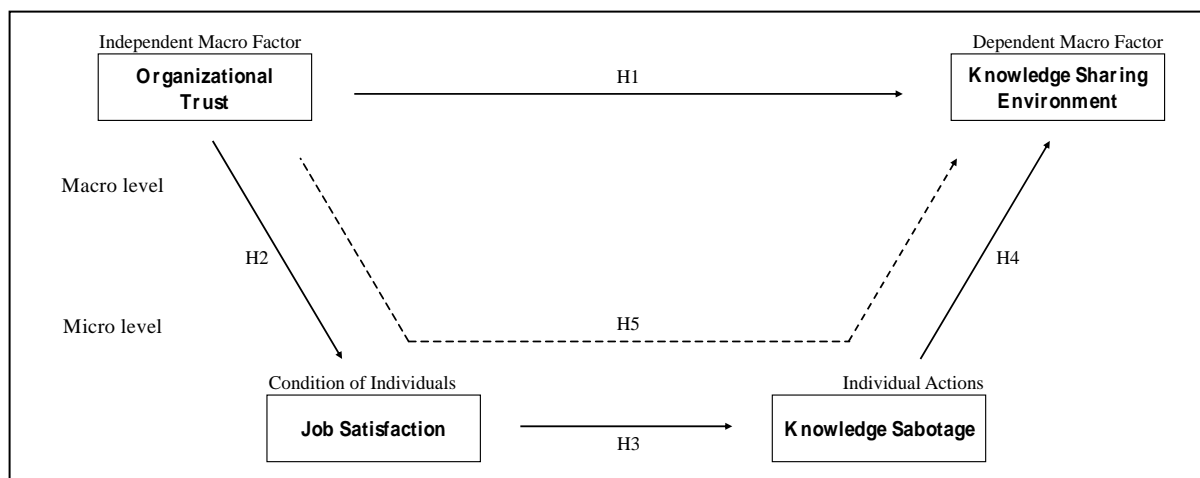
Purpose of the paper. Drawing on the microfoundations literature (Barney and Felin, 2013; Coleman, 1990; Felin et al., 2015), based on the theoretical framework offered by the rational choice theory (Boudon, 2003; Scott, 2000), this study elaborates on a multilevel conceptual model adapted from Coleman's bathtub to explore knowledge sharing microfoundations looking into knowledge sabotage incidents (see Figure 1). Arguing about the interplay of collectivism and methodological individualism (Durkheim, 1962; Udehn, 2002), this research is based on the interaction between the macro level comprehension of social facts and the micro level understanding of people's behaviours in the workplace. First, we advance the impact of organizational trust, as a social fact, on knowledge sharing, as a social outcome (Foss et al., 2010; Foss and Pedersen, 2019). In fact, a knowledge sharing environment can be established by leveraging a set of conducive factors that foster a culture of sharing, such as trust (Berraies et al., 2021; Levin and Cross, 2004). At the organizational level, a trust atmosphere plays a critical role in shaping the behavior of employees and influencing their attitude towards knowledge sharing (Foss et al., 2010; Hosen et al., 2022; Radaelli et al., 2011). As a consequence, we aim to test the positive relationship between organizational trust and knowledge sharing as a social outcome (HP1). Then, we aim to explore the microfoundations of knowledge sharing by taking into consideration the role of job satisfaction as an individual condition that predicts employees' knowledge sabotage actions in workplaces. According to Mayer et al. (1995) and Dirks and Ferrin (2001), when employees feel that their company and colleagues are trustworthy, they tend to experience greater security and support in their roles. As a result, they may be more motivated and productive, and may also experience a greater sense of personal fulfilment and achievement, which is translated into higher job satisfaction. Therefore, we advance a positive relationship between organizational trust and job satisfaction (HP2). In turn, work satisfaction can operate as a mitigating factor by lowering the chance of sabotage incidents. Knowledge sabotage is based on gratification drivers, personal retaliations against employees or malicious attitudes of the perpetrators (Serenko, 2019; Serenko, 2020), which are represented by situations where the

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saboteur puts their own interests ahead of those of the target or the organization. From this perspective, knowledge sabotage has been examined as a counterproductive workplace behaviour arising from the low level of satisfaction in the workplace. We thus investigate the negative relationship between these two variables (HP3). Finally, this conceptual model aims to measure knowledge sabotage impact on knowledge sharing as a social outcome, i.e. on a knowledge sharing environment. Drawing on microfoundations theorists (Barney and Felin, 2013; Coleman, 1990; Foss & Pedersen, 2019), we consider the individual behaviour of people as an element that contributes to defining a given social outcome. Knowledge sabotage leads to a loss of trust between employees, where individuals are not willing to share knowledge with others. This can create a culture of suspicion that corrupts a knowledge sharing environment and make employees less likely to share information and know-how in the future, based on the expectation of certain positive behaviours in the working environment (Nguyen, et al., 2020; Gold et al., 2001). As a result, we assume knowledge sabotage negatively affect a knowledge sharing environment (HP4). Overall, the objective of the study is to outline a mediating indirect effect of individual level variables on the baseline relationship, as noted by microfoundation theorists (Barney and Felin, 2013; Coleman, 1990; Foss and Pedersen, 2019). We, therefore, advance how the positive relationship between organizational trust and knowledge sharing environment is sequentially mediated by job satisfaction and knowledge sabotage (HP5).

Fig. 1: The multilevel conceptual model



Source: Authors' elaboration adapted from Coleman (1990).

Methodology. This cross-sectional quantitative study follows a deductive theorising approach. It has employed nonprobability sampling to gather data from employees of for-profit companies in Europe, as in previous studies they have been outlined as typical targets and perpetrators of sabotage behaviour related to knowledge in the workplace (Serenko, 2020; Serenko and Abubakar, 2022). Managers and subordinates represent a suitable sample to investigate knowledge sharing microfoundations in terms of knowledge sabotage individual behaviour. According to the research design adopted by other actors in the microfoundations research domain (e.g. Cautela et al., 2022; Gray and Meister, 2004; O'Brien et al., 2019), the sample can also provide an assessment of the specific activities that occurred in the workplace to measure social facts and outcomes.

The authors took certain precautions to ensure the validity and reliability of the empirical observation during the survey arrangement. To address concerns related to data collection and possible bias, or inattentiveness among respondents, attention check filters and reverse-coded items have been inserted in the questionnaire (Fink, 2002; Groves, 2011). Also, the items employed for variables measurement have been adapted from previous highly ranked studies (i.e. Nyhan and Marlowe's, 1997; Berraies et al., 2021; Gold et al., 2001; Bock et al., 2005; Radaelli et al., 2011; Netemeyer et al., 1997; Lei et al., 2022; Serenko and Choo, 2020; Serenko and Abubakar, 2022). The questionnaire was administered through Prolific, which is an online platform employed for data collection in academic and market research (e.g. Tandon et al., 2022).

Following recommendations of previous studies on microfoundations (e.g. Foss et al., 2010; Distel, 2019; O'Brien et al., 2019) and recent research on knowledge sabotage (e.g. Serenko and Abubakar, 2022), the hypotheses advanced in our study have been assessed through a covariance-based structural equation modelling technique (CB-SEM). The choice of analysing data via a CB-SEM is motivated by the method's known reliability in proving relationships between theoretical constructs defined in the literature (e.g. in deductive studies), as well as the nature of the data obtained during empirical observation. A multilevel path is recommended when the units of observation belong to different levels, hierarchically clustered, and the measurement of latent variables can be interpreted as unobserved heterogeneity at the different levels inducing dependence among all lower-level units in the same higher-level unit (Rabe-Hesketh et al., 2004; Rabe-Hesketh et al., 2007). However, this research is based on the empirical observation of employees' working environment, their perceived conditions and individual actions. It does not involve a statistical

inference when the units of observation belong to a hierarchy of nested clusters, thus we can rely on a CB-SEM technique to assess the multiple statistical relationships among variables.

Results. At first, the eligibility of data has been ensured by the authors carrying out some diagnostics that include the assessment of data normality, common method variance, and multicollinearity (Alin, 2010; Hair et al., 2019; Harman, 1976; George and Mallery, 2018). Data validity and reliability are then verified through confirmatory factor analysis (CFA), to report the model fit, item’s factor loading, variables’ average variance extracted (AVE) and composite reliability (CR). These results fall within the threshold values recommended by the literature (Hair et al., 2019; Kline, 2015). Then, hypothesis testing gave empirical support to our assumptions advanced previously. All relationships showed to be significant and reported a satisfactory estimates value (see Table 1).

Tab. 1: Results

Hypothesis	Path	Estimate (β)	Significance (p)	R ²	Result
HP 1	OT → KSHE	.618	.000	.364	Supported
HP 2	OT → JSAT	.769	.000	.299	Supported
HP 3	JSAT → KSAB	-.154	.002	.034	Supported
HP 4	KSAB → KSHE	-.137	.003	.035	Supported
HP 5	Moderating indirect effect	.015	.000	-	Supported

Source: Authors’ elaboration.

Research limitations. Despite the authors' attempt to develop as reliable and representative a study as possible, it presents some limitations. According to the microfoundations perspective (Coleman, 1990; Foss et al., 2010), sabotage occurrences in the workplace have been observed as deliberate acts deriving from individuals’ rational behaviours (Boudon et al., 2003; Scott, 2000). However, Serenko (2023) outlined how some counterproductive knowledge incidents may be associated with causes unrelated to the individual’s rationality, such as personality disorders. In this study, we supposed knowledge sabotage occurrences as a volitional act of individuals, although there are also unwilling conditions that could provoke knowledge sabotage in the workplace. Furthermore, whereas our study succeeds in offering an excellent overview of the antecedents and consequences of the phenomenon of knowledge sabotage, it fails to study the behaviour of individual actors in great detail. This issue may require qualitative investigations to be integrated into the quantitative analysis, in order to enrich such results with deeply observed experiences and target/perpetrators’ testimonies.

Theoretical contributions and managerial implications. This study delivers some interesting contributions to the knowledge management literature, in terms of exploring the counterproductive workplace behaviour related to knowledge sharing (Afshar-Jalili et al., 2021). It furthers academics and practitioners’ awareness of knowledge sabotage, as extreme counterproductive behaviour that can potentially harm people and companies (Perotti et al., 2022; Serenko, 2019). From a practical perspective, organizational trust and job satisfaction showed to be two important factors to take into account while assessing knowledge sharing practices (Lei et al., 2022; Radaelli, 2011; Wang and Noe, 2010; Wang et al., 2014). Our results supported how a climate of trust lay the ground for a knowledge sharing environment and also conditions employees’ satisfaction, which can be translated into less common sabotage incidents when high job satisfaction is perceived by people in the workplace. In conclusion, this study also enriches the literature on microfoundations by providing a deeply explained blueprint to support future quantitative research in this domain.

Originality of the paper. The present research represents an original contribution to the knowledge management literature since it furthers academics and practitioners’ knowledge of counterproductive knowledge behaviours, specifically taking into consideration the most extreme one (Serenko, 2019; Serenko, 2020). Knowledge sabotage, indeed, needs to be further explored in order to shed light on this phenomenon and promote knowledge sharing in companies. Furthermore, this study offers an original contribution in terms of methodology. While it is not common to find conceptual models in the field of microfoundations that provide a comprehensive overview of the whole Coleman's bathtub, the authors managed to propose a model that could be considered as blueprint to support structuring future works on the topic.

Keywords: knowledge sharing; knowledge sabotage; knowledge management; job satisfaction; trust; microfoundation

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Almost-invisible firms and the COVID-19 crisis: An exploratory analysis and a research agenda

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Framing of the research. *Italian economy is continuously marked by weak productivity growth and large productivity differentials across firms, which compromise improvement in living standards and wellbeing: in Italy, prior to the Covid-19 crisis, labor productivity of firms was 17% lower than OECD best performers, GDP per capita was 26% lower than the same benchmark and the poorest 20% of households earned 6.6% of total income (OECD, 2021). The Covid-19 3-month lockdown generated an aggregate yearly drop in profits of about 10% of GDP and many firms, especially small and medium-sized enterprises (SMEs) and those belonging to the Manufacturing and Wholesale Trading sectors, became financially distressed (Carletti et al, 2020). The severe recession experienced by SMEs is especially important if we consider that the development of SMEs is a priority for policymakers in many countries across the world (Cowling and Mitchell 2003), where they have become the focus of governmental economic policies. Addressing Italy's weak economic growth requires tackling long-standing structural challenges including low levels of investment, productivity and employment. To embrace these challenges would improve the economy's resilience to shocks and reverse the trend of stagnating GDP per capita.*

It is demonstrated that SMEs capacity to face systemic downturns and grasp growth opportunities increases when they take advantages of the economic returns of cooperation and interactions with their business counterparts. Entrepreneurial association might give access to knowledge and resources at lower costs whose benefit represent a source of competitive advantage (Gulati and Higgins 2003; Zaheer and Bell 2005). Evidence for Italian SMEs over the period 2008-2014 shows that establishing a formal business network has a positive effect on a firm's gross margin ratio and exports, even if it has no effect on profits (Cisi et al., 2020). The advantages of this type of networking are stronger for smaller firms, firms operating in traditional and in turbulent markets, and firms that are not part of an industrial district. Associations and chambers of commerce and industry play a role also in innovative milieus through the building and maintaining the relational capital that represent a factor of success of the milieu itself, and SMEs appear to benefit from the existing milieus more than large firms (Maennig and Ölschläger, 2010). Previous evidence had raised doubt on these results and argued that the contribution given by associations through the specific services offered to individual companies appears to be relatively limited (Bennet, 1998) so that further research on the subject is highly valued, given the significance of SMEs and the diffusion of business associations in the Italian and international economic context.

Purpose of the paper. *The paper aims at providing an analysis of the economic performance, including productivity, of firms that for their size and governance constitute the majority of businesses in the country but usually escape the scientific analysis because of lack of information. Most firms in the sample are not required to fill-in and deposit their financial statements at the Chamber of Commerce by virtue of their dimensional and corporate governance characteristics: they would be "invisible" to researchers without a direct access to their accounts. We are able to get such access thanks to the information granted by the entrepreneurial association Confartigianato Imprese and the accounting services it provides to them. The focal point of this paper is to show the potential of this information for scientific purposes and for supporting firm management in the strategic decision-making process. First, the paper illustrates the source and the characteristics of the data, which include performance indicators such as revenues, net income, invested capital and, most important, labor and labor productivity, a difficult variable to retrieve for micro and small firms. The focus on productivity is motivated by the explicit intention to contribute to the II pillar "Global Challenges and European Industrial Competitiveness" of Horizon Europe, which acknowledges how productivity weak growth marks the Italian economy and compromises improvement in living standards. A descriptive analysis is offered to examine different trends in the variables across industries. In addition, the paper includes an empirical analysis of the effects of the Covid-19 pandemic on the performance of firms in different industrial sectors. In its future development, the paper may address the question whether the business association they adhere to, Confartigianato Imprese, provides the same advantages as a formal network contract.*

Methodology. *The analysis exploits a unique, manually compiled dataset of economic data concerning 1262 self-employed and non-listed micro, small and medium Italian firms located in the Eastern Piedmont region and observed during a 3-year period, from 2018 to 2020. Data were provided by the sub-regional entrepreneurial association*

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“Confartigianato Imprese Piemonte Orientale”, that gathers firms from different sectors and of different size and organizations, in the Novara, Vercelli and Verbanio-Cusio-Ossola provinces of North Italy. The Association provides tax and labor consultancy services and opportunity of networking to its members. It is an autonomous organization embodied in a larger national entrepreneurial association, Confartigianato Imprese, operating in the Italian territory through a capillary distribution of territorial bodies and with a central research institute and managing directorate.

Accounting and governance information is available only for firms to which Confartigianato Imprese Piemonte Orientale provides tax and labor consultancy services (and not for the entire population of associated firms): as of today, 7170 firms. Firms have different juridical forms (limited liability company, sole proprietorship, partnerships, corporations) and are subject to different fiscal rules concerning the obligation to deposit their financial statements at the Chamber of Commerce. Consequently, the accounting and governance information is not publicly available for certain firms or, when available, difficult to compare for different kinds of firm. To overcome the absence of official and comparable data, the dataset was compiled by relying on the so-called “fiscal compliance synthetic indexes” (in Italian, “Indici Sintetici di Affidabilità fiscale”, or “ISA”) that Confartigianato submits to the Revenue Agency on behalf of its associates as part of the tax consultancy services provided to them. The ISA are part of the reward system introduced by Law 225/2016 and officialized by the Ministerial-Decree 28 December 2018 with the aim to increase voluntary tax compliance especially among small firms and self-employed, by granting them audit exemption benefits based on their average performance on a broad set of accounting indices. Regardless the type of submitting firms, the ISA always include the same schema for reporting the essential accounting and personnel information (in sections “Quadro F” and “Quadro A”, respectively). The available ISA allow constructing profitability indexes as well as to assess tax rate, the cost of capital, labor and other direct and indirect costs. A complete set of 3-year ISA was extracted for 1262 firms, which represent the final sample employed in the empirical analysis, a strongly-balanced panel data of 3786 observations.

We estimate the model:

$$Y_{it} = \alpha + \gamma_{2019} + \delta_{2020} + \beta_{2020} * Industry_{it} + \psi_i + \varepsilon_{it}$$

where Y_{it} is the performance of firm i in year t , measured by revenues, net income, labor and labor productivity, 2019 and 2020 are the dummy variables indicating that observations refer to the years 2019 and 2020, respectively, and $Industry$ is a binary indicator for the industry to which firm i belongs, and takes value 1 in correspondence of firms belonging to each macro-sector. The focus is on the dummy variable 2020: the model estimates how firms operating in different sectors reacted to the crisis, or, in other words, coefficient β captures the average effect of operating in the Industry during the Covid-19 period (in 2020), with respect to other industries.

Results. Table 1 shows the descriptive statistics of sample firms’ economic results in terms of revenues, net income, total invested capital and value added, by industry, over the sample period 2018-2020. The ATECO sectors are grouped into macro-sector for the sake of analysis: Construction, Logistics, Tourism and hospitality, Manufacturing of consumer products, of vehicle and machinery and of wood and petrochemical products, Services, Specialized construction, Commerce, Transportation and a residual category Other including less represented sectors, like agriculture and public utilities. Associated firms mainly operate in services (financial services, social and health assistance, communication, education, sport) and in the manufacturing, logistics, commerce, construction and hospitality sectors.

Figures eloquently describe the peculiarity of firms represented in this sample, which are micro and small businesses whose revenues are, on average of the three-year period, equal to 156,900 euros and invested capital is 95,631 euros.

Likewise, the descriptive statistics testify the losses experienced from 2018 to 2020, when the effect of pandemic started to show up: both added value and net income are, at their minimum level, negative (and equal to -2,968,936 euros and to -3,143,675 euros, respectively).

The analysis of performance through time shows that the Covid pandemic interrupted a slight trend of economic growth: for all sectors, a plot of revenues through the period 2018-2020 has a “reverse V” shape. The most affected sectors are Tourism and Hospitality (firms in this industry lost about 30% of their income) and Transportation. The differences among industries are more evident when we consider changes in net income, since some sectors were able to limit the losses while others recorded a dramatic diminution of their profits, like Construction and in Tourism and Hospitality. The combined analysis of revenues and net income suggests a positive correlation between the two metrics and highlight that the most affected firms are in the sectors that most suffered from the negative demand shock caused by the lockdown policies. Firms in Construction reveal a peculiar behavior, since they experienced a huge reduction in profits without a relevant decrease in revenues. This change in profitability is cost driven and might be caused by the characteristic of their business: the forced blockade of the shipyards could have had problematic effects linked to the lack of inputs and it might play a role in inflating costs, in addition to the effect of fixed, sunk and start-up costs, typical of these businesses.

The analysis of labor shows a similar, “reversed V” shape for this variable through time and for all sector. The Covid-19 pandemic has a lower impact on employment in terms of percentage variation in 2019 and 2020 since the decision of downsizing is often restricted by the law. There is a strong correlation between loss in revenues and decrease in labor force: industries with the highest downsizing rate are indeed the same with highest loss in revenues. Revenues per worker provides a proxy for labor productivity, on which the effect of Covid-19 is ambiguous. The

diminishing marginal productivity of labor suggests that a decrease in labor should cause an increase in productivity. On the other side, the loss in revenues could undo or reverse this effect. Potentially, also capital could play a role: the classic economic theory suggests a positive relation between capital per worker and productivity of labor, so it is important to control for it. Generally, Covid-19 had a negative impact on productivity performance, therefore the loss in revenues is the dominant effect. Tourism and Hospitality, which is the most affected sector, shows a very negative performance in both metrics. Nevertheless, for other industries, a negative correlation between labor and labor productivity rate seems to exist.

The comparison between productivity rates, measured by revenues per worker and added value per worker, reveals that the decrease in added value is negative and stronger with respect to the variation in revenues due to the pandemic. In general, most sectors have recorded similar values for both variables. Nevertheless, that added value reflects also changes in inventory, which have a different impact depending on the business characteristics. Covid-19 had the effect of decrease the quantity of available products in the warehouses, so that when productivity is measured through different metrics, results could also be different: indeed, firms in Constructions are the ones most affected by the restrictions imposed to the inventory management.

Covid-19 had a tremendous effect on all the performance variables considered. The coefficient of the dummy variable 2020 is negative and strongly significant in every specification. When Y_{it} equals revenues, the coefficient β associated with the interaction term is significant and negative for all industries (Table 2, for the sectors Tourism and Hospitality, Transportation and Manufacturing of vehicle and machinery). In the model where net income is the dependent variable (Table 3), instead, β is negative and significant for Construction only, but the result is conditioned by the uneven distribution of firms across industry, with Constructions being over-represented and showing the worst performance in the sample.

As far as labor is concerned, the descriptive analysis pointed out that the drop in labor could be driven by the loss in revenues so that when the dependent variable Y_{it} is represented by labor force (number of employees), revenues are added within regressors to better control their explanatory value (Table 4). The estimation of this modified model shows that β is negative and strongly significant for all considered sectors and its value increases when revenues are added as control variable. This means revenues explain some of the effect that would be otherwise attributed to the industry. Moreover, the coefficient of revenues is positive and significant, meaning that the correlation between revenues and labor actually exists.

Interpreting the effect of Covid-19 becomes more challenging when we consider labor productivity, because labor and capital play a role in affecting it and must be included in the analysis as control variables. Table 5 presents the results of the estimated model for the Tourism and Hospitality and the Logistics sectors. When controls variables Labor and Invested Capital are added as regressors, the coefficient of interest β decreases in magnitude and becomes significant for the Tourism and Hospitality sector, while it is not significant for the Logistics sector. Furthermore, the relation between labor and capital, on the one side, and labor productivity, on the other side, is strongly significant and the coefficients' signs (negative for labor, positive for capital) are consistent with the economic theory.

Research limitations. The availability of ISA limits the sample period's lower bound to 2018 and the upper bound to 2020, the most recent fiscal period accessible when data were collected. The paper has the potential to lead to new results concerning the benefits that non-listed micro, small and medium firms perceive and obtain from adhering to an association of enterprises. The goal may be reached by extending the sample to firms that are not part of a formal business association, although building a dataset that includes a balanced control group might be difficult due to the usual lack of information. Furthermore, the analysis might benefit by adopting a mix (quantitative and qualitative) method to take advantage of the already available information and by collecting additional, primary information from the associated firms. New data would be gathered through a questionnaire sent to the firms with the support of Confartigianato Imprese Piemonte Orientale, in the hope that the Association's consent would increase the response rate.

Managerial implications. The National Recovery and Resilience Plan offers a unique opportunity to transition to higher productivity by combining an ambitious structural reform agenda and large investments. The scientific research may contribute to making this opportunity effective and indicating the strategies to growth. The paper aims at providing business associations, entrepreneurs and the management of non-listed micro, small and medium firms a fresh, up-to-date comparative analysis of these companies, that for their legal, dimensional and organizational characteristics are usually impermeable to the scrutiny of markets and of researchers.

Originality of the paper. Up to our knowledge, this paper is the first one using the information extracted from ISA to assess the firm economic performance. By exploiting a unique, manually compiled dataset of economic and organizational data referred to the period before and during the COVID-19 pandemic, this paper sheds some light on the results, the resilience and the growth potential of firms that would be "otherwise invisible" to researchers, market analysts and institutions. The analysis based on the dataset used in this paper provides an original contribution to the research of non-listed SMEs for Italy and, in general, for countries and sectors where these firms represent the majority of enterprises. The peculiar time span and the specific, sub-regional geographical context considered in the empirical analysis do not restrict the external validity of the results: on the contrary, they permit controlling for the exogenous factors that possibly affect the performance and behavior of firms and isolating the value of networking through the entrepreneurial associations.

Keywords: SMEs, non-listed firms, COVID-19, firm network

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Tab. 1: Descriptive statistics by macro-sector (2018-2020)

Macro-sector	N	Revenues (euros)				Invested capital (euros)				Net income (euros)				Added value (euros)			
		Max	Min	Mean	Std. Dev	Max	Min	Mean	Std. Dev	Max	Min	Mean	Std. Dev	Max	Min	Mean	Std. Dev
Construction	169	2,614,743	0	184,203	304,801	805,746	337	97,590	127,008	203,134	-3,143,675	19,421	149,510	815,137	-2,968,936	66,009	170,385
Logistics	50	942,293	0	159,685	173,609	634,162	1,147	90,932	129,633	119,343	-170,772	17,427	29,695	551,766	-36,469	67,237	95,108
Tourism and hospitality	50	3,844,841	0	260,042	588,285	2,845,281	1,350	255,672	524,384	413,269	-135,710	30,039	63,764	1,570,212	-52,240	121,387	250,138
Manufacturing of consumer products	52	2,789,156	0	238,242	419,710	626,202	52	109,893	132,772	195,778	-371,066	27,256	58,718	826,605	-126,360	93,984	156,271
Manufacturing of vehicles and machinery	95	2,844,281	0	221,850	341,261	1,892,111	298	208,717	350,025	647,417	-334,299	51,170	80,120	1,492,733	-110,165	107,477	166,850
Manufacturing of wood and petroch. products	75	958,402	0	137,021	159,164	1,271,308	3,615	193,760	239,980	200,777	-51,706	26,614	30,623	477,610	-55,533	55,194	73,185
Other	42	2,144,278	0	195,902	386,241	3,557,606	2,037	220,658	628,665	529,459	-37,133	40,320	70,754	1,982,223	-14,970	110,249	262,072
Services	162	759,279	0	71,424	92,065	1,111,660	229	48,213	91,948	126,985	-33,235	17,618	18,557	324,989	-13,809	40,364	50,338
Specialized construction	374	1,569,891	0	128,366	182,501	574,236	99	46,412	74,664	326,227	-491,424	32,481	33,886	945,321	-227,156	58,316	85,500
Commerce	116	3,255,461	50	189,301	325,446	432,380	60	49,896	66,685	250,485	-197,239	26,498	39,999	285,429	-399,021	34,648	62,142
Transportation	77	1,043,367	0	163,378	166,687	866,031	83	90,961	123,067	180,744	-430,193	25,040	48,777	308,012	-413,337	48,390	70,005
Total	1,262	3,844,841	0	156,900	272,412	3,557,606	52	95,631	217,107	647,417	-3,143,675	28,202	69,105	1,982,223	-2,968,936	63,750	126,638

Tab. 2: The effect of Covid on revenues (2018-2020)

Variables	Tourism and Hospitality	Transportation	Manufacturing of vehicles and machinery
2019	-1,026.585 (3,412.507)	-1,017.997 (3,413.422)	-1,061.155 (3,408.387)
2020	-19,470.961*** (3,468.424)	-19,676.936*** (3,495.608)	-18,168.282*** (3,509.766)
2020*Industry	-42,752.296*** (14,899.031)	-26,324.764** (12,350.241)	-42,397.812*** (11,239.007)
Constant	164,118.762*** (3,214.417)	164,333.468*** (2,413.654)	168,433.540*** (8,253.902)
Firm fixed effects	Yes	Yes	Yes
Observations	150	231	285
R-squared	0.022	0.021	0.025
Number of firms	50	77	95

Dependent variable: Revenues. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Tab. 3: The effect of Covid on net income (2018-2020)

Variables	Construction	Tourism and Hospitality	Manufacturing of consumer products
2019	-2,038.137 (2,445.916)	-2,065.062 (2,455.298)	-2,054.113 (2,455.355)
2020	-7,464.661*** (2,588.578)	-10,618.419*** (2,500.284)	-10,674.830*** (2,498.539)
2020*Industry	-26,132.271*** (6,235.657)	-9,260.702 (10,716.881)	-8,368.810 (11,110.565)
Constant	32,524.313*** (1,729.371)	31,850.286*** (2,314.428)	32,940.221*** (2,333.838)
Firm fixed effects	Yes	Yes	Yes
Observations	507	150	156
R-squared	0.016	0.009	0.009
Number of firms	169	50	52

Dependent variable: Net income. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Tab. 4: The effect of Covid on labor (2018-2020)

Variables	Manufacturing of vehicles and machinery		Tourism and Hospitality	
	(1)	(2)	(1)	(2)
2019	0.001 (0.016)	-0.002 (0.015)	0.001 (0.016)	0.003 (0.015)
2020	-0.096*** (0.016)]	-0.070*** (0.015)	-0.099*** (0.016)	-0.071*** (0.015)
2020*Industry	-0.245*** (0.051)	-0.184*** (0.049)	-0.343*** (0.068)	-0.282*** (0.065)
Revenues		0.0014*** (0.000)		0.001*** (0.000)
Constant	2.124*** (0.038)	1.882*** (0.039)	2.151*** (0.015)	1.916*** (0.020)
Firm fixed effects	Yes	Yes	Yes	Yes
Observations	285	285	150	150
R-squared	0.036	0.131	0.039	0.134
Number of firms	95	95	50	50

Dependent variable: Number of employees. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Tab. 5: The effect of Covid on labor productivity (2018-2020)

Variables	Logistics		Tourism and hospitality	
	(1)	(2)	(1)	(2)
2019	-471.404 (1582.669)	-1670.542 (1292.660)	-479.687 (15835.430)	-1673.084 (1292.2620)
2020	-4491.572*** (1607.470)	-692.496*** (1341.705)	-4616.696*** (1609.491)	-6757.403*** (1339.322)
2020*Industry	-11063.056 (7026.693)	-7891.916 (5855.984)	-7933.395 (6913.763)	-12446.687*** (5622.087)
Labor		-10030.385*** (1693.952)		-10510.259*** (1702.245)
Invested capital		0.174*** (0.037)		0.173*** (0.037)
Constant	70651.785*** (2246.862)	76143.743*** (5163.091)	70397.676*** (1491.622)	76713.791*** (4947.802)
Observations	150	150	150	150
R-squared	0.006	0.028	0.005	0.030
Number of firms	50	50	50	50

Dependent variable: Revenues per worker. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.

Analisi dell'impatto di nuove forme di gestione della proprietà intellettuale: il caso dell'Open COVID Pledge nella lotta contro il COVID-19

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Introduzione

L'Open Covid Pledge¹ (OCP) è uno dei progetti di maggiore visibilità internazionale di patent pledge che ha lo scopo di favorire il libero utilizzo da parte del pubblico della proprietà intellettuale afferente alle soluzioni tecnologiche che ruotano intorno alla risoluzione delle complessità generate dalla pandemia da COVID-19. La pandemia ha impattato non solo i sistemi sanitari dei vari Paesi ma anche le corrispettive economie globali. Allo stesso tempo, l'urgenza di trovare mezzi e soluzioni che facilitassero la riduzione degli effetti generati dal COVID-19 ha condotto ad eccezionali progressi nelle pratiche tecnologiche ed innovative. Le organizzazioni, infatti, hanno sperimentato che la loro sopravvivenza ed il loro successo sono fortemente legati alla loro capacità di destreggiarsi in situazioni di incertezza e cogliere nuove opportunità, assumendo un atteggiamento più collaborativo e sbloccando l'innovazione collettiva. Pertanto, diversi attori, tra cui governi, scienziati, educatori ed aziende di diversi settori si sono impegnati - in alcuni casi per la prima volta - in una collaborazione globale senza precedenti per affrontare gli effetti della pandemia nella modalità più efficiente e rapida possibile. E, grazie all'impegno di alcune grandi aziende (es. Facebook, Intel, Microsoft, Amazon), l'OCP ha avuto un grande risalto mediatico su tutto il web.

Lo scopo del seguente lavoro di ricerca è di analizzare i brevetti messi in campo dalle imprese partecipanti (i pledgor) e stimare la loro ricaduta, in termini di impatto sui brevetti successivi. A tale scopo, partendo dalla pagina web ufficiale del progetto², e in particolare dalla vetrina del sito intitolata "Featured IP"³, si è indagato sulla natura della proprietà intellettuale messa a disposizione dai pledgor facendo riferimento, come campione per l'analisi, ai soli brevetti. Sulla base delle statistiche brevettuali, patent statistics, generalmente utilizzate in letteratura (Nagaoka et al., 2010), si è poi costruito un campione di controllo di brevetti non aderenti all'iniziativa OCP, ma aventi la stessa data di priorità, la stessa sottoclasse internazionale IPC e la stessa nazione di pubblicazione. Di entrambi i gruppi è stato analizzato l'andamento nel tempo (marzo 2020-giugno 2022) del numero di citazioni ricevute dai brevetti successivi (forward citation). Il confronto dei due trend è stato compiuto attraverso il metodo della differenza-nelle-differenze (difference-in-differences). I primi risultati dimostrano che la partecipazione all'iniziativa Open Covid Pledge abbia avuto ricadute positive in termini di diffusione delle tecnologia oggetto di pledge.

Il remainder del paper è il seguente: in primis, verrà presentato il contesto di riferimento dell'iniziativa OCP e gli obiettivi della ricerca; successivamente, si descriverà nel dettaglio la metodologia utilizzata per poi passare all'analisi descrittiva e ai risultati empirici dello studio, per concludere, infine, con la presentazione delle conclusioni, limitazioni ed implicazioni future di ricerca.

Analisi del contesto ed obiettivi della ricerca. L'OCP è un progetto che invita le organizzazioni di tutto il mondo a rendere liberamente disponibili i propri brevetti e diritti d'autore nella lotta contro la pandemia di COVID-19. Il progetto è stato guidato e gestito dal Program on Information Justice and Intellectual Property presso l'American University Washington College of Law. È considerato il progetto di patent pledge di maggiore visibilità durante il Covid, avendo ottenuto successo a livello internazionale attraverso il coinvolgimento delle maggiori aziende di tecnologia con un elevato numero di depositi brevettuali. Lo scopo è quello di favorire l'utilizzo libero della proprietà intellettuale afferente alle soluzioni tecnologiche che ruotano intorno alla risoluzione dei problemi generati dalla pandemia da COVID-19. Infatti, un numero sempre maggiore di aziende note nel mondo dell'innovazione (per esempio Facebook, Intel, Microsoft, Amazon) ha pubblicamente sposato la causa. Il loro impegno ha spronato molti programmi complementari ed iniziative simili all'OCP (es. OPEN COVID Declaration, firmata da un gruppo di aziende giapponesi per permettere la libera disponibilità della loro tecnologia a supporto della lotta al COVID), dimostrando quanto il

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¹ <https://opencovidpledge.org/>

² <https://opencovidpledge.org/>

³ <https://opencovidpledge.org/partner-ip/>

senso di urgenza - generato da alcuni scenari atipici - può veramente alimentare l'Open Innovation (Chesbrough, 2003) e stimolare le organizzazioni ad aprire i loro confini per affrontare in modo congiunto le sfide della società (Antonelli et al., 2021; Chesbrough, 2020).

Se da un lato le aziende hanno partecipato all'iniziativa OCP per offrire al pubblico strumenti volti alla riduzione degli effetti negativi generati dal Covid-19, allo stesso tempo, la messa a disposizione di un certo numero di brevetti proprietari, in un'iniziativa di risonanza globale, può aver generato un effetto positivo per i pledgor che si concretizza in un accrescimento indiretto del valore dei brevetti concessi, ravvisabile in un maggior numero delle forward citation ottenute - rispetto a quelle che vi sarebbero state in assenza della partecipazione all'iniziativa - e quindi, nell'accrescimento dell'impatto di quest'ultimi nella generazione di nuove innovazioni oggetto di successivi brevetti. A tal proposito, questo studio ha l'obiettivo di stimare il trend di crescita delle forward citation dei brevetti del pledge, attraverso l'analisi dei dati dei documenti brevettuali in esame, confrontandoli con il trend riscontrabile per brevetti, con caratteristiche simili e confrontabili, non partecipanti all'OCP.

Metodologia

Variabili, metodo e campioni di analisi

Misura di impatto: le forward citations

Le forward citation (citazioni in avanti, ossia che sono nate successivamente, in contrapposizione alle backward citation, ossia le citazioni indietro che sono preesistenti a quelle a cui la documentazione brevettuale fa riferimento) rappresentano una delle misure più diffuse per rappresentare l'impatto/valore di un brevetto (Aristodemou & Tietze, 2018). Numerosi studi hanno utilizzato le informazioni sulle citazioni per stimare il valore del brevetto in termini di influenza, nonché per stimare la diffusione della conoscenza all'interno e al di là dei confini istituzionali, geografici e persino culturali (Jee et al., 2019).

Il rationale alla base dell'analisi delle forward citation è che se un brevetto è citato spesso da altri brevetti, è più probabile che altre entità si basino sulla tecnologia brevettata e che i brevetti altamente citati siano più rilevanti, costituendo una base di conoscenza per le future innovazioni. Infatti, pur non costituendo una misura perfetta del valore dei brevetti in termini di importanza, il numero delle citazioni in avanti viene spesso utilizzato in letteratura come guida per individuare i brevetti che possono essere considerati più significativi e d'impatto. Considerato l'obiettivo di questo lavoro di valutare quanto la scelta di mettere a disposizione un brevetto nell'OCP abbia contribuito a rendere quella tecnologia più conosciuta e quindi anche più utilizzata nel mondo, la stima del trend delle citazioni in avanti può costituire una buona guida per individuare l'eventuale presenza di tale pattern di diffusione.

Il metodo differenza-nelle-differenze (DID)

Per poter fare una valutazione quanto più possibile oggettiva delle ricadute in termini di ulteriore diffusione dei brevetti aderenti all'iniziativa Open Covid Pledge, è stata adottato il metodo differenza-nelle-differenze (DID, difference-in-differences).

Il metodo DID, nella sua versione più semplice che prevede quattro dati osservazionali, consiste nell'effettuare una osservazione nel momento immediatamente precedente all'attuazione della politica di intervento e una nel momento immediatamente successivo per poi operare un confronto tra i trend del fenomeno di interesse osservato sul gruppo di dati trattati ed il trend dei dati non trattati. L'effetto è identificato appunto da una differenza (trend) tra due differenze, ossia le differenze tra prima e dopo osservate nei due gruppi.

L'assunto arbitrario su cui si basa il metodo DID è che le differenze tra i due gruppi siano costanti nel tempo. L'assunzione alla base è che se non ci fosse stata la politica di intervento non ci sarebbero stati differenze nei trend dei due gruppi ("parallelismo dei trend").

Nell'ambito di questo lavoro, utilizzeremo un'applicazione semplice del metodo DID, con quattro osservazioni e l'utilizzo delle medie dei valori della serie (ossia il numero di forward citation). Pertanto, lo studio prenderà in considerazione i seguenti dati:

- Citazioni in avanti dei brevetti appartenenti al pledge esattamente prima del periodo pandemico e quindi dell'iniziativa Open Covid Pledge;
- Citazioni in avanti dei brevetti appartenenti al pledge dopo il periodo pandemico;
- Citazioni in avanti dei brevetti appartenenti all'insieme di controllo dei brevetti (dello stesso settore tecnologico) non aderenti all'iniziativa, nel periodo esattamente prima del periodo pandemico;
- Citazioni in avanti dei brevetti appartenenti all'insieme di controllo dei brevetti (dello stesso settore tecnologico) non aderenti all'iniziativa, dopo il periodo pandemico.

Per le citazioni in avanti si opererà per la media come dato statistico da utilizzare nelle analisi con il metodo DID.

Creazione del campione di analisi e di controllo e definizione della finestra di osservazione

La pagina ufficiale del progetto Open Covid Pledge permette agli utenti di identificare, tra l'insieme dei brevetti del pledge, quali sono i più attinenti ad una determinata soluzione. Tale funzionalità ha lo scopo di mettere a disposizione la tecnologia individuata, sotto licenza Open Covid, a chiunque avesse necessità di risolvere problemi di varia natura che ruotano intorno al contrasto degli effetti pandemici. Nei fatti, attraverso la versione beta del servizio ipscreener della Automatch Technologies⁴ è possibile risalire ai documenti brevettuali del pledge, fatto salvo fornire una descrizione sufficientemente accurata di quanto si sta ricercando. Il sito [openCovidpledge.org](https://my.ipscreener.com/login/openCovidpledge) prevede inoltre una

⁴ <https://my.ipscreener.com/login/openCovidpledge>

pagina "Featured IP" che ha la funzione di messa in vetrina di una serie di diritti di Proprietà Intellettuale messi a disposizione da pledgor durante il periodo pandemico.

Per costruire il campione brevettuale di questo studio, dato che la piattaforma opencovidpledge.org non fornisce un set esaustivo dei brevetti, sono state prese in considerazione le soluzioni riportate nella pagina di vetrina. In particolare, andando ad analizzare la pagina di "Featured IP", vengono mostrati in vetrina un totale di 26 titoli di privativa⁵. Per gli scopi di questo lavoro, sono stati selezionati le sole tecnologie coperte da diritto di privativa brevettuale (20 brevetti), e per i casi in cui la pagina Featured IP non ha fornito il numero del documento brevettuale della tecnologia, attraverso il servizio [ipscreener](https://www.ipscreener.com/) è stato identificato il numero di deposito (tramite la descrizione della tecnologia riportata nella stessa pagina di vetrina) permettendone comunque l'inclusione nel campione.

Successivamente, per ognuno dei brevetti della vetrina viene identificato un set di brevetti di controllo aventi stesso anno di priorità, stessa sottoclasse tecnologica IPC, stessa autorità di concessione brevettuale.

Per ogni set di brevetti (di osservazione e di controllo), tramite [Google Patents](https://patents.google.com/)⁶, si raccolgono almeno i seguenti parametri: titolo, data di priorità, anno di applicazione, classe tecnologica IPC, numero di rivendicazioni, numero di citazioni forward, numero di citazioni backward, nazione di deposito, inventore, descrizione, applicant.

Per identificare le due date di riferimento dell'analisi oggetto di questo studio, occorre stabilire una data subito prima dell'avvio dell'iniziativa Open Covid Pledge ed un'altra successiva alla stessa. A tal proposito, viene identificata la seguente finestra di osservazione temporale con queste date:

- Marzo 2020, data convenzionale di inizio della pandemia, eletta come data pre-pandemica;
- Giugno 2022, data di osservazione post-pandemica.

Anche se le licenze Open Covid Pledge iniziano formalmente alla data del 1 dicembre 2019 per tenere in considerazione delle attività già avviate, la consapevolezza dell'iniziativa è maturata subito dopo marzo 2020 (l'OMS ha dichiarato la pandemia 11 marzo 2020, la prima licenza Open Covid è stata pubblicata il 30 marzo 2020).

Queste due date rappresentano l'orizzonte temporale in cui vengono confrontati i dati dei set di brevetti di osservazione e di controllo.

Stima delle medie del numero di citazioni sia del set di osservazione che del set di controllo all'interno della finestra di osservazione

Per conteggiare le forward citation viene utilizzato [Google Patents](https://patents.google.com/). Il numero delle citazioni in avanti alla data di giugno 2022 sono quelle mostrate dall'interrogazione di [Google Patents](https://patents.google.com/) per ogni singolo documento brevettuale dei due set. Per stimare invece il numero di citazioni in avanti alla data di marzo 2020 sono stati selezionati, tra i brevetti citanti presenti nelle forward citation alla data di giugno 2022, quelli che sono stati pubblicati in un periodo precedente a [marzo 2020 + 18 mesi], settembre 2021, per tenere in considerazione il periodo di segretezza dopo il deposito dei brevetti. In mancanza di dati sulle citazioni in avanti alla data marzo 2020, questa può rappresentare una buona approssimazione per stimare il numero di citazioni in avanti.

In particolar modo, viene stimato il numero medio di forward citation per i due set di brevetti e per le due date di osservazione (4 dati osservazionali). Come anticipato, utilizzare la media costituisce una prima buona approssimazione di analisi.

Nello stimare il numero di forward citation del set di controllo, per ogni insieme di brevetti associato ad un brevetto del set di osservazione, vengono presi in considerazione i primi 3 brevetti con il maggior numero di forward citation, quale criterio più consistente per semplificare l'approccio metodologico. Questa semplificazione di carattere puramente operativo è la stessa per ogni brevetto, pertanto è come se stessimo conducendo il confronto con i top performer in termini di forward citation. A questo punto, si valuta la media delle forward citation per entrambe le date e per entrambi i set di brevetti secondo le modalità e le ipotesi precedentemente illustrate.

Nel valutare le medie delle forward citation vengono eliminate dal campione di dati i valori max e min in modo da minimizzare la dispersione e restituire una stima di media più plausibile.

Analisi descrittiva del campione

In Figura 1 è riportata la distribuzione dei brevetti in vetrina tra i vari *pledgor*. La società con il numero maggiore di brevetti messi a disposizione nella vetrina dell'*Open Covid Pledge* è la *Mitsubishi Electric* con il 27.3 %, seguita da *IBM* con il 13.6 % ed a seguire *Uber*, *Fujitsu*, *AT&T* e *Sandia* con percentuali intorno ai dieci punti.

Conducendo un'analisi di *text clustering*⁷ sui campi di applicazione dei brevetti si ottiene la rappresentazione riportata in Figura 2, generata considerando la descrizione della tecnologia inserita e la tipologia di problemi che va a risolvere rilevati nel titolo, nell'*abstract* e nella descrizione della stessa.

Andando a esaminare il dettaglio dei singoli brevetti, i campi di applicazione possono essere riassunti nelle seguenti categorie:

- soluzioni utili per ricalcolare il percorso ottimo da parte dei robot mobili;
- soluzione per la determinazione della posizione sul globo attraverso tecnologia wifi o cellulare senza l'utilizzo del GPS;
- soluzioni attinenti i cosiddetti canyon urbani (luogo in cui la strada è fiancheggiata da edifici su entrambi i lati

⁵ Dati raccolti fino al 25/06/2022

⁶ <https://patents.google.com/>

⁷ Analisi condotta sui brevetti della vetrina del *pledge* con la funzione "Analysis, text, field of invention" dello strumento *patentinspiration* (<https://www.patentinspiration.com/>)

- creando un ambiente simile a un canyon, in altri termini le strade che separano i grattacieli);
- soluzioni per mitigare la trasmissione di patogeni attraverso i dispositivi di input sensibili al tatto oppure sistemi di rivelazione delle proteine come metodo diagnostico per assistere il personale medico;
- soluzioni eterogenee che vanno sotto diversi argomenti per campi di applicazione differenti (categoria residuale).

Analizzando le *forward citation*, alla data del mese di giugno 2022, i *pledgor* con il maggior numero di citazioni in avanti sui brevetti messi a disposizione in vetrina sono *Intel e Mitsubishi Electric*. Quest'ultima, in considerazione del numero maggiori di brevetti messi a disposizione ha minore importanza in questa classifica. Ad ogni modo questo dato preso singolarmente non ha particolare significato se non quello di evidenziare come la tecnologia di *Intel* abbia, confrontandola con le altre messe a disposizione, un buon grado di diffusione.

Effettuando un confronto *pre vs. post* del set di brevetti della vetrina del *pledge* tra la data prima dell'intervento della politica e quella successiva, si evince come il *pledgor* con il maggior incremento di citazioni in avanti è *Uber* seguito subito da *Mitsubishi Electric*. Il fatto che buona parte dei brevetti della vetrina abbiano avuto un incremento del numero di citazioni nel confronto *pre vs. post* non permette di correlare assolutamente tale dinamica con l'effetto dovuto all'adesione all'iniziativa *Open Covid Pledge*, se non altro per la dinamica naturale che le *forward citation* presentano (aumentano con il passare del tempo) e per l'intervallo temporale di osservazione abbastanza ampio che lascia presumere che un incremento di citazione sia lecito aspettarselo. Il confronto *pre vs. post* del set di brevetti di controllo (*top performer*) mostra che nonostante il numero già elevato di citazioni, alcuni documenti brevettuali manifestano incrementi percentuali nel periodo *pre vs. post* che arrivano anche all'80 % (Appendice 1).

Fig. 1: Distribuzione dei brevetti della vetrina tra i *pledgor*, elaborazione degli autori, 2022

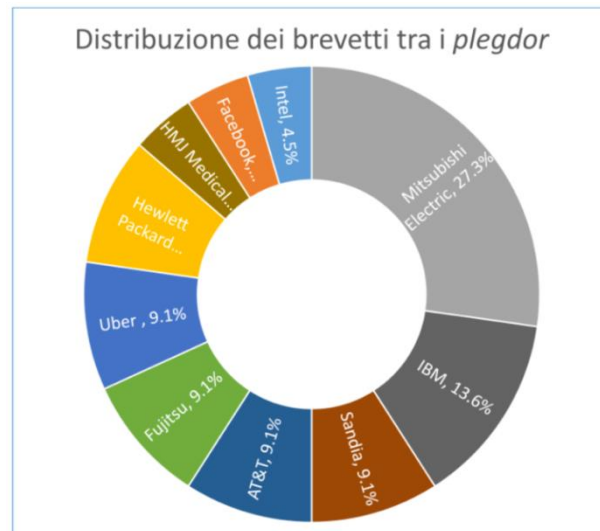
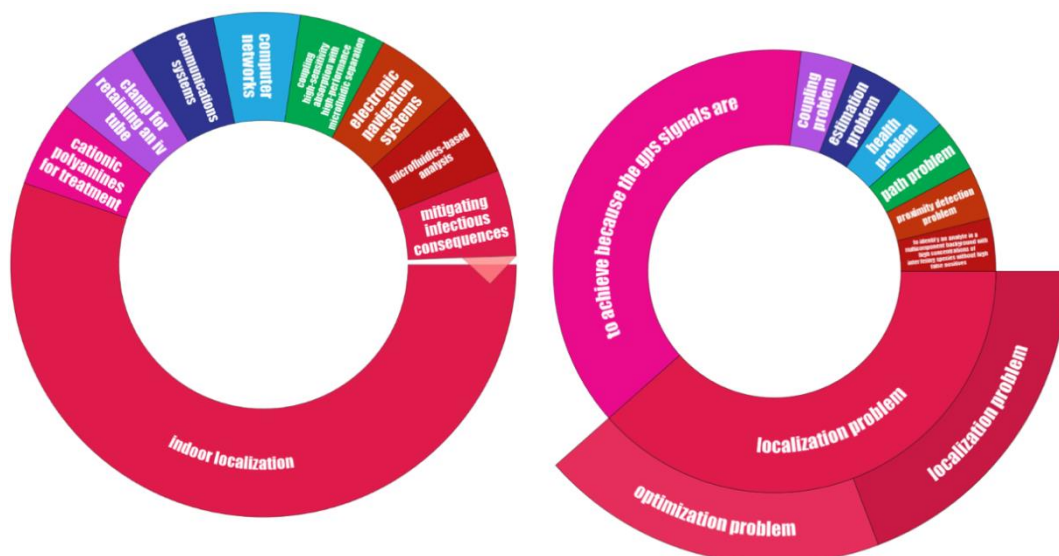


Fig. 2: Text Clustering brevetti dei *pledgor*, figura generata con *patentinspiration*, elaborazione degli autori, 2022



Risultati del modello differenza-nelle-differenze. Procedendo con l'analisi dei brevetti ed applicando il metodo differenza-nelle-differenze, la stima delle medie dei due set e per le due date di osservazione a cavallo dell'intervento della politica conduce ai valori riportati nella Tabella 1.

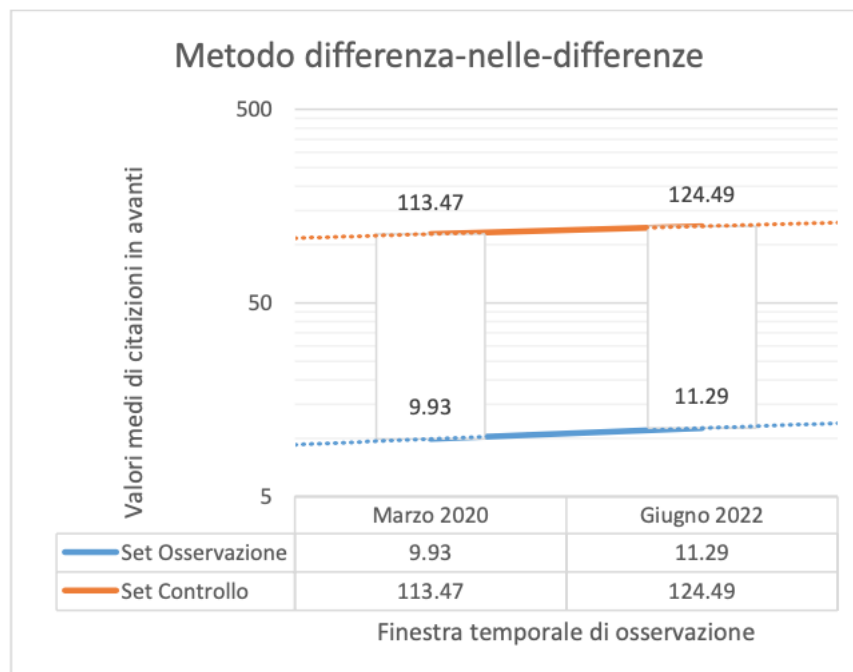
Tab. 1: metodo differenza-nelle-differenze, valori medi delle citazioni in avanti dei due set di brevetti, elaborazione degli autori, 2022

valori medi di <i>forward citation</i>			
Set di brevetti	PRE-COVID	POST-COVID	Trend (differenza periodo)
Osservazione	9.93	11.29	1.36
Controllo	113.47	124.49	11.02
Trend (Differenza)	103.54	113.20	9.67

Il valore numerico positivo (9,67) della doppia differenza è una indicazione di come la dinamica delle citazioni in avanti dei brevetti della vetrina abbia un trend favorevole rispetto ai brevetti più performanti appartenenti al set di controllo. Da un punto di vista grafico, il trend favorevole è rappresentato dalla maggiore pendenza della retta della dinamica delle citazioni in avanti medie del set di osservazione (di colore blu) rispetto alla retta omologa del set di controllo (di colore arancione), come rappresentato nella Figura 3.

Il fatto che il numero di citazioni in avanti medie dei brevetti della vetrina abbiano un trend favorevole rispetto al trend dei brevetti di controllo lascia presagire come l'intervento della politica di partecipazione al progetto Open Covid Pledge possa aver avuto ricadute positive in termini di diffusione della tecnologia.

Fig. 3:- Metodo differenza-nelle-differenze applicato ai brevetti della vetrina, elaborazione degli autori, 2022



Fatte salve le opportune considerazioni circa le semplificazioni operative adottate, lo strumento DID permette di analizzare quanto possa essere importante la partecipazione da parte di alcune organizzazioni a questo tipo di iniziative, in termini di potenziale diffusione dell'innovazione, generando un rilevante contributo nello studio delle politiche di patent pledge.

Conclusioni, limitazioni, implicazioni future. Dall'analisi condotta è possibile evincere che entrambi i set di brevetti (quello di osservazione e quello di controllo) dimostrano una naturale tendenza all'incremento delle citazioni in avanti. Questa caratteristica intrinseca dei brevetti non permette di utilizzare la metodologia di confronto semplificata pre vs. post in quanto esiste una dinamica naturale che si confonde con l'eventuale effetto della politica di

intervento OCP che vogliamo stimare. Allo stesso modo, anche se si effettuasse il solo confronto tra i due set di brevetti a una data post pandemica, per quanto siano stati selezionati i documenti brevettuali più simili (stessa classe IPC, stessa data di priorità, stessa nazione di deposito), sarebbero presenti comunque delle differenze naturali tra i due insiemi (dovuta al fatto che naturalmente non esistono due brevetti identici) che renderebbe la stima poco affidabile. Pertanto, la sola metodologia di confronto dati trattati vs. dati non trattati, sarebbe stato poco applicabile per le finalità di questo lavoro in quanto sarebbe venuta meno l'assunzione alla base di tale metodologia: l'identità strutturale dei due set (osservazione e controllo).

Per questo motivo, per stimare gli effetti dell'intervento della politica Open Covid Pledge il metodo differenza-nelle-differenze si è mostrato quello più attendibile per utilizzare l'andamento delle citazioni in avanti come proxy della diffusione delle tecnologie prima e dopo la partecipazione al progetto. L'impatto è stato valutato confrontando la dinamica naturale delle forward citation nel periodo pre-covid (marzo 2020) e post-covid (giugno 2022) tra l'insieme dei brevetti della vetrina dell' Open Covid Pledge (set di osservazione) e l'insieme di brevetti aventi natura e caratteristiche simili (set di controllo). Il metodo DID è stato applicato nella forma semplificata che prevede 4 dati osservazionali (le medie delle citazioni in avanti pre e post applicate ai due set). Il risultato dell'applicazione del metodo produce una doppia differenza positiva, lasciando presagire che la partecipazione all'iniziativa Open Covid Pledge abbia dato un slancio ulteriore in termini di diffusione e quindi citazione dei brevetti della vetrina.

Consapevoli della portata della sfida a causa delle numerose variabili che possono influenzare la dinamica naturale delle citazioni, si è scelto di intraprendere un'analisi con un modello semplificato che può fornire una stima orientativa iniziale in grado di aprire la strada ad indagini future più approfondite.

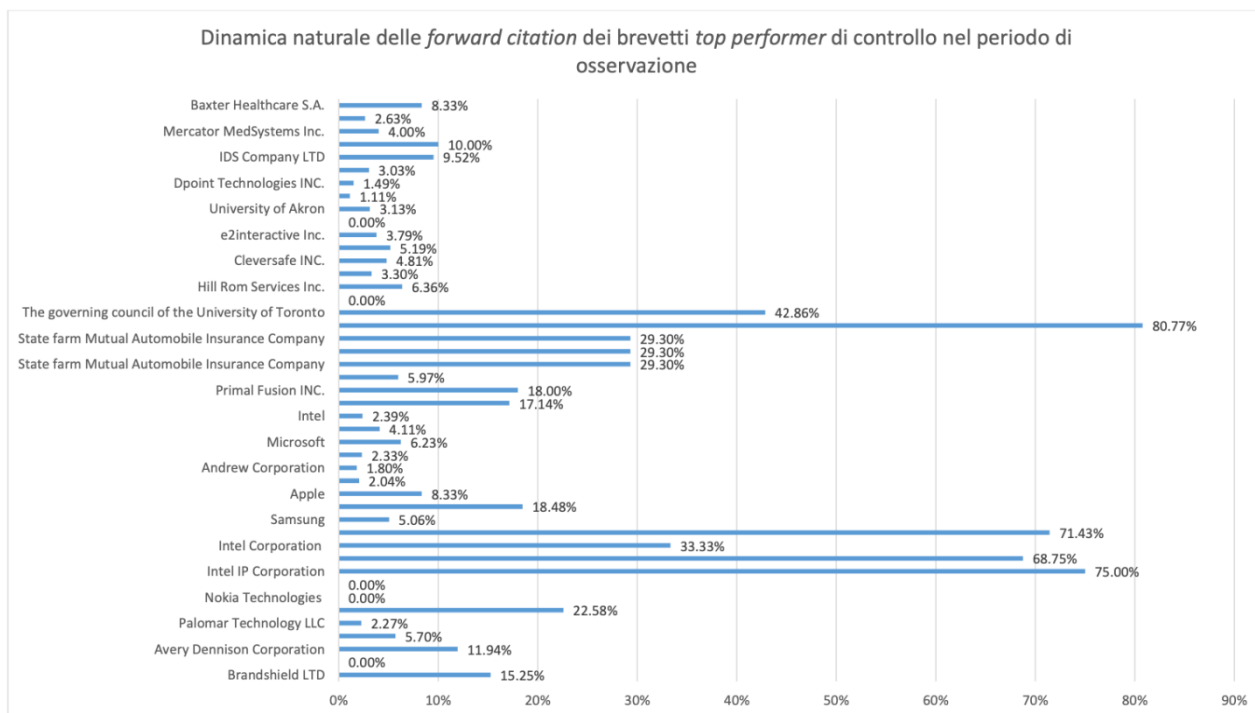
La limitazione principale di questo studio è aver scelto come set di controllo, per motivi di opportunità operativa e semplificazione del modello, i soli documenti brevettuali top performer) in termini di citazioni in avanti (per il set di controllo). Ciononostante, il confronto tra le medie ha condotto ad un trend favorevole in termini di aumento di citazioni in avanti per i brevetti dell'Open Covid Pledge in vetrina.

Studi futuri potranno eliminare tale ipotesi di lavoro ed analizzare l'intero set di controllo per stime più rappresentative grazie ad una maggiore quantità di dati di analisi. Allo stesso modo, estendere il numero di dati osservabili del metodo differenza-nelle-differenze può rendere sicuramente la stima dell'effetto più veritiera. Ad esempio, si potrebbe considerare due date pre-pandemiche in modo da valutare il trend delle citazioni in avanti con il metodo DID e verificare se viene rispettata l'assunzione di parallelismo. Si potrebbe ancora estendere la valutazione utilizzando, oltre alla media delle citazioni in avanti, anche ad altri parametri statistici come, per esempio, la varianza. Anche estendere il set di osservazione a tutti i brevetti dell' OCP può condurre ad una stima ancor più rappresentativa degli effetti della politica di intervento Open Covid Pledge. Un modo per poter identificare il set esaustivo di brevetti - al momento non disponibile - potrebbe essere quello di condurre una survey con i pledgor per giungere al set di tecnologie messe a disposizione. Infine, un ulteriore spunto di studio e riflessione potrebbe essere identificare quanto la dinamica di maggiore citazioni dei brevetti del pledge possa essere comunque stata influenzata dallo stato di attenzione generale che la pandemia ha innescato per certi tipi di tecnologie, indipendentemente dal fatto che il pledgor abbia partecipato all'iniziativa Open Covid Pledge.

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APPENDICE 1- *Dinamica naturale delle forward citation dei brevetti top performer del set di controllo nel periodo di osservazione, elaborazione degli autori, 2022*



APPENDICE 2 - *Set di brevetti di osservazione (brevetti di vetrina), elaborazione degli autori, 2022*

	Brevetti Sample di Osservazione	Pledgor
1	US20200128006A1	INTEL
2	US20190163794A1	FACEBOOK
3	US20180103116A1	MITSUBISHI ELECTRIC CORP
4	US10514437B2	MITSUBISHI ELECTRIC CORP
5	US10425910B1	MITSUBISHI ELECTRIC CORP
6	US9282531B1	MITSUBISHI ELECTRIC CORP
7	US8054226B2	MITSUBISHI ELECTRIC CORP
8	US7729659B2	MITSUBISHI ELECTRIC CORP
9	US10460411B2	UBER
10	US10563994B2	UBER
11	US20200118682A1	FUJITSU LIMITED
12	US20190179999A1	FUJITSU LIMITED
13	US7298836B2	AT&T INC
14	US20190197438A1	AT&T INC
15	US9546887B1	HONEYWELL INTERNATIONAL INC.
16	US8163154B1	HONEYWELL INTERNATIONAL INC.
17	US7527977B1	HONEYWELL INTERNATIONAL INC.
18	US9682100B2	INTERNATIONAL BUSINESS MACHINES CORP
19	US9772714B2	INTERNATIONAL BUSINESS MACHINES CORP
20	US10576259B2	HMJ MEDICAL LLC

Exploring the Role of Intrinsic Motivations and Organizational Context in Fostering Individual Ambidexterity: Manager vs. Employees Analysis

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Abstract

The concept of individual ambidexterity refers to a combination of exploring new activities and exploiting them. Although individual ambidexterity has emerged as a recent research area that demonstrates people's crucial role in organizations, little is known about the underlying determinants and consequential effects of the exploration-exploitation activities and whether significant differences exist between them. Therefore, to bridge this gap, this study adopts and tests an original conceptual framework that envisages intrinsic motivations and the organizational context - defined as a reflexive second-order construct composed of stretch, disciplines, support, and trust - as antecedents of individual ambidexterity and how it impacts on the innovative performances of the organization. Based on a sample of 136 individuals from 14 different industries worldwide, two different analyses revealed that motivation and organizational context positively influence individual ambidexterity, and individual ambidexterity positively impacts performance innovation. Moreover, a PLS-MGA analysis shows that intrinsic motivations are the primary source for carrying out exploration and exploitation activities for employees. On the other hand, managers recognize individual ambidexterity when influenced by organizational context.

Framing of the research. *In competitive contexts where organizations must operate, the key to long-term success lies in innovating and redefining internal products or processes. Therefore, the ability to innovate is a function of promoting internal knowledge and filtering external knowledge, both with performing outputs (Tushman and O'Reilly, 1996). In other words, the balance of ambidexterity - the equilibrium developed between exploring new possibilities and exploiting old certainties (March 1991) - is the best approach organizations can adopt to innovate. Based on this perspective, the research stream on ambidexterity at the organizational level has identified a positive relationship between exploration-exploitation activities and firm performance (Blindenbach-Driessen and van den Ende, 2014; Russo and Vurro, 2010). The same insights were also confirmed when the focus occurred on the business unit (Gibson and Birkinshaw, 2004). Nevertheless, given that organizational ambidexterity depends on all human resources and managers and employees simultaneously explore and exploit their daily tasks (Schultz et al., 2013), the analysis shift on the granular level of ambidexterity is necessary and worthwhile (Pertusa-Ortega et al., 2021).*

The concept of organizational ambidexterity has been intensely developed in previous research, leaving more space to the need for shedding light on what happens in the exploration-exploitation activities at the individual level (Bonesso et al., 2014; Brusoni and Rosenkranz, 2014; Gurtner and Reinhardt, 2016), and which are the antecedents that affect ambidexterity. Furthermore, previous research on individual ambidexterity has shown how motivational antecedents and determinants relating to the organization's structure and environment affect exploration and exploitation activities (Sitkin et al., 2011). Thus, although ambidexterity at the individual level has appeared as a recent investigation field that demonstrates the crucial role people play in organizations (Mom, Fourne, and Jansen 2015), covering individual-level ambidexterity via managerial (Mom et al., 2007, 2009) and network means (Rogan and Mors, 2014), psychological characteristics and traits (Good and Michel, 2013; Laureiro-Martinez et al., 2015), behavioral traits (Keller and Weibler, 2014), and neuroscience approaches (Laureiro-Martinez, Brusoni, and Zollo 2010), a specific framework that incorporates both personal and organizational antecedents is flawless.

Furthermore, there is an apparent dichotomy in the target's definition to be examined to extrapolate knowledge about the source of individual ambidexterity in the scientific literature. For example, empirical studies differ markedly between analysis of managers' ambidexterity (Mom et al., 2007, 2009), focusing on the definition at the entrepreneur level (Yeganegi et al., 2018) or the employee level (Kao and Chen, 2015). However, a study identifying the possible

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thematic and structural differences between different categories of human resources has yet to be defined. These two categories of stakeholders are managers and employees, and the focus on these stakeholders is worthwhile for several reasons. First, it is known that managers need to perceive changes in the competitive environment, including changes in technology, competition, customer needs, and regulatory changes. At the same time, they must be able to exploit their tangible and intangible resources to survive in the market successfully. Secondly, the relevance of investigating organizational ambidexterity with a focus on managers is underlined by studies that question the ability of a company to pursue ambidexterity considering their decision-making processes (Rivkin and Siggelkow, 2003) and their engagement in business, both routine and non-routine (Adler et al., 1999) or preferring creative rather than mere routine actions (Sheremata, 2000).

Conversely, some authors have demonstrated that employee orientation increases firms' propensity to explore and exploit. Thus, it positively impacts the firm's financial performance (Zhao et al., 2019) and non-financial performance (Skena et al., 2021). Finally, O'Reilly and Tushman (2004, p. 81) conclude that "one of the most important lessons is that ambidextrous organizations need ambidextrous teams and managers". Thus, these arguments illustrate the importance of an increased understanding of ambidexterity at the manager and employee levels of analysis.

Purpose of the paper. Although several empirical studies have examined individual ambidexterity's role and influence (Schnellbacher et al., 2019; Gibson and Birkinshaw, 2004), a model still needs to be developed that encompasses psychological and organizational factors influence individual ambidexterity. Furthermore, although there are studies that analyze exploration and exploitation activities using both employees (Kao and Chen, 2015) and managers (Mom, Van Den Bosch, and Volberda, 2009) as a unit of analysis, there is still no study that allows a comparison between these two clusters of human resources. Therefore, in line with the theoretical framework outlined above, the objectives of this research work are summarized in defining and testing a conceptual framework combining psychological and organizational variables and exploring these variables based on two clusters of human resources.

Specifically, the characteristics of individuals necessary for the implementation of ambidextrous practices within an organization are related to their ability to interact in different heterogeneous activities, their ability to resolve contradictions, and finally, their attitude toward redefining and renewing practical and complex skills (Mom, Van Den Bosch, and Volberda, 2009). Furthermore, it has been defined that the combination of these characteristics leads to the enunciation of the individual ambidexterity that allows for obtaining a better performance of the team and the department (Schnellbacher et al., 2019; Alexander and van Knippenberg, 2014), the performance of the service (Kao and Chen, 2016) and performance related to incremental innovation (Gupta et al., 2006; Jansen et al., 2006). Relying on this literature considering individual ambidexterity as a vector of superior performance also at the innovation level, the following hypothesis is defined:

H1. Individual ambidexterity has a positive effect on innovative performance.

Moreover, motivations are crucial in implementing daily HR tasks within organizations. For example, they encourage people to increase their time to conduct a given activity (Caniëls et al., 2017) by increasing the output quality (Starbuck and Webster, 1991). Furthermore, previous findings show that motivational orientations, such as the demand for ambidextrous activities, contribute to greater self-regulation in complex and challenging efforts (Pierro et al., 2006). Similarly, it was defined by Gupta et al. (2006) that intrinsic motivations appear to be the underlying determinants of discovering new solutions and processes. However, this activity is expressly declined in the exploration activities. Conversely, motivations also impact exploitation activities because they lead to searching for solutions that improve internal processes and methods and seeking inspiration in other efficient realities.

Moreover, according to Yu et al. (2015), frontline service employees' learning goal orientation positively influences their ambidexterity because adopting mastery goals prompts greater intrinsic motivation. Finally, intrinsic motivations have been defined as a determining factor in creating individual ambidexterity (Kao and Chen, 2016). Therefore, the following hypothesis is formulated:

H2. Intrinsic motivation has a positive impact on individual ambidexterity.

Finally, since Gibson and Birkinshaw's (2004) seminal work, the organizational context has been defined as an essential source of implementing individual ambidexterity. Prior literature on organizational ambidexterity has emphasized the value of stretch, discipline, support, and trust as confident underlying determinants in defining the organizational context.

Specifically, Simsek (2009) defines stretch as an incentive to voluntarily aim towards ambitious goals or accomplish more than before to create contextual ambidexterity. Discipline refers to an atmosphere that encourages individuals to strive to fulfill others' expectations. On the other hand, support is the framework in which the various human resources are available to assist and support other peers. In contrast, trust is understood as an exogenous factor that allows the work to be carried out in a non-competitive but collaborative way. Analyzing in detail the dimensions belonging to the conceptual framework of the organizational context, the identification and obtaining of stretch within the organizational context, declined in the form of the establishment of long-term objectives, is a precursor of the engagement of people in exploration and exploitation, resulting in incremental and radical improvements (Sitkin et al., 2011).

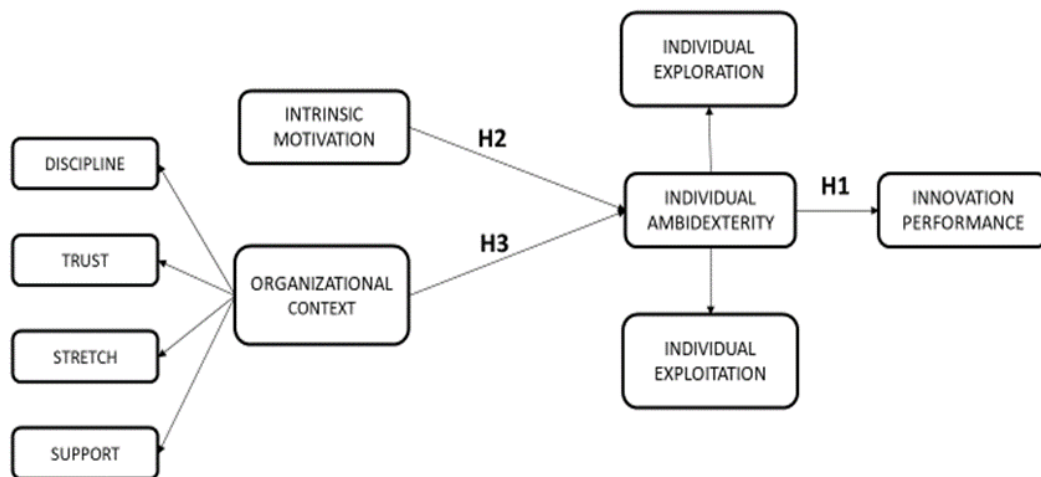
On the other hand, the stretch factor can only be employed with organizational discipline. The ability to monitor results with managerial practices to provide control is a direct function of the long-term objectives. Thus, in the context of exploration, discipline combined with constant guidance - in the form of a consistent accomplishment of actions and

success standards - significantly decrease any bias resulting from participating in exploration activities and, thereby, guarantees that human resources do not shy away from exploratory behaviors that primarily require a high degree of uncertainty and ambiguity (Andriopoulos and Lewis, 2009).

Furthermore, the organizational context's conceptual composition also requires the definition of support and trust, attributes linked to the interaction between human resources and their willingness to share knowledge. First, as Ghoshal and Bartlett (1994) defined, support is the possibility of interacting with human resources of all hierarchical levels - above all higher - to exchange different resources to approach exploration or exploitation activities. Conversely, trust relates to the willingness to share knowledge, as it "reduces barriers to knowledge flows and consequently fueling exploitation and exploration activities" (Schnellbacher et al., 2019, p.445). For this reason, based on previous studies that investigated the formal relationship between organizational context and individual ambidexterity, the following hypothesis is defined:

H3. An organizational context with more significant stretch, discipline, support, and trust positively affects individual ambidexterity.

Fig. 1: Conceptual Framework



Methodology. The research hypotheses are tested using Partial Least Squares Structural Equations Modeling (PLS-SEM). The sample of this empirical research is composed of one hundred and thirty-six human resources (female 42.6%, 30-39 years old 42%), divided into managers and employees, who refer to fourteen categories of different innovative industries distributed all over the world to allow a higher generalization of the results. The data are primarily collected from an online panel (Amazon Mturk) and through email, targeting individuals from 20 to 65 years old. A pre-test was conducted to test the efficiency and the likelihood that the hypotheses defined will be accepted and gauge the structure and content. The data from the pilot survey are included in the primary survey.

Participants had to confirm the section relating to the processing of sensitive data, ensuring this study from any problems of ethical conduct. Furthermore, a test for verifying the Common Method Bias (or Common Method Variance) was performed through the multicollinearity test. Since the values of the VIFs are lower than 3.3 when only the second-order constructs are adopted, the outcome is, therefore, satisfactory (Kock, 2015). Furthermore, participants rate their level of agreement on a scale from (1 = Strongly Disagree to 9 = Strongly Agree or 1 = Very Low Extent to 9 = Very High Extent). Finally, regarding the development of the survey architecture, to reduce the question order bias (Weinstein and Roediger, 2010), the questions are randomized for each respondent. In contrast, some questions with a defined response will be inserted (e.g., "push the bottom 4") to avoid the attention issue during the investigation.

The measurement items have been detected from studies on individual ambidexterity and innovation management in general. This study adopts the unique relationship that Schnellbacher et al. (2019) present, which positions the organizational context as the antecedent of the individual ambidexterity, both adopted as second-order constructs. The twelve items used for the organizational context (Gibson and Birkinshaw, 2004) are declined in the four related categories, stretch, disciplines, support, and trust, understood as first-order constructs. Furthermore, the dimension related to individual ambidexterity is operationalized as a second-order construct, having individual exploration and individual exploitation as first-order constructs (Mom et al., 2015). The motivational dimension was measured using a three-item scale developed by Tierney et al. (1999) and tested by Kao and Chen (2015). Finally, the dependent variable of this study, innovation performance, was measured through an operational assessment, asking the managers and employees involved how far they agreed with statements on aspects of innovations their firm had introduced within the last three years (Liu et al., 2011; Chen et al., 2011). Different control variables were also included, such as the age of the organization, nationality, gender, and education, which did not improve the percentage of variance explained.

The research hypotheses are tested using Partial Least Squares Structural Equations Modelling (PLS-SEM) using SMART-PLS 3 software. This statistical technique estimates causative relations by combining statistical data and

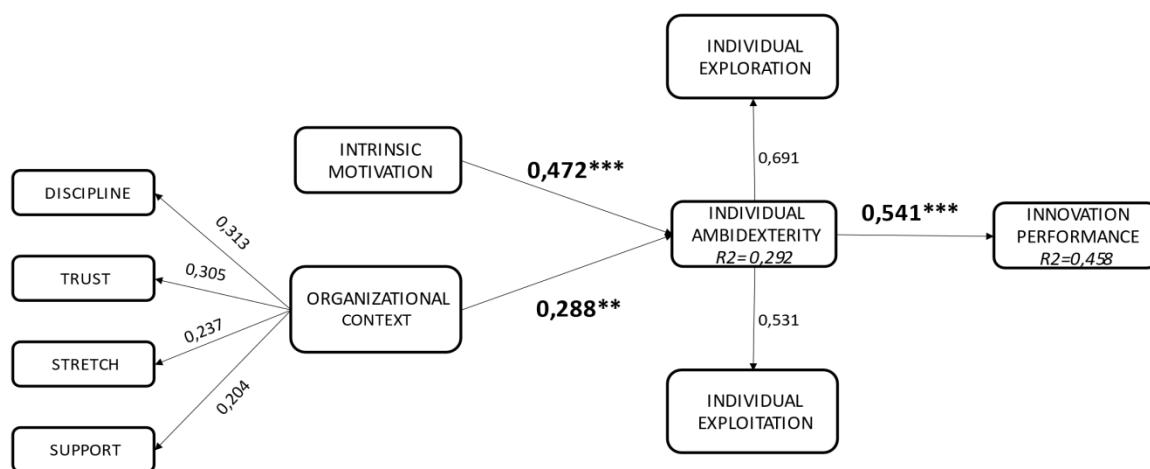
qualitative causal hypotheses (Dijkstra and Henseler, 2015). For this analysis, the partial least squares (PLS) have been employed, a variance-based technique, because it does not require a large sample and has no restriction on a normal distribution. In addition, as the second hierarchical constructs have been examined (i.e., organizational context and individual ambidexterity), the repeated indicators approach has been applied to determine their exact impact (Becker et al., 2012; Wold, 1982). This approach implies the collapse of the first hierarchical constructs into a single item deriving from the values of the latent variable relative to the second-order construct (Wetzels et al., 2009). In other words, the evaluation of the model and structure measurements is first performed with only the second-order constructs, calculated based on their respective latent variable values, and then with the implementation of the complete model with the first-order constructs. (Stretch, discipline, support, and trust).

Furthermore, this approach allows the evaluation of the model fit. In fact, by adopting the second-order constructs exclusively, the overall model fit is $\chi^2 = 135,626$, $p < 0.0001$, SRMR = 0.124.68. However, when the sample size is $N \leq 250$, the combinational rules based on SRMR reject more straightforward and complex true-population models under the non-robustness condition. Hence, while the model is not optimal, the other measurements support adequate goodness-of-fit according to the two-index combination rule. (Hu and Bentler, 1999).

The data analysis is then executed by adopting a two-step development. First, the measurement model is examined to ensure the research instrument's reliability and validity, and then the structural model is analyzed to test the hypotheses. Further, the multi-group analysis (MGA-PLS) is adopted to capture the differences between two different clusters: managers and employees.

Results. This study explores the influence of specific antecedents of individual ambidexterity, namely, organizational context and intrinsic motivation, which led to higher innovation performance. Furthermore, this study adopts a multi-group approach to identify differences between two clusters: managers and employees, in the abovementioned relationships. First, based on a sample of 136 individuals from 14 different industries, two different analyses revealed that the PLS-SEM results show how motivation and organizational context positively influence individual ambidexterity, and individual ambidexterity has a positive impact on performance innovation. Second, through an MGA-PLS analysis, a significant difference in the role of intrinsic motivations in balancing exploration and exploitation activities between managers and employees is figured out. The results show that intrinsic motivations are the primary source for employees' exploration and exploitation activities. On the other hand, managers recognize individual ambidexterity when influenced by the organizational context.

Fig. 2: Full Model PLS-SEM Results



NOTES: ***p < 0.01; **p < 0.05; *p < 0.1;

Research limitations. The notion of individual ambidexterity is currently in its nascent stages, and as such, a quantitative study may encounter issues of response bias. However, subsequent studies could circumvent this problem by adopting a quantitative approach with a qualitative methodology.

Moreover, it is essential to note that limited sample size may impede the generalizability of the findings to the larger target population. Nevertheless, as per the work of Hair (2014), the results of Partial Least Squares Structural Equation Modeling (PLS-SEM) remain valid even with small sample sizes. Future investigations could consider using more substantial samples with a greater population representation. Additionally, it is imperative to comprehend how disparate countries and cultures could yield compelling results and augment theoretical contributions.

Finally, the aforementioned theoretical framework could be enriched by introducing new variables about absorptive capacity or by evaluating different outcomes related to specific innovative activities. Only through such endeavors can we develop a more comprehensive understanding of individual ambidexterity and its impact on innovation.

Managerial implications. *The results of this study have significant implications for managers from an operational perspective. Firstly, the study provides empirical evidence of the positive interaction between individual ambidexterity and innovative performance. Consequently, managers must prioritize stimulating exploration and exploitation activities within their organizations to enhance innovative production outcomes and processes.*

Secondly, the study highlights the importance of specific touchpoints that managers must follow to foster individual ambidexterity within their human resources. For instance, identifying resources that exhibit greater motivation in their work increases the likelihood of their active involvement in exploration and exploitation activities, leading to positive outcomes in innovation performance. Furthermore, the study underscores the critical role of the organizational context in determining the expression of individual ambidexterity. Therefore, managers must create a conducive working environment that fosters support and mutual trust to enable their workforce to engage in ambidexterity activities effectively.

Thirdly, the study differentiates the effects of the various determinants on managers and employees. As a result, it suggests that managers focus on fostering employees' intrinsic motivation to encourage their participation in exploration and exploitation activities. In contrast, the organizational context must focus on increasing functional and social aspects to promote managers' engagement with ambidexterity activities. This managerial implication underscores the importance of recognizing and balancing the different determinants influencing individual ambidexterity to achieve optimal innovation performance.

Originality of the paper. *The originality of this work lies in its contribution to understanding the determinants and consequences of individual ambidexterity. Although previous research has focused on the importance of individual ambidexterity, more is needed to know the factors that influence it and its effects on organizational performance. This study addresses this gap by proposing an original conceptual framework that considers intrinsic motivations and the organizational context as antecedents of individual ambidexterity. Additionally, the study uses a PLS-MGA analysis to investigate the primary source of exploration and exploitation activities for employees and how managers recognize individual ambidexterity when influenced by organizational context. In other words, the results suggest that while intrinsic motivations are the primary source for exploring and exploiting employees, managers recognize individual ambidexterity when influenced by the organizational context. These findings highlight the importance of considering employee and manager perspectives when promoting individual ambidexterity in organizations. By understanding the different perspectives and the role of intrinsic motivations and organizational context, managers can create an environment that supports and encourages individual ambidexterity, leading to improved, innovative performance. This unique approach of exploring the views of both employees and managers provides novel insights that can help organizations effectively promote and benefit from individual ambidexterity.*

Keywords: *individual ambidexterity, organizational context, intrinsic motivation, innovation performance, PLS-SEM - PLS-MGA.*

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It's a long way to the top if you want to be sustainable!

A structured literature review and bibliometric analysis on sustainable intermodal transportation systems (SITs)

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Framing of the research. Besides being fundamental for the socio-economic development of countries, it is well known that transport is one of the most energy-consuming and polluting activities, whose impact is bound to increase in future (Epicoco and Falagario, 2022). Indeed, industrialisation and globalisation led to massive shipments of goods and materials over large distances, thus generating higher GHG emissions, especially when road transport is considered. To address this problem, scholars initially focused on the selection of the best single-mode transport means to evaluate the efficient transport solution that maximizes utility for decision-makers (Bask and Rajahonka, 2017). After examining the various solutions to improve efficiency, essentially based on technological development, they concluded that improvements in single-mode alone were not sufficient to obtain substantial results (Nocera and Cavallaro, 2017). Therefore, different concepts of freight transportation systems have been proposed over the last decades, including multimodal, intermodal, combined, and synchromodal transport. Despite their peculiarities, these transportation modes are based on combinations of different transportation modes and routing options in integrated and coordinated transport chains to increase the system's overall efficiency (Fitzová et al., 2021). In detail, Reis (2015) defined multimodality as the combination of different transportation modes through interconnected and coordinated networks. Intermodality, on the other hand, occurs when commodities are transferred into the same loading unit, using multiple nodes but without transshipment. Filippova and Buchoud (2020) introduced combined transport as a form of intermodal transportation in which roads are used at the start and/or endpoints while rail, sea, or both are used to cover the major distances. Co-modal transport also developed from intermodal transport, but differs from it in its emphasis on efficiency rather than sustainability. Lastly, synchromodality is characterised by more reliable and adaptive decision-making processes based on real-time information on the current conditions of the transportation system (such as actual price, congestion, and delays), thus combining organisation and coordination of the transport chain (Epicoco and Falagario, 2022; Reis, 2015). However, although its benefits, these combined transportations have also drawbacks. Compared to unimodal transportation systems, indeed, combined networks are more complicated due to the involvement of multiple nodes, resources, and actors. Moreover, they suffer from limited infrastructure, the integration of different planning levels, a lack of clear decision-making structure, the absence of global interoperability at the technical, operational, and legal levels, as well as different regulations (Dotoli et al., 2017). Some of these problems can be overcome through information and communication technologies (ICT) solutions, making operation and management more efficient through proper strategic planning and real-time information provision at an operational level (Epicoco and Falagario, 2022). Although the adoption and advances of ICT in intermodal transportation have been slow due to many barriers (such as economic factors, reluctance to change, lack of interoperability, uncertainty, rapid technological obsolescence, etc.) (Dotoli et al., 2017), it emerges the need to investigate this topic from a broad perspective, unravelling its potentials and convey the transportation system towards the paradigm of sustainability.

Purpose of the paper. The aim of this study is threefold. First, it seeks to extend the research in green logistics literature focusing on sustainable intermodal freight models and their applications. Secondly, it attempts to identify the key research blocks related to this topic to make a complete picture of the phenomenon under investigation. Finally, it delivers recommendations and insights on developing efficient sustainable intermodal transportation systems, setting the ground for a future research agenda for scholars and practitioners.

Methodology. To better address the study aims, the structured literature review (SLR) approach was selected for its ability to identify new research areas and domains as well as trends, potentials, and implications for both theory and practice (Del Vecchio et al., 2021; Grant and Booth, 2009; Vrontis et al., 2021; Vrontis and Christofi, 2021). According to Massaro et al. (2016), the first step in performing a systematic, transparent and replicable study is to establish the research questions, which we formulated as follows:

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RQ1: What is sustainable intermodal transportation systems' state of the art in management research?

RQ2: What are the key research blocks related to this subject area?

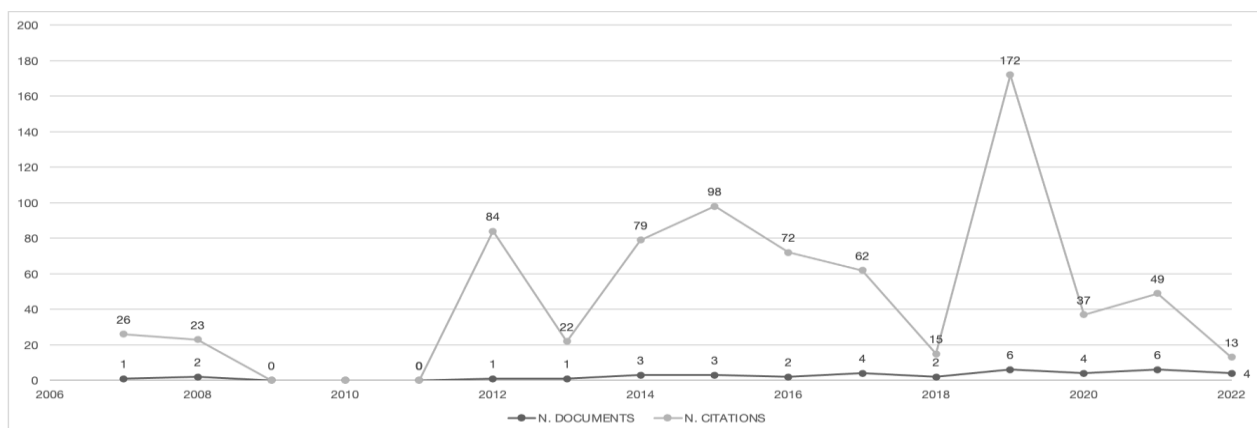
RQ3: What guidelines for future research can be derived to open new avenues for management researchers?

In particular, the first research question seeks to outline the state of the art in the current literature dealing with this topic and explain to what extent scholars are considering it. The second research question attempts to identify the key research blocks related to sustainable intermodal transport systems' subject area, while the third one offers recommendations for future research as well as the identification of possible developments and implications. Next, the research protocol must be specified (Petticrew and Roberts, 2008; Secundo et al., 2020). The articles were retrieved from the Scopus database, which is recognised as the most comprehensive database for research assessment and evaluation purposes, providing extensive coverage of academic journals (Schotten et al., 2017; Snyder, 2019; Yaghmaie and Vanhaverbeke, 2019). To select appropriate papers to include in the study, keywords such as 'intermodal transportation', 'multimodal transportation', 'logistics', 'environmental sustainability' and 'sustainability' were considered. As a result, a sample of 73 articles published from 2007 to 2023 was retrieved from the Scopus database. Next, a set of exclusion criteria based on subject area, publication type, stage, and language was used to reduce and evaluate the sample. After reading the title, abstract and keywords (Kauppi et al., 2018), articles that were not completed (e.g., abstract or other fundamental information not available) or inconsistent with the research topics were removed, thus resulting in a final sample of 41 published articles.

Following others' contributions (Del Vecchio et al., 2021; Eck and Waltman, 2009; Khan et al., 2020; McAllister et al., 2022; Secundo et al., 2020; Shah et al., 2019; Van Eck and Waltman, 2017), data was processed through the VOSviewer software using different bibliometric analysis techniques: bibliometric co-citation analysis for interconnections between articles and research topics, bibliometric co-occurrence analysis for the relatedness of articles, bibliographic coupling for the relevance of articles, and content analysis for presenting trends, research gaps, and future directions. The analysis was developed in three stages. First, a descriptive analysis is used to present the publication and citation structure of the sample, as well as the most influential contributions. Then, cluster and content analyses were performed using a bibliographic coupling (Kessler, 1963), highlighting exciting research areas.

Results. *The descriptive analysis was used to categorise the sample by the number of yearly publications, geographical analysis of authorship and data, number of citations, common keywords as well as the most influential authors. Figure 1 displays the trend of publications and citations from 2007 to 2022. The distribution shows that the first article dates back to 2007, but it's from 2012 onwards that interest in green logistic studies flourished. Indeed, these ten years highlight a constant production of published articles, with moderate peaks recorded in 2017, 2019 and 2021, and an average of three articles published per year. Similar considerations emerge from the observation of the citations' trend: it shows a volatile tendency, with peaks in 2015 (i.e., 98), 2019 (i.e., 172) and 2021 (i.e., 49), and an average of 64 citations per year over the last decade. It should be noted that a drop in publications and citations was recorded in 2022, with four documents and thirteen citations only. However, looking at the historical distribution of these data, it is possible to state that this decline may be associated with a potential future upturn, thus anticipating another peak in the coming years. Moreover, contributions in sustainable intermodal transport systems have increased only recently, and, therefore, their effect may not yet have been fully absorbed by the citations. Overall, these findings demonstrate the growing topicality of the subject, which needs deep exploration in future studies.*

Fig. 1: Trend of publications and citations over the timeframe 2007-2022



Source: Authors' elaboration.

As for the distribution of articles and citations per country, Italy represents the most influential (with 6 published papers and 167 citations), sharing the podium with India and Sweden in terms of documents (with 5 and 4 scientific articles, respectively) and with Belgium and the United Kingdom in terms of citations (with 116 and 93 citations, respectively) (Tab. 1). Focusing on the number of documents, there is not much difference between the countries as they differ by only a few papers. Differently, the ranking in terms of citation appears to be sharper. India and Belgium offer a curious fact. These two countries hold chiasm positions, both placing - in reverse - second and sixth in the two

rankings. Table 1 shows that no other country specialises in this topic except Italy, thus crowning the Mediterranean's boot as a leading country in the green logistic literature field.

Tab. 1: Top ten Countries per documents and citations

No.	Country	Documents	No.	Country	Citations
1	Italy	6	1	Italy	167
2	India	5	2	Belgium	116
3	Sweden	4	3	United Kingdom	93
4	China	3	4	Sweden	88
5	United Kingdom	3	5	Spain	71
6	Belgium	3	6	India	66
7	Brazil	3	7	Turkey	66
8	Turkey	3	8	Denmark	54
9	Denmark	2	9	Japan	54
10	Spain	2	10	Netherlands	41

Source: Authors' elaboration.

As for the scientific journals in which the papers included in the sample were published, Table 2 highlights the top five rankings. Sustainability (Switzerland) conquers the first position with eight documents, followed by four journals specialising in transportation and logistic research, which count two papers each. This result confirms the dual perspective approach used by scholars when referring to this topic, matching logistics with sustainability issues, as well as a high level of heterogeneity, as topics range from its management, impact, applications, policy and practice.

Tab. 2: Top five Scientific Journals

No.	Scientific Journal	Documents
1	Sustainability (Switzerland)	8
2	Transportation Research Part A: Policy and Practice	2
3	International Journal of Physical Distribution and Logistics Management	2
4	Transportation Planning and Technology	2
5	International Journal of Logistics Research and Applications	2

Source: Authors' elaboration.

As for citations, following previous research (Del Vecchio et al., 2021; Massaro et al., 2015, 2016; Secundo et al., 2020), the articles were ranked using citations and citation per year index (CPY). Table 3 highlights Iannone (2012) as the most cited document, followed by the publications of Ambra et al. (2019) and Qu et al. (2016) in the second and third positions. However, if time is considered, citations must be normalised by the time elapsed between the publication date and the end of the analysis period (Dumay, 2014). Here, Iannone (2012) moved from first to fourth position, replaced by Ambra et al. (2019), which took the first place in the CPY ranking. Next, Qu et al. (2016) rank second in terms of CPY, while Baykasoğlu et al. (2018) close the top three podium, moving from fifth to third place. These changes confirm the importance of considering the time effect when classifying scientific articles in terms of citations, bringing unexpected outcomes to light.

Tab. 3: Top ten author and article per citation and per CPY

No.	Authors	Title	Year	Cited by	CPY	Ranking CPY
1	Iannone, F.	The private and social cost efficiency of port hinterland container distribution through a regional logistics system	2012	84	7,64	4 (↓)
2	Ambra et al.,	Towards freight transport system unification: reviewing and combining the advancements in the physical internet and synchronodal transport research	2019	71	17,75	1 (↑)
3	Qu et al.,	Sustainability SI: multimode multicommodity network design model for intermodal freight transportation with transfer and emission costs	2016	67	9,57	2 (↑)
4	Liotta et al.,	Optimisation of freight flows and sourcing in sustainable production and transportation networks	2015	54	6,75	6 (↓)
5	López-Navarro, M.Á.	Environmental factors and intermodal freight transportation: Analysis of the decision bases in the case of Spanish motorways of the Sea	2014	46	5,11	7 (↓)
6	Arvidsson N., Pazirandeh A.	An ex ante evaluation of mobile depots in cities: A sustainability perspective	2017	42	7,00	5 (↑)
7	Baykasoğlu et al.,	A review of fleet planning problems in single and multimodal transportation systems	2019	34	8,50	3 (↑)
8	Eng-Larsson F., Norrman A.	Modal shift for greener logistics— exploring the role of the contract	2014	27	3,00	9 (↓)
9	Macharis et al.,	Combining intermodal transport with electric vehicles: Towards more sustainable solutions	2007	26	1,63	10 (↓)
10	Awad-Núñez et al.,	How should the sustainability of the location of dry ports be measured? A proposed methodology using Bayesian networks and multi-criteria decision analysis	2015	25	3,13	8 (↑)

Source: Authors' elaboration.

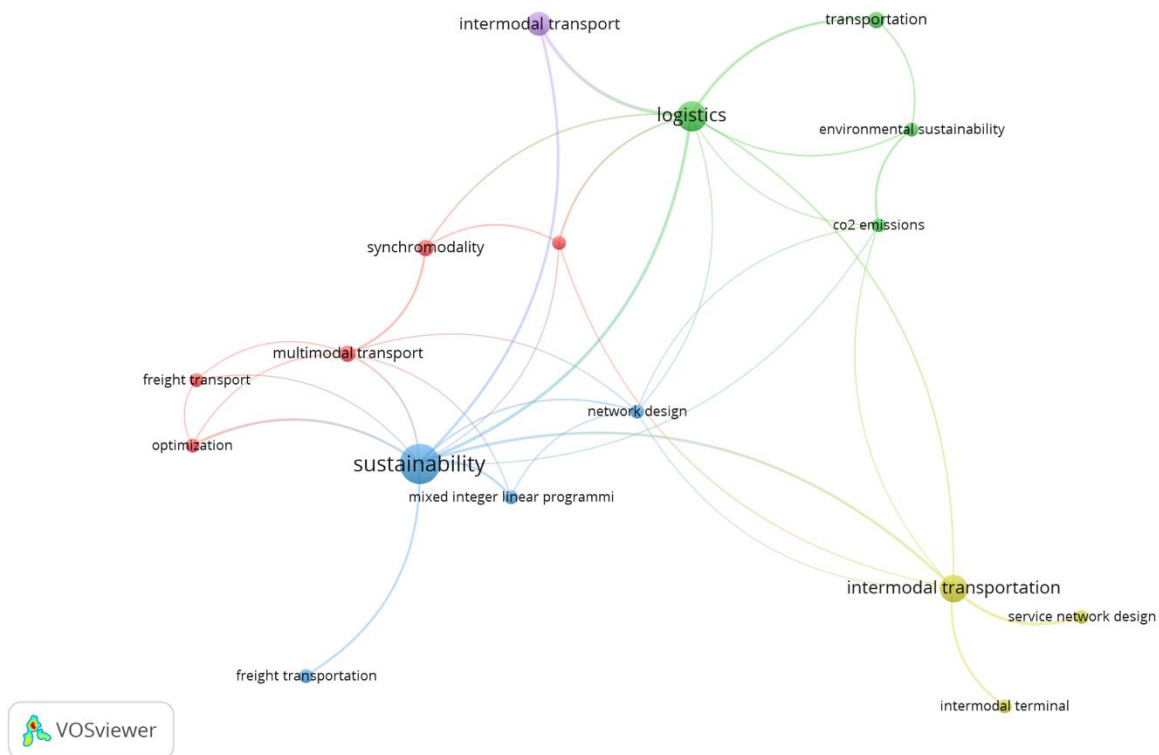
Table 4 sets out the analysis of keywords' occurrences authors used to classify their articles. Results show five clusters with a total of 17 items, graphically distributed in a network as displayed in Figure 4. The most common keywords resulted in 'sustainability' (with 16 occurrences), followed by 'logistics' (with 9 occurrences) and 'intermodal transportation' (with 8 occurrences), among others.

Tab. 4: Groups of keywords occurrences

	Keywords (Occurrences)
Cluster 1 (5 items - red)	Freight transport (2), Multimodal transport (3), Optimisation (2), Supply chain management (2), Synchronomodality (3)
Cluster 2 (4 items - green)	CO2 emissions (2), Environmental sustainability (2), Logistics (9), Transportation (3)
Cluster 3 (4 items - royal blue)	Freight transportation (2), Mixed integer linear programming (2), Network design (2), Sustainability (16)
Cluster 4 (3 items - yellow)	Intermodal terminal (2), Intermodal transportation (8), Service network design (2)
Cluster 5 (1 items - lavender)	Intermodal transport (6)

Source: Authors' elaboration.

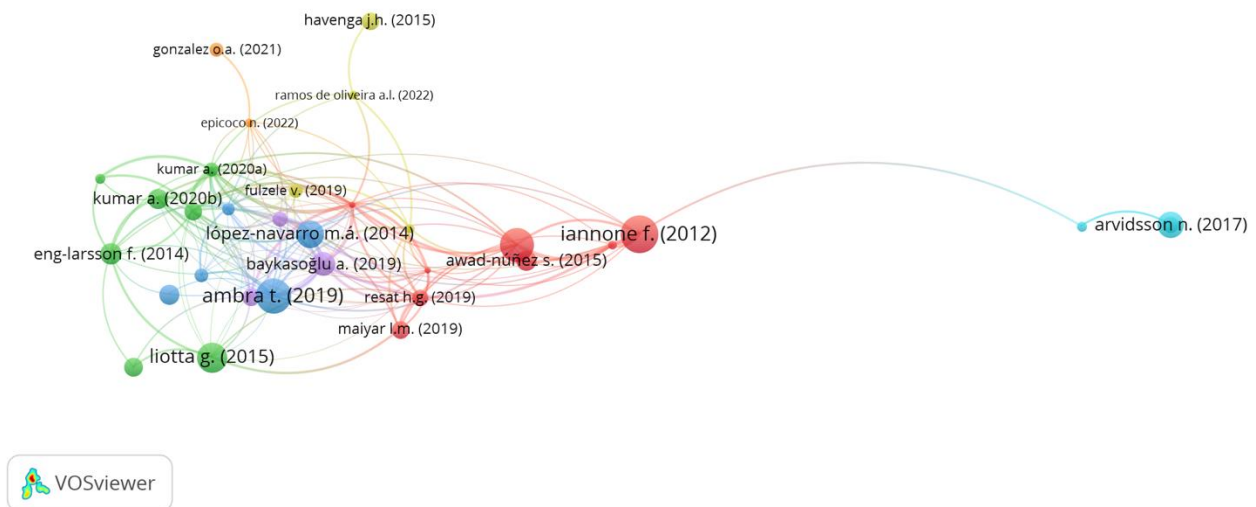
Fig. 2: Keywords network visualisation



Source: Authors' elaboration using VOSviewer.

A cluster analysis using bibliographic coupling (Kessler, 1963) was then performed using the references included in each paper of the sample. The analysis, which included only papers having two references in common at the minimum, gave us seven clusters with 32 related items. Figure 3 displays the clusters arising from the bibliographic coupling analysis after running 10 interactions, showing the strength of the closeness according to the number of references in each paper (Del Vecchio et al., 2021). Although articles of the same cluster belong to common research areas, the cluster analysis performed using VOSviewer is not without imperfections. Actually, a better representation of the research areas discussed in the literature is illustrated in Table 5, in which authors are classified according to the content of the study and their focus, which extends beyond the evidence indicated by the bibliographic coupling analysis.

Fig. 3: Bibliographic coupling: cluster grouping items with intersected literature



Source: Authors' elaboration using VOSviewer.

An in-depth content analysis was performed by reading the 32 papers to understand the main research areas. As a result, seven thematic areas emerged from the analysis (Tab. 5), briefly explained as follows. The first group mainly proposes an integrated model framework (i.e., road, rail, and waterways) based on several methodologies (such as MCDA, BNs, mixed-integer linear optimisation model, among others) to mitigate the negative effects of logistic operations on the environment and human health. The second cluster focuses on the supply chain actors - considering the impact multiple stakeholders have in the intermodal business - and the useful practices to manage this sector sustainably. In detail, the third cluster explores these practices by offering combined solutions between intermodal, multimodal, and synchromodal networks. The fourth and fifth research areas, on the other hand, present the benefits and risks associated with sustainable intermodal transportation systems. Benefits include efficiency, higher performance, and reductions in costs, damages, emissions, and traffic congestion, while the main risks are associated with economic, social, and ecological factors. The sixth cluster outlines some best practices for governing intermodal logistic networks. In particular, it stresses the importance of location, accessibility, and efforts to lower the environmental and social burden. Finally, the last research area delves into the importance of information exchange mechanisms driven by digitalisation and decision-support tools to solve everyday tasks. These features are paramount in nowadays decision-making processes and ensure effective interoperability.

Tab. 5: Mapping of documents by research areas

Research area	Authors
1 Modelling framework for sustainable intermodal transportation systems (SITSSs) (8 items - red)	Awad-Núñez et al. (2015), El Hassan (2016), Farazmand et al. (2022), Iannone (2012), Maiyar and Thakkar (2019), Qu et al. (2016), Resat and Turkay (2019), Tadić et al. (2021)
2 Interrelationships and practices for sustainable intermodal transportation systems (SITSSs) (7 items - green)	Bing et al. (2013), Eng-Larsson and Norrman (2014), Kumar and Anbanandam (2020a, 2020b), Liotta et al. (2015), Panova et al. (2017), Rossi et al. (2021)
3 Combining solutions for sustainable intermodal transportation systems (SITSSs) (5 items - royal blue)	Agbo and Zhang (2017), Ambra et al. (2019), López-Navarro (2014), Macharis et al. (2007), Tamannaeei et al. (2021)
4 Benefits of sustainable intermodal transportation systems (SITSSs) (4 items - yellow)	De Oliveira et al. (2022), Fulzele et al. (2019), Giusti et al. (2021), Havenga (2015)
5 Risks of sustainable intermodal transportation systems (SITSSs) (3 items - lavender)	Baykasoğlu et al. (2019), Göçmen and Erol (2018), Heggen et al. (2019)
6 Governance best-practices for sustainable intermodal transportation systems (SITSSs) (3 items - cyan)	Akyelken and Keller (2014), Arvidsson and Pazirandeh (2017), Bergqvist and Tornberg (2008)
7 Decision support tools for developing sustainable intermodal transportation systems (SITSSs) (2 items - orange)	Epicoco and Falagario (2022), De Andres Gonzalez et al. (2021)

Source: Authors' elaboration.

Research limitations. *The study is not free from limitations. First, it examines only articles published in journals, thus excluding the grey literature or books that might provide additional contributions to the topic. Second, although the sampling procedure relies on keywords selected through a rigorous analysis of previous literature, the final selection might not be exhaustive and omits exciting research. Third, the classification and discussion of the identified thematic areas are inevitably influenced by the researcher's bias. Despite these limitations, which may serve as the basis for further research on this subject, this study contributes to the debate on sustainable intermodal transport systems and their implications for business research.*

Managerial implications. *The analysis suggests that a connection between intermodal logistics and sustainability exists, is topical and requires attention from supply chain actors and policymakers. This result appears relevant for theoretical development and practical implications for business managers, policymakers, institutional actors, and society. It provides comprehensive knowledge of the opportunities associated with this practice, enabling stakeholders to understand better how to respond strategically to related environmental and social concerns. For this purpose, policies aimed at regulating supply chain relationships and improving the services of multimodal networks must be delivered.*

Originality of the paper. *This study seeks to provide the state of the art on sustainable intermodal transportation systems, identifying the research areas currently covered in literature as well as envisaging its future developments. Despite its relevance and increasing interest, research in this area still needs to be expanded. Indeed, only a few literature reviews are counted, and the novelty of this work is to use a bibliometric approach to complement the traditional literature review methodology. Therefore, future research should focus more on these unexplored topics theoretically and empirically.*

Keywords: *green logistics; sustainability; intermodal transportation; multimodal transportation; supply chain management; structured literature review.*

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Sustainable supply chain and logistics' decarbonization: a literature review analysis

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Abstract

Over time, sustainable supply chain management (SSCM) has become a relevant research area and a number of literature reviews has been published. Extant literature has highlighted the need for further examination of relationships among specific aspects of SSCM with the aim of theory-building. Increased public awareness regarding carbon emissions levels and the urgency of climate change made decarbonization of processes a central aspect of SSCM. Indeed, companies have been facing rising requests to address global warming by reducing emissions. Companies are directing efforts towards this aim; however, they are also becoming increasingly aware that the greatest part of their impact is not under their direct control, but it derives from activities along their entire value chain. It follows that measures to tackle global warming along a company's supply chain are of primary importance, with an additional difficulty: very few have the visibility needed to make a difference with regards to decarbonization.

As a result, a bibliometric literature review using networks analysis and topic modelling has been developed and examined, using a full sample of 2503 documents from the Scopus database to build a detailed map of the literature on SSCM and the specific domain of decarbonization.

Our goal is to provide insights into not only which relationships among specific aspects of SSCM have been examined in extant research, but also to define what could be the next evolution of inquiry in this niche.

Framing of the research. Over time, sustainability has become a relevant research area within the macro-area of supply chain management research. Indeed, a number of literature reviews regarding sustainable supply chain management (SSCM) has been published (Carter and Washispack, 2018). However, extant literature calls for further examination and encourages deeper understanding of relationships among specific aspects of SSCM with theory-building as the ultimate aim (Marculetiu et al, 2022). Particularly, increased awareness regarding the carbon emissions levels produced within the entire business ecosystem led to the surfacing of decarbonization of processes as a relevant aspect of SSCM (Ellram et al, 2022; Eggert and Hartmann, 2021). Companies have been facing rising requests coming from society at large (governments and regulators, shareholders, customers and other stakeholders), that urges them to address global warming and to reduce greenhouse gases (GHG) emissions against climate change (George et al., 2016; Rowlett, 2021).

"Carbon" is often used as a shorthand for GHGs, as carbon dioxide is the main GHG released by human activities. Still, organizations need to balance these requests with their financial stability, in a turbulent business environment that presents, on one side, the need for redundancy and resilience to address disruptions and, on the other side, a demanding customer seldom over- and fast-consuming.

To add a point, despite increasing efforts towards emissions reductions, companies are becoming increasingly aware that the greatest part of their impact is not under their direct control, on the contrary it derives from activities and processes - such as production, transport, inventory management - that happen along their entire value chain (Eggert and Hartmann, 2021; Sundarakani et al, 2010). According to the GHG Protocol, this type of indirect emissions is defined as Scope 3 and, for many companies, they account for 80 percent of a firm's overall climate impact (McKinsey & Company, 2021). It follows that the implementation of measures to tackle global warming along a company's entire supply chain is of primary importance. However, part of the problem is that while sustainability is already widely discussed and is top of mind for most organizations, few have complete visibility into all their supply chain processes to begin to make a difference with regards to decarbonization. As a matter of fact, Deloitte's Global 2021 Chief Procurement Officer study found that only 18 percent of chief procurement officers were monitoring their risks and only 15 percent had full visibility into their supply chains.

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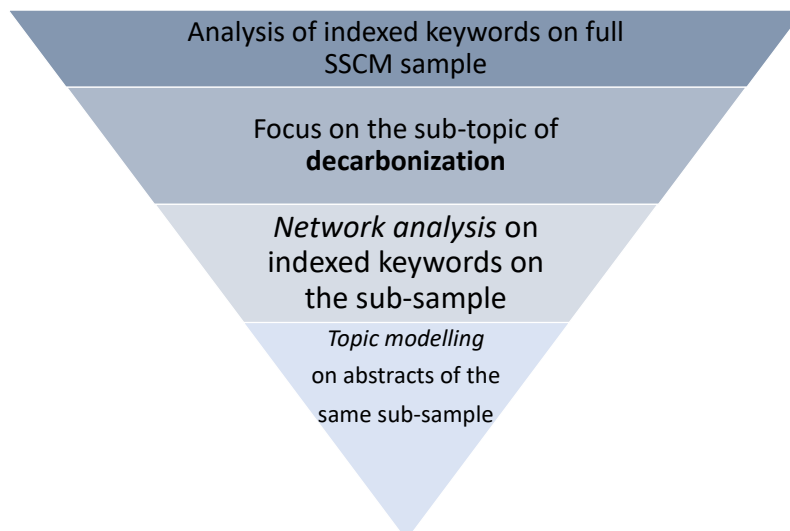
Thus, the objective of this article is to explore the extent to which the literature on sustainable supply chains has explored the related topic of decarbonization for a better understanding of critical issues as well as possible areas for action to decrease the carbon footprint of supply chains.

Purpose of the paper. This paper reviews and maps sustainable supply chain management (SSCM) literature with the aim of revealing relationships among various underlying topics as well as identifying emerging ones. Particularly, this bibliometric literature review investigates convergence areas between SSCM and the topic of decarbonization, in order to gain insights into this research niche and disentangle the theoretical linkage between the two concepts. This theoretical overview introduces a clear picture of trends and developments, together with insights into not only which relationships have and have not been adequately examined in extant research, but also what could be the next evolution of inquiry in this domain. In fact, it allows to provide academic implications on future research directions on emerging topics in the field of SSCM aligned with decarbonization as well as promotion of further theory-building regarding specific aspects of SSCM. Moreover, the selected analysis can provide guidance as well as sparks for reflections to managers that need to cope with challenging regulatory initiatives and pressing consumers' expectations. To accomplish the desired objective of current research, a mixed-method methodology has been employed, including bibliometric analysis, network analysis and topic modelling.

Methodology. This paper aims at investigating and mapping the development of topics related to decarbonization within the literature on sustainable supply chain management (SSCM). To this end, we have implemented a three-steps methodology, summarized in Figure 1, including both network analysis and topic modelling. First, we defined the SSCM literature through Scopus database, by searching all the articles in the categories business, sociology, or economics, responding to a number of search queries related to sustainable supply chain management. We ground our initial themes and choice of keywords consistent with Zhang et al (2022), thus the search queries involved sustainable, closed-loop (circular), green and environmental supply chain (with different syntaxes)¹. Indeed, the inclusion of keywords that are both explicitly and implicitly related to SSCM allows for the provision of a more accurate and holistic understanding of the SSCM research domain. The presence of these search queries was limited to title and authors' keywords fields. Abstracts were not considered in order to obtain a more consistent sample with respect to the focal topic.

The aforementioned search returned a sample of 4470 articles, published from 1996 to 2023, that were all extracted. However, out of the 4470 articles, 257 do not present author keywords and only 2503 present indexed keywords. Author keywords are chosen by the author to best reflect the content of the document, while indexed keywords are chosen by Scopus and are standardized to vocabularies derived from thesauri that Elsevier owns or licenses. Unlike author keywords, indexed keywords take into account synonyms, various spellings and plurals. Thus, the analysis performed on the full sample takes into consideration 2503 documents.

Fig. 1: Study process



The second step consisted of a network analysis, that was developed on all the indexed keywords of the full sample. Although indexed keywords are already supposed to be ready for analysis, an additional data wrangling process was manually developed to further clean the keywords and aggregate them into relevant macro topic clusters. For instance, decarbonization (which is the focal topic of the analysis) includes several keywords such as carbon emission, carbon reduction, emission control, carbon footprint, carbon dioxide, low carbon, carbon policies. The process of

¹ (TITLE ("circular supply chain") OR KEY ("circular supply chain") OR TITLE ("Sustainable supply chain") OR KEY ("Sustainable supply chain") OR KEY ("Green supply chain") OR TITLE ("Green supply chain") OR TITLE ("Closed loop supply chain") OR KEY ("Closed loop supply chain") OR TITLE ("Closed-loop supply chain") OR KEY ("Closed-loop supply chain") OR TITLE ("Environmental supply chain") OR KEY ("Environmental supply chain")) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (LANGUAGE, "English"))

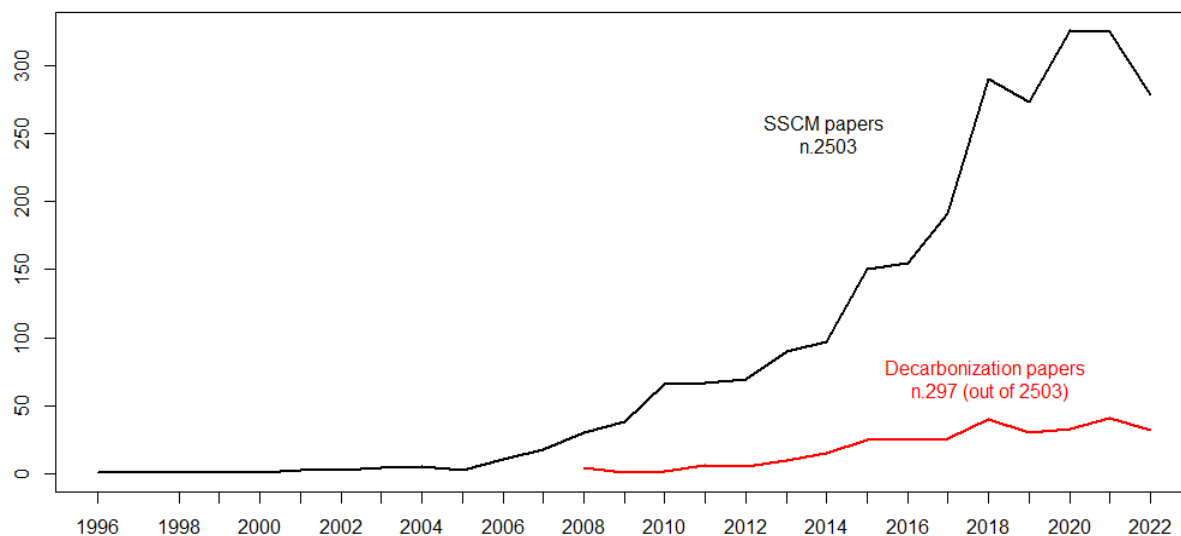
homogenization of synonymous keywords has been extensively discussed between authors. Finally, network analysis has been performed as in Wasserman & Faust (1994) by looking at co-occurrence of indexed keywords across all the 2503 articles of the full sample.

This preliminary investigation addresses two main points. On the one hand, it highlights the relevance of decarbonization for policy and managerial implications from a supply chain perspective, thus legitimating the need for deepening the analysis. On the other hand, it operationally supports the identification of a sub-sample of studies that specifically deal with the topic of decarbonization within SSCM literature.

Specifically, the sub-sample of decarbonization-related articles, within SSCM literature, is formed by 297 documents out of the initial 2503 ones. *Journal of Cleaner Production* has published the most articles (27%) and it is followed by *Sustainability* (Switzerland) (14%), *International Journal of Production Economics* (10%), and *International Journal of Production Research* (8%).

Figure 2 shows the publication trend of both SSCM literature and decarbonization-related articles over the years. While the first studies on SSCM date back to 1996 but research was limited until 2005, when publications started to increase consistently, with a spike near 2020. Differently, literature focusing on decarbonization in the context of sustainable supply chains registers its first articles much later, in 2008, and it has started increasing since 2014 without relevant spikes.

Fig. 2: Evolution of full and decarbonization-related SSCM literature over time



The third step of this analysis aims at exploring more in detail the sub-sample where decarbonization emerges as a macro-topic. In fact, while network analysis is appropriate for a preliminary investigation of a vast extant literature, it can be complemented with further research. Specifically, this last step is performed on the sub-sample of 297 documents and it provides two levels of analysis: the first level points to investigate more deeply these articles by replicating the previous analysis, based on indexed keywords co-occurrence. In this case, however, indexed keywords are not further clustered but they are introduced in their original form. The purpose of this step is to deepen investigation into the facets of the connection between SSCM and decarbonization, with the aim of exploring the underlying keywords linked with decarbonization, together with the most related relevant topics. Moreover, this serves as basis to offer the ground for the development of future research in the field of decarbonization along the supply chain

The second level is complementary to the first one and focuses on the abstracts of the articles in the sub-sample. In this case, a topic modelling analysis is performed to improve and to deepen the understanding of results obtained from the first level of analysis. The use of abstracts is expected to extend linkages with minor or emerging topics which may be less represented in keyword analysis. This technique is chosen as recent review papers (Ali and Kannan, 2022; Sharma et al., 2021) have shown that topic modelling can handle a very larger number of articles, when manual coding is not practically feasible, as in this study. Topic modelling has been performed as suggested in Bansal et al., 2020.

Results. Network analysis assesses and visually represents relationships between keywords: it allows to identify patterns or clusters of related terms emerging from the literature. As a result, drawing on the preliminary step analysis, figure 3 shows decarbonization (colored in red) as one of the most relevant issues, being strongly related to sustainable, closed-loop and green supply chain management, as well as to environmental impact and decision-making. Since only keywords with at least 100 co-occurrence are represented, the resulting network (fig. 3) leads to the identification of the most relevant topic clusters. First of all, and not surprisingly, the figure reveals that extant literature abundantly deals with the general topic of supply chain management and highlights the search queries (colored in blue) on which the research is drawn: sustainable, closed-loop (circular), and green (environmental) supply chain management.

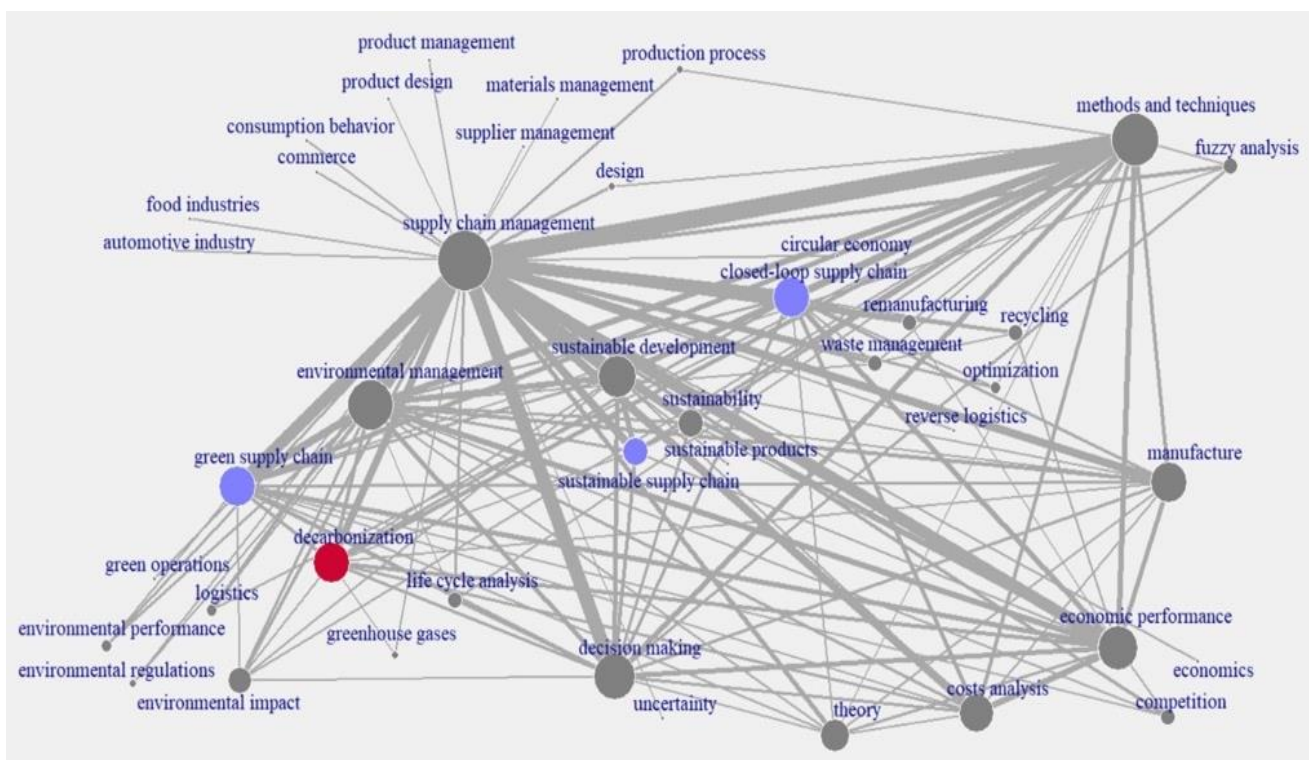
The analysis of the network map highlights some main cross-cutting topics, to which the sustainable supply chain literature is strongly related: sustainable development, environmental management and economic performance (the

latter also includes other words such as costs analysis and competition). These concepts suggest an interest towards the need to rethink the supply chain considering social (Kuiti, 2020), environmental (Graham, 2018; Diabat, 2015) and economic (Khan, 2018; Chen, 2017) aspects together with challenges related with its overall impact. In turn, this set of clusters suggests a linkage with the triple bottom line perspective, even though the social line still remains underdeveloped with respect to the other two, configuring an opportunity for future research.

The first network map also identifies three other relevant topic clusters. Specifically, there are two clusters that are concerned with methods and techniques and with theories. The first one includes a wide range of both qualitative and quantitative research methods that emerged from the literature and particularly the fuzzy approach, that is broadly used in this domain (Ghomi-Avili, 2018; Govindan, 2017). The second cluster regards theories, with an intensive use of game theory (Qin, 2020; Jamali, 2019), that drive the studies within this literature review. The third cluster stresses the relevance of sustainable supply chain management in the decision-making process (Zeng, 2022; Wang, 2021) at both regional and organizational levels; furthermore, it underlines the central role of managers above all in automotive (Lee, 2011) and food industries (Ala-Harja, 2015) when deciding to focus on sustainable issues to optimize the upstream and downstream supply chain.

From a more detailed point of view, it is interesting to observe the extent to which the concept of sustainable supply chain is less recurring compared to closed-loop (Wang, 2021) and green supply chains (Ramanathan, 2014). Sustainable supply chain mainly refers to concepts like sustainability (including sustainability issues, practices and operations) and sustainable products. On the other hand, green supply chain is strongly linked to environmental impact, environmental performance and green operations, while closed-loop supply chain deals with manufacturing/remanufacturing, recycling, optimization, reverse logistic, product design and life-cycle analysis. Moreover, both of them take attention to decarbonization, waste management and logistic. Additionally, decarbonization is also related to greenhouse gases and environmental regulations.

Fig. 3: Result from network analysis

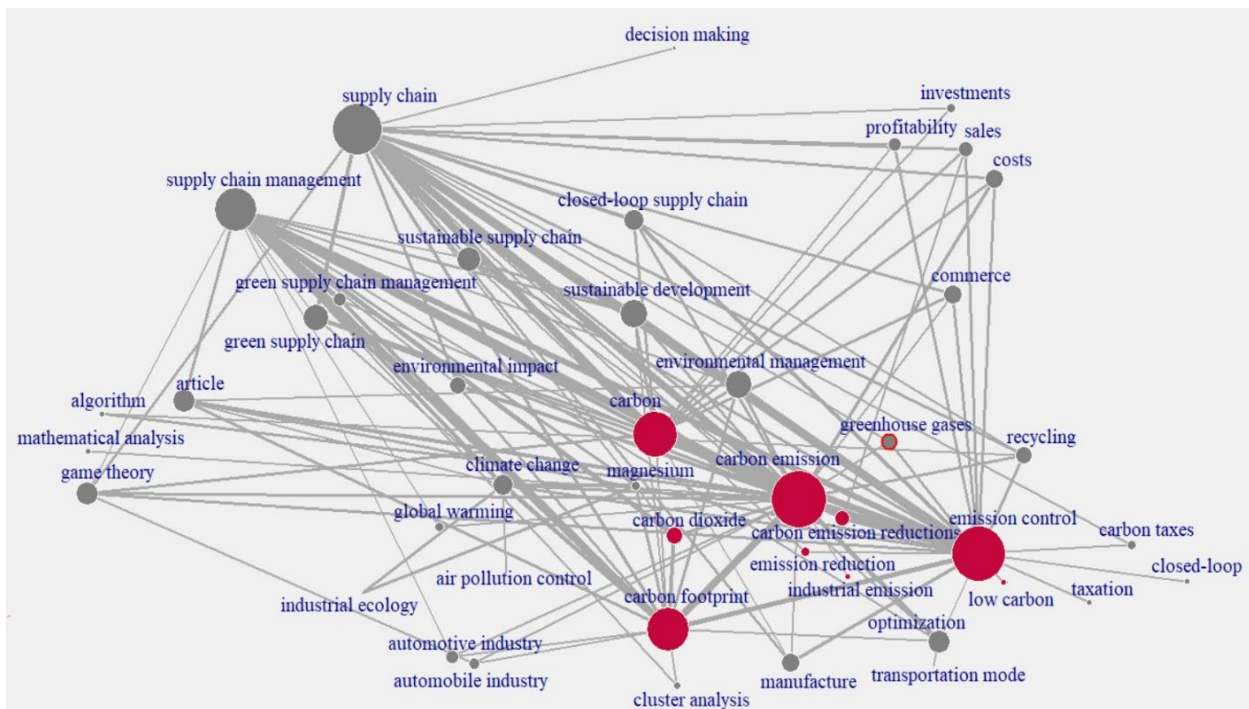


As the aim of the research is to investigate the specific connections between SSCM and decarbonization, the second step analysis is based on the sub-sample of papers clustered by referring to decarbonization-related keywords and in turn potentially addressing some decarbonization issues.

Fig. 4 shows the original index keywords that are semantically related within the decarbonization cluster, that has been used as an umbrella word in the previous network analysis. Fig. 4 supports a better understanding of themes that are developed and discussed within the niche of SSCM literature about decarbonization. It shows that the main issues concern emission reduction and emission control. Both of them are strongly related to climate change, global warming and greenhouse gases. However, the first focuses on environmental impact, industrial and manufacturing emission, transportation mode, and economic and social effects, while the second one is mainly connected to business management (profitability, sales and investments) and regulations and policies, through keywords such as carbon taxation and environmental regulation (Zhang, 2022; Yu, 2018). On the other hand, carbon footprint is more related to

carbon emission than emission control, and mainly refer to automotive industry and supply chain, industrial ecology, and global supply chain.

Fig. 4: Network analysis close-up



Finally, the last step of analysis, that is work-in-progress and still needs to be implemented, will further explore the sub-sample of decarbonization-related papers by applying a topic modelling approach to abstracts. The purpose of the analysis is to identify what are the themes coherently developed by most of the studies and to investigate whether specific actors or processes, within the supply chain, are most dealt with while others are absent. Synthesizing the extent to which specific relationships have been examined in extant literature is an essential outcome useful for the identification of the main research trajectories as well as to try and direct future efforts towards efficient theory building and fruitful research pathways. In fact, bibliometric analysis is very efficient in suggesting and guiding the future research direction of any field by providing a comprehensive evaluation of identified relationships among different topics.

Research limitations. The study has some limitations that should be acknowledged, such as the choice of the initial set of keywords used in the search query that, even if justified by previous literature reviews on the theme, inevitably affects the resulting sample of documents. Moreover, this bibliometric analysis is limited to articles retrieved from Scopus database and published in English, so future research may include other sources as different databases as well as other types of publications such as book chapters and conference proceedings, given that decarbonization along the supply chain is still an emerging topic and the number of publications is still low. For this same reason, there may be the need to update the research in the future, as both SSCM literature and decarbonization are very active fields and they represent trending topics not only for academia, but also for practitioners and regulatory entities. Finally, a possible way forward to further test the validity of this three-steps analysis may include a systematic, in-depth analysis of a subset of the articles. Moreover, a reversed analysis to check for the presence of supply chain management discourse within decarbonization literature could be performed to verify the linkage.

Managerial implications. This bibliometric analysis not only sheds light on and describes an emergent stream of literature, but it also reveals some managerial implications linked to the decarbonization of supply chain activities. Indeed, this theoretical overview can foster reflections on different perspectives that underlie the concept of sustainable supply chain management. Moreover, it can open the road to discussion and inclusion of a greater variety of initiatives that aim at reducing the environmental impact of human, economic activities and particularly of slowing greenhouse gases - and carbon dioxide, above all - emissions. This scope has become of primary importance for lots of organizations in recent years, not only thanks to the increasing public debate regarding climate change, but also as a consequence of regulatory initiatives such as the European Green Deal. Thus, this paper - offering a broad overview of extant literature - can offer guidance to properly intervene and comply with these regulations, avoiding legal consequences. By monitoring and managing emissions throughout the supply chain, companies can reduce their impact and stay compliant with regulatory requirements.

Originality of the paper. To the best of our knowledge, this is one of few papers that explore, on a theoretical level, the intersection between sustainable supply chain management literature and the topic of carbon emissions reductions, i.e. decarbonization. It highlights an emergent stream of literature regarding decarbonization in the specific context of

sustainable supply chain management and it offers insights into existing patterns and connections in SSCM literature. This allows for the definition of future research directions as well as for the recognition of emerging topics. This contribution answers to a call coming from previous literature review works, that called for further examination with the aim of gaining deeper understanding about specific aspects of SSCM, such as decarbonization, with theory-building as the ultimate aim.

Finally, with regards to the method adopted, topic modelling (Bansal et al., 2020) is a relatively new method for qualitative data analysis and specifically for literature reviews, thus representing an element of originality itself.

Keywords: Circular supply chain; decarbonization; sustainable supply chain; bibliometric analysis

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Enhancing proactivity with digitalization in the shopfloor: the role of the organizational context

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Abstract

Digital transformation spawned by the Industrial Industry of Things (IIoT) is spreading across many industries. However, how new digitalized jobs influence the proactivity of workers (proactive work behaviors-PWB) remains unexplored. We hypothesized that PWB is higher in contexts with high IIoT than in contexts without IIoT and that the IIoT-PWB relationship is mediated by job design characteristics (i.e., job autonomy and performance feedback). Drawing on social constructivist literature, we further hypothesized that high performance work systems (HPWS) enable employees to better reap the benefits of IIoT, strengthening its effect on PWB. Using a sample of 440 shop-floor employees working in 101 work units of manufacturing firms, we employed a multilevel moderated mediation structural equation model to test our hypotheses. The findings showed that IIoT has a countervailing effect on PWB creating a trade-off between the two job characteristics of job autonomy and performance feedback. Organizations can moderate the effect of this trade-off by situating shop-floor employees in contexts shaped by HPWS, thus reinforcing the net positive effect of IIoT on PWB.

Framing of the research. Employees performing proactive work behaviors (PWB) are inclined to get to the root causes of problems, develop creative ideas, take charge of changes, and voice up (Furlan et al., 2019; Letmathe et al., 2012; Onofrei et al., 2019). Proactivity enables employees to draw on their skills, knowledge, and competencies to contribute more effectively to solving operational problems, identify opportunities for improvement, take risks, and help others (Galeazzo and Furlan, 2021; Letmathe et al., 2012). This fosters organizational learning (Tucker Edmondson and Spear, 2002), continuous improvement (Morrison, 2015), and decreased resistance to change (Amarantou et al., 2018). Achieving high PWB is particularly relevant in manufacturing plants, where the workforce assumes a key role in increasing efficiency, flexibility, and quality of production processes (Galeazzo and Furlan, 2021).

The increase in the adoption of digital technologies such as the Industrial Internet of Things (IIoT) in recent years has the potential to profoundly affect proactivity by reshaping job design (Brynjolfsson and McAfee, 2014). IIoT generates a high volume and variety of rapidly refreshing data, fosters knowledge generation within plants (Wang et al., 2020), and introduces algorithms capable of complex cognitive tasks, which, subsequently, promote work automation. As a result, both performance feedback and job autonomy are extensively changed by IIoT. In particular, job autonomy reflects the degree to which an individual has control over her work activities. Performance feedback is defined as an information processing system between a sender and a recipient. Even though previous research has argued that job autonomy and performance feedback positively affect PWB (Carpini et al., 2017), recent literature suggests that the effects of digital technologies such as IIoT on these job characteristics may be either positive or negative (Cagliano et al., 2019; Parker and Grote, 2020; et al., 2020). With the term IIoT, we refer to four classes of technologies: sensors, interfaces, connectivity components, and Artificial Intelligence (Iansiti and Lakhani, 2014).

IIoT adoption is likely to constrain employees' job autonomy for at least three reasons. First, the increased decision-making capabilities of IIoT reduce employees' decision-making autonomy (Balasubramanian et al., 2020). AI can autonomously crunch data flowing from sensors and interfaces to provide useful insights to guide workers in their jobs. The centralization of data streams can ensure sufficient volume, variety, and frequency of data to allow algorithms to make decisions, and workers are merely required to act according to the information they receive from algorithms.

Second, as production processes are equipped with more digitally advanced technologies, the standardization of work tasks increases (Wang et al., 2020). Most of the digital interfaces provided to workers guide employees in the

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activities they can perform. Employees using a digital tool need to choose from the options that the tool provides while following the procedures embedded in the software operations.

Third, IIoT increases the employers' control over employees' job (Kellogg et al., 2020). Due to the presence of sensors and interfaces, firms consolidate stock of multiple data that describes how employees are performing tasks, including errors, actual productivity, and positive achievements. Therefore, IIoT acts as a means of directing, evaluating, or disciplining employees' performance (Kellogg et al., 2020), forcing them to abide by the organizational routines and procedures.

When IIoT is implemented, feedback provided to shop-floor employees is likely to increase. Production processes equipped with sensors and connectivity provide a higher volume, variety, and frequency of that deliver feedback to employees more frequently, with more detailed content and more easily accessible knowledge.

In line with the theory we delineated above, as we argue that employees who work on shop floors equipped with IIoT will make less decisions, are more disciplined by standardized procedures, and are subject to greater control from the employer than traditional shop floors that do not use IIoT, we expect that IIoT negatively affects job autonomy and this reduced job autonomy negatively affects PWB. Moreover, as IIoT will produce feedback of better quality in terms of frequency, content, and accessibility, shop-floor employees are likely to leverage the increased knowledge stemming from IIoT-supported feedback to suggest improvements, thus fostering PWB. Therefore, we propose that job autonomy and performance feedback act as mediators with opposite signs in the relationship between IIoT and PWB.

We argue that plants developing an organizational context where employees gain higher levels of ability, feel stronger motivation, and have more opportunity to participate are more likely to reap more benefits from technologically assisted jobs to foster PWB, compared to employees with lower levels of ability, motivation, and opportunity to participate.

We conceptualize the organizational context using HPWS (Datta et al., 2005; Jensen et al., 2013), whose primary objectives are to enhance employees' ability (A), motivation (M), and opportunity to contribute (O) (Appelbaum et al., 2000). HPWS can be seen as an investment that plants purposely make to convey a message of organizational support, trust, and commitment to their employees (Blau, 1964). HPWS are perceived as a signal indicating the extent to which the plant values employees and cares about them. Employees reciprocate with increased motivation, commitment, and engagement (Bos-Nehles and Meijerink, 2018). This implies that the perceptions of employees working in contexts with high HPWS might strengthen the beneficial effects of job autonomy and performance feedback on PWB. On the one hand, positive perceptions of HPWS help autonomous employees to draw on enhanced competencies and increased self-esteem to adopt PWB. On the other hand, positive perceptions of HPWS endow employees with more abilities, motivation, and opportunities to articulate, interpret, and internalize the knowledge coming from the performance feedback. As a result, employees working in contexts perceived as having high HPWS are more likely to adopt proactive initiatives.

Purpose of the paper. Although IIoT brings opportunities to companies both in terms of operational excellence and business models revolution (Vendraminelli et al., 2022; Verganti et al., 2020), the relationship between IIoT and PWB is still empirically unexplored. The need for implementing IIoT while fostering PWB calls for a careful investigation of how jobs are redesigned, and consideration of potential job design issues that could prevent digital transformations from achieving desired performance outcomes.

Furthermore, instead of adopting the deterministic approach of earlier research that framed the technology as an organizational contingency that is independent of the user (Emery, 1959; Barley, 1990), we aimed to understand not only if the changes in job design caused by IIoT effect on employees' PWB, but also if the extent to which employees engage in the patterns of use and work behaviors encouraged by IIoT depends on the organizational context. In doing so, we bridge job design and organizational behavior literature with the social constructivist literature that highlights how employees engaged in similar work tasks may enact technologies in different ways in different organizational settings, despite technical similarities (Leonardi & Barley, 2010; van Zoonen et al., 2021).

In particular, we argue that when the organizational context is shaped by high-performance managerial practices or high-performance work systems (HPWS) (Datta et al., 2005; Jiang et al., 2012), employees are better endowed with the ability, motivation, and opportunity to reap the benefits of changes in job design and convert such benefits into proactive initiatives. We focused on two essential job-design characteristics, job autonomy and performance feedback, that are likely to act as mediators between IIoT and PWB, and we investigated whether these job characteristics are moderated by HPWS.

Methodology. To test our theoretical framework, we collected data from a sample of 440 shop-floor employees in 101 work units of 33 plants. We measured IIoT by assessing the presence of 26 technologies identified based on a structured literature review. These technologies were directly observed in the field, thus overcoming limits in past measurements related to the use of perceptible scales and continuous variables. The variables related to job design, PWB, and HPWS were made into questionnaire-based scales answered by shop-floor employees. The survey measures were based on previously validated scales coming from organizational-behavior and job-design literature. As employees were nested in work units of different plants and individual-, group- and plant- level variables were used, we ran a three-level, second-stage moderated mediation structural equation model (MSEM in STATA 17 to test our theoretical model and, finally, we performed a series of supplemental analyses to check the robustness of our findings.

Results. Our results empirically demonstrated that there were two countervailing pathways from IIoT to PWB, meaning that technological advancements were likely to create trade-offs between desirable and undesirable working experiences that affect PWB. On the one hand, IIoT stimulated PWB because shop-floor employees became more

knowledgeable and confident about the tasks they are performing and the related consequences due to higher levels of performance feedback. On the other hand, IIoT decreased PWB because shop-floor employees have less control and feel they have less responsibility for their jobs due to reduced job autonomy. Overall, we found a positive net effect of IIoT on PWB, indicating that the greater knowledge acquired from performance feedback outweighed the reduced use of personal discretion that results from lower job autonomy. We also found that HPWS played a central role through performance feedback but not job autonomy. Specifically, HPWS positively moderate the relationship between IIoT and PWB, proving that, for higher levels of HPWS, the presence of IIoT is linked to increased PWB.

Research limitations. First, past research highlights the point that technologies, especially digital ones, are not standalone and they are interdependent, consisting of assemblages of distributed, networked technologies. However, our study focused on work units that were only equipped with IIoT technologies. Second, this study drew on information systems literature to describe IIoT as a set of discrete technologies that were either present or absent in the work units under study. We assessed their presence by using dichotomous variables. In so doing, we did not assess the technological advancement of these technologies, nor their qualitative properties, which may include easy-to-deploy artificial intelligence or user-friendly graphical interfaces.

Managerial implications. First, our findings are important in a practical sense because they help managers to better understand the antecedents of employees' proactivity and how these antecedents are related to each other. Second, our findings suggest managers to focus on the social context and where it can be shaped to enhance proactivity among shop-floor employees. We maintain that HPWS practices, i.e., ability-enhancing practices, motivation-enhancing practices, and opportunity-enhancing practices, are key to taking full advantage of behavioral opportunities provided by IIoT. Third, as the implementation of digital technologies is mostly incremental, our findings provide managers with a set of practical insights on the stepwise effect of digitalization on job characteristics and employees' proactivity.

Originality of the paper. Our research contributes to answering the question, "How does digitalization affect shop-floor employees' proactivity?" by empirically testing a theoretical model that relates the effect of the adoption of IIoT on employees' PWB through the contrasting effects of job autonomy and performance feedback. Though our findings point to the existence of contrasting effects, we demonstrated that the positive effects outperform the negative effects, showing that employees' proactivity is empowered by IIoT adoption because of enhanced performance feedback, despite the negative mediating effect of job autonomy. Our research further answers the above question by testing whether the organizational context shaped by HPWS encourages social dynamics that strengthen or weaken the positive relationship between IIoT and PWB. Our findings suggested that when the organizational context is shaped by HPWS, the positive total effect of IIoT on PWB is stronger. Overall, our study highlights how modern technological advancements such as IIoT affect shop-floor employees' PWB and helps to explain why some plants outperform others even when they have adopted the same technological pattern.

Keywords: Digital transformation, Industrial Internet of Things, proactive work behavior, job design, HPWS

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Artificial Intelligence and Medical Devices Distribution in the Business-to-Business Market

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Framing of the research. Artificial Intelligence (AI) breathes new life into digital business, facilitating the creation of smart services and promoting digital transformation. When organizations strive to execute the digital first approach, AI is now regarded as one of the top five developing technologies (Madhav & Tyagi, 2022, pp. 411-452). Because of the rising maturity and availability of AI technology, it is expected that 70% of enterprises will create AI architectures (Simon, 2019). Without a doubt, the age of AI is approaching (Meske et al., 2022). AI has recently piqued the interest of many scholars in their respective domains. Many researchers have examined the use of AI in many contexts (Ahmed et al., 2022; Wang, 2019), including information systems (Gursoy et al., 2019), tourism and hospitality (Li et al., 2019), marketing (Syam & Sharma, 2018; Vlačić et al., 2021), logistics and supply chain (Belhadi, 2021), and financial management (Culkin & Das, 2017; Popkova & Parakhina, 2019, pp. 939-946). According to research findings, AI has the ability to revolutionize the way enterprises and customers interact, resulting in greater commercial advantages, such as increasing efficiency, increasing effectiveness and decreasing cost (Kuzior et al., 2019).

Medical device industry, a subset of the healthcare business encouraging the use of medical equipment to improve people's quality of life, is experimenting with a large use of AI-related tools (Muehlemaette et al., 2021). One of these tools is linked to the distribution of medical devices themselves (Dash et al., 2019). The distribution of medical devices is regulated during its full life cycle (Lee et al., 2018). Because medical devices directly or indirectly influence the human body and pose possible dangers, quality control is critical at all stages of the process, from production and import through ultimate use. However, management requirements for medical device distribution are inadequate, as are standards for medical device storage facilities and medical device technology management (Nayeri et al., 2022). Methods of information and communication technology (ICT) such as artificial intelligence, big data, and supplying the items consumers require at the right place at the right time are becoming prevalent. As a result, medical device distributors anticipate that the fourth industrial revolution will boost productivity in the medical device sector while also altering the distribution system (Soosay, 2008).

Regardless of the countless possible benefits, AI has unquestionably many undesirable repercussions. We cannot only look at AI's bright possibilities (Floridi et al., 2018). Alt (2018) underlines that AI may pose significant hazards at the human, organizational, and societal levels. Importantly, these three characteristics are regarded as the most critical for digitization (Alt, 2018).

From an organizational standpoint, the launch of AI-enabled goods is likely to have an impact on a company's reputation and eventual profit. AI also impacts on relationships in distribution channels (Chen et al., 2022), mainly on relationships between manufacturers and distributors, but studies on this topic are limited.

Purpose of the paper. Despite these significant advantages for businesses, Tarafdar et al. (2013) have cautioned of the negative aspects of information technology. AI technology is no different. It is acknowledged that AI has the potential to introduce hazards at the individual, organizational, and society levels (Alt, 2018). However, much emphasis is placed on the good features of AI, while the negative aspects of AI receive little attention, particularly from the academic community. Given the significance and universality of AI, the considerable negative repercussions brought about by AI to individuals, organizations, and society warrant more investigation. Given the scarcity of studies on the dark side of AI, we intend to investigate key concerns in the AI arena.

Our investigation perimeter refers to companies based in the European Union that produce medical devices and specifically companies operating in the audiology industry. The supply chain of this industry is made up of a few manufacturers (7 in all) operating globally and are present in the major countries with subsidiaries that relate to independent retailers. The specificity of this industry is linked to the fact that the products have to be customized for each end-user. In the Eighties, therefore, manufacturers operating in this industry have set up subsidiaries in all major countries where their business was based. These sister companies were nationally managed realities with the sole constraint of being aligned with their headquarters on the launch of new products.

On the contrary, since 2007 these companies have strongly delocalized their production to non-European countries, with the aim of significantly reducing power and costs of the national sister companies. All this is not surprising, since many companies have operated similarly, but in very different industries (Gwosdz & Domański, 2019). What makes this industry peculiar is the fact that the product is sold to retailers on the basis of an order formulated following an

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impression taken of the customer's ear. It is therefore a highly professional and relevant process from an anatomical point of view.

The manufacturers in question, aware of the risks associated with the relocation of such a customized product, have decided to keep only customer services in the countries where they sell their products and to entrust them to AI systems: precisely to the so-called Machine Learning.

Machine learning is a statistical approach for fitting models to data and 'learning' from data through training models. Machine learning is one of the most widespread types of AI (Davenport & Kalakota, 2019); 63% of companies questioned in a 2018 Deloitte survey of 1,100 US managers whose organizations were already exploring AI used machine learning in their operations (Deloitte, 2018). It is a wide technique at the heart of many AI techniques, and there are several variations on it (Davenport & Kalakota, 2019). These companies have therefore strongly believed that an AI system could replace the manual work of technicians, categorizing the most frequent errors made by man in manufacturing of the product. Furthermore, Machine Learning systems have led to standardization choices regarding logistics and supply processes, accepting a certain margin of approximation in the error made by AI systems regarding the supply requests of different countries.

In this exploratory research, therefore, we aim to understand two aspects: (a) Can delocalization lead to a decrease in trust in the business-to-business market? (b) Can the use of AI tools compensate for the lack of trust and of a human relationship between customer and supplier specifically referred to the need for technical support?

Methodology. *Data will be gathered and analyzed in order to identify groupings of medical device retailers whose main supplier is one of the companies that have delocalized their production plants using AI. As a result, cluster analysis (CA) using the R statistical computing and graphics package (R Core Team 2020) will be applied. CA is the process of grouping a set of items so that objects in the same group (known as a cluster) are more similar to those in other clusters. CA is often used for statistical data analysis in various domains, including machine learning, pattern recognition, image analysis, information retrieval, bioinformatics, data compression, and computer graphics (Anderberg 2014). CA denotes a generic problem to be tackled rather than a specific algorithm. It may be carried out utilizing a variety of methods that differ greatly in their definition and efficient cluster identification. Popular cluster concepts include clusters with low distances between members, dense regions of data space, intervals, and specific statistical distributions. As a result, clustering may be expressed as a multi-objective optimization problem. The best clustering technique and parameter settings (including distance function, density threshold, and expected number of clusters) are determined by the unique dataset and intended application of the findings. Thus, CA is not a task that can be completed automatically, but rather an iterative process of knowledge discovery or interactive multi-objective optimization that involves trial and error (Driver and Kroeber, 1932; Zubin, 1938; Cattell, 1943). In the light of the radical changes in the supply chain of this industry, it is interesting to understand the perception of the customer, i.e. the retailer, in a business-to-business logic.*

Going into the specifics of how the study is to be conducted, a questionnaire will be sent by certified e-mail to all entrepreneurs who own a retail center in the audiology industry. This questionnaire will be in digital format and self-completed. The database of companies operating in the industry is public and is provided by the Italian Audiologists Association. The questionnaire will consist of some specific sections that aim to investigate mainly whether:

- *the retailer has a main supplier of the medical devices it resells and to what extent the relationship between the two players is strong,*
- *there is some form of co-creation of value between the manufacturer and the retailer (e.g., shared promotional campaigns, specific commercial agreements, organization of courses by the manufacturer, according to the Continuing Medical Education program aimed at doctors who prescribe the medical device),*
- *there are specific product customization needs for which a direct relationship between the technician who produces the goods, and the retailer is crucial, and*
- *there are product return policies which are often given to the end-user with 30-days vision account formulas, after which the end-user decides whether or not to buy the product.*

In short, through this survey we wish to understand the dimensions that customer relationship management has within this industry among the various players operating in the distribution channel in question.

Results. *Since this is still ongoing research, it is not possible to draw up a list of scientifically proven results. However, it is possible to list some hypotheses. As mentioned above, we intend to investigate the opinions of a large number of retailers operating in Italy, one of the most promising countries for manufacturers of these medical devices (Cobelli et al., 2014).*

In the awareness that many retailers will not be fully aware of the phenomenon of their suppliers' delocalization, given that customer service, their point of reference, remains in their country, it is possible to identify some hypothetical conditions. Retailers whose main suppliers has delocalized may be divided into relatively homogeneous groups. Alternatively, at least two distinct groups of retailers can be identified: indifferent and, on the contrary, concerned retailers. Possibly, Indifferent retailers do not perceive relocation as a process that could create difficulties for their work; concerned retailers, on the contrary, show discomfort in knowing that they cannot rely on a production center in their own country; finally, a cluster is made up of individuals who are particularly attentive to customer relationship management.

Once the CA has been conducted and the results confirmed or disconfirmed the hypotheses proposed, it will be interesting to see if the phenomenon of delocalization is perceived as a problem by some of the retailers. These retailers, as demonstrated in other studies, tend to have a high degree of trust in a few manufacturers. This largely

depends on the fact that the product is not a commodity and that it often requires remakes or adjustments, which in the past were possible in national laboratories. If it is true that AI, and specifically Machine Learning, should progressively reduce the margin of error in production, to allow products to be ever more precise despite the need for customization, it is equally true that delocalization could lead to a contraction of revenues for manufacturers or a decrease in retailer satisfaction, with the possibility that they feel more alone and less technically supported.

Research limitations. This work, like every research, has limitations. First, convenience sampling is going to be employed to maximize the survey response rate; consequently, it might be claimed that only respondents interested in the study contacted the researchers, thus introducing selection bias. Second, criteria for selecting participants are going to be restrictive, which may influence the findings from the studied sample.

As a result, certainly there is of room for future research. It would be fascinating, for example, to compare comments from companies that have implemented AI technology with those from non-adopters. To determine the generalizability of our findings, studies should be done in other places and nations using alternative sampling approaches.

Extending findings to additional empirical situations would also give a better understanding of how AI tool adoption should be encouraged in the context of increasing the quality of life for a big portion of organizations. Further studies are also needed to test an expanded model that considers other possible relevant factors that may be related to AI adoption. In particular, it would be interesting to investigate how to foster interprofessional cooperation to develop a service network among professionals based on a holistic perspective.

Managerial implications. From a managerial and societal social standpoint, AI could have negative consequences ranging from data security concerns to employment substitution and ethical concerns (Boyd & Wilson, 2017; Larsson, 2020). The deployment of AI has caused significant worry among human workers (Danaher, 2019). Indeed, the fear that AI would leave humans unemployed prevails not only in e-commerce, but in other aspects of life. Other issues include AI legislation and regulation, as well as AI ethics such as moral quandaries, AI discrimination, and AI fairness (Wirtz et al., 2020). As a result, these potential issues offer obstacles for AI governance at the societal level (Wirtz et al., 2020). In addition, although it is clear that phenomena such as delocalization are established in many industries especially in industrialized countries, scientific literature has often highlighted the risks associated with delocalization, with a particular focus on the ethical aspects (Kalogeris & Labrianidis, 2010; Ballestar et al., 2022; Raj & Seamans, 2018, pp. pp. 553-565). The present study instead aims to verify whether in the medical devices industry turbulent phenomena can be created in the relationship between manufacturers and retailers which lead to distrust and the risk of replacing the supplier with a competitor. In an exploratory key, the aim is also to understand which mistakes producers must be careful not to make, because if the economic advantages of delocalization are clear and if it is equally clear that new AI tools can better perform the activities in the past made by man, it has not yet been sufficiently well investigated how much the human manufacturer-retailer relationship weighs with respect to the benefits associated with delocalization and the use of AI.

Originality of the paper. To the best of our knowledge, this is the first work analyzing delocalization together with AI in relation to medical devices that require a high level of customization. Another new element is the willingness to keep track of any side effects related to delocalization in this specific industry.

Keywords: Artificial Intelligence; business-to-business market; healthcare industry; medical devices; supply chain.

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Balancing sustainability performance dimensions: A system dynamics perspective

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Framing of the research. During the last decades, the topic of sustainability has increasingly attracted the attention of management scholars and practitioners, such that pursuing a sustainability strategy and generating sustainability value has become a key concern for firms. As broadly argued by prior literature (e.g., Morioka et al., 2017), sustainability is based on three main pillars (the so-called “triple bottom line dimensions”) as it concerns the simultaneous pursuit of economic, social, and environmental goals, for the benefit of current and future customers and society at large (Elkington, 1994, 1997). In this sense, sustainability draws its theoretical foundations in the stakeholders’ theory (Freeman, 1984; Parmar et al., 2010), according to which the satisfaction of diverse stakeholders’ expectations should represent the primary objective for firms (Upward & Jones, 2016).

Being sustainability a multidimensional concept (Stubbs and Cocklin, 2008), it entails the alignment of interests of multiple stakeholders, and its achievement remains problematic for firms. Specifically, two main challenges impact the real possibility of adopting a sustainable behavior. On the one side, not necessarily the expectations and satisfaction of one stakeholder overlap with those of the others (Adams et al., 2016; Breuer et al., 2018; Schaltegger and Wagner, 2011). For instance, pursuing waste reduction may imply the adoption of green and automated processes that negatively affect the recruitment of the labor force. Similarly, the fight against economic and social inequality may imply the adoption of wage management practices that negatively affect the economic sustainability dimension for firms. In turn, the sustainability value generated by firms necessarily represents a balance among contrasting drivers associated with a broad plethora of diverse stakeholders (Jay and Gerard, 2015; Lüdeke-Freund and Dembek, 2017).

On the other hand, it seems unrealistic to believe that the set of stakeholder relationships that a firm establishes in a given period of time remains stable over time and valid in the long term. In this sense, sustainability has to be interpreted as a dynamic concept, where the objective of achieving a balance between the contrasting interests of stakeholders has to be revised every time a new stakeholder manifests its interests or existing stakeholders modify their own goals. Thus, while the long-term perspective of sustainable development for the firm and society at large remains valid (Evans et al., 2017; Morioka et al., 2017; Searcy, 2016), the sustainability value generated by the firm in the short term has to be constantly assessed. In the same sense, the analysis of the firm’s business model for sustainability has to incorporate a dynamic perspective (Cosenz et al., 2020).

Purpose of the paper. Against the background depicted in the previous section, this study aims at exploring the challenges that firms face when having to find a balance between the different components of sustainability. The problem is twofold. On the one side, due to the multiplicity of stakeholders, firms’ sustainability performance can be thought of as a composite construct, which depends on several drivers. Therefore, by deciding which stakeholders (interests) to prioritize, firms could obtain different sustainability performance levels. However, such drivers may interact with each other, thus making the assessment of sustainability performance quite problematic. On the other side, the inner dynamic nature of sustainability requires a dynamic perspective and the need to assess sustainability performance over time. Therefore, firms should adopt adequate analytical methodologies that would take care of the temporal dimension of sustainability.

In performing our analysis, we also aim to study the role that firms may play at the local level. Provided that some of the stakeholders the firm should respond to are embedded in the surrounding local context, the pursuit of sustainability strategies that pay more or less attention to local stakeholders may result in stronger or weaker social acceptance of the firm by the local community, thus affecting its reputation (Alcorn, 2003; Assefa and Frostell, 2007). Therefore, it is important to study whether and how the consideration of the local context for firms enters into the design of firms’ sustainability strategies.

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Methodology. *In order to address the research question, we adopted a system dynamics perspective applied to the real case of a famous fast-food restaurant chain (here called ABC) located in the area of Rome (Italy). The choice of this company has been driven by the need to analyze a significant business case that generates social implications at the local level by providing employment opportunities for many residents of the city, especially those with limited education and skills. In fact, the analyzed fast-food chain owns 52 restaurants located in different neighborhoods in the area of Rome and has a significant impact on the social and economic landscape of the city. The company has also created jobs for immigrants, whose integration process into Italian society has been supported by the focal firm. Some restaurants belonging to ABC constitute specific micro-markets, where people consume food and spend their free time. Furthermore, ABC also has significant economic implications for the city of Rome. In fact, the company pays taxes, hires local workers, and contributes to the local supply chain, providing benefits to local businesses.*

The analysis has been conducted by employing both primary and secondary data. Specifically, the research has been conducted based on data collected through a structured questionnaire divided into four parts: (i) preliminary data about the company, (ii) economic-financial indicators, (iii) organization and employees, (iv) information about suppliers and the organization of the value chain.

The sections of the questionnaire allowed us to: (1) observe the investments made in the area where each restaurant is located, including the part related to the requalification of the areas surrounding the restaurant, such as parks, parking, and services; (2) clarify how the restaurants have effectively improved the area on which they are located - from differentiated waste collection to renewable energy, from rental costs to requalification costs of the area presided over; (3) investigate the organizational structure of the company, the employees, the diversity, and the restaurant's indirect social impact; (4) understand the extension of supply chain and its pervasiveness in the local area. The questions employed were adapted to the standards provided by the Global Reporting Initiative (2022) and data were collected for each individual restaurant over a time span of four years (2018, 2019, 2020, 2021).

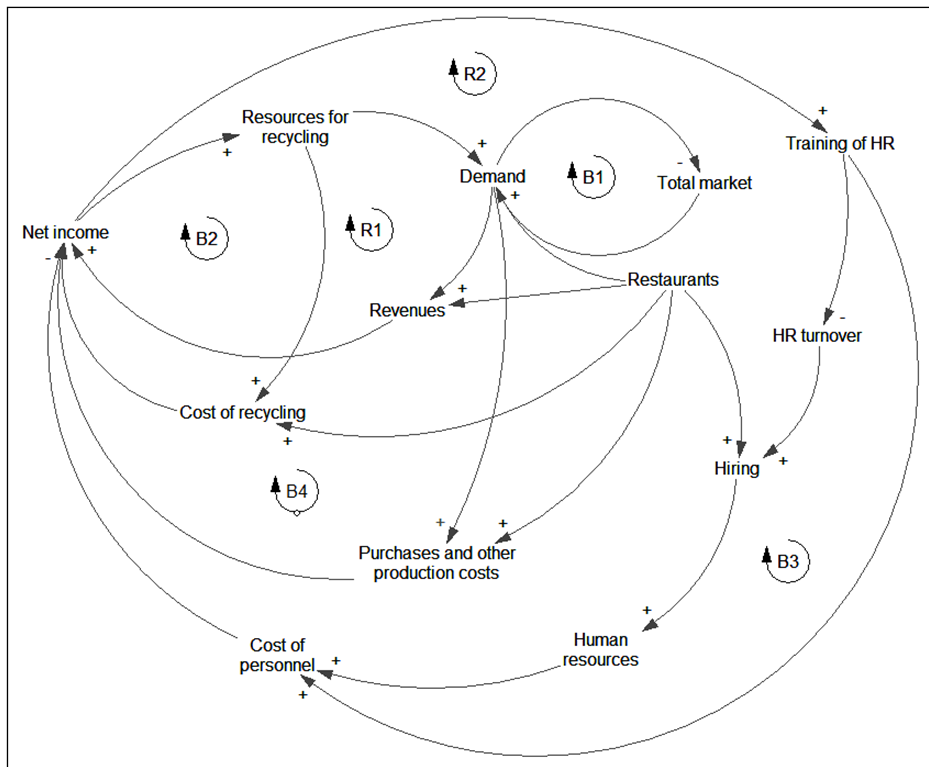
The research adopts System Dynamics (SD) modeling as the methodological approach to develop the ABC case study. SD is a simulation technique primarily conceptualized by Forrester (1958) for modeling and simulating complex physical and social systems and experimenting with the models to design strategies for management and change (Bianchi, 2016; Torres, Kunc, and O'Brien, 2017), also in the case of sustainable value creation processes (Videira et al., 2010; Cosenz et al., 2020). SD is a useful tool that can help understand the complex behaviors of systems over time, especially when such systems are characterized by a strong dynamic complexity and certain levels of instability. The underlying assumption of the SD approach is that these complex behaviors arise from the system's causal structure, which is considered a closed boundary incorporating all relevant variables related to the phenomenon of interest (Sterman, 2000). By adopting this perspective, analysts can construct closed chains of causal relationships, known as 'feedback loops', which are interconnected to explain and describe how and why the system behaves according to certain observed patterns. Therefore, organizational SD models consist of multiple feedback loops that contribute to understanding the reported trends of the organizational system. Feedback loops can be reinforcing - when variables are related to each other by direct (or positive) relationships or an even number of indirect (or negative) relationships exists - or balancing - i.e., an odd number of indirect (or negative) relationships exists. Reinforcing loops generate exponential growth behaviors; balancing loops generate exponential decay behaviors. The interplay and dominance of the different loops characterizing a complex system explain the overall system behavior (Sterman, 2000).

SD models are distinct from other simulation methods - such as agent-based modeling or discrete event simulation - in that they clearly show the structures that are responsible for producing specific behaviors within a system (Noto and Cosenz, 2021). This attribute is especially significant in the context of strategic management processes, as it enables a researcher to investigate the causal dynamics that underlie the creation and utilization of an organization's strategic resources (Morecroft, 2007; Warren, 2008; Bianchi, 2016; Cosenz and Noto, 2016).

To develop the SD model of ABC, we collected data through multiple meetings and through a questionnaire administered to the whole set of restaurants operating in the urban area. The resulting model was validated according to the SD literature's requirements (Barlas, 1996; Sterman, 2000; Homer, 2012) - i.e., structure validation tests, extreme condition tests, and partial modeling tests.

Results. *The structure of the ABC model is represented in a causal loop diagram (CLD) in Figure 1. CLD is a graphical syntax allowing the identification of the main feedback loops characterizing the analyzed system.*

Fig. 1: ABC's CLD



As one may notice, the ABC model is characterized by the presence of two reinforcing loops and three balancing loops.

The first reinforcing loop (R1) portrays the dynamic according to which the net income positively influences the amount of resources devoted to recycling and other environmental initiatives. We expect that these initiatives have a positive impact on the demand since the more the company invests in pollution reduction actions, the more the customers may be willing to purchase from the company restaurants. An increase in the demand for ABC products means an increase in revenues which are the positive components of the net income. Recycling and other environmental initiatives do represent in this case a first sustainability dimension for the company.

The second reinforcing loop (R2) shows that the greater the net income is, the greater the expenditure on human resource training, which, in turn, decreases the firm's turnover. Then, a lower turnover reduces the hiring processes, which are positively related to the number of human resources; moreover, lower employee turnover is also an antecedent to employee sentiment and improved customer satisfaction levels (Hurley & Estelami, 2007). Simultaneously, the number of human resources impacts the cost of personnel which represents one of the negative components of the firm's net income. The number of human resources, along with the investments in training and retention, represents a second relevant sustainability dimension for the company.

The first balancing loop (B1) shows that an increase in the demand for ABC products reduces the potential total markets - since it is not potential anymore but effective. Of course, the greater the total market is, the greater the demand for ABC products will be.

According to the second balancing loop (B2), the increase in the amount of resources devoted to recycling related to the net income (see R1) influences the cost of recycling which is a negative component of net income.

The third balancing loop (B3) assumes that a higher training activity, fostered by the net income (see R2), impacts the cost of personnel, which represents a negative component of the net income.

Last, the fourth balancing loop (B4) shows that the demand, connected to the investment in recycling and thus to the net income, is directly related to the purchases of raw materials. As such the level of demand influences the production costs which are a negative component of the net income.

Based on the model portrayed above, we computed three sustainability key performance indicators (KPIs):

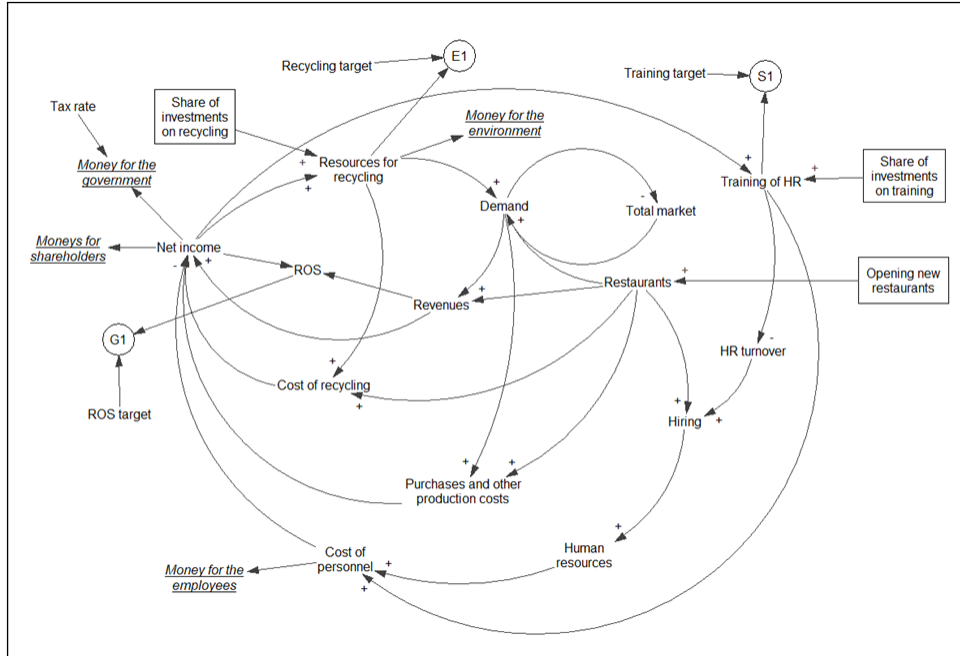
- the first one assesses the environmental performance (E1) and puts the investment in recycling in relationship with a target value (the historical one).
- the second one aims at assessing the social performance (S1) and puts the overall number of human resources in relationship with the permanent employees - i.e., those with greater seniority. As such, the indicator evaluates the organizational climate.
- the third one, addressing governance performance (G1), benchmarks the effective return on sales (ROS) with a target value.

These indicators allowed us to analyze the firm's overall sustainability performance based on different scenarios developed around a few key company strategies: i) the opening of new restaurants, ii) the decision on how much to

invest in recycling activities, and iii) the share of investments in HR training. These hypothetical strategies represent possible leverages that ABC may use to improve its sustainability performance overall.

Figure 2 shows the model structure identifying both performance indicators (circled variables) and strategic levers (squared variables). Moreover, in italics and underlined we highlighted the variables representing the accumulation of financial resources for different categories of stakeholders, i.e., the shareholders, the government (in terms of tax collected), the employees, and the community (in terms of financial resources devoted to the environment safeguard).

Fig. 2: KPIs and strategic levers



Based on the identification of the strategic levers and the related performance indicators, it has also been possible to experiment with the model in order to design strategies and assess the related expected performance in environmental, social, and governance (ESG) terms.

Table 1 summarizes some potential scenarios based on the combination of these three strategic levers. Clearly, the scenarios represented in Table 1 only represent a subset of all possible combinations that the company might choose from, some of them have been selected on purpose as “extreme” cases, and are shown here just for demonstrative purposes.

Tab. 1: Scenarios experimented

	<i>Opening of new restaurants</i>	<i>Share of investments in recycling</i>	<i>Share of investments in training</i>
Scenario 1	0 per semester	1% of net income	10% of net income
Scenario 2	12 per semester	10% of net income	50% of net income
Scenario 3	1 per semester	5% of net income	25% of net income

Figure 3 shows the KPIs dynamics under the different scenario conditions, while Figure 4 reports the accumulation dynamics of financial resources for the different stakeholders.

Scenario 1 replicated the current level of investments in the training and recycling of ABC. As such, it represents the benchmark for our scenario analysis. In this scenario, the KPIs report constant behaviors.

Scenario 2 hypothesizes a massive opening of new restaurants and important investments in recycling and training. As we may notice such a strategy report an initial improved performance in E1 and G1. However, this scenario resulted in being non-sustainable in the long run since the market does not support the demand for such an amount of new restaurants (which inevitably have fixed costs such as personnel and rents).

Scenario 3 reported the best performance overall since it accounts for a sustainable strategy of growth that allows the achievement of better results than the current scenario. This scenario also better contributes in terms of stakeholders’ remuneration.

Fig. 3: KPIs scenario analysis

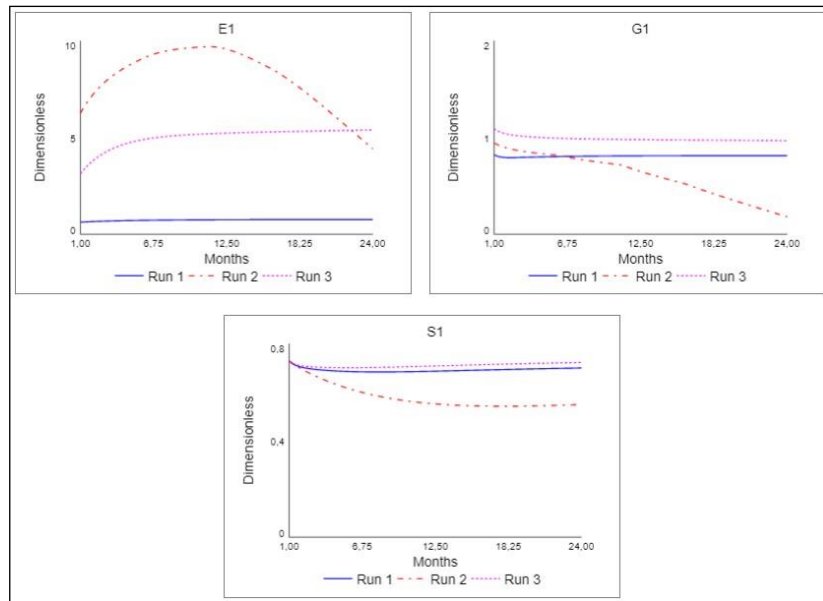
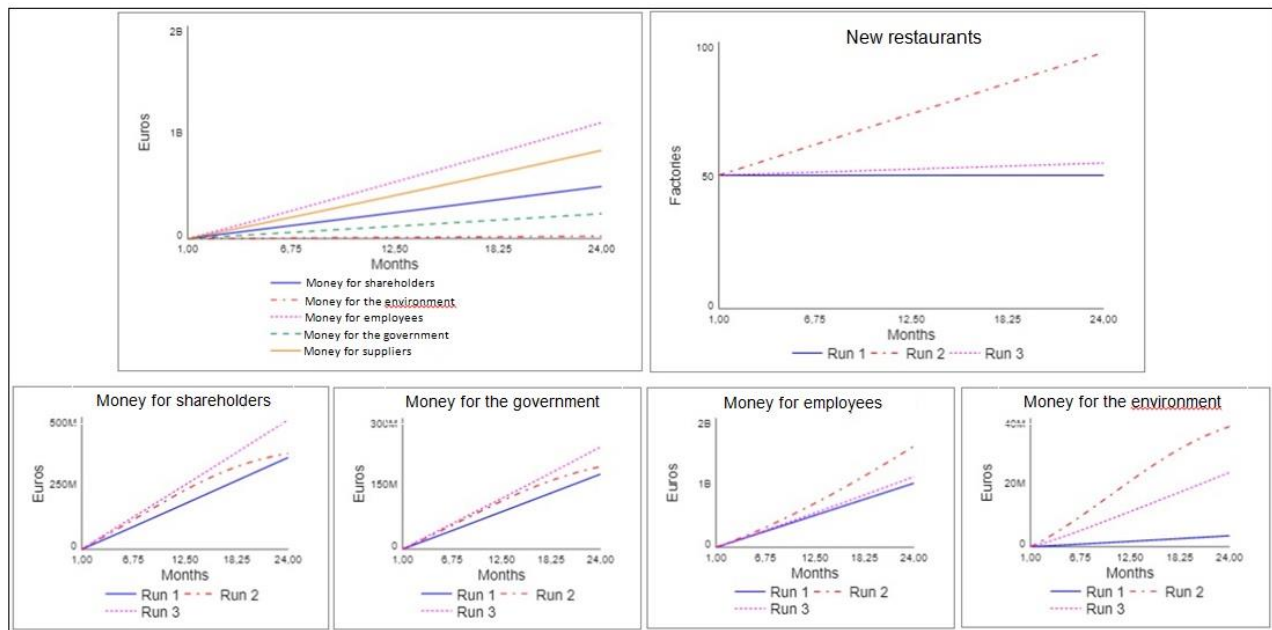


Fig. 4: Scenario analysis of financial resources generated for the stakeholders



Research limitations. The findings of this study offer interesting opportunities for future research. The study was focused on a specific fast-food restaurant chain in the Greater Metropolitan Area of Rome. Future research could explore the effects of other chains, or replicate the analysis for the same company but in other cities. Moreover, other studies could extend such findings by observing and modeling how related perceptions of relevant stakeholders of the investigated area might affect the expected evolution of the results.

Managerial implications. The balance between the economic and social impact of companies is a topic of great interest to both academics and practitioners in the field of business and economics. While companies strive to achieve financial success and maximize profits, there is a growing recognition of the importance of social responsibility and the impact that businesses have on society. In this study, we have explored the relationship between economic and social impact and the challenges of balancing the two, in a stress-test case of a company operating in the fast food market, an industry sometimes associated with negative perceptions by groups of activists and stakeholders (Govindan, 2018). The balance between the economic and social impact of companies has important managerial implications for businesses. Managers might benefit from the proposed approach, by guiding their investments toward actions that generate a better engagement with multiple stakeholders, thus building trust and support. Company leaders should then identify and engage with stakeholders such as employees, customers, suppliers, and the community, and seek their input on social and environmental issues that are relevant to the business. Those inputs, consistent with our findings, might be of help

to companies in order to develop business strategies that balance the social, environmental, and economic impact of their actions. We observed that the latter is functional for improving the former.

Also, managers should work to foster a culture that values social impact, and that empowers employees to make a positive impact on society and the environment. This can include providing training and education on social and environmental issues, and recognizing and rewarding employees who contribute to the company's social responsibility goals.

Finally, companies should measure and report their social and environmental impact to stakeholders, to demonstrate their commitment to sustainability and social responsibility, and the positive long-term effect on economic performance. Proper utilization of the proposed approach would then generate and balance environmental, social, and governance impact, enabling the company to develop clear engagement strategies with its stakeholders.

Originality of the paper. The study offers two main contributions to the literature focused on sustainability. First, by accepting the view that sustainability is a multidimensional concept (Stubbs and Cocklin, 2008), we show that firms struggle to find a balance between diverse stakeholders' interests. The problem is accentuated by the existence of strict interrelations and interconnections among sustainability dimensions (Lüdeke-Freund and Dembek, 2017), such that the pursuit of one sustainability goal often affects - either positively or negatively - the pursuit of others. In order to navigate such a complexity, firms need adequate analytical tools that are able to disentangle the complex network of connections between sustainability dimensions, and the direct and indirect effects that originate from one to the others. The system dynamics approach adopted in this study may represent a viable solution in this respect.

Second, this study also shows that the inner long-term perspective of sustainability (Evans et al., 2017; Morioka et al., 2017) can be fully explored only if dynamic effects are considered in the analytical process. Provided that the implementation of a comprehensive sustainability strategy may take years, intermediate (short-term) outcomes have to be fully assessed by firms, as they may differ from the final long-term goal. Some known real cases represent critical and anecdotal examples in this respect (Lai et al., 2019). Again, the methodological approach proposed in this study may help firms monitor the evolution of sustainability performance over time, thus providing useful insights in the design and planning of effective sustainability strategies.

Keywords: Sustainability performance; Sustainability strategy; System dynamics; Food retail industry; Stakeholder theory

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Are ESG Factors Value Relevant?

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Framing of the research. *There is broad consensus among scholars and practitioners that the past half-century wide gains in global economic development and human wealth creation have been achieved at the cost of environmental and social degradation (Millennium Ecosystem Assessment, 2005; Dean and McMullen, 2007). Due to this, international organizations and local governments are increasingly compelling entities to rethink their business models such that a more sustainable development can be undertaken by the global economic society. Over time, the concept of sustainable development has been synthesized into the ESG (Environmental, Social and Governance) acronym, which describes the integration of environmental, social and governance concerns into investment decisions by investors and corporations.*

With the growing amount of money and attention that firms and financial operators are dedicating to ESG initiatives, it becomes fundamental to understand whether and how ESG factors have value-enhancing or value-destroying effects on companies (Zheng et al., 2022). This would allow capital providers to channel financial resources towards the best-awarding and most economically, environmentally, and socially profitable projects. The relationship between ESG factors and firm value is extensively investigated in existing literature. However, no clear and common answer can be derived by present studies on the significance, magnitude, and direction of this association (Fatemi et al., 2018). Moreover, limited effort has been put into systematically reorganizing such a variety of diverse and frequently divergent findings.

Purpose of the paper. *The present systematic review, which is still a work in progress, moves initial steps in systematically reorganizing existing literature by detecting thematic connections and overlapping areas among extant studies and highlighting uncovered issues deserving further attention. More specifically, this work aims at investigating whether and how ESG factors have relevant influence on companies' value according to two different perspectives. On the one hand, academic findings examining the impact of sustainable strategies and conducts on firms' intrinsic value are analyzed. Such an association is inspected by detecting how the former affect the components of traditional financial valuation models, such as the Discounted Cash Flow (DCF) method. On the other hand, research focusing on the influence ESG factors exert on companies' market value is reviewed and organized. This review takes into consideration both the intrinsic and the market layers of corporate value, with the final goal of providing a comprehensive and detailed overview of what has already been studied in this field of research and which areas deserve more attention in future qualitative and empirical studies.*

Methodology. *The research question is answered by conducting a systematic literature review. To perform the analysis, top journals published between January 2004 and December 2022 are retrieved from the Elsevier Scopus database, the largest database including over 57 million records of journals, books, and conference proceedings. The sample is, then, defined using a multi-step process (Tranfield et al., 2003) to identify and evaluate relevant research articles on ESG factors and firm value to the research question.*

First, a broad search is conducted on Scopus to capture all relevant articles on the topic, inputting a combination of keywords the database automatically detects in titles or abstracts and adjusting the search by means of Boolean operators. The keywords string input in the search is the following: (“ESG” OR “CSR”) AND (“Firm valuation” OR “Firm value”).

In our search string we used ESG and CSR (Corporate Social Responsibility) as synonyms for environmental, social and governance corporate practices, as these terms, even if they show some tiny differences (Chang et al., 2022), are closely related, and used extensively and interchangeably in both the academic literature and corporate practice (Gillan et al., 2021; Fatemi et al., 2018). Overall, Scopus provided us with a final output amounting to 476 papers with publication year starting from 2004, the year in which the ESG term was officially introduced with the birth of the “Who cares wins” United Nations (UN) initiative, up to recent times. Of this initial set, only papers written in English

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are selected to ensure a better understandability and quality of publications and a filter by subject area is applied, excluding Engineering, Art and Humanities, Mathematics, Computer Science areas.

Secondly, manual elaborations are conducted on the obtained output to exclusively select papers consistent with the research question. For this reason, only the studies analyzing the impact of ESG factors on firm value both at the market and intrinsic value levels are considered in the final sample. In this sense, literature adopting different conventional financial valuation frameworks is included in the analysis as well as empirical research on the role of ESG disclosure. However, papers focusing on the relationship between ESG factors and company operating performance, as well as works on asset management and the impact of ESG on stock portfolios are excluded from the review, because of the low contribution of their findings to forming the answer to the research question of the present research.

Subsequently, the above presented results are integrated with manual research on Scopus as well as alternative sources, such as Google Scholar, citations and bibliography of identified articles in our sample. We also considered relevant grey literature referring to publications by the international valuation standard setters and international organizations, due to the corroborated reliability of these institutional bodies.

The final sample consisted of 55 studies on ESG factors in firm valuation published in the time span 2004-2022. To gain a comprehensive view of the present literature, the papers are analyzed by keeping the thematic classifications that emerges from the aggregate reading. More precisely, key findings are discussed by the following thematic areas: ESG performance and firm market value; ESG performance, firm market value and information disclosure; and ESG criteria incorporation in valuation models.

Results. From extant literature, it emerges that a consistent group of studies has analyzed the impact of ESG policies on firm market value. On the other side, a less substantial strand of literature has focused on the valuation methods and approaches adopted by financial operators to measure companies value and how they should be adjusted to incorporate the value-creating or value-destroying potential of sustainable strategies. Key findings of the sample papers are discussed by these two thematic areas, further divided into the following subsections.

1. ESG performance and firm market value

While in the past a large group of academics used to argue that ESG policies bring about substantial additional costs, placing firms at an economic disadvantage (Aupperle et al., 1985), a significant number of recent studies claim, instead, that these costs are relatively small compared to the potential benefits they can generate. Among the beneficial effects, scholars report the alignment of social and corporate goals (Malik, 2014), improved corporate image and reputation among the public (Luo and Bhattacharya, 2009; Eccles et al., 2014), increased employees' productivity and satisfaction (Valentine and Fleischman, 2007; Treviño and Nelson, 2021), and relevant intangibles accumulation (Hawn and Ioannou, 2016). All the above-mentioned effects contribute to indirectly increasing firm market value, which displays indeed a strong positive association with environmental, social and governance policies (Flammer, 2013).

A further set of studies contribute to the debate digging deeper in the relationship between ESG performance and firm value from specific perspectives. For instance, Jitmaneeroj, (2017) find that, when the three main elements of the concept are separately investigated, socially responsible policies significantly impact firm value rather than environmental ones. In addition to this, the value-enhancing effects of ESG performance are recorded to be lesser for listed firms operating in environmentally sensitive industries, and higher in presence of looser regulatory settings and weaker institutions (El Ghouli and Karoui, 2017; Yoon et al., 2018). Moreover, higher ESG ratings - a proxy for ESG activity level - are found to increase the probability of deal completion as well as post-acquisition stock and operational performance (Zheng et al., 2022). Finally, Xu et al., (2022) proves that sustainability enhancing proposals passage at the board level bring about significant abnormal returns in the short-term only, suggesting that investors are skilled and knowledgeable enough to recognize proposals bringing about truly impactful actions from the misleading ones.

To conclude, a wide number of scholars agree on the fact that disclosure plays a fundamental role in the ESG-market value relationship. Proper ESG initiatives reporting, and disclosure allows companies to strengthen their reputation (Aouadi and Marsat, 2016), increases transparency and reduces agency costs and information asymmetry between insiders and external stakeholders (Yu et al., 2018), resulting in a boost of valuation metrics such as the Tobin's Q index and market value (Oh et al., 2020).

2. ESG criteria incorporation in valuation models

It has been extensively claimed that ESG initiatives impact firm intrinsic value (EL GHOUL et al., 2011; GREGORY et al., 2014). It is, therefore, of extreme importance to take into consideration environmental, social and governance policies when it comes to estimating the intrinsic value of a company. Typically, there are two main transmission channels through which companies' strategies may impact the DCF valuation model: by impacting the numerator, namely the cash inflows or outflows produced by the company, or affecting the denominator, namely the risk-adjusted return rate at which those cashflows are discounted. Existing studies claim that both sides of the ratio are influenced by ESG initiatives according to well defined mechanisms.

Results suggest that a significant set of papers have analysed how ESG activities affects cashflows generation (the numerator of the DCF equation). For instance, sustainable initiatives are reported to increase operating margins and profitability, reduce taxes, lower reinvestment needs and enhance long-term growth (GREGORY et al., 2013; CORNELL and DAMODARAN, 2020; CHANG et al., 2022). In addition to this, GODFREY et al., (2009), OIKONOMOU et al., (2012), and JO and NA, (2012) suggest that the positive impact of environmental, social and governance policies on cash flows act through the "idiosyncratic risk channel". In essence, companies with stronger ESG attributes typically report above-average risk control and compliance standards across the firm and within their

supply chain. Hence, they suffer from severe incidents less frequently with respect to rivals, and are, hence, less exposed to a deterioration of their value as well as to a downside or tail risk in their stock price (Hong and Kacperczyk, 2009). This resilience is reinforced by the fact that socially and environmentally active firms are claimed to have stronger competitive advantage with respect to competitors (Gregory et al., 2013; Giese et al., 2019).

A plurality of papers empirically test the effect of ESG strategies on the cost of capital. In general, most researchers report greater ESG scores to be associated with a lower cost of equity financing (El Ghoul et al., 2011; Gregory et al., 2013; Giese et al., 2019). More specifically, firms with stronger sustainability profiles are more resilient and less vulnerable to market shocks, showing a lower level of systematic risk. According to the CAPM model, investors will require lower returns for these companies, which display lower betas and decreased equity risk premia. Besides this, cost of equity and debt are reported to be smaller in companies undertaking ESG policies due to greater information transparency and the resulting facilitated access to financial resources (Crifo et al., 2015; Hong and Kacperczyk, 2009). Last but not least, divergent findings are present in existing literature regarding the magnitude and direction of the influence each of the three pillars of the ESG concept exert on the cost of capital (Sassen et al., 2016; Ok and Kim, 2019; Tharavanij, 2019).

A modest group of researchers has specifically focused on the appropriateness of traditional valuation methods and approaches in measuring the value impact of ESG strategies and whether some adjustments to these models are needed to boost their prediction capabilities with respect to sustainability related concerns. In this sense, key findings highlight the need for the development of consistent and standardized ESG metrics to effectively quantify the impact of material ESG issues on the value drivers embedded in the DCF model (Schramade, 2016; International Valuation Standards Council, 2021). Finally, a few scholars have attempted to integrate to traditional valuation models methodologies future cash flows generated by ESG opportunities and how they might change according to different scenarios (Zeidan and Spitzbeck, 2015).

Taking the findings at the aggregate level, it can be stated that ESG factors are value relevant, and the sign of the relationship seems to be positive.

As far as the impact of ESG practices on firm market value is concerned, most studies report a significant positive association. However, inconsistent, and insufficient evidence is, instead, reported regarding the significance and the sign of the relationship between each of the three ESG pillars and corporate market value. Connected to this strand of literature, insightful studies report ESG disclosure level to have a beneficial effect and strengthens the positive effect of ESG activities on companies' value.

On the other side, evidence suggests that ESG policies bring about a reduction in the cost of equity financing and cost of capital, and, consequently, an increase in firm intrinsic value. Moreover, sustainable corporate conduct is reported to be associated with increased profitability, larger dividends, greater long-term growth and reduce a firm's exposure to severe costly incidents both at the tangible and intangible level. Hence, ESG opportunities are claimed to lead to larger future cash flows and higher company's intrinsic value.

Finally, a limited number of studies attempt at developing comprehensive valuation frameworks able to incorporate financially material ESG opportunities and concerns in a company's true value estimation.

However, further research shall be undertaken to explore to a greater extent some fundamental aspects of this relationship. For instance, insufficient effort has been put in separately examining the effect of environmental, social and governance practices on firm market and intrinsic value. Additionally, an extremely scarce number of scholars have analysed the impact of macroeconomic, institutional, and regulatory conditions on the magnitude and sign of this relationship. Moreover, research on intrinsic value has mostly focused on the impact of ESG initiatives on risk and cost of equity financing. Future studies may investigate and test more deeply how the former affects expected future cash flows, growth opportunities as well as the cost of debt financing components in the DCF model. Lastly, additional effort might be undertaken to develop new models and approaches to integrate the financial impact of sustainable policies on traditional valuation methods, including alternative methods to the DCF approach.

Research limitations. As reported by Migliavacca et al., (2022), literature reviews typically require balance between focusing on specific issues while keeping the most comprehensive possible selection criteria. In this sense, the present paper excludes some topics, as explained in the section above, to avoid dispersion while recognizing that this decision represents a constraint and limitation. Moreover, articles in languages different from English could have been included and alternative databases could have been consulted. Overall, two main limitations emerge from the analysed content.

First, the most relevant shortcoming emerging from the analysis is the lack of standardization and consistency in the measurement and reporting of ESG factors. While there are various frameworks and guidelines for ESG assessment and disclosure that have emerged from the literature, there is not a universal methodology that companies, investors, and academics resort to when measuring and evaluating environmental, social and governance factors. This hinders comparability of ESG data and performance across companies and sectors and may limit the accuracy and reliability of academic research addressing ESG concerns and their effects on companies and society. In addition to this, relevant and material ESG factors may vary depending on the specific industries and business contexts, which may further complicate the interpretation and generalizability of research results.

Finally, a further limitation lies in the fact that the impact of ESG factors on firm value can be influenced by several other endogenous and exogenous factors, such as macroeconomic conditions, industry trends, and regulatory changes, which can be difficult to measure and control, consequently limiting the inference-related processes of the empirical studies in the analysed sample.

Managerial implications. *From the above reported findings, it emerges that ESG factors shall be given substantial attention in strategy-setting processes within corporations due to their corroborated potential to enhance value creation. More specifically, managers should take steps to integrate these factors into their decision-making processes to ensure long-term financial and sustainable competitive advantage and success. This, in turn, would enable corporations to optimize resources allocation among alternative projects and maximize the resulting returns from investments. In addition to this, ESG-active firms are claimed to access capital at favourable conditions. Sustainable initiatives shall be considered by businesses in need for capital.*

Private capital providers are increasingly aware of the opportunities hiding behind sustainable policies, as well as of the resilience to crises and recessions implied in high corporate ESG scores. This study suggests that they shall integrate reliable measures of environmental and social business conducts undertaken by potential targets when evaluating the economic convenience of investments as well as to effectively choose where to channel their funds.

Finally, assuming value creation in companies imply beneficial effects on the plurality of stakeholders businesses interact with, international organizations, governments and the society as a whole shall encourage the financing and success of truly impactful corporate actions while supporting the sustainable transition of economic actors who are being left behind.

Originality of the paper. *Governments and financial and corporate actors are increasingly aware of the need for actively contributing to the sustainable transition introduced by the UN Agenda. Due to the manifold stakeholders involved in their daily activities, companies themselves are urgently required to change their business models. However, because of strong budget shortfalls, national authorities are progressively acknowledging the fundamental role private capital actors will play in providing the resources needed to successfully translate ideas in concrete environmentally and socially sustainable corporate actions. In such a complex framework, it becomes of extreme importance to understand whether environmental and social actions and conducts materially impact firms, to what extent and through which channels, so that financial resources can be targeted towards projects truly benefitting society. The research question to be answered is, hence, are ESG factors value relevant? And in this sense, what is the magnitude and direction of their effects on firms' value, and, consequently, on the stakeholders directly and indirectly impacted by businesses activities?*

Extant literature has deeply investigated the effect of environmental and social factors and ethical business conduct on firm value. However, to date, no attempt has been made to systematically organize and interpret existing findings to detect thoroughly investigated areas and research gaps. The present systematic literature review aims at originally contributing to the research strand by highlighting overlapping conclusions among often inconsistent and divergent results and bringing to light weak strands deserving greater attention and further research effort.

Keywords: *ESG; CSR; Firm value; market value; DCF; cost of capital.*

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Do Company Valuation Methods Incorporate ESG Factors? Exploring an Italian Industrial Panel

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Framing of the research. *In recent decades, the interaction between sustainability and firm value has become a major issue for academics, managers, investors, and policymakers. Companies have paid growing attention to sustainability aspects in order to consolidate their credibility and reputation among stakeholders, pursuing a long-term value creation perspective with the inclusion of ESG issues in their strategic declination (Freeman, 1984; Ziolo et al., 2019).*

Sustainability recalls the remarkable and long-lasting academic debate regarding the purpose and role of the company in the context in which it operates, where different purposes correspond to different roles.

Traditionally, academic literature on the subject is divided into two main theoretical strands: neoclassical and institutionalist. The transition from the property theory (neoclassical) to the entity theory (institutionalist) highlights a profound change in the purpose and role assumed by the company as a passage from the exclusive (or priority) objective of creating value for shareholders (Friedman, 1962; Friedman, 1970; Rappaport, 1986; Steward, 1991) to a broader vision, which considers the survival of the firm as strictly dependent on the management's ability to adequately respond to the requests of the stakeholders (Freeman, 1984; Evan and Freeman, 1988; Clarkson, 1995).

However, the contrast between the different purposes attributed to the company tends to vanish as the time horizon expands. In the long run, there is a convergence between the interests of the shareholders and stakeholders, given the circumstance that the value of the shares is equal to the present value of the future cash flows that the company can generate, which in turn depends on the ability to satisfy stakeholders' expectations. On this point, the theory of creation-diffusion of value acts as a "bridge" between the two visions, identifying a rational and measurable objective of the company to maximize the economic value for all the stakeholders (Guatri, 1991; Sciarrelli, 1997).

The close interrelationship between shareholder and stakeholder satisfaction – and the consequential interpenetration between different dimensions (economic, financial, and sustainable) – has led to the emergence of a new "philosophy" of corporate governance, i.e., sustainability as an element included in the system of essential principles and doctrinal and methodological foundations on which corporate governance must be based (Golinelli and Volpe, 2012). In this sense, sustainability aspects have led to the assumption of a holistic approach that transversally involves, starting from corporate culture, (i) corporate governance, (ii) strategy definition and implementation, (iii) business model, (iv) organizational structure, and (v) internal and external reporting system (Ansoff, 1957; Ansoff, 1969; Sciarrelli, 2004; Campbell et al., 2011; McDonald and Hugh, 2011; Rutigliano, 2020).

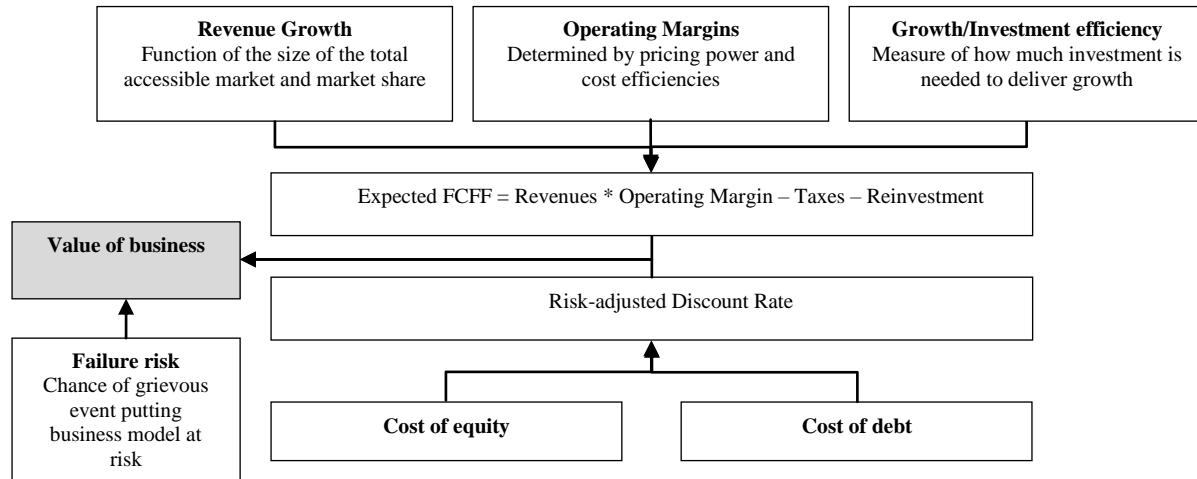
In light of the above, scholars have paid growing attention to the effects consequent to the adoption of sustainability principles into the company's value creation process, which depends on the size of the monetary (or income) flows, time profile, discounting rate (and therefore risk) (Colombi, 2003). In particular, Cornell and Damodaran (2020) argue that the value created by a company depends on growth, profitability, investment, and risk levers.

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Fig. 1: The drivers of value



Source: Cornell and Damodaran (2020)

The academic literature highlights that the implementation of good sustainability practices has the effect of better access to the capital market (Cheng et al., 2014), a lower cost of capital (Diamond and Verrecchia, 1991; Sengupta, 1998; Botosan, 2006; Goss and Roberts, 2011; Witold and McGlinch, 2019), increased demand for products and services (Dorfman and Steiner, 1954; Milgrom and Roberts, 1986; Gangi et al., 2019), with consequent greater competitiveness of the firm (Porter and Van Der Linde, 1995; Wu and Shen, 2013; Bocken et al., 2014; Boccuzzi, 2021), and an increase in economic-financial performance (Eccles et al., 2014; Cornett et al., 2016).

In light of the above, sustainability represents an unavoidable and undeferrable issue considering that it influences the greater or lesser availability of resources (i.e., financial, economic, know-how, accreditation, image, opportunity, or chance resources), which, consequently, support and nourish the process of technological innovation which is indispensable for the achievement of competitive advantage and, ultimately, survival (Vicari, 1991; Mintzberg, 1994).

Moreover, the pervasiveness that sustainability has gradually taken on in business activity should also be seen as a result of the growing interest on the part of financial market operators in the issues in question to increase the degree of efficiency of the capital allocation process, i.e., assuming long-term investment strategies that consider ESG factors and related risks in portfolio choices (Hebb, 2011; Ailman et al., 2017; PRI, 2017) to “enhance long-term value by using ESG factors to mitigate risks and identify growth opportunities” (Boffo and Patalano, 2020, p. 15).

This interest has given rise to the progressive expansion of the economic-financial disclosures of companies with qualitative and quantitative elements of a non-financial nature (mainly driven by the evolution of the regulatory context) and the spread of ESG rating judgments issued by qualified independent operators, which enhance the sustainability profile of a specific company, namely the potential adverse effects resulting from ESG factors (Avetisyan and Hockerts, 2017).

It follows that ESG analysis (also through synthetic rating judgments) allows for a greater and deeper understanding of the profile of a specific company; it does not replace traditional financial analysis but is rather complementary to it, as it allows to expand of the information available at the basis of investment decision-making processes and to appreciate all the material driver to assess the corporate financial performance (De Jong and Nguyen, 2016).

Even so, including those kinds of information in traditional financial analysis is not straightforward as it has to deal with data availability (i.e., lack of standardized data and risk metrics), modeling, and valuation technicalities issues (OECD, 2017).

Purpose of the paper. Defining the value of a company involves estimating the economic capital of the entity considered according to criteria established in doctrine and professional practice. The critical variables of the estimation process are jointly represented by the consistency of the corporate assets, in the broadest sense referring to both tangible and intangible elements, and by its ability to generate income/cash flows.

Among the various criteria available for the evaluation of companies (equity, financial, income, mixed, etc.), the majority doctrine and practice favor the Discounted Cash Flow (DCF) method based on the discounting of future cash flows and the use of multiples, calculated as the ratio between market values and book values (Bellavite Pellegrini et al., 2020; Koller et al., 2020).

The DCF method requires the valuer to use internal (as well as external) information, mainly contained in the company’s forecast plans (Rutigliano, 2022), on the assumption that the use of historical and outlooks data makes it possible to reach adequate and sufficient picture of the company to estimate the expected cash flows. In addition, it is necessary to determine the cost of capital, which measures the concept of risk and must be used as a discounting parameter to discount future cash flows at the reference date. Thus, the DCF involves a considerable effort to the extent

that it is necessary to acquire numerous internal and external information, but it is undoubtedly one of the most reliable methods, or in any case, less approximate.

The use of multiples, instead, is the primary tool (if not the only one) in evaluation contexts where the expected results are difficult to predict, placing the comparison with other comparable companies at the center of determining the economic value of the capital. The selection of the group of comparables is the most sensitive process, as only companies that investors may consider substitutable within a portfolio are truly comparable (Guatri and Bini, 2009). In this sense, belonging to the same sector may not be sufficient, but other comparability factors must be considered, including size, productive capacity, products, internationality, geographical location in similar countries, management, governance, etc. Simplicity in using the methods represents a strength (ease of use) and a weakness (stillness).

In this context, sustainability is looming a growing complexity not only for businesses but, by extension, for investors, as a new element grafted into decision-making processes and in the features prodromal to formulating strategies for efficient capital allocation.

Sustainability presents companies with new opportunities and challenges, prompting them to pursue objectives of consistency between different performance types within the context of their strategic declination. Sustainability, therefore, represents an element which, on the one hand, constitutes the potential source of a corporate competitive advantage (through consensus, accreditation, and trust among stakeholders) and, on the other, severe threats to the company's going concern when unable to respond to requests arising from the external context adequately (Porter and Kramer, 2006; Crespi and Migliavacca, 2020).

In a nutshell, sustainability constitutes a multidimensional phenomenon of extreme complexity that is a source of opportunities and threats for the company.

Therefore, investors must consider sustainability's positive and negative effects on individual companies in the context of their decision-making processes and capital allocation strategies. In other words, the extent of the phenomenon in question implies that the appreciation of the degree of risk-return of a given investment cannot ignore the assessment of the new non-financial aspects relating to sustainability issues.

In this context, sustainability issues have led to new and insightful challenges, considering the reflection of investors' changed attitudes regarding integrating sustainability aspects into decision-making processes and capital allocation strategies to appreciate the ESG-specific profile (and related risks) of an asset (Ailman et al., 2017).

Considering what has just been represented, it seems legitimate to ask whether the traditional methodologies for appreciating the value of a company should be refined through the inclusion of new elements relating to sustainability issues or whether they are already implicitly appreciated by the current specific underlying factors.

The question is of undoubted interest but also not easy to resolve.

If sustainability is a new element but already included in the bed of traditional factors underlying the valuation of a company, implicitly, the further non-financial information relating to sustainability would not prefigure a methodological issue. However, we must also ask ourselves what the traditional element concerning sustainability is already implicitly valued.

Conversely, if sustainability were not implicitly reflected in the traditional elements underlying the valuation, the same would require a review of a company's valuation methodologies. This perspective would require expanding the current portfolio of indicators and methods available to investors with general and specific hands that allow for assessing the company's conduct and impacts on the environmental, social, and governance spheres as objectively and accurately as possible. However, we must also ask ourselves what the magnitude of this inclusion is and how it should take place, e.g., in terms of a simple add-on, a recalibration of cash flows, and the cost of capital.

The answers to these questions are complex.

The inclusion of sustainability aspects implies the assumption of a broader perspective that considers, within the traditional valuation concepts, techniques, and factors, new kinds of non-financial information to gradually sharpen the risk-return performance appraisal methodologies (Ailman et al., 2017; Paolone and Pozzoli, 2021; Prall, 2021).

However, the implementation in question brings the following three main issues:

- *data availability: the expansion of the plethora of indicators relating to sustainability aspects (internal and external to the company), inspired by the transformation of information into knowledge, requires a leap in quality rather than quantity to avoid in a context of information opulence, phenomena of information overloading (Rutigliano, 2020). The metrics in question, characterized by a lack of standardized data and risk metrics, must respond to a constraint of appropriateness and materiality concerning the indications provided (Amaduzzi and Paolone, 1986) to identify sin and "best-in-class" firms (Amel-Zadeh and Serafeim, 2018);*
- *modeling: an additional element worthy of note is the time factor. The time variable has two main implications since, on the one hand, traditional financial models are based on historical data and, therefore, challenging to integrate with ESG elements, for which there is no sufficient historical depth; on the other hand, strategic planning considers short-medium term time intervals, where the effects of ESG elements are based on a long-term horizon with uncertainty about the an and the quantum;*
- *valuation techniques: equity investors can adjust traditional valuation methods by including ESG aspects differently, e.g., cash flow forecasts or cost of capital estimates (OECD, 2017; Amel-Zadeh and Serafeim, 2018).*

Considering the latter, scholars highlight different forms that ESG integration can take into the DCF method to assess a company's value properly, taking into account economic trends, competitive environment, products' market potential, and, in general, ESG opportunities and threats (in terms of materiality):

- *future cash flow*: future cash flows can be adjusted according to ESG factors, considering the fact that sustainability aspects can have an impact on revenues, revenues growth rate, operational expenses, and capital expenditures (Bos, 2014; PRI, 2017);
- *terminal value*: the time horizon to determine future cash flows may not coincide with the company's life. In this sense, the final value expresses a synthetic expression of the current value of the financial flows that the company can produce in times after the time horizon subject to analytical determination and appreciated through explicit future cash flows (Damodaran, 2011). In this regard, considering that the terminal value can also have significant effects on the overall value and that the same appreciates the company's ability to produce cash flows in a long-term period, it seems appropriate that the same considers the effects of the medium-long term of ESG factors on the company. Therefore, the sustainable growth rate in the estimate of the terminal value is closely correlated with the ESG profile of the specific company (in terms of opportunities and threats) and the reference sector to which it belongs (Rutigliano, 2022);
- *discount rate*: the discount rate can be adjusted (directly or indirectly, through the beta) according to ESG factors, so ESG-friendly companies could see a downward adjustment of their cost of capital due to a lower risk profile and vice versa (Bos, 2014).

However, the inclusion of ESG elements within the scope of the DCF company valuation methodologies is not free from application difficulties in consideration of potential errors relating, e.g., to the magnitude of the cash flow or discount rate adjustments and double counting, which can influence all the underlying elements of the calculation. On this point, Rutigliano (2022) argues that the application of a specific adjustment of the discount rate or the growth rate in the estimation of the terminal value while entailing inevitable higher margins of a subjective and lower degree of transparency concerning the adjustment of future cash flows, appears to be the preferable solution to take into account a possible poor ESG profile of the company.

The literature on the effect of ESG on firm value is rich but mixed (Whelan et al., 2021), with studies highlighting a positive (Miralles-Quiròs et al., 2018; Buallay et al., 2020; Nguyen et al., 2020; Prol and Kim, 2022), negative or mixed (Buallay, 2019; Buallay et al., 2019; Miralles-Quiròs et al., 2019a; Miralles-Quiròs et al., 2019b; La Torre et al., 2021) relationship, where the use of multiples can be partially more simplistic for the abovementioned reasons about the difficulties of the ESG inclusion into the DCF method.

In light of the above, we develop the following hypothesis to test:

H1: The ESG score (and each pillar score) is positively associated with firm value.

Methodology. To test our hypothesis, we used multiple regression analysis with panel data run on *n.* 115 observations. In this context, we applied a modified version of the model proposed by Ohlson (1995), widely used in valuation research (Paolone and Pozzoli, 2021).

$$Price_{it} = \alpha + \beta_1 X_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it} + \beta_4 Size_{it} + \varepsilon_{it}$$

In the company valuation model proposed by Ohlson (1995), the market value of equity is a function of firms' financial and non-financial information.

In this regard, considering the findings of previous studies, independent variables are (i) ESG overall score and each pillar (i.e., considering that only material issues are relevant for investors, each ESG pillar is not equally important (Friede et al., 2015)), (ii) earnings per share (EPS), (iii) book value per share (BVPS), and (iv) company's size.

In the table above (Table 1), we assign names based on the characteristics of the indicators related to the factors.

Tab. 1: Measurement of variables

Variable	Definition
<i>Dependent variable</i>	
Price	The latest available closing price at the end of the year
<i>Independent variables</i>	
ESG score	Overall company score based on the self-reported information in the E, S, and G pillars
Environmental score	Company's score in the environmental pillar
Social score	Company's score in the social pillar
Governance score	Company's score in the governance pillar
EPS	Normalized net income divided by the number of basic weighted average shares
BVPS	Shareholders' equity divided by total common shares outstanding
Size	Natural logarithm of the amount of total asset

Our sample consists of *n.* 20 Italian industrial firms (belonging to *n.* 15 industries) listed on the Stoxx Europe 600 over 2016-2022 to gain heterogeneous panel data that allows us to look for robust results.

Refinitiv Eikon has been used as a database, which, widely adopted internationally in management studies, has proved to be among the most complete in terms of data collection (i.e., financial and social performance indicators) and provides a large combination of variables beneficial to perform our analysis. Data analysis has been performed using STATA 17 software package.

The ESG score has been taken from Refinitiv Eikon for each company as the weighted average of the scores achieved in different key sustainability performance indicators, and it may assume a score between 0 (weak) and 100 (strong). Figure 2 illustrates the composition of our panel by industry.

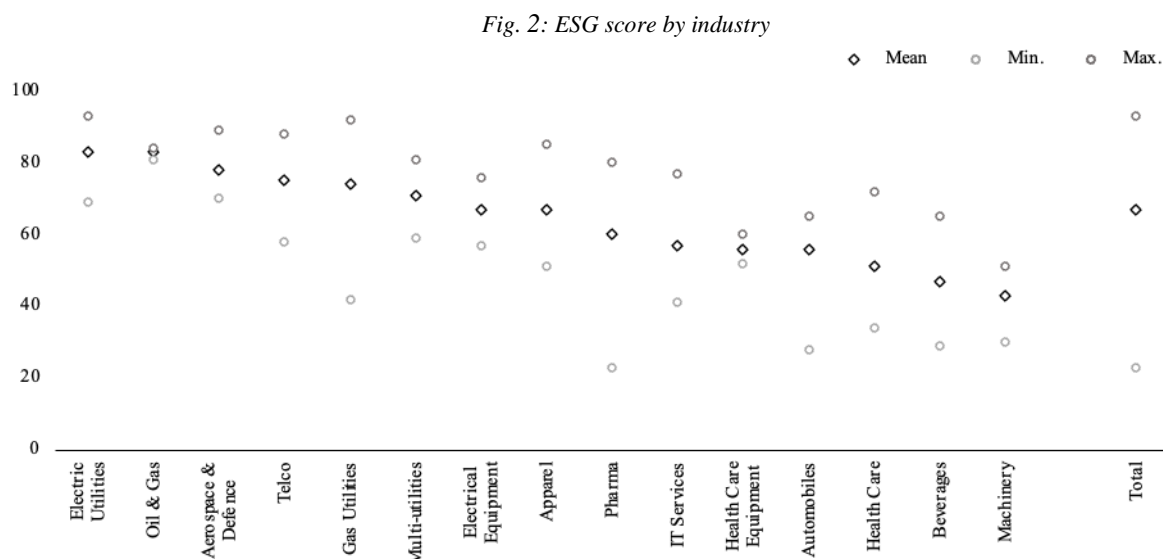


Figure 2 summarizes the mean, minimum, and maximum values of the overall ESG score of our panel over 2016-2022 by industry.

The average ESG value is good, with the Electric Utilities and Oil & Gas industries registering the highest values. Considering these scores range from 0 to 100, our panel's overall corporate social performance is not so exceptionally high, i.e., firms have good social responsibility practices and disclosure but are not excellent.

Results. Table 2 illustrates the descriptive statistics for dependent and independent variables. The descriptive statistics table includes statistics, such as mean, standard deviation, minimum, and maximum.

Tab. 2: Descriptive analysis

	Mean	SD	Min	Max
Price	31	44	-	228
ESG score	67	17	23	93
E score	63	24	-	98
S score	72	18	20	96
G score	65	19	16	97
Size	23	2	20	26

To test our hypothesis, we used multiple regression analysis with panel data that considers both time series and cross-sectional data, allowing the identification of specific parameters without making any restrictive assumptions (Verbeek, 2008; Cucari et al., 2018).

We apply a fixed effect regression model to test our hypothesis based on the Hausman specification test (Hausman, 1978).

We present below the results of the estimations described previously.

Tab. 3: Panel regression analysis

	(1)	(2)	(3)	(4)
ESG score	0,467**	-	-	-
E score	-	0,304*	-	-
S score	-	-	0,414**	-
G score	-	-	-	0,173
EPS	-0,237	-0,356	-0,316	-0,292
BVPS	4,874***	5,023***	4,481***	5,453***
Size	-14,03	-10,57	-9,634	-12,03
Cons.	295,4	227,4	198,4	266,3
Obs.	115	115	115	115
Groups	20	20	20	20
R-sq				
- Within	0,2818	0,2669	0,2881	0,2544
- Between	0,6148	0,583	0,5467	0,6199
- Overall	0,4971	0,4652	0,4289	0,5028

(Note: * $p \leq 0,1$; ** $p \leq 0,05$; *** $p \leq 0,01$)

Table 3 shows a positive and significant relationship between price and ESG score, confirming the results of previous academic studies (Paolone and Pozzoli, 2021).

Moreover, considering each ESG pillar, a positive and significant relationship exists between price and environmental and social scores. At the same time, there is no significant relationship with the governance score, partially confirming our hypothesis.

In a nutshell, investors seem to appreciate sustainability aspects and related reputation effects and the additional and complementary disclosure provided.

Notwithstanding the results of our analysis, it is necessary to conclude that, due to a lack of standardized data and risk metrics regarding sustainability issues, it is difficult to draw a robust conclusion on the topic and that the relationship between firm value and ESG performance is complex and needs more research.

Research limitations. From a methodological point of view, more variables may be included in the econometric model, considering, for example, differences among industries.

From a theoretical perspective, the lack of comparability of ESG data (and ratings) due to different methodologies applied by different providers (Billio et al., 2020) could influence the reliability of the results and lead to materially different conclusions.

Future research directions should address further improvements of the identified framework by extending the observed period, including other variables, and performing the analysis with different data from a different provider. Moreover, future studies could enrich the current literature, considering specific ESG profile effects on the DCF valuation methodology in terms of adjustments of the discount rate or growth rates in estimating the terminal value into the DCF valuation methodology.

Managerial implications. Results have important practical implications for practitioners, managers, policymakers, and stakeholders, contributing to enriching the literature on the influence of ESG variables on firm strategies and values and highlighting the dynamic aspects of this issue in the present and the near future. Future research could strive to overcome or lower those limitations.

Originality of the paper. Our paper provides several contributions to the ESG and company valuation field. In particular, from a theoretical point of view, we contribute to the literature seeking to understand the relationship between ESG and firm value. The evidence suggests that existing studies on company valuation and ESG issues are limited, but greater transparency and performance about sustainability practices are expected and positively valued by shareholders, which could impact company valuation methodologies.

Keywords: sustainability; ESG; company valuation.

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Determinants of Environmental Social and Governance (ESG) Performance: A Systematic Literature Review

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Framing of the Research: *The contribution of the private sector and the introduction of new business paradigms is incredibly important in the journey towards a sustainable society. By leveraging their influence and resources, companies can play a crucial role in promoting sustainable practices and driving positive change. Hence, understanding the determinants of firms' sustainable performance is not only a key goal of the strategic management field, but it is also fundamental for addressing the world's most pressing environmental and social challenges. In recent years, the concept of sustainable performance has been expanding towards the concept of implementation of the E (environmental), S (social), G (governance) criteria.*

Commonly linked to ethical or socially responsible investment (Galbreath, 2013), ESG criteria have become key indicators of management competence, risk management, and non-financial performance. Furthermore, contrary to the concepts of Corporate Social Performance (CSP) or Corporate Social Responsibility (CSR), ESG explicitly covers a large variety of issues and their impact on finance and the economy is rapidly growing. According to a 2018 global survey, more than half of global asset owners are currently implementing or evaluating ESG considerations in their investment strategy (Ahlström and Monciardini, 2022). The notable rise of ESG is demonstrated by the fact that socially responsible investment has risen more than 34% since 2016 globally, and "in the last two decades ESG integration has grown by 60%" (Umar et al., 2020).

The topic of ESG performance and its determinants emerges from the historical debate on internal and external factors that influence when and why some firms outperform others over time (Crace and Gehman, 2022). Evidence suggests that external factors can set the context and provide the incentives for a company to prioritize ESG practices. Not only have regulatory frameworks (Ahlström and Monciardini, 2022), economic development (Foo Nin et al., 2012) and industry (Short et al., 2015) prompted companies to reorient their sustainability strategies, but also country-specific cultural beliefs have shaped ESG performance (Foo Nin et al., 2012; Ortas et al., 2015; Cai et al., 2016). In addition, the company's internal decision-making processes and practices are also fundamental to implement and execute effective ESG strategies. A strong commitment to ESG principles from the top leadership related to its observable and unobservable attributes (Crace and Gehman, 2022; Garcia-Blandon et al., 2019; Kang, 2017), integrated ESG considerations in the company's overall strategy (Maniora, 2015; Mervelskemper and Streit, 2017), and robust risk management processes influenced by corporate governance characteristics (Beji and Loukil, 2021; Disli et al., 2022) are all crucial to ensure that a company is effectively managing its ESG risks and opportunities.

However, evidence suggests that existing academic studies on the determinants of ESG performance are limited and "the literature on ESG performance, with CSR issues being renamed in the finance-oriented literature, has evolved slower than practice" (Garcia et al., 2017). Besides, even when addressed, the topic detains several gaps that if not correctly addressed can refrain the comparability of the results:

- 1) Contrarily to firm performance, there is a lack of standardization in the measurement of ESG performance, which can lead to inconsistencies in research findings as well as difficulty to compare companies from different industries and synthesize the results of multiple studies.*
- 2) If developed economies have received significant attention in research on ESG performance, emerging markets have been relatively understudied (Khaled et al., 2021). Therefore, there might be there may be instances where it is impossible to generalize certain findings.*
- 3) In general, most studies focus more on internal determinants of ESG performance than external ones. This may be because internal determinants are easier to measure and control, while external determinants may be more complex*

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and difficult to quantify. Neglecting external determinants of ESG performance can be problematic because it may lead to an incomplete understanding of the factors that drive long-term sustainable performance.

- 4) Limited focus on the singular pillars can weaken the value of a research, as the “factors influencing various dimensions of corporate practices and performance to E, S and G components can differ” (Mooneepen et al., 2022).

Overall, there is not yet a study that aims to provide an overall and comprehensive picture of the determinants that have the greatest impact on ESG criteria.

Purpose of the paper: This study identifies and analyses the internal and external determinants influencing the fostering of real, sustainable change within firms. To fill gaps in the literature, the SLR focuses on why and how the literature shows discrepancy on the role and impact of the determinants on ESG performance, and which are the factors that might explain this phenomenon. In addition, the SLR aims at understanding the complex interplay between internal and external determinants. The present study analyses how factors such as country or industry effects diversify the importance of internal factors as well as how company’s governance or characteristics may affect its ability to respond to regulatory frameworks or stakeholder demands. The ESG analysis was performed at both the aggregated and disaggregated levels to determine whether the impact of the determinants varied between the three pillars and sub-dimensions. Finally, in this study, we assessed the ability of different theoretical frameworks to better explore the drivers of ESG performance and presented the paper’s theoretical contributions.

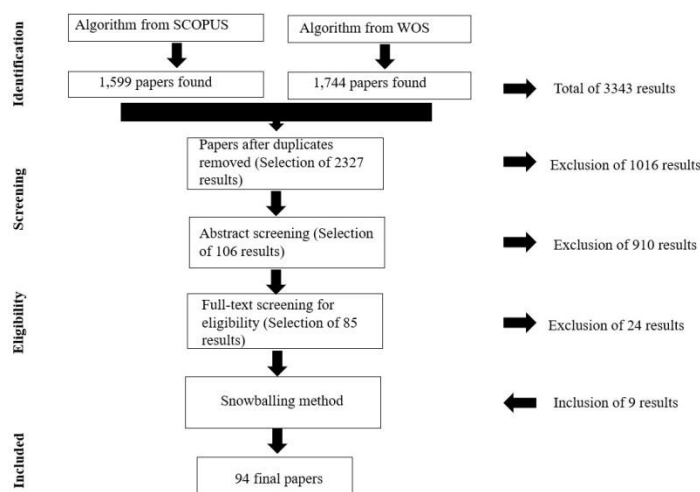
Methodology: With this aim in mind, the Systematic Literature Review was developed in accordance with the PRISMA guidelines (2020). First, we started with a search using SCOPUS and Web of Science (WOS) databases, focusing on peer-reviewed academic journal papers written in English and published until July 2022. The process began with a quest for a general exploratory algorithm to screen for articles on the internal and external determinants of ESG performance. Fourteen trials were made for SCOPUS as well as WOS, and the final decision was based on the appropriate number of papers found.

The algorithm used was focused on ESG performance for both databases, but in SCOPUS index terms were used. The main goal of index terms is to improve the accuracy and efficiency of searches, by providing a standardized vocabulary that allows users to retrieve relevant articles more easily. Sustainable Finance was included in the algorithm to have in the net also the papers that dealt with the policies that pose interesting questions that reflect broader debates about the role of finance in society (Ahlström and Monciardini, 2022). Indeed, ‘Sustainable finance’ is an umbrella term for a variety of terms that are mostly interchangeable: social finance; ethical-sustainable investment; socially responsible investment; sustainable responsible investment (Rizzi et al., 2018). Sustainable finance also involves the first idea of ethical investment: the investment should adhere to the same ethical principles as the investor (Drempetic et al., 2020). Because the research is based on the assumption of sustainable finance as a “virtue-ethical approach” and intergenerational justice as an aim of sustainable finance, we decided to include the “ethical” in our algorithm (Soppe, 2004). Environmental, Social and Governance Corporate Performance were also included as singular pillars in the algorithm.

Hence, the algorithms used were:

- 1) SCOPUS: Index terms (“Sustainable Finance” OR “ESG Performance” OR “ESG Indicator*” OR “Green Investing” OR “Corporate Environmental Performance” OR “Corporate Social Performance” OR “Corporate Ethical Governance Performance *”) OR TITLE-ABS-KEY (“Sustainable Finance” OR “ESG Performance” OR “ESG Indicator*” OR “Green Investing” OR “Corporate Environmental Performance” OR “Corporate Social Performance” OR “Corporate Ethical Governance Performance*”)
- 2) (“Sustainable Finance” OR “ESG Performance” OR “ESG Indicator*” OR “Green Investing” OR “Corporate Environmental Performance” OR “Corporate Social Performance” OR “Corporate Ethical Governance Performance*”) AND (“Firm*” OR “Compan*” OR “Business”)

Fig. 1: PRISMA flow diagram modified from Page et al. (2020)

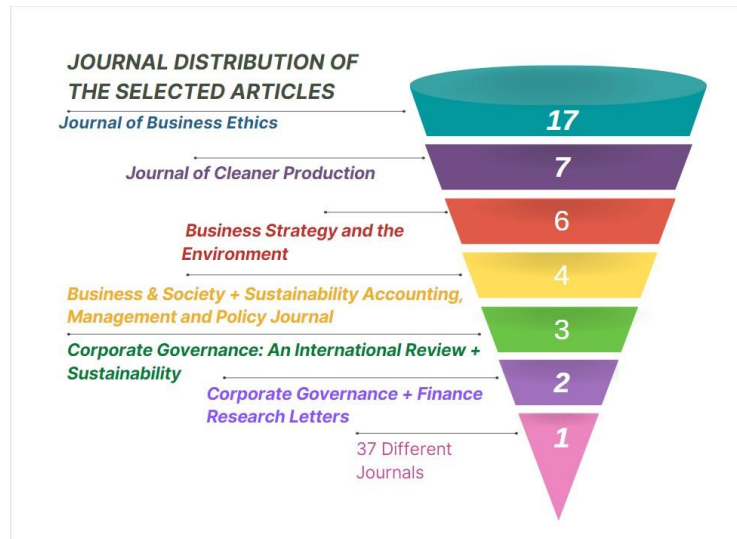


The two algorithms from SCOPUS and WOS returned 1,599 and 1,744, respectively.

After removing duplicate papers (1016), we proceeded with the inclusion and exclusion criteria of the 2327 papers selected.

First, we started including the papers published in journals with chartered Association of Business Schools (ABS) journal ranking >1, which is used as a proxy for minimum quality level. We also included papers published in journals outside the list, in order not to exclude ex-ante papers outside the management/business field. Appendix A shows the journals that the papers were selected from.

Fig. 2: Journal Distribution of the Selected Articles (before snowballing)



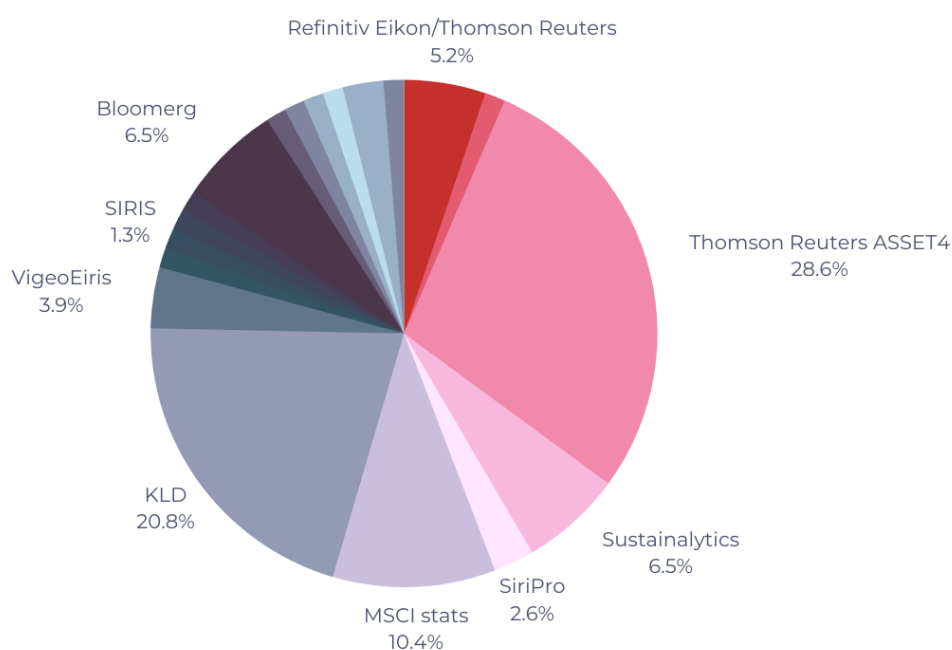
Secondly, the analysis of titles and abstracts was evaluated to exclude those that were either irrelevant or had just rudimentary relevance, while inclusion criterion for the abstract screening consisted of those manuscripts that put relevance on ESG performance and its determinants. The first step of this analysis began by including the papers that dealt with at least two of these elements: ESG aggregate, only environmental pillar, only social pillar, only governance pillar, internal determinants, external determinants, theoretical frameworks, and firms/business units' level. This initial reasoning for discarding papers led to a number of 396 results. Among these, we then used another filter to include only the papers that explicitly mentioned ESG and CSP. The latter was included to keep all the papers that used this term but used ESG rating agencies' scores in practice. Among these, 70 papers used CSP measurement with only E&S considered, yielding a total of 106 papers based on title and abstracts analysis.

Finally, we undertook the Full Text Review with specific attention to methods, results, and discussion to understand whether the papers fit the study's research questions. Attention was given to the papers published in journals that are not present in the ABS ranking: we included papers that presented diverse topics from the previous selected articles, such as the impact of Islamic label (Qoyum, Prima Sakti, Thas Thaker, and AlHashfi), or deepened other topics that needed further analysis (Castillo-Merino and Rodriguez-Pérez, 2021). With the final number of 85 papers, to which 9 articles are added throughout a snowballing procedure, we concluded the process with a content analysis to give an interpretation of the results and propose original findings.

Findings: The findings of this SLR revealed that most of the literature had demonstrated what we expected: the scores increase with firm size (whether measured by total assets or number of employees), which is determined by the data availability and resources for providing ESG data (Drempetic et al., 2020). The second set of findings suggests that firm effects represented strong determinants in explaining ESG performance, and they represent by large - together with corporate governance effects - the most debated factors in academic papers on the topic of firms' ESG variance. Our study found a shared agreement that over time the nonfinancial internal effects - which comprise resources, and mindsets, attributes, actions - have been responsible for the largest proportion of variance in net ESG. Regarding other internal determinants, high women participation on boards has a positive effect on ESG-performance sensitivity and this positive relationship is one of the strongest predictors of ESG performance. Board racial diversity was found to be positively associated with the sub-dimensions of community, environment, and diversity, suggesting that increasing minority representation on a board help "enhance a firm's legitimacy in the eyes of institutional stakeholders" (Zhang, 2012). Besides, increasing nationality and educational diversity positively impact social performance (Harjoto et al., 2019). Results also demonstrate a general agreement that, thanks to more diversity on boards, non-family-controlled firms have better CSR performance than family-controlled firms (Beji and Loukil, 2021; Ari and Youkyoung, 2018). Strategic orientations based on stewardship (Chevrollier et al., 2019) and emulation of just organization (Gerde, 2001), internalization activities, mergers & acquisitions and investment in research and development (R&D) and technological innovations, explicit sustainable governance - including stakeholder orientation, the presence of a CSR/Sustainability Committee or Management Systems - have all a positive influence on ESG performance. Nonetheless, our findings discovered results discrepancies on the effect of financial performance, diversity of boards, cross-listing, the activities of

the boards and investor role in determining ESG performance. Our first interpretation is that scholars' different usage of providers available in the market to measure ESG performance (see figure 3) diversifies the impact of financial performance, board diversity, and cross-listing. While some studies have demonstrated the positive impact of profitability on ESG performance (Khaled, Ali, & Mohamed, 2021), others show its secondary role when compared to country effects (Arminen, Puumalainen, Pätäri, & Fellnhöfer, 2017), or even a trade-off between financial and ESG performance (Garcia-Blandon, Argilés-Bosch, & Ravenda, 2019). Indeed, providers that place greater emphasis on governance factors - like MSCI - may be more likely to find a positive relationship between financial performance and ESG performance, as effective governance practices can contribute to both. Regarding the analysis of corporate governance diversity of boards, our study could implement a much deeper analysis of the role of ESG performance indicators given by the different providers, thanks to the numerous publications on the topic. We were not only confronted with similar papers that used different methodologies to calculate ESG performance, but we were also able to elaborate a more historical review of the evolution of the databases over the last decade, determining whether corporate governance has evolved its determinacy in influencing ESG performance over time. Our findings demonstrated that the relevance of board independence has however increased over the last years, most likely due to the providers' shift in priorities from the social (typical of KLD) to governance and environmental pillars, which strengthened the positive relationship between composite ESG score and board independence.

Figure 3 Distribution of Providers used among the Selected Articles



Also, cross-listing reveals contrasting results. According to Del Bosco and Misani, when the degree of investor protection of stock exchanges in which a firm cross-lists its shares is high, a cross-listed firm earns lower environmental and social scores than firms that cross-list in countries with a low level of investor protection (2016). Conversely, Cai et al., have demonstrated that ESG performance is higher among companies that have traded American Depositary Receipt (ADR), used as an indicator of cross-listing in the United States, a country with a very strong regime in investor protection (2016). We focused on the governance dimension of MSCI and Thomson Reuters Asset4, used by Cai et al. and Del Bosco and Misani respectively, and we found the answer in the different approaches to defining and measuring corporate governance factors. In fact, MSCI is famous for placing more emphasis on the governance factors, and its approach is more focused on internal governance structures and processes. On the other hand, Asset4 takes a broader view that includes the company's impact on stakeholders beyond just its management. Hence, results vary depending on whether governance is intended to ensure that a company is being run in the best interests of its stakeholders or when is more directly related to financial performance and regulatory compliance.

Our second interpretation is that the role of the activities of the board and of investors vary among countries. Indeed, Corporate governance structures are important to safeguard minority shareholders and other stakeholders' interests in jurisdictions where the shareholders' view prevails (common-law countries) (Castillo-Merino and Rodríguez-Pérez, 2021). In civil law, regulations aiming to protect stakeholders' interests are more determinant (Castillo-Merino and Rodríguez-Pérez, 2021).

Concerning investors, their role in Anglo-Saxon countries is fundamental as much as Japanese companies tend to be more active in their CSR strategies when firm's investors expose a negative outlook (Vuong and Suzuki, 2021). Overall, the engagement from the activist investor seems most beneficial for firms with ex-ante low ESG performance,

suggesting that these ethical investors play an important role in assisting firms in understanding how they can improve outcomes for all their stakeholders (Barko et al., 2022). Studies on institutional investors, whose attention has been given by Anglo-Saxon and Nordic countries and Japan, have affirmed that “companies must improve engagement with institutional shareholders” (Eccles and Klimenko, 2019). Pension funds, as powerful institutional shareholders, despite detaining limited influential capacity, are capable of modifying ESG firm practices (Alda, 2019) and firms that borrow from banks with relatively better ESG profiles are more likely to improve their own ESG performance over time (Houston and Shan, 2022). The landscape of the role of investors changes in the EU, particularly in French-civil law countries. Companies selected by the European Socially Responsible Funds (SFRs) exhibit worse social performance than companies selected by Conventional Funds, especially for large and medium-sized companies and manufacturing and financial sectors (Gangi and Varrone, 2018). Besides, in France corporate sustainability appears negatively related to investors activist engagement (Crifo et al., 2018).

To conclude, our findings on the significant role of CEO observable and unobservable features in shaping companies' sustainable strategies and ESG performance, are limited to the United States.

ESG reporting/disclosure represents the key bridge internal and external determinants. Literature has demonstrated that reporting firms significantly develop higher values of ESG performance, especially for the environmental and social pillar (Mervelskemper and Streit, 2017) and when subject to mandatory reporting requirements (Graafland and Smid, 2015). However, the continuous quality improvement of ESG reporting has not been followed by a substantial improvement. According to Arvidsson and Dumay EU Directive on non-financial and diversity reporting (2014/94/EU), with its regulated disclosure requirements, has not, in the short term, improved performance and thus, “any future developments in ESG reporting will not greatly enhance ESG performance” (2022). Of course, this is a single study on the subject based in Sweden, where companies already tend to perform well in ESG ratings and reporting. Therefore, it might be interesting to investigate whether these findings are applicable to other countries or whether the development of the EU sustainable finance agenda have been enhancing ESG performance of instead, has been pushing the negative impact on ESG rating industry (Ahlström and Monciardini, 2022).

In general, our findings demonstrated that although global and regional efforts have been fulfilled, national differences still explain most of the ESG variance. In fact, the adoption of voluntary CSR initiatives, like UNGC by Spain, France, and Japan, may put on the same level the companies ESG performance. Still, their variance depends on countries' institutional and social schemes (Ortas et al., 2015). Although the level of economic development is positively related with overall ESG performance (Foo Nin et al., 2012; Cai et al., 2016) and we can state that generally there is not a significant mean difference in the ESG of the developed economies (Rajesh et al., 2022), companies still present differences that can be better explained by country effects. Country effects not only refer to formal structures such as the institutional quality of a country (Arminen et al., 2017), but also to informal institutions, legal origin, cultural elements and even religion (Qoyum et al., 2022), that represent the key drivers that shape attitudes and the modes in which companies respond to formal external pressures and induce different priorities in how to re-orient their internal resources. Legal origin is intended not only as a set of binding legislations that set the boundaries of companies' actions, but also as laws that shed light on the underlying cultural values and norms on how societies behave and dispose their social norms. The findings of this research showed that firms based in civil-law countries present higher ESG scores than companies located in common law countries (Castillo-Merino and Rodríguez-Pérez, 2021). In fact, civil-law countries tend to prioritise elements like stakeholder orientation (Labelle et al., 2018), harmony, egalitarianism, autonomy (Cai et al., 2016), which all are proven important factors to improve ESG performance. As a matter of fact, among developed countries, European Countries tend to perform better than individualistic cultures - like the United States (Foo Nin et al., 2012).

Our understanding of industry relevance is that it has been greater for firms operating in developed countries. Firms in sensitive sectors, in particular, have better ESG performance (Garcia and Orsato, 2020), while there is no significant association among emerging countries (Garcia et al., 2017). The only exception is represented by the Australian case, whose characteristics differ from those of other developed countries (Rajesh et al., 2022), and in fact, impact industries in Australia do not reflect stronger ESG performance (Galbreath, 2013).

To conclude, our take on the different roles of the drivers on the ESG at the disaggregate level, is that external determinants have been assuming a far more fundamental role when only considering the environmental pillar. The environmental performance of the companies is the pillar that varies the most between countries (Mooneepen et al., 2022), due to cultural differences - for instance Shintoism/Buddhism traditions mainly focus on nature and the environment (Ortas, Álvarez et al., 2015) - but especially due to industry effects. In truth, industry is proven the strongest external effect on the environment by several studies (Crace and Gehman, 2022; Arminen et al., 2017; Orlitzky et al., 2017), even when considering emerging countries and sensitive industries (Garcia et al., 2017).

Finally, the theoretical perspectives of stakeholder, institutional, agency and resource-based view have been mostly used and confirmed throughout the studies and our analysis expands the viewpoints of the interdependence among the different theoretical frameworks.

Research limitations: The study's main limitation has taken its roots from the same ground where the major strength stands. Because the papers have analyzed different ESG rating agencies, often contrasting among each other, studies with similar topics have shown different results. Furthermore, variability among ESG definitions and measurement has been also present when considering historical data within the same providers. At the same time, because it is still unclear which method is best for measuring ESG, it is preferable to have a comprehensive overview, which this study has accomplished.

Managerial implications: *This framework's results have implications on several levels: at the policy-making level, as a proof that the recent efforts to regulate disclosure quality need to be accompanied by even stronger alignment between shared taxonomies; concerning managerial implications, the study could serve as a guidebook for firm strategies to increase ESG performance as an aggregate or when focusing on singular pillars; finally, within academia, this may represent the first SLR giving a pioneering framework for future research.*

Originality of the paper: *As already mentioned, the topic of ESG criteria is relatively new in the world of academia as well as among practitioners. Therefore, a SLR on the topic is much needed to organize and clarify the fundamental concepts. The study may help to highlight the gaps in the scientific literature, which we hope it will direct the development of questions for future research. In addition, at our current knowledge, our SLR is the first research to explore the potential causes of discrepancies in research findings about ESG performance related to the usage of the different providers as well as proving the interdependence of external and internal determinants on composite ESG and its singular pillars. Most importantly, it can help creating the basis of a comprehensive overview of the ESG Framework.*

Keywords: *ESG performance; external determinants; internal determinants; systematic literature review; sustainable finance*

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Green HRM Practices and Creativity in Hotel Industry in Saudi Arabia: the impact of Green Transformational Leadership on Environmental Performance

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Framing of the research. Saudi Arabia, the world's biggest oil exporter, is rapidly transforming its economy as it aims to reduce its dependence on oil, nurture domestic industries, boost jobs and diversify revenue. The tourism sector's targets of Saudi Arabia according to Vision 2030 include attracting 100 million tourists a year, creating 1.6 million jobs and increasing the industry's contribution to gross domestic product to more than 10 per cent. The kingdom is developing a number of tourism projects, including Neom, a \$500 billion futuristic city featuring a nature reserve, coral reefs and heritage sites on several islands along the Red Sea, and Qiddiya, a huge entertainment and sports project in Riyadh. Tourism is a central plank of the country's diversification drive and it will be a main non-oil growth driver, providing investment opportunities for private local and international investors as Saudi Arabia aims to attract 100 million visitors per year by 2030, S&P Global Ratings (2022) said in a recent report.

As a consequence of this strategy, a growing expectation is placed on hotel businesses to adhere to environmentally friendly business practices to maintain a sustainable competitive advantage (Hsieh et al., 2012; Park and Kim, 2016). Sustainable growth has become the new standard. In today's modern work environments, companies are being subjected to a significant amount of pressure from various interest groups to lessen the negative impact their organizational operations have on the environment (Longoni et al., 2018; Singh et al., 2019; Yu et al., 2017). The development and maintenance of an organization's internal capacities and competencies should be a central focus of environmental frameworks across all companies (Biscotti et al., 2018; Russo and Civita, 2009; Talbot and Boiral, 2018). Regarding hospitality, it has become abundantly clear that a critical defaulter arose from the lack of employee competencies and resilience paired with the required organizational capacity to solve challenging environmental sustainability concerns (Talbot and Boiral, 2018). In addition, the majority of the focus in the existing body of research on organizational longevity and the adoption of environmentally friendly resources is placed on the production and non-manufacturing industry sectors (Fassin et al., 2011). Additionally, the tourism and hospitality sectors continue to be a category that receives insufficient attention from academic researchers (Talbot and Boiral, 2018; Tang et al., 2012). Therefore, concerning both industrial and academic realms, the research paradigm is shifting from broad deliberation about the green economy into developing green operations and maintenance domains, including green creativity (Awan et al., 2019), green human resource management (Yong et al., 2019), green finance (Przychodzen et al., 2018), and green innovation (Zailani et al., 2015).

Since 1950, the tourism sector across the globe has kept growing with the pace of 3% to 4% of global tourist arrivals to foreign regions in 2015, coupled with 4% to 5% in the region of Asia Pacific per year (Almuhzzi and Al-Azri, 2019). The recent literature indicates that the hotel industry in the South Asian region, particularly Saudi Arabia, is currently experiencing internal and external pressure to place more emphasis on the conservation of the environment (Barney, 2001) via pro-environmental hospitality services that do not pollute the environment and are secure for clients. Such pressures are more compelling against the hospitality sector that significantly contributes to environmental concerns, which include waste management, energy and water (Zailani et al., 2015). It has been asserted by Gössling et al. (2019) that the hotel industry across the globe generates an average of 20.6 kg of carbon emissions per organization per night. It utilizes 130 Megajoules in terms of energy relative to per bed per night in one hospitality sector organization (Gössling and Michael Hall, 2019). The hospitality sector has caused a rise in the per year consumption of energy to USD 3.7 billion (Brunns-Smith et al., 2015).

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Moreover, the global hospitality sector also generated wasteful material, a minimum of one kilogram each day for one client (Bohdanowicz et al., 2005). It utilized 218 water gallons per room daily concerning the typical hospitality sector organization (Bruns-Smith et al., 2015). Hence, resulting from the many environmental challenges described earlier, we may argue that the hospitality industry across the globe has been confronted with an increasing number of compelling forces to pay attention to environmental challenges (Erdogan and Baris, 2007). In light of the ever-shifting environmental conditions and the ever-increasing intensity of competition all over the world, the capacity of an organization to shift its course of action and strategically rethink its priorities is necessary for achieving sustainable environmental performance in the hospitality sector.

Purpose of the paper. As a result, this study try to focus on reviewing a substantial amount of theoretical and empirical information addressing the role of green HR practices on the environmental performance of organizations. The research approach is presented in the following portion of this investigation, which is followed by the hypothesis we want to check in this investigation. This research also takes into consideration the suggestions asserted by Pham et al. (2019) that give strong pieces of evidence from developing regions like Saudi Arabia, and this evidence also validated the findings asserted by Yong et al. (2019) and Yusoff et al. (2020) relative to futuristic recommendations.

Literature review. GTFL in the workplace is referred to as a leadership structure where leaders execute the required transformation and directly employ it via motivation and inspiration to accomplish a particular vision (Avolio et al., 1999). They stimulate the group members and elevate the awareness among incumbents resulting from greater standards, including freedom, justice, and transparency in the workplace (Woods, 2007). Such specific hallmarks significantly contribute toward employing innovation and creativity, which coupled be further segregated into four categories: charisma, intellectual stimulation, individualized consideration and inspirational motivation (Avolio et al., 1999). Past studies recommend that GTFL is significantly contributed to aggregate firm performance (Ng, 2017) as their appointees are more strong and efficient at all organizational levels (Barrick et al., 2015) as they shine in terms of creativity, innovativeness, in-role and extra-role job behaviors (Chen and Chang, 2013; Choi et al., 2009).

Research Hypotesis. Green Transformational Leadership (GTFL) and Environmental Performance

GTFL is described as a leadership behavior in this study as one in which the primary goal of leadership is to distribute clear vision, encouragement, and inspiration to the employees, as well as assist their learning requirements towards the accomplishment of the environmental company's objectives (Chen and Chang, 2013; Mittal and Dhar, 2016). GTFL is also referred to as GTFL. GTFL encourages employees to obtain new information (Marcus and Fremeth, 2009; Le and Lei, 2018), involves, and involves them in green product and process development activities. This enables the company to put sustainable goods and services on the marketplace (Gotsi et al., 2010) and to improve its environmental performance (Dranev et al., 2018). Thus, previous studies imply further investigation into the factors that function as mediators between transformational leadership (Heffernan and Dundon, 2016; Gumusluoglu and Ilsev, 2009; Le and Lei, 2018; Martinez-Conesa et al., 2017) and human resource practices and business success (Le and Lei, 2018; Para-González et al., 2018). Using the Resource-Based View (RBV) as a foundation, the organization's leadership is recognized as a crucial resource for the organization's environmental sustainability (Guest and Teplitzky, 2010). Among the many forms of leadership, a transformational leader entails the creation of an innovative environment, empowering, inspiring, and enabling work colleagues to trust and recognize the sight of the leader (Mittal and Dhar, 2016; Ng, 2017). This type of management affects the technology and performance of the company. Previous research suggests that GTFL is essential and pertinent to firms' performance (Ng, 2017). Their supporters are more constructive at the participant, team, and company levels (Barrick et al., 2015) due to their excellence in innovative behavior, extra-role, and in-role task behaviors (Backhaus et al., 2002; Chen and Chang, 2013). In the sense of stakeholder pressure on the company to undertake environmental performance (Mittal and Dhar, 2016; Song and Yu, 2018), various previous studies direct businesses to practice GTFL because it inspires and motivates colleagues to display green job behaviors to gain green performance (Chen and Chang, 2013; Eiadat et al., 2008). In addition, the GTFL encourages and helps to foster green company performance (Chen and Chang, 2013), green employee enthusiasm (Jia et al., 2018), green employee creativity (Chen and Chang, 2013; Jia et al., 2018), and green employee innovation (Chen and Chang, 2013; Zhou et al., 2018). Therefore, the study proposes a research hypothesis:

H1: Green transformational leadership significantly affects environmental performance in the hotel industry of Saudi Arabia.

Green Transformational Leadership and Green HRM

It was discovered that the intellectually inspired dimension of transformational leadership contributed significantly to the maxims of personal performance, talent recruitment and management, and firm performance (Jia et al., 2018; Zhou et al., 2018). This was particularly the case concerning the intellectually inspired aspect. At the same time, corporate GHRM, which corresponds to the green side of GHRM practices and aims at facilitating organizations to acquire, develop, grow, inspire, and maintain green habits among organizational personnel, relates to the green side of green HR management functions (Dumont et al., 2017; Haddock-Millar et al., 2016; Renwick et al., 2013). In other words, the key focus of the organizational GTFL is considering individual employees' needs and requirements, which could affect them to nurture and cultivate green practices relative to HRM in such a way that enables organizations to sustain their personal more empowered and empowered inspired. Green transformational leadership at the workplace leverages GHRM in such a way that elevates employs competencies and motivations and gives them chances to indulge in environmental sustainability and processes associated with management (Berrone and Gomez-Mejia, 2009; Eiadat et al., 2008; Haddock-Millar et al., 2016) for a greater level of organizational environment performance (Dumont et al.,

2017; Chen and Chang, 2013; Haddock-Millar et al., 2016). Consequently, it can be interpreted so the study proposes a research hypothesis:

H2. Green transformational leadership significantly affects green HRM practices in the hotel industry of Saudi Arabia.

Green Transformational Leadership (GTFL) and Green Creativity

When applied to the workplace, the terms “green innovation” and “green creativity” relate to the generation of original concepts involving “green practices,” “green operations,” “green products,” and “green goods,” all of which are judged to be productive, “original,” and “authentic” (Chen and Chang, 2013). By conceptualizing employs requirements, capacities and motivations, this leadership style directs employees to contribute significantly towards budding and futuristic green ideas. In reality, GTFL in the workplace enables followers to think innovatively, investigate challenges from diverse perspectives, and recognize novel solutions for environmental challenges (Chen and Chang, 2013). They stimulate group members and elevate the employees’ awareness based on a greater level of convictions and ideas such as freedom, justice and transparency in the workplace (Woods, 2007). In addition, leadership defined by customized consideration and charisma can better comprehend the particular requirements and motivations that each employee brings to an organization. They exhibit a crystal-clear vision to elevate the level of organizational dedication they have (Li et al., 2020; Lin and Ho, 2011). This kind of leadership, by conceptualizing, employs requirements, capacities, and stimulators and guides them towards adopting green ideas in the future. The mantra of GTFL in the workplace undoubtedly enables employees to think creatively, investigate problems from diverse perspectives, and examine novel solutions for environmental issues (Chen and Chang, 2013). Hence, organizational employees indulge in new and novel approaches relative to their green responsibilities and environmental challenges. For example, it has been found only one research that demonstrates that GTFL at the workplace tends to optimize green innovation among employees in the tourism sector across India (Mittal and Dhar, 2016). Another research reveals that the GTFL approach elevates green product development and green innovation and performance across Taiwan’s electronics sector (Chen and Chang, 2013). Hence, from the arguments mentioned earlier and discussions, the study proposes the hypothesis as follows:

H3. Green transformational leadership significantly affects green creativity in the hotel industry of Saudi Arabia.

Environmental beliefs & values (EBV) and environmental performance

Corporate culture comprises organizational employees’ beliefs, values and attitudes (Schein, 1992). Beliefs, behaviors and values become embedded in an organizational core philosophy or a vision, which serves as a guiding framework to manage the unforeseen circumstances or complexities that happen through the organizational life cycle (Lin and Ho, 2011; Schein, 1992). Organizational vision and core philosophy manifest in the individual incumbent’s attitudes and behaviors. Over time, such behaviors transform into behaviors embedded in routine organizational operations, thereby formulating a workplace culture (Schein, 1992). Corporate culture could be regarded as “green” when organizational employees go beyond profit-seeking motives to mitigate the adverse repercussions and elevate the favorable repercussions on organizational environmental sustainability activities (Sroufe et al., 2010). Earlier research documented by Attaianese (2012) demonstrated that when organizational employees developed and rewarded to engage in pro-environmental activities eventually supported optimize a green culture across the organizational work settings. Arda et al. validate this assertion (Cordeiro and Sarkis, 2008), who noted that both environmental and quality management are two autonomous frameworks that, once consolidated, can significantly affect organizational performance. More importantly, it has been asserted that GHRM significantly contribute toward the formulation of four factors of transformational leadership. Pro-environmental organizational leadership focus refers to the formulation of an environment a leadership emphasize, where leadership demonstrates pro-environmental behaviors in their routine operations and assesses organizational employs based on environmental performance (Bowen, 2000; Madsen et al., 2015).

As a result, HR professionals in organizations are responsible for selecting environmentally conscious employees and elevating such employees into leadership positions (Egri and Herman, 2000). Also, the organizational HR unit could be rewarded leaders for executing environmental initiatives via rewards contingent upon environmental enhancements (Fernández et al., 2003). A pro-environmental rewards structure is specifically designed to target executive-level organizational employees and trickles down as leaders formulate environmental preferences for each organizational unit and its incumbents (Zhu et al., 2008). In addition, HR professionals could motivate their incumbents to address environmental challenges through the mantra of green teams, where group members contribute significantly to recognizing and resolving problems through collaboration (Daily et al., 2012). Now, the study realizes how GHRM validate the organizational HR units’ development by recruiting environmentally aware incumbents and instilling eco-friendly beliefs and norms through training, rewards and leadership development programs. Such beliefs and values manifest as eco-friendly behaviors in an incumbent’s routine tasks. As incumbents coordinate and interact to handle environmental challenges, such behaviors become conduct with time, and an eco-friendly culture emerges in the workplace. Based on the arguments above and discussion, we recommend that the mantra of GHRM practices significantly impact the environmental performance in the hotel industry. Therefore, the study proposes a research hypothesis:

H4: Environmental beliefs and values significantly affect environmental performance in the hotel industry of Saudi Arabia.

Green HRM practices and Environmental Performance

Many studies have analyzed how pro-environment GHRM practices enhance environmental performance (Daily et al., 2012; Jabbour, 2011; Jabbour and Santos, 2008). Environmental performance refers to the organizational engagement to securing the environment and exhibiting measurable functional benchmarks inside the prescribed jurisdiction of environmental care (Montabon et al., 2007; Paillé et al., 2014). Montabon, Sroufe and Narasimhan (2007) give a detailed analysis of environmental performance, including continuous improvements, accidental reduction, recycling efficiency, interest-groups perception, waste management, independent evaluations, cost reduction and resource conservation. HR professionals significantly contribute to accomplishing these environmental outcomes via effective staffing, robust training, dynamic appraisals and state-of-the-art rewards structures relative to a pro-environment human capital (Daily et al., 2012; Harvey et al., 2013; Jabbour, 2011; Jabbour and Santos, 2008).

During the hiring process, many HR managers actively advertise their organization's environmental qualities to evaluate possible incumbents to exhibit their ideas and values about the issue of environmental sustainability (Renwick et al., 2013). To be more specific, the students entering the labor market are searching for businesses with sceneries and environmentally friendly graphics (Backhaus et al., 2002). Only a few HR managers are currently incorporating awareness-building benchmarks into the job role and interview processes to ensure that future organizational incumbents are committed to achieving corporate environmental objectives (Renwick et al., 2013). Organizational HR professionals significantly contribute to employee training and development relative to the organization's environmental priorities (Daily et al., 2012). Therefore, the study proposes a research hypothesis:

H5: Green HRM practices significantly affects environmental performance in hotel industry of Saudi Arabia.

Green Creativity and Environmental Performance

Daily et al. (2012) have suggested it that environmental enablement enhances environmental performance among organizational employees. Both managers and incumbents become empowered based on HR-driven policies such as performance evaluations and training (Daily et al., 2012). The empowered organizational professional led by example is more likely to have employed that can accept environmental transformations and proactively eliminate dangerous firm activities (Daily et al., 2012). Organizations' employees go beyond expected and could receive supplementary rewards during performance appraisals (Daily et al., 2012; Yong et al., 2019). In addition, these characteristics make a substantial contribution to the application of innovation and creativity. They can be transformed into four focal aspects: individualized consideration, intellectual stimulation, charisma, and inspirational motivation (Avolio et al., 1999). The mantra of intellectual stimulation allows staff to comprehend things from various perspectives, gather insights, and find solutions to problems (Khalili, 2016). Based on idealized influence, green leadership inspires and raises employees' exuberance to think more green creatively (Avolio et al., 1999). Therefore, the study proposes a research hypothesis:

H6: Green creativity significantly affects environmental performance in the hotel industry of Saudi Arabia.

Green HRM mediates the green transformational leadership and environmental performance

The training and development of firm objectives regarding the environmental effects of business activities are claimed to heighten employees' care regarding environmental challenges (Daily et al., 2012). This is another factor that contributes to employees' anxiety regarding environmental challenges. In most cases, the primary purpose of training and development is to foster and teach green skills and knowledge among the employees of a firm. This is done so that the employees will focus more on mitigating the effects of processes that unnecessarily produce hazardous waste substances (Simpson and Samson, 2010). In addition, much organizational personnel will be performing operational roles, which puts them in an excellent position to identify and eradicate actions that produce dangerous waste and greenhouse gas emissions (Renwick et al., 2013). Therefore, a training program characterized by environmental consciousness could help employees improve their abilities to eliminate industrial effluents and greenhouse gas emissions and, consequently, increase their emotional involvement in enhancing a firm's environmental performance (Egri and Herman, 2000).

HR professionals at the workplace nurture operational level employees and supervise leadership and management development programs. HR practices significantly contribute to recruiting and advancing environmental developed organizational incumbents for leadership positions (Egri and Herman, 2000). Leadership in environmentally centric corporations is often required to perform both transactional and transformational leadership roles (Li and Ho, 2016). This demonstrates that HR managers need to staff and retain leadership with the capability to swiftly switch between operational and strategic level decision formulation activities (Egri and Herman, 2000). Once in authority-level positions, leaders will be environmentally sound by emphasizing initiatives in elevating the organizational environmental performance (Erdogan and Baris, 2007; Haddock-Millar et al., 2016). In addition, HR professionals also significantly contribute to analyzing employee performance resulting from the accomplishment of the environmental objectives. HR professionals could also nurture and develop organizational-wide pro-environmental performance indicators and assessment frameworks (Marcus and Fremeth, 2009). HR professionals can discuss with employees, as part of performance reviews, whether the employees have achieved their environmental goals and any suggestions they may have for improving waste management and elevating their performance (Renwick et al., 2013). On the other hand, employees of organizations are typically driven by the desire to cause less damage to the environment, and their views can be further controlled through the use of compensation and reward structures (Daily et al., 2012; Jabbour and Santos, 2008). According to the findings of a previous study conducted by Cordeiro and Sarkis (2008), it has become abundantly clear that businesses that have an explicit connection between the level of rewards given to the CEO and the achievement of organizational environmental goals are characterized by higher levels of environmental performance than those that do not have such a connection. Likewise, it has been asserted by Fernández, Junquera, and Ordiz (2003) that organizations that had executive level employs with rewards contingent upon

delivering environmental performance also had a greater level of environmental performance in comparison to the firms giving fixed rewards. Drawing from the green HRM literature, it is evident that HR practices such as staffing, firm performance and appraisals and retention are positively related with the firm environmental performance. Hence, the study proposes a research hypothesis:

H7: Green HRM significantly mediate the link between green transformational leadership and environmental performance.

Green creativity mediates the green transformational leadership and Environmental performance

Organizational employees adopt novel and fresh methodologies relative to their green responsibilities and environmental issues. Organizational transformational leadership is a leadership style where leadership executes desired transformation and guides employees through motivation and inspiration to pursue shared organizational vision and objectives (Avolio et al., 1999). Such GTFL stimulates employees to value corporate goals over personal objectives, guides incumbents in all circumstances, help when required, and instils resilience into incumbents to generate novel ideas for environmental sustainability (Guest and Teplitzky, 2010). Furthermore, from the viewpoint of stockholder stress, the study argues that this kind of stress on agencies to continue pursuing sustainable development and environmental performance (Song and Yu, 2018), plenty of earlier studies claimed that for the firms to rehearse GTFL as it helps promote and incites organizational employs to prove green behaviors and attitudes at worksite approach that aims to achieve green firm performance (Chen and Chang, 2013). The study argues that this kind of tension on entities to undertake environmental sustainability and environmental performance (Chen and Chang, 2013; Zhou et al., 2018). In addition, the practice of GTFL in the workforce encourages and fosters green environmental performance (Chen and Chang, 2013), green innovation (Chen and Chang, 2013; Zhou et al., 2018), green passion (Jia et al., 2018), and green creativity (Chen and Chang, 2013; Jia et al., 2018). Therefore, the study proposes a research hypothesis:

H8: Green creativity significantly mediate the link between green transformational leadership and environmental performance

Environmental beliefs and values moderate between green transformation leadership and green HRM

The environmental attitudes and values held at the highest levels of organizational leadership have substantial implications on the ability of an organization to implement GHRM concerning the HR management of human resources in work (Jia et al., 2018; Renwick et al., 2013). As a result, the study proposes that to foster and inculcate green performance and innovation within the workplace, GTFL substantially participated in creating green HR management handbooks and processes (Jia et al., 2018). The goal of these contributions was to enable businesses to efficiently disperse their goals and objectives to their staff and employees (Marshall et al., 2005) to pursue total green performance. As a result, the study hypothesized that GHRM significantly contributed to facilitating GHRM practices in company work settings. For example, hiring and selection, training and advancement performance appraisal and HR management, and rewards and compensation frameworks as a tool by which GTFL at the workplace attachment theory enhance, inspire, and cultivate employees to efficiently pursue the cumulative level of firm performance (Yusof and Jamaludin, 2018). Therefore, the study proposes a research hypothesis:

H9: Environmental beliefs and values significantly moderates the relationship between green transformational leadership and green HRM

1.10 The Moderating role of environmental beliefs and values

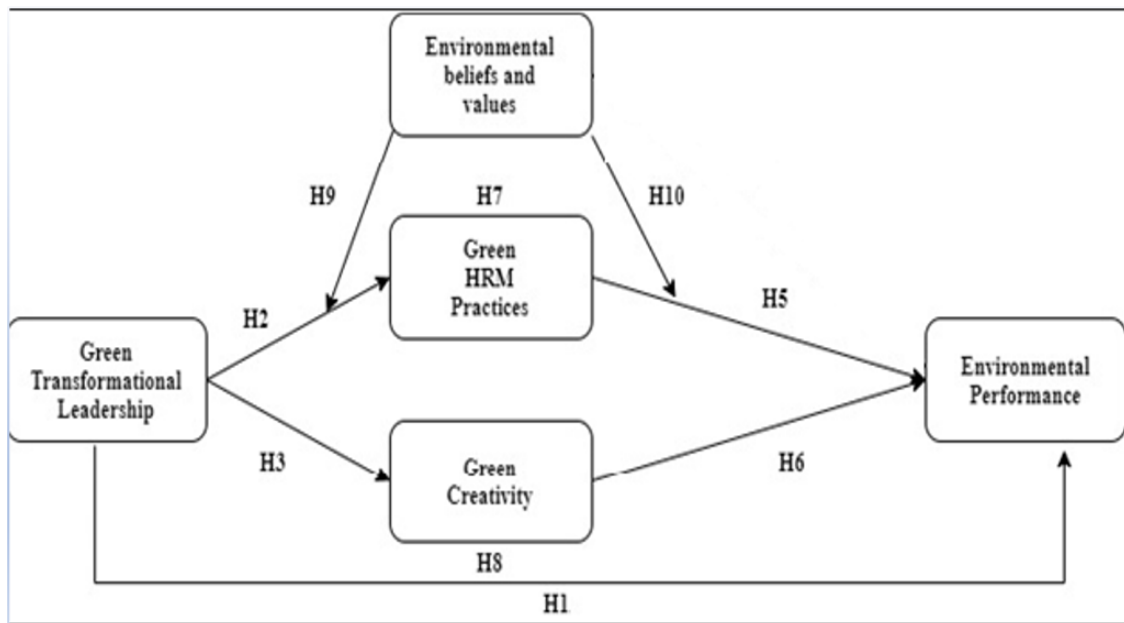
It has been suggested by Montabon, Sroufe and Narasimhan (2007) that it uses peer engagement and empowers the individuals involved. The legitimacy of the message and the emphasis placed on leadership could have a considerable impact on environmental performance standards. For instance, it has been proved that a proactive story regarding environmental issues (leadership emphasis) can enable organizational employees to effectively understand environmental issues and give members of the firm the ability to implement effective environmental remedies, such as recycling and stakeholder involvement proposals. This is because a proactive plot focuses on the future rather than the past (Bowen, 2000; Sharma and Ruud, 2003). Pagell and Wu (2009) that environmentally aware leadership teams could aggressively execute pro-environmental policies by integrating environmental and financial objectives have suggested it. Proactive environmental policies are dispersed by top organizational leadership to operational level incumbents and, over time, will become routine operations (Bowen, 2000). Hence, formulating the environment leadership preference exhibited in the eco-friendly behaviors exerted by the organizational employees enables incumbents to emphasize elevating activities, including eradicating wasteful processes from the manufacturing process (Simpson & Samson, 2010). This, in turn, decreases and recycling of raw materials and engender organizational environmental performance, decreasing consumption of resources and costs as well (Dranev et al., 2018). Moreover, reputed eco-friendly messages from top organizational leadership stimulate eco-friendly awareness among organizational employees to perform pro-environment activities (Lin and Ho, 2011). More specifically, messaging that harmonizes and is compatible with the employs desire to mitigate environmental harm could formulate how employees disseminate eco-friendly performance accomplishments to different interest groups (Madsen and Rodgers, 2015). Elevating the perceptions of organizational stakeholders about the organizational environmental performance could help in rankings in sustainability indices, for instance, Dow Jones Sustainability Index and entice further venture in this regard (Teodosiu et al., 2018). Peer participation could nurture teamwork exertions about the accomplishments of the environmental performance of the organization (Daily et al., 2012). Environmentally aware group work is said to significantly mitigate waste and optimize the organizational environmental performance in return (Brunns-Smith et al., 2015). For instance, Jabbour (2008; 2011) that only when groups incorporate an eco-friendly mentality can enable the

organization to reach the proactive phase concerning environmental management has asserted it. Finally, organizational employees could be given the maximum autonomy to execute assessments of their activities and their peers to stimulate the culture of continuous eco-friendly enhancements. Undoubtedly, it has been evident by Daily et al. (2012) that organizational employees' empowerment at the workplace significantly contributed to their environmental awareness and could positively manipulate organizational environmental performance (Daily et al., 2012). Based on the assertions mentioned above and arguments, we propose employing empowerment at the workplace, messages credibility, leadership emphases and peer participation as the focal predictors of the framework. Hence, we hypothesize that the EB & V mediate the nature of interdependence between GHRM practices adopted by the organization and its environmental performance. Therefore, the study proposes a research hypothesis:

H10: Environmental beliefs and values significantly moderates the relationship between green HRM and environmental performance.

Theoretical model. According to the resource-based view (RBV), strategic organizational resources are the most crucial factor in maintaining a competitive advantage. RBV interprets and analyzes organizations' strategic resources to comprehend how such firms might achieve a competitive advantage by utilizing those strategic resources. The idea that RBV is "impossible to duplicate" serves as the company's guiding principle, and it is this principle that gives the company its competitive edge or superior performance (Barney, 2001; Conner and Prahalad, 1996). Resources that can easily transfer or imitated were not seen as strategic resources. Resources that cannot be transferred, available in the market, or transformed into unique resources through organizational culture, the environment was considered a strategic resource. The competencies and strategic resources that are unique to a company can significantly impact its performance and its position in the market (Conner and Prahalad, 1996). It was believed that these imperfectly substitutable and easily imitated or unique resources were the primary source of a consistently better performance level and a competitive nature (Peteraf and Barney, 2003).

Fig. 1: Theoretical Model



Methodology. To accomplish the research objectives of this research, this research is following the quantitative method approach. The current research will survey a questionnaire to collect the primary data for quantitative analysis. Recent research confirms that methodologies based on surveys are suitable for elaborating on underlying phenomena or investigating the causal interaction among the measurement scales (Zikmund et al., 2013). Additionally, Voss (2010) stated that the survey-based technique is adequate and most appropriate for the researchers to collect and assess many variables and test hypotheses to meet the research aims. This was found to be the case in the study. Furthermore, as mentioned earlier, the body of research demonstrates that the findings from the qualitative analysis can validate the results. As a result, the mixed method technique was utilized in the study to accomplish the research objectives of the current research. The unit of analysis is considered under investigation, or research and variables are being measured to test the theoretical models (Zikmund et al., 2013). The nature or context of research will be considered a basis for selecting units of analysis, which can be organizations, groups, and individuals (Sekaran et al., 2007). The population being studied is represented by Saudi Arabian hotels that were part of hotel chains to manage the cascade effect. Additionally, these hotels needed more than 50 employees and a three-star classification or higher to avoid being classified as firms that lacked structured HRM practices (Sekaran et al., 2007). Respondents for organizations will be regarded as managers and owners of those businesses. As a result, the hotels of Saudi Arabian were considered delegates of the hotel industry in Saudi Arabia for the research. These hotels were evaluated regarding their Green transformational leadership (GTFL), environmental beliefs and values, green HRM, and environmental

performance. In the current study, we will be measuring latent components with the help of the five Likert scales. There will be no variance between any of the items that are used to assess the latent concept. The scale was adapted for this research from one used in prior studies; it had also undergone testing to ensure its reliability and validity. 5 Likert scales of current research will be as follows; 1 SD (Strongly Disagree), 2 D (Disagree), 3 N (Neutral), 4 A (Agree), and 5 SA (Strongly Agree). To achieve the current research objectives, the researcher will use quantitative analysis. For the quantitative analysis, the current research will employ structural equation modelling to test reliability, validity, and hypothesis.

Research limitations. This study is an ongoing project which is currently under empirical investigation in order to check and prove the research hypothesis, therefore this is the main limitation of our paper. Yet, we are trustful that empirical evidence will help us to understand the future directions of our research, helping the hospitality industry management in Saudi Arabia (and in other countries) to develop sustainable practice in order to implement the Tourism Development Plan.

Keywords: Green creativity; green HRM; environmental performance; green transformational leadership; environmental beliefs and values.

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(the complete list is available upon request to the corresponding author)

Does the Greenium in Green Bond still exist? Empirical analysis in a sample of international Green Bond¹

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Abstract

The green bond market has seen exponential growth since the issuance of the first sustainable bond by the European Investment Bank (EIB) in June 2007. The increase in market size and interest in sustainability topics, in particular green, in the financial field, has led to the dissemination of many studies on the topic. Among these, studies focused on the relationship between Corporate Social Responsibility (CSR) and the Financial Performance of an issuing company have mainly shown a direct and significant positive relationship between the two dimensions (Yu-Shang Wang Yi-Jie Chen, 2018, Attig, N. et al, 2013, Ajan, Y. Et al. 2016). The literature on sustainable investor behavior (Flammer C., 2021) has shown, on the other hand, the presence of the so-called Green Bond Premium (or greenium), a negative difference in yield (or positive in price) between Green Bonds and Traditional Bonds that can be considered as equivalent, except for the green component. It therefore seems that for financial products, investors are willing to pay a higher price in order to obtain the sustainable green product, in this case green bonds. The literature in recent years has been characterized by the presence of many works on the subject based on very different methodologies of analysis, with non-homogeneous results and, consequently, with a lack of clarity on the dynamics and determinants of this particular phenomenon. The work, therefore, is aimed at investigating the presence of greenium in the financial market, using a large sample of Green Bonds and Traditional Bond counterparts, applying analysis methodologies shared in the literature (Zerbib, 2019), also in order to evaluate the persistence of the effect in periods of high growth in emissions and market turbulence due to the crises related to the pandemic, the war in Ukraine, the rise in gas prices and inflation. The paper also intends to highlight what the determinants of greenium are, identifying some independent reference variables that can also allow to highlight the effect of greater transparency in terms of sustainability of the issuer on the value of greenium.

Framing of the research. *The research is part of the existing literature on the theme of greenium, on the importance of developing projects of environmental, social and governance sustainability in companies, and on the methods of financing these projects. Among the latter, the decision to issue GB has shown its importance for both issuers and investors.*

The numerous empirical evidence on GB issues have shown the existence of a greenium, i.e. a negative yield premium, which investors are willing to accept in the presence of a bond that has a high impact in terms of environmental sustainability. Studies on the existence of the phenomenon show interesting and significant results. However, despite the greater precision and increasingly refined methodologies, a univocal vision on the topic has not yet been reached as the results are often conflicting. Moreover, the pandemic and the war in Ukraine made it more difficult to evaluate the results, due to the sudden succession of market shocks and instability.

The literature developed over the years highlights the presence of a negative yield premium for green bonds, the implications of which can be analyzed both from the point of view of the issuers and from that of the investors.

In the context of the literature that analyzes the phenomenon from the point of view of the issuers, in terms of analysis of the relationship between Corporate Social Performance (CSP) and returns on securities, many studies show a positive relationship between the CSP and the return on shares (Konar and Cohen , 2001; Derwall et al., 2005;

¹ Although the paper is the result of a common effort, M. Intonti and M. De Leonardis wrote Sections 1, C. Bussoli wrote Sections 2, L. Serlenga wrote Sections 3, L. Serlenga and M. De Leonardis wrote Section 4, M. Intonti wrote Section 5, C. Bussoli and M. De Leonardis wrote Section 6. Grateful to M. De Leonardis for data collection.

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Kempf and Osthoff, 2007), with a consequent lower cost of capital for issuing companies characterized by a sustainable approach in the ESG, environmental, social and governance dimensions. The company's commitment to complete sustainability projects or to transform the production chain to make it less polluting seems to be rewarded on the stock market. Many studies address the issue of the applicability of the results indicated above also to the cost of debt that the company has to face with a bond issue, considering that the investor in debt securities has a different profile than the shareholder (Oikonomou et al., 2014; Ge and Liu, 2015, Russo et al., 2020). The presence of a lower cost of debt linked to the issue of sustainable bonds can be measured by comparing it with traditional type bonds, which differ only in the greenness typical of Green Bonds. Among the reference papers, Zerbib (2019) analyzes a sample of 110 Green Bonds, compared with a double amount of Traditional Bonds. The methodology applied uses the matching method to link two traditional bonds to each green bond and, from this comparison, calculate any differences in terms of yield. The particularity of the model is related to the use as a dependent variable of a liquidity proxy (the Bid-Ask Spread): the constant of the model is identified in the greenium as the "time invariant" effect of the panel fixed effect regression. The result is significant and shows a negative greenium of around 2bps in the secondary market. In Bachelet (2019), on the other hand, both a Pooled OLS and a panel fixed effect regression are used, and the value assumed by the constant is both negative and positive depending on the type of issuer, with non-univocal results on the existence of greenium.

In the studies that look at investors, however, the definition of the model and the choice of variables is linked to the Willingness to Pay (WTP) for green products. A large branch of literature from the 90s to today has analyzed the WTP for green products and found in many cases positive and significant values for investors (Louriero M., 2003, Thompson D., 2010), showing how the price for a green financial product that consumers are willing to pay for is superior to that of traditional bonds, all other things being equal. A higher price is linked to a lower yield, with a consequent lower cost of the debt for the issuer. In Agliardi & Agliardi (2019) the case of the issue of a green bond by an Italian company is analyzed in depth. The GB, compared with a previous traditional bond, not only shows a price in the primary market clearly higher than the traditional one but also a negative greenium of 86bps in the secondary market. This paper also specifies the still current tendency to find themselves in situations of oversubscription in the issuance phase of Green Bonds in the primary market. This trend, which could have effects on the composition and existence of greenium, is certainly a consequence of the very large interest that these financial instruments have created among investors.

The literature also focuses on the importance of the green project linked to the bond, which would make the investment more attractive. In this context, Bour (2019), based on the methodology used by Zerbib (2019), expands the potential of the model by inserting a proxy variable of non-financial disclosure. The results are very interesting and show a significant greenium of -23 bps, which increases dramatically if it is accompanied by a second party opinion and CBI certification (respectively -111 bps and -110bps). Therefore, greenium is influenced by the transparency of the security, which reduces the possibility of greenwashing, and by the perception of the final consumer/investor regarding the correctness of the issuer. In this context, however, the literature had also verified rather anomalous cases of significant positive greenium, as in the case of Karpf and Mandel (2018) who used the quantity of transactions carried out in the previous 30 days as an approximation of liquidity.

Among the most important studies we also find the research by CBI (2016) and Barclays (2015) which, applying an analysis by indices in the first case and an OLS regression in the secondary market in the second case, found respectively insignificant results and a greenium of -1.1bps.

Gianfrate and Peri, in 2019, analyzed a sample of about 120 Green Bonds, which, compared through an OLS, show significant results especially for corporate issuers. In Ehlers (2017) a greenium of -18 bps emerges in both the primary and secondary markets, using an initial matching method and a subsequent analysis of the yield curve of the green and brown bond pairs. The aforementioned Baker (2018) uses a large sample consisting of 2083 GB in a period between 2010 and 2016 and, through a regression on bond yields, arrives at an interesting result of -5.7 bps in the primary market, and at a similar result in the secondary. Finally, Fatica, Panzica and Rancan (2021), with a dataset containing 1397 GB and the same methodology used by Baker in the previous year, obtained non-homogeneous results for the whole sample. For this reason, the authors conclude that greenium does not appear to be present for all categories of issuers and explain that in non-financial corporations the use of bond proceeds is more transparent about the greenness of projects than in financial institutions.

The most recent research has refined the compositions of the models, reaching further and interesting results. Koziol et al. (2022) carry out an experiment on greenium through a sentiment analysis, including in the panel regression model three variables representing searches on Google for the terms ESG, Green Bonds and Sustainability. The results show an increase in greenium when interest and searches are greatest. Sergei (2022) applies a matching method similar to the one constructed by Zerbib and, through a fixed effects panel regression, finds a greenium of about -38 bps on a sample of over 2000 bonds (of which 12% belong to the green category).

In summary, based on Bhutta (2022), we can state that the literature, in 56% of cases, sees a greenium with a statistically significant negative value in the primary market and in 70% of cases sees a negative greenium statistically significant in the secondary market. The most important literature is summarized in Table 1.

Tab. 1: An overview of the greenium literature

AUTHORS	DESCRIPTION	GREENIUM	METHODOLOGY and MODEL	SAMPLE SIZE
Bachelet et al. (2019)	A sample of 89 private and institutional green bonds to which a pooled OLS and panel analysis was applied	Between 2.06bps and 5.9 bps	Pooled OLS e Fixed Effect $\Delta y_{i,t} = a_0 + a_1 \Delta Liquidity_{i,t} + a_2 \Delta ZTD_{i,t} + a_3 \Delta \sigma_{i,t} + \sum_j \beta_j \Delta B_{ji} + \eta_i + \epsilon_{i,t}$ Dependent Variable: Yield differential Regressors: liquidity difference, zero trading day, 20-day yield difference, amount issued, coupon and maturity	89 green bond (2013-2018)
Ehlers & Paker (2017)	Greenium estimation on a 21 green bond sample	-18bps	Greenium estimation using a regression on yield curves	21 green bonds (2013-2017)
Zerbib (2019)	Greenium estimation on 110 green bonds and 220 traditional bonds	-2bps	Panel Regression Fixed effect, control liquidity $y_{i,t} = \pi_i + \beta Liquidity_{i,t} + \epsilon_{i,t}$	110 green bonds, 220 traditional (2013-2017)
Gianfrate & Peri (2019)	Investigation of green bond premium in Euro-Dominated primary market	Between -18bps and -21 bps	Propensity score matching and OLS regression of spreads (on variables used to estimate the PSM)	121 green bonds (2007-2017)
Baker (2018)	Greenium analysis on 2083 U.S. Munis ² 19 green U.S. corporate bonds	-5,7 bps (U.S. munis) -8.2bps CBI certified green bonds	Afer tax-yield regression and OLS regression	2083 green bonds U.S. munis (2010-2018) 19 corporate green bonds (2016-2018)
Sergei G. (2022)	Estimated greenium on European green bonds, particularly in the UK, France, the Netherlands and Germany markets	-4 bps (overall) No significant greenium in green bond market of the UK, France, Netherlands and Germany	Multiple OLS regression Dependent variable: current Ask Yield of bond issue.	462 green bonds (2007-2021)
Karpf & Mandel (2018)	Estimated greenium on 1880 green bonds in the secondary market	+7.8 bps	Yield curve (Svensson 1994) Oaxaca- Blinder decomposition	1880 green bonds (2010-2016)
Tang e Zhang (2018)	Estimated greenium in the primary market of 1510 green bonds	No greenium. The green bond issue is, however, positive for shareholders	Evet study. Regressione del differenziale di rendimento su molteplici variabili	1510 green bonds (2007-2017)
Koziol C (2022)	Stima del greenium nei green bond governativi tedeschi	Between - 68bps and 81bps	Pooled Ols panel regression with bond fixed effect and robust standard error $GBP_{it} = \beta_0 + \beta_1 LP_{it} + b \cdot Bit + i \cdot It + s \cdot St + \epsilon$ GBP (green bond premium) = observable yield differential and liquidity premium	4 green bond tedeschi (2021-2022)
Larker D et al (2020)	Estimation of greenium by calculating the price differential between green bonds and traditional bonds	No consistent greenium	Baker et al. (2018) Methodology	2896 green bonds
Loffler et al (2021)	Estimated greenium in the primary and secondary bond market from 650 international issuers	Between -15bps and -20 bps	Matching approaches: - CEM (coarsened exact matching) - PSM (Propensity score) using probit model	2000 green bonds
Huang et al (2023)	Estimating greenium as a function of the spread between non-green bonds	Between -10bps and 20 bps, more significant and sensitive in non green bond treasury spread	$Y_{g,i} = \beta_0 + \beta_1 Y_{ng,i} + \beta_2 Y_{2ng,i} + \gamma_1 CSD_i + \gamma_2 CPD_i + \epsilon_i; \epsilon_i \sim N(0, \sigma)$ Where: $Y_{g,i} \in Y_{ng,i} = Y_{g,i}$	5983 green bonds (2014-2022)
Bour(2019)	Estimation of greenium and simultaneous calculation of the relevance of non-financial disclosure on the value of the differential	-23.2bps (up to -110bps for bonds with higher transparency)	Zerbib (2019) methodology, adding the variables related to CBI certification, second-party opinion and Green Bond Principles	631 green bonds

Source: Authors Elaboration

² Muni-bonds, short for “municipal bonds”, are bonds issued by local authorities and administrations with the aim of raising funds to be used in their area to finance projects, infrastructure works and other public interest objectives.

Purpose of the paper. *The objective of the paper is to verify the existence of greenium, as a “time invariant” effect of the panel regression expressed in the methodology, in a large sample of green bonds and over an extended period. Therefore, the analysis tests the following two hypotheses:*

HP1: The greenium, as a “time invariant” effect of the price difference between GB and traditional bonds in the selected sample, exists and is significant.

HP2: The greenium is affected by the following variables:

- 1) Bid-Ask spread;
- 2) Amount issued;
- 3) Financial rating of the bond (S&P);
- 4) Sustainability rating of the bond (degree of transparency, presence of a second party opinion, adherence to the CBI or European standard according to the Action Plan on sustainable finance);
- 5) Type of issuer (States or Companies);
- 6) Currency (euro or dollar).

Data

The data were collected from Refinitiv Workspace database and selected, through a matching methodology between green bonds and traditional bonds, within the Green Bond Guide, an area of the database that contains data on the entire green and sustainable bond market. The sample size is 1216 GB. The original sample size of 1429 GB was stripped of smaller, insignificant issues of less than USD 10 million. The large number of GBs selected required the use of the application programming interfaces (APIs) provided by the database to collect daily price and yield data for each bond over a period of 1/03/2020 to 1/03/2023.

Following the analysis methodology of Zerbib (2019), data were collected for two Traditional Bonds per GB, bringing the sample size to 4642 bonds. In the following section, the methodology and criteria for matching GBs and TBs are explained. In the section on analysis methodology, the reason for choosing two Traditional Bonds for each green is explained.

The collection followed four steps:

- (1) *All GBs with the following characteristics were identified:*
 - (i) *Issue value of at least USD 10 million.*
- (2) *Traditional bonds with the following characteristics were selected.*
 - (i) *Same issuer as GB.*
 - (ii) *Similar maturity.*
 - (iii) *Same rating.*
 - (iv) *Similar issue size.*
 - (v) *Same currency.*
- (3) *The final dataset consists of two traditional bonds for each selected green bond.*
- (4) *Finally, a data table was constructed which includes.*
 - (i) *difference in yields over the time period;*
 - (ii) *difference in prices over time;*
 - (iii) *changes in liquidity over time;*
 - (iv) *issuance volume;*
 - (v) *type of issuer;*
 - (vi) *rating;*
 - (vii) *currency.*

A table with descriptive statistics referring to the sample is presented below:

Tab. 2: Descriptive statistics of the international GB sample

	ABSOLUTE VALUE	PERCENTAGE OF THE SAMPLE
ISSUER TYPE		
Corporate	897	73,70%
Government	194	16%
Agency	125	10,30%
Tot	1216	100%
AMOUNT ISSUED		
Between 10 mln and 50mln	264	21,71%
Between 50 mln and 100 mln	208	17,10%
Between 100 mln and 250 mln	203	16,69%
Between 250 mln and 500 mln	152	12,50%
Between 500 mln and 750 mln	218	17,92%
Between 750 mln and 1 mld	55	4,52%
Over 1mld	114	9,37%
Tot	1216	100%
COUNTRY OF ISSUE		
Eurobond ³	443	36,43%
United States	127	10,44%
France	63	5,18%
Japan	83	6,83%
China	126	10,36%
Sweden	58	4,77%
Altro	316	25,99%
Tot	1216	100%
ISSUE DATE		
Before 2017	158	12,99%
Between 2017 and 2018	165	13,57%
Between 2018 and 2019	261	21,46%
Between 2019 and 2020	631	51,89%
Tot	1216	100%
USE OF PROCEEDS		
Agriculture	25	2,06%
Renewable energies	301	24,75%
Clean transport	19	1,56%
Green Projects	60	4,93%
Energy efficiency	69	5,67%
Sustainable constructions	139	11,43%
Sustainable water use	106	8,72%
Green Urbanistic	59	4,85%
Waste management	142	11,68%
Other	296	24,34%
Tot	1216	100%

Source: Authors Elaboration

The decision to include such a high amount of bonds from non-governmental issuers is an attempt to make the analysed sample as similar as possible to the current market situation. In fact, according to Refinitiv Workspace's Green Bond Guide, the size of the global green bond market in 2023 is approximately \$2.5 trillion. Of this, about 70 per cent will come from corporate issuers. Similarly, a percentage close to 40 per cent has been chosen for Eurobonds, consistent with the market figure of approximately 37 per cent of active Eurobonds in 2023.

Methodology. The methodology of analysis (Zerbib, 2019) is suitable for the verification of hypotheses also in view of the reference period, which is characterised by great uncertainty.

The quantitative analysis involves four steps.

The first step aims to determine whether there is a difference in performance between GBs and traditional bonds.

The second step aims to verify whether, based on the panel analysis, the model constant exists "naturally" for all green bonds. To this end, it is appropriate to develop a fixed-effects panel analysis precisely in order to have the "time invariant" effect of the difference in the performance of green bonds compared to their conventional counterparts as a constant. The suitability of the fixed effects model will be tested through a Hausman test. The starting formulation for the calculation of greenium therefore takes the following form:

$$\Delta \tilde{y}_{i,t} = g_i + \beta \Delta \text{Liquidity}_{i,t} + \epsilon_{i,t} \quad (1)$$

³ Eurobonds are defined as all bonds, corporate and government, from European supranational entities

where:

$\Delta \tilde{y}_{i,t}$ is the ask yield differential over time between the ask yields of GBs and the TB yield calculated by interpolation.

g_i is the greenium;

$\Delta Liquidity_{i,t}$ is the change in liquidity calculated as the difference between the liquidity of the GBs and the liquidity of the TB, using the Bid-Ask spread as a proxy.

$\epsilon_{i,t}$ is the error term.

The third step is a cross-sectional analysis, which aims to verify whether the components of GB:

- 1) currency,
- 2) issuance volume
- 3) rating
- 4) type of issuer
- 5) certificates of transparency (CBI, ICMA, Second Party Opinion)

are determinants of the greenium factor. Finally, in order to draw conclusions, we proceed to the analysis of the constant of the above-mentioned model over the time span of the sample.

We then proceed to the explanation of the variables and their empirical composition:

$\Delta \tilde{y}_{i,t}$ is the difference between the yield of the GB and the yield of the TB created by the interpolation of the two TB for each GB. The interpolation, in this case, occurred by calculating the average between the yields of the TB, chosen from GBs with similar maturities.

The difference between the yields of the securities pairs is calculated as follows:

$$\Delta \tilde{y}_{i,t} = y_{i,t}^{GB} - y_{i,t}^{TB} \tag{2}$$

where:

$y_{i,t}^{GB}$ is the yield of the GB_i at time t;

$y_{i,t}^{CB}$ is the yield of the TB_i (traditional, constructed by interpolation) at time t.

Liquidity is therefore calculated as follows:

$$\Delta Liquidity_{i,t} = Liquidity_{i,t}^{GB} - Liquidity_{i,t}^{TB} \tag{3}$$

where:

$Liquidity_{i,t}^{GB}$ is the measure of liquidity for GBs;

$Liquidity_{i,t}^{TB}$ is the measure of liquidity for TBs.

The liquidity calculation for both GBs and TBs is as follows:

$$Liquidity_{i,t} = \frac{Ask Price_{i,t} - Bid Price_{i,t}}{(Ask Price_{i,t} + Bid_{i,t})/2}$$

Following the model presented by Zerbib (2019) and, therefore, having compared one green bond with two of its traditional counterparts, the calculation of the liquidity of traditional bonds requires an additional step. Should the coefficient of the independent variable of liquidity (bid - ask spread) not be significant and close to 0, it would be demonstrated that there is no correlation with the existence of greenium.

$$Liquidity_{i,t}^{TB} = \frac{d_2}{d_1 + d_2} Liquidity_{i,t}^{TB1} + \frac{d_1}{d_1 + d_2} Liquidity_{i,t}^{TB2}$$

with:

$$d_1 = |GB_{maturity} - TB1_{maturity}|$$

$$d_2 = |GB_{maturity} - TB2_{maturity}|$$

In order to demonstrate which characteristics of green bonds are most impactful on the formation of greenium, as required in the second hypothesis, a second model was constructed, which involves the distribution of the constants resulting from the panel regression of model (1) as the dependent variable of formulation (4) and the development of a series of regressors referring to the characteristics of GBs that could be impactful in the existence of this phenomenon. The determinants chosen are: amount issued, rating (S&P), type of issuer, presence of documentation supporting the bond (second party opinion, CBI certification, ICMA, sustainability rating) and currency. The determinants just mentioned will be transformed into dummy variables and inserted as independent variables in the following model:

$$\hat{g}_i = a + \gamma_1 IssueAmount_i + \gamma_2 Rating_i + \gamma_3 Currency_i + \gamma_4 IssueType_i + \gamma_5 Cert_i \epsilon_i \tag{4}$$

Where:

\hat{g}_i s the distribution of constants from the panel regression (1)

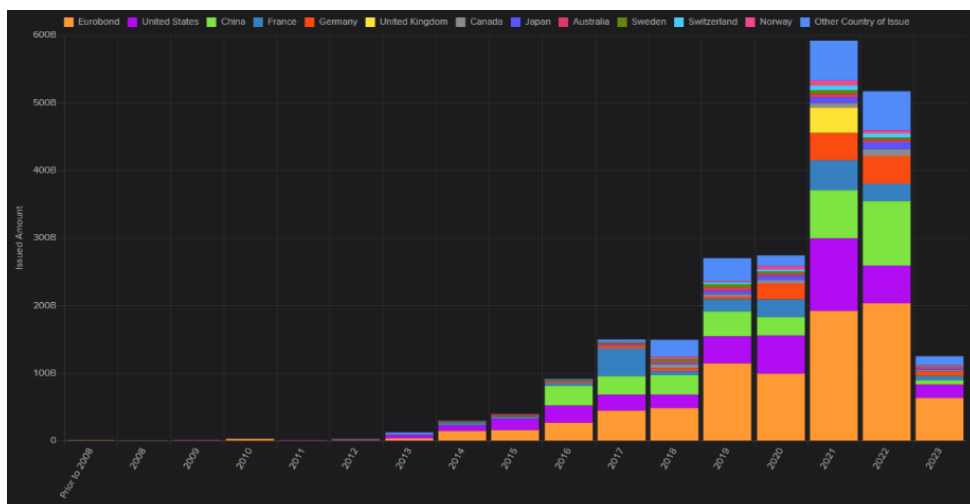
$\gamma_1 IssueAmount_i + \gamma_2 Rating_i + \gamma_3 Currency_i + \gamma_4 IssueType_i + \gamma_5 Cert_i$ are the dummy variables of the determinants on which the analysis will be carried out.

Managerial Implications. *The issuance of bonds by firms has significant managerial implications:*

- *constitutes a tool for acquiring financial resources through an alternative channel to the banking one and makes it possible to diversify funding sources, reducing the risk associated with a too strong link with a single funding channel;*
- *it also implies an important organizational and transparency effort to make decisions regarding the technical characteristics of the security to be issued, the issue market, the timing of the issue, the choice of consultants to be involved, and constitutes an important moment for the growth of managerial skills and of the entire company structure.*

With regard to the issuance of GB, further considerations concern the importance of issuing a security that has an important environmental objective, in line with the indications of the 2030 Agenda of the United Nations and the European taxonomy on sustainable economic activities, in order to pursue the objectives of ecological transition and reduction of polluting emissions.

Fig. 1: Green bond issuance over the years and by country



Source: Refinitiv Workspace, Green Bond Guide

From a managerial point of view, therefore, the relevance profiles of a GB issue are very evident and represent an essential challenge for many companies. This is also demonstrated by the data relating to the growth of emissions over the years, above all due to the increase in global attention on the issues of environmental sustainability, on those of mitigation and adaptation to climate change and the reduction of pollution.

Among the profiles of managerial relevance, also from the point of view of marketing and communication, the transparency and clarity of the information to be provided to savers appears to be particularly important. This information concerns the issue, the second party opinion, the rating assigned to the issuer and the security and finally to the reporting on the use of the proceeds. To this end, the need for specific managerial skills and training courses on ESG sustainability is evident in order to change the corporate culture and direct it towards greater efficiency objectives. An adequate management structure, combined with adequate transparency, is essential to increase investor confidence, reduce the cost of debt, create value and feed greenium, to the benefit of issuers and savers and of the sustainable finance sector, of which GB are today an important tool.

Originality of the paper and expected results. *The analysis of the presence and of the determinants of the greenium factor in a context of strong uncertainty and instability in the markets, constitutes the first element of originality of the work. This analysis allows us to focus on what are the important elements at the time of issuance to reduce the cost of debt capital and to maximize the creation of financial and sustainability value of the GB. The chosen sample, with particularly significant dimensions even compared to the existing literature, can be considered as representative of the sustainable bond market, considering that the issues of social bonds, social impact bonds and other ESG bonds are decidedly less significant. Furthermore, the consideration of the transparency of the documentation supporting green bonds towards investors (based on the compliance of the bonds with the ICMA and European standards, on the adhesion to the Climate Bond Initiative and on the presence of an adequate second party opinion) represents an element of particular relevance to the analysis. In this regard, we expect to see more greenium*

in those bonds that demonstrate a greater degree of transparency and adherence to standards. This would highlight the sensitivity of investors to environmental sustainability issues in financial investments and could lead to a further increase in emissions, to the benefit of the environment and collective well-being.

Finally, the work intends to pave the way for research on the existence and the determinants of a different premium, that relating to social bonds, which can improve the characteristics of future issues, highlighting the variables that have the greatest impact on the premium and which most positively affect the 'investor. The issuance of social bonds has grown strongly in recent years, especially in the period of the COVID 19 pandemic, during which many social projects have been financed through the issuance of this type of bond. This condition justifies the deepening on the greenium of green bonds, in order to replicate the study on social bonds and possibly on new forms of sustainable bonds, the result of innovation in the field of positive impact finance.

Keywords: greenium, green bond, green bond premium, sustainable finance, green finance

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Customer perceived sustainability and brand equity in the Italian banking sector: the mediating role of satisfaction and trust

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Abstract

The growing consumer concern for environmental and social issues, the awareness that sustainability can be an opportunity for strategic change and competitiveness and the pressure from supervisory authorities have led Italian banks to adopt CSR policies and integrate ESG strategies within the banking structure to increase the value of their intangible assets, especially brand equity.

The literature has highlighted how financial consumers' perception of sustainability positively relates to the bank's brand equity. However, little has emerged on the mechanisms underlying consumers' perception of sustainability and its relationship with banks' value.

This paper investigates the relationship between bank consumers' perceptions of banks' sustainability initiatives and brand equity by examining the mediating effect of customer trust and satisfaction.

To this end, a survey collected 941 valid responses from Italian banking consumers. Structural equation modeling (SEM) analysis found that bank consumers' perceptions of sustainability directly influence brand equity. Trust and satisfaction positively mediate this relationship in the Italian banking sector.

These findings offer relevant insights, suggesting the importance of informing customers and promoting their awareness of sustainable activities, as customers' perceptions, in turn, influence the value of the bank.

Framing of the research. *Recently, the banking literature has increased its focus on sustainability. In particular, numerous studies highlight the direct and positive relationship between ESG (environmental, social and governance) or CSR (corporate social responsibility) activities and banks' financial performance (Ho et al., 2019; Wu and Shen, 2013).*

Since the 2008 financial crisis, the Italian banking sector has changed its service offering, aiming at economies of scale and greater risk diversification, which has led to greater efficiency and cost reduction (Chiorazzo et al., 2008).

These changes were necessary due to the increasing competition in the sector, which is still a high-cost, high-yield system (Drummond et al., 2007). However, the banking sector is characterised by a strong standardisation of services that, together with pressure from supervisory authorities (Bank of Italy and Consob), has led banking institutions to differentiate their products by integrating ESG practices and reinforcing their structure through CSR policies. Sustainability efforts, in terms of sustainable initiatives and proper brand management, have proven to be the key that has enabled Italian credit institutions to distinguish themselves from their competitors.

Moreover, the 2008 financial crisis also caused reputational damage to banks, which exploited CSR policies to enhance their intangible assets, improving their reputation and promoting trust and credibility (Chiaromonte et al., 2021; Forcadell and Aracil, 2017), and legitimise their economic performance (Birindelli et al., 2015).

In the banking industry, brand equity is critical to a company's success (Lai et al., 2010; Pinar et al., 2012). In the customer-bank relationship, trust and satisfaction play a crucial role (Muflih, 2021).

Effectively, consumers have increased their awareness of environmental and social issues (Chen, 2010; Rizomyliotis et al., 2021). Thus, given its role in society, the banking system is strongly under pressure from public opinion, which

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expects a significant social return (Azmi et al., 2021). For these reasons, banks must integrate the ESG expectations of their consumers into their strategies.

The literature has highlighted how consumers' perception of sustainable assets influences a company's reputation (Brammer and Pavelin, 2006) and brand equity (Torres et al., 2012, Wang et al., 2021). Still, so far, little is understood about the mechanism underlying consumers' perceptions of sustainability and how they relate to the value of banks.

Despite the growing interest in consumer behaviour and sustainability, more empirical studies need to examine if and how the trust and satisfaction of financial consumers affect banking brand equity. To fill this gap, the present work intends to analyze the influence of the perception of the social practices of Italian banks on brand equity through the use of satisfaction and trust as mediators of the relationship. Analyzing the role of these variables in the sustainable behaviour of banks is essential because brand equity, trust and satisfaction have significant implications on marketing results (Fatma, 2015; Hafez, 2018).

Purpose of the paper. This paper intends to analyse the relationship between banks' sustainable activities and their value from a consumer perspective, particularly on customers' perception of their bank's engagement in sustainable activities and the consequences on their brand equity. The literature on the relationship between CSR and brand equity in the Italian banking sector is limited. Moreover, the present research introduces two mediating factors into this relationship, trust and customer satisfaction.

Brand equity results from the co-creative interaction between the brand and consumers (Jones, 2005). It is defined as the combination of the assets and liabilities associated with a brand name and symbol that add or detract from the value provided by a company product or service (Aaker, 1996).

In the literature, a positive impact of CSR and ESG initiatives on brand equity has been found through improvements in brand engagement, brand sentiment, brand credibility, brand awareness, brand image and brand communities (Hoeffler and Keller, 2002; Puriwat and Tripopsakul, 2022).

CSR behaviour is a strategic driver in improving brand performance and enhancing brand equity (Brickley et al., 2002; Hur et al., 2014; Lai et al., 2010; Rizomyliotis et al., 2021). The ability to meet consumer expectations improves brand equity in the banking sector (Fatma et al., 2015). As seen, the expectations of banking customers are focused on sustainability efforts.

Consequently, the bank's brand equity improves upon meeting customer expectations concerning sustainability issues (Hafez, 2018). Hence, we propose the following hypothesis:

HY1: Bank consumers' perception of sustainable activities is positively associated with brand equity.

Another important implication is linked to the building of trust by the stakeholders in the bank.

Trust, defined as expectations that the other party will behave as expected (Hart and Saunders, 1997) or acceptance of vulnerabilities based on positive expectations of another individual's behaviour (Rousseau et al., 1998), is problematic for banks after the 2008 financial crisis.

Adopting ethical principles in the banking structure, which reflect its values and characteristics, creates greater trust among the bank's stakeholders (Brown and Dacin, 1997), building reliable relationships between internal and external stakeholders (Coulter and Coulter, 2002).

Consequently, to rebuild the trust of their stakeholders, banks have intensified their efforts in CSR activities (Carnevale and Mazzuca, 2014; El Khoury et al., 2021; Pérez and del Bosque, 2015; Shen et al., 2016), seeking to improve the welfare of society and maintaining profit targets (Sen and Bhattacharya, 2001).

Accordingly, we propose the following hypothesis:

HY2: Bank consumers' perception of sustainable activities is positively associated with consumers' trust.

Building on social exchange theory (Emerson, 1976), trust in one's bank improves the relationship between the customer and the brand, increasing the customer's commitment to the bank (Grayson and Ambler, 1999). The literature identifies that trust comes from previous experiences with the brand and outlines a positive relationship with brand equity. Consumers' trust in the brand is considered a driver of company survival (Delgado-Ballester and Munuera-Alema'n, 2005). Other research shows a strong positive connection between trust and brand equity (Ambler, 1997; Jevons and Gabbott, 2000; Kim et al., 2008). Hence, we propose the following hypothesis:

HY3: Bank consumers' trust in the brand mediates the influence of consumers' perception of sustainable activities on brand equity.

Recent findings have identified that an antecedent of ESG performance is stakeholder satisfaction with corporate culture, diversity, work-life balance, managerial leadership, and compensation (Lee and Raschke, 2023).

Customer satisfaction is an evaluative judgment about a company, product or service (Oliver, 1997) derived from a cognitive, affective or mixed analysis (Jun et al., 2001). Investigating an inverse relationship, the literature highlights ambiguous results in the relationship between ESG performance and satisfaction (Perez and del Bosque, 2016): some research suggests a positive relationship (El-Garaihy et al., 2014; Luo and Bhattacharya, 2006); others provide no significant effect of perceptions of CSR on customer satisfaction (Bravo et al., 2009). Other studies have identified that customer satisfaction can be considered one of the outcomes of CSR (Koch et al., 2020; Mulki and Jaramillo, 2011; Salmones, Perez, and Bosque, 2009; Walsh and Beatty, 2007). Therefore, bank customers will likely feel greater identification and satisfaction if the company is socially responsible to stakeholders, including shareholders, employees and customers. Hence, we propose the following hypothesis:

HY4: Bank consumers' perception of CSR activities is positively associated with consumers' satisfaction.

Satisfaction has been shown to have an intense influence on firm performance (Li, Ragu-Nathan, Ragu-Nathan, and Subba Rao, 2006; Matzler and Hinterhuber, 1998; Mulki and Giaramillo, 2011). Empirical research has highlighted a

positive relationship between the level of customer satisfaction and the impact on the company's reputation (Anderson and Sullivan, 1993; Matzler and Hinterhuber, 1998) and brand equity (Aaker, 1992; Blackston, 2000). Increased customer satisfaction leads to greater consumer loyalty (Keller and Lehmann, 2006), reducing the firm's vulnerability in periods of greater competitive stress (Anderson and Sullivan, 1993). According to Donaldson and Preston (1995), consumer satisfaction is a piece in the broader concept of social performance, capable of generating value. Some scholars suggest that sustainability be considered in any analysis of the relationship between CSR and corporate performance. Some of them have examined the role of customer satisfaction as a mediator in this relationship (Luo and Bhattacharya, 2006; Alafi and Hasoneh, 2012). Banks that behave responsibly can gain ongoing stakeholder support and access to valuable resources, which build favourable, strong and unique brand associations, and improve brand awareness and, therefore, brand equity (Keller, 2003). According, we propose the following hypothesis:

HY5: Bank consumers' satisfaction mediates the influence of consumers' perception of sustainable activities on brand equity.

Methodology. The empirical analysis was carried out using the survey method. Therefore, structured questionnaires were distributed via Google forms from November 2019 to January 2020, obtaining a number of complete and usable questionnaires equal to 941.

The items included in the questionnaire relate to the perception of CSR, satisfaction, customer trust in Italian banks and their brand equity. These questions can be answered on a Likert scale from 1 (not at all) to 5 (very much). Furthermore, the socio-demographic information of the respondents was collected, in particular: gender, age, monthly income range, education, reference financial institution and period of relationship with the customer.

Item analysis was performed using structural equation modeling (SEM) to simultaneously demonstrate multiple direct and indirect relationships between the independent and dependent variables (Hafez, 2018; Hair et al., 2010).

Confirmatory factor analysis (CFA) was also conducted to evaluate the construct validity (Kaiser, 1974) of 10 items with maximum likelihood extraction in Stata software.

Two distinct models were developed to elucidate the mediating effect of the satisfaction and trust variables between the perception of CSR and the latent variable of brand equity. The goodness of fit measures of the constructed structural models was carried out.

Results. The CFA highlights the validity of the factors used in the subsequent two SEM analyses. In particular, all latent variables showed good convergent validity, the average extracted variance (AVE) values greater than the threshold value. An excellent discriminant validity is tested between the observed and the latent, with a value of the squared correlation of the latent lower than the lowest AVE (Fornell and Larcker, 1981). Therefore, these elements have reasonable, constructive validity and reliability. Positive results also come from the composite reliability (CR), whose values recorded for the factors are above the cut-off value of 0.7 (Alarcón et al., 2015) for all latent variables used. In Cronbach's alpha analysis, all the items have a value higher than the threshold value of 0.7, confirming the goodness of the items. The 2 SEM models show excellent goodness-of-fit indices, in line with the pertinent one (Hu and Bentler, 1999; Xia and Yang, 2019), reaching their cut-off points, which is a good sign of the acceptability of the structural model. All the threshold values relate to: the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), the comparative fit index (CFI) and the Tucker-Lewis index (TLI). In both models, the ratio of chi-square to degrees of freedom is just above 3 but well below 4, reaffirming a correct fit of this measure.

In the first model with Trust, the SEM analysis shows that the paths from Perceived CSR to Trust and Trust to Brand Equity are very significant (1% level) and positive, such as the positive and significant direct relationship between perceived CSR and Brand Equity and their indirect effect (significant and positive). From this evidence, it is possible to confirm the first (HY1), the second (HY2) and the third (HY3) research hypotheses. Therefore, the latent variable related to Trust mediates between customers' perceptions of sustainability and brand equity in the Italian banking sector. The second SEM analysis with Satisfaction identifies all highly significant and positive paths, specifically, the pathways from Perceived CSR to Satisfaction and from Satisfaction to Brand Equity, the direct and indirect impact of perceived CSR on Brand Equity. These results confirm the first hypothesis (HY1) and lead to not rejecting the fourth (HY4), an effect of perceived CSR on Satisfaction, and the fifth (HY5) research hypothesis. Therefore, the latent variable Satisfaction averages the effect of customers' perception of sustainability on brand equity in the Italian banking sector.

Research limitations. Although the Italian banking scene represents an interesting context for investigating the influence of consumers' perception of sustainable activities on the value of the bank, the analysis could have needed more than a context for a single country. Therefore, it would be helpful to replicate the survey in different countries, allowing for a cross-country comparison which could highlight the role of national culture.

Furthermore, it would also be interesting to test the research hypotheses outside the banking system, replicating the analysis on other sectors to define the results' generality.

Finally, the survey focused only on consumer perceptions of banks' sustainable operations rather than banks' sustainable programs. Future research can examine the relationship between sustainable businesses and brand equity, distinguishing between consumer perceptions and actual agendas.

Managerial implications. The results highlight the relevance of consumer perceptions of the value of banks. In line with Freeman's theory of stakeholders (1984), the results highlight the positive impact of sustainable activities on corporate performance, allowing stakeholders to align their interests with those of the company. Furthermore, these results provide important information to managers in the Italian banking sector, where competition has significantly

increased in recent years, suggesting improving the value of the banks' brand through sustainability practices and thus achieving a differentiation of the offer. Banks' boards of directors should pay more attention to both direct environmental activities - such as policies to reduce consumption of electricity, paper and water, use of recycled materials, reduce CO2 emissions, regulations and codes for environmental protection - and indirect activities, through the promotion and communication of sustainable financial products and instruments, such as subsidized loans for the installation of energy production plants from renewable sources, loans for the energy efficiency of buildings, subsidized loans for the purchase of low environmental impact like hybrid cars. Lastly, activities linked to the bank's territorial and social proximity to the local area include donations for sporting and cultural activities, programs to support the most disadvantaged groups, scholarships for disadvantaged young people or the promotion of financial education. Both direct and indirect activities should be developed and appropriately communicated to customers in order to increase their awareness and, in turn, improve the bank's brand equity

Originality of the paper. Although previous studies have already widely underlined how the integration of CSR and ESG practices represents a sign of differentiation (Hsu, 2012), the present study is the first to examine the link between bank sustainability and brand equity and the mediation role of trust and satisfaction in the Italian context and provides results with various managerial implications. This analysis was necessary in light of the growing number of sustainability initiatives by Italian banks in recent years, following both the global trend towards greater commitment and the guidelines of the supervisory authorities. Furthermore, to foster the positive effects of sustainable initiatives, a bank needs to inform its customers, promoting their awareness, since their perceptions, in turn, affect the value of the bank. Our study shows that banks' CSR and ESG activities could foster consumer trust and satisfaction, positively influencing brand equity.

Keywords: Banking sector; Brand Equity; Trust; Satisfaction; CSR; ESG

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Who is responsible for food waste in restaurants? Young Italian consumers perspective

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Framing of the research. *Food waste is one of the biggest social problems in the world today. Each year, approximately 950 million tons of food is lost and wasted worldwide (United Nations, 2020). While food loss occurs at the production and wholesale stages of the food supply chain, food waste occurs at the last two stages: retail and consumption (Food and Agricultural Organization, 2020). This article focuses on food waste and, in particular, food waste from foodservice consumption.*

As in other developed countries, more than 70% of food waste in Italy occurs at the consumption stages (household and out of home), as shown by the Italian Food Waste Governance and Practice (BREAD Project Report 2021, Dr. Principato).

Food waste in the foodservice sector is quickly becoming a major problem, accounting for nearly 12% of total food waste (Tostivint et al., 2016). With the increasing trend of eating out, fueled by rising incomes and tourism, food waste in restaurants has become a major problem in both developed and developing countries (Wang et al., 2017). Although studies on consumer behavior related to food waste have increased exponentially over the past decade (Dhir et al. 2020), many scholars have recognized that the issue of food waste in foodservice has been less thoroughly studied, despite being identified as one of the greatest challenges (Principato et al., 2018; Wang et al., 2017). The foodservice sector includes all outlets that offer food and/or beverages for immediate consumption outside the home (WRAP, 2013), and includes several important subsectors such as restaurants, hotels, healthcare, education, and staff catering. Our study refers to all of these subsectors except health care and education, which are also referred to as cost sectors to distinguish them from profit sectors, which instead are HO. RE. CA and canteens (Marthinsen et al. 2012).

Studies on consumer behavior are mostly sociological and psychological in nature (Schanes et al., 2018; Boulet et al., 2021). The main theoretical approaches are: the Theory of Planned Behavior (TPB) (Heidari et al., 2020; Liao et al., 2018; Mondéjar-Jiménez et al., 2016; Stancu et al, 2016), which attempts to explain individual behavior from a rational perspective by considering three main variables (personal attitudes, subjective norms, and perceived control behavior); recent studies have integrated TPB with other theories such as Value-Belief-Norm (VBN) theory and Social Practice Theory (SPT). VBN theory adds moral or personal norms as variables that can explain sustainable behavior (Yildirim and Semiz, 2019; Farr-Wharton et al., 2014). SPT takes into account the social context and material resources available to individuals, as these determine many food-related daily routines, allowing us to understand how and why food is wasted (Schanes et al., 2018). The factors that drive food waste are numerous and multi-layered (Boulet et al., 2021). The levels are: Individual (micro), household (meso), and external (macro). The factors are: demographic factors such as age, education and income level, knowledge and awareness of the problem, social factors such as norms and culture, country or region of origin and its legal framework, GDP, etc.

Despite numerous studies, especially at the individual level (Boulet et al., 2021), and although the relationship between psychosocial variables and pro-environmental behavior has been demonstrated (Bamberg and Möser, 2007), the behavioral theories used offer only partial explanations of food waste behavior (Boulet et al., 2021).

There are no studies that use attribution theory or its variables (locus of causality, locus of stability, and locus of controllability), although this theory is heavily used in consumer behavior research. In fact, to our knowledge, the studies don't take into account a fundamental aspect of being human, namely the attribution of meaning that individuals constantly give to themselves when confronted with a traded or observed behavior (Heider, 1958). In this context, the authors proposed a change of perspective in food waste research in a first study (Scrimieri et al., 2023). If the focus so far has been on the causes and prevention of food waste, we believe that analyzing the consequences of the behavior exhibited will help to take into account psychological mechanisms such as the attribution process, which haven't been considered so far. Previous studies have already pointed out that very few studies consider guilt or shame as predictors

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of pro-environmental behavior and that no research has examined the role of the internal attribution process (Bamberg and Möser, 2007).

A recent literature review indicates that a gap exists between consumers' intentions regarding food waste and their ultimate behavior (Dhir et al., 2020). It's likely that the attribution process is the missing link in explaining the relationship between these two variables.

Purpose of the paper. This study, which is part of a broader research study, aims to identify the key elements involved in consumption in the food sector in order to provide a conceptual framework that takes into account the attribution process, in addition to the variables that will emerge from the exploratory studies. Based on the assumption that people waste, the goal is to prevent repeated wasteful behavior in eating out. We also aim to identify intergenerational differences in food wasting behaviors. In this study, we present the preliminary results of an exploratory study with two generations: Millennials and Generation Z.

Methodology. We conducted three focus groups to explore factors influencing food waste in the restaurant industry. We selected 17 young Italians who usually go to restaurants/canteens and formed three groups that were heterogeneous except for the generational variable. The exploratory survey included young consumers (Millennials and Generation Z), as they're considered a segment that wastes more food due to their preference to eat meals away from home (Mondéjar-Jiménez et al., 2016; Principato et al., 2015). Additional focus groups with earlier generations are in progress. The focus group method was appropriate given the exploratory nature of the study (Bray et al., 2011) and was recommended for its high validity and ability to analyze complex consumer behaviors in depth, which is particularly common in sustainable consumption studies (Fernqvist et al., 2015; Michelini et al., 2020; Soma et al., 2021).

The focus groups were conducted online and recorded with audio and video cameras. First, participants were informed about the study procedure, their confidentiality, and their right to withdraw at any time. The first group consisted of seven participants between the ages of 27 and 34, and the other two groups consisted of five participants between the ages of 20 and 25. The details can be found in Table N. 1. Each focus group lasted between 110 and 130 minutes.

We used a semistructured interview model to explore respondents' thoughts and intentions in a free-form manner (Olavarria-Key et al., 2021). It consisted of two sections. In the first section, participants were asked how much they knew about food waste and what the main sources of information were, followed by a discussion on the same topic. In the task, participants were asked to formulate short words and phrases about food waste based on their perceptions. In the second part, participants were shown pictures of food waste and asked to identify first with the situation in which they themselves wasted food and then with the situation in which they witnessed food waste. In both cases, they were asked questions about these behaviors, their consequences, and their causes. A lengthy discussion developed about these issues. The recording of each focus group was listened to and transcribed. The researchers then coded and discussed the results.

Tab. 1: Focus groups participants

Focus group	Participant	Age	Gender	Higher education	Student today	Lives alone
1	1A	33	Female	No	No	No
1	1B	27	Female	Yes	Yes	Yes
1	1C	27	Female	Yes	Yes	No
1	1D	30	Male	Yes	Yes	No
1	1E	31	Male	Yes	Yes	Yes
1	1F	30	Male	Yes	Yes	Yes
1	1G	34	Male	No	Yes	Yes
2	2A	25	Male	No	Yes	No
2	2B	22	Female	Yes	Yes	No
2	2C	23	Female	Yes	Yes	Yes
2	2D	21	Male	No	Yes	No
2	2E	22	Female	Yes	Yes	No
3	3A	22	Female	No	Yes	Yes
3	3B	20	Female	No	Yes	No
3	3C	24	Male	Yes	Yes	No
3	3D	26	Male	Yes	Yes	No
3	3F	25	Female	Yes	Yes	No

Results. We present here the main results of the three focus groups, grouping the main themes (variables) that emerged spontaneously and proposing a conceptual model. We were able to identify variables that originated from previous studies as well as new variables.

Problem awareness

The first aspect the researchers wanted to explore in the focus groups was the knowledge and problem awareness of the participants. They were asked to write down what comes to mind when they think of food waste. The words used referred to different aspects of food waste and didn't differ between groups. We found that the words agreed on three groups of meanings: places (restaurant, hotels, wholesale, canteens); actions (misallocation, mistakes, carelessness, optimization, adequate service, reuse, recycling, shopping, doggy bag, party, all you can eat, avoidance, respect,

indifference); and social conditions (poverty, malnutrition, hunger, Africa, culture, consumption). Although almost all participants claim that food waste isn't a particularly popular topic, "it's not a topic that is talked about much" (2C); "there isn't enough media attention to the issue" (2E); "I first came across this issue when I downloaded To Go To Go" (3C); "some TV shows like Master Chef bring attention to the issue" (3D); "it should be talked about more" (1E). Almost all members of Groups 2 and 3 agree that food waste is a serious and planetary issue. "I grew up with the ideal that absolutely nothing should be wasted, simply out of respect for those who, unlike us, have nothing" (3D); "my mother always told me as a child, eat your plate, think of the poor children who have nothing" (2A). Three participants from the more mature focus group suggested that most young people are primarily concerned with the social and economic aspects of food waste rather than the environmental impact: "I think apps like to go to takeout, they're actually used to saving money" (1B); "we're used to throwing food away because it's spoiled" (1A); "since it's cheap, it doesn't matter to throw it away" (1G). These perceptions suggest that the consequences of food waste aren't always visible to consumers, but Generation Z is more aware than Millennials.

Social norms

The issue of social norms emerged as a factor that can influence doggy bag use, and apps such as To Go To Go cannot prevent food waste behavior. "Sometimes people are ashamed to ask for the doggy bag" (2C); "I always ask for the doggy bag and I'm not embarrassed" (2B); "You shouldn't be ashamed to ask for the doggy bag" (2E); "I ask for the doggy bag to give it to those who need it" (3F); "I ask for the doggy bag and I've absolutely no problem with it, but I see that it's not accepted by all restaurants, especially the older restaurants, they almost look at you questioningly and don't know what to do" (1G); "some restaurants don't know what the doggy bag is" (2D). Those among the participants who have experience as waiters note that customers don't always agree with the doggy bag: "very often it happens that some customers forget the doggy bag on the table and then I've to run after them" (1C); "you feel addressed" (1A); "not always and not to everyone I tell to use To Go out of shame" (1F). Some participants said that older people are uncomfortable asking for a doggy bag: "when I was in a restaurant with older people, they asked me if I wasn't ashamed to ask for a doggy bag" (1E); many agreed that "it's better if the waiters offer a doggy bag themselves." A cultural aspect also emerged, "When there is a party, there always has to be extra everything because people shouldn't leave because they're hungry" (3A). Traditions and customs are part of it, but apparently something is changing: "Having spent a lot of time in America, I noticed that there is a strong culture there: You're always offered the take-away box there, it's just common there. Here, on the other hand, that's unfortunately not the case, not that it's seen as a bad thing to take your stuff home, but it's still not seen that way, in my opinion" (3D); "if they used to look at you askance with the doggy bag and not have anything to give you, nowadays (after Covid) practically everyone at least has the takeaway box, even if they don't ask you for it now, at least they have it" (2A).

Emotions

When asked about the emotions that food waste triggers, the most commonly cited emotions were: anger, guilt, sadness, and grief. These emotions emerged when asked to indicate what triggers food waste, but also spontaneously during the discussion.

Attribution of responsibility (locus of causality)

When food is consumed outside the home, responsibility for loss and waste can be assigned to different actors for different reasons. For food waste at the consumption stage, blame is usually attributed to consumers (although restaurants and waiters are also blamed). We found that for food waste, the more unpredictable and uncontrollable the waste, the more likely responsibility is attributed to external causes (external attribution), while for waste by others, the more the cause is seen as stable and controllable, the more responsibility is attributed to internal causes (internal attribution). Two scenarios were proposed in the focus groups, accompanied by some pictures and open discussion about the causes of waste and the barriers to preventing or reducing waste. When it came to personal waste, responsibility was attributed not only to themselves but also to others (friends, the restaurant, the waiter, the host), especially when they had no control over the decision. "It happened to me at dinners with friends, the only times dishes were left over" (3C); "the guests could have avoided the waste. But, also the waiters trivially..." (1C); "when you're with friends, you don't watch what you order. .and you end up wasting" (2E); "you waste more during the party...because we're a fake society...a manifestation of our society's way of life, which tends to excess" (1D). When it came to observed wastefulness (and the person who wasted was unknown), responsibility was almost always shifted to the person committing the act. "People are rude" (1B); "there are people who can't handle their orders...they always do it" (1A).

Controllability

"If I am not the one organizing the event (party/buffet), I will waste more..." (1A); "If there is an opportunity to choose a half portion... I will waste less" (2B). These are some examples of controllability that emerge spontaneously during the discussion.

Stability

"Usually we order ... anyway, and then someone eats it" (2A); "They always waste" is something many participants agree on when talking about other people wasting food. This variable, like controllability, also emerges spontaneously during the discussion.

Attitude

During the discussion in Groups 2 and 3, all participants showed a positive attitude toward reducing food waste: "At home, my family and I also pay attention to food waste when we eat out" (2B); "we pay more attention when we go

to restaurants and order only the bare necessities.” In Group 1, one participant said, “I often don’t know if I’m hungry and I may order too much food.” (1G).

Situational factors

Some participants agree that it’s difficult to deal with leftover food in certain situations, such as when travelling, “That’s happened to me too... I didn’t take the bag with me because you literally have to carry it around when you go out and don’t come home... a burden when you don’t have a car” (3A); “In a special situation, like when the food is bad... it’s impossible not to waste” (2E). Many participants mentioned the “all-you-can-eat” formula, in this situation people don’t waste because of the “rule of the game” in these restaurants.

Price consciousness

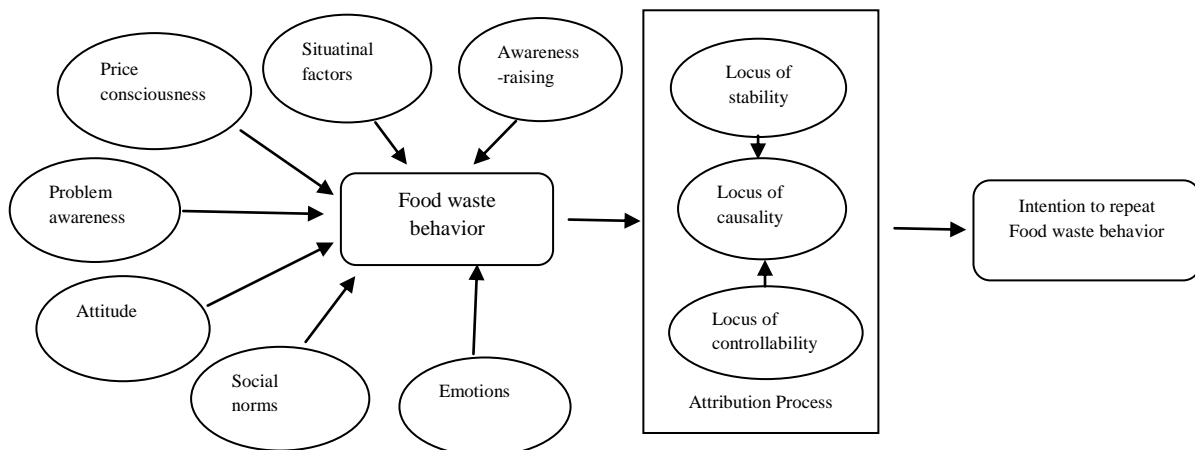
Price is one of the factors most frequently mentioned in previous quantitative studies (Geffen et al., 2016; Mallinson et al., 2016). “For example, the whole portion costs 8€ and the half costs 6€: you can think that you end up taking the whole portion for two euros more” (1E).

Effect of awareness-raising efforts by restaurant

In all three focus groups, the component of information and awareness raised by the restaurant, both in terms of staff and environment (menus, messages in the restaurant), was highlighted as critical to preventing food waste. Many participants indicated that they often rely on the waiter for portion size information. All participants agreed with this sentiment, saying, “There should be a lot more awareness in restaurants.” Many participants believe that restaurants should raise awareness by posting notices on the menu or in the restaurant; waiter training also proved important in raising awareness about food waste reduction.

Although more focus groups will be conducted, these initial results allow us to add to our previous model of the “causal attribution behavior process” variables that precede the behavior and attribution process, which in turn determines the future intention to repeat or not repeat the behavior. The purpose of this study was to examine factors that may contribute to the occurrence of wasteful behavior and, in addition, to assess the attribution process and behavioral intentions. The results show us that many of the variables already identified in previous studies emerge spontaneously, such as awareness, attitude, social norms, emotions, price consciousness, emotions. However, situational factors also emerge, such as the presence of rules in the restaurant (all-you-can-eat formula) or personal situational factors (discomfort or lack of appetite) or even issues related to the taste of the dish. In addition, new but crucial variables for food waste prevention were identified, such as “effect of awareness-raising efforts by restaurant” and the presence of intervening variables in the attribution process, such as “attribution of responsibility (locus of causality)”, controllability and stability of food wastage behavior. Future quantitative studies are needed to test the proposed theoretical model.

Fig. 2: proposed theoretical model



Research limitations. The main limitation of our research lies in its incompleteness, because the data we present concern the first surveys on young generations, Generation Z and Millennials. Once the saturation of qualitative data is reached, we will be able to test the model with a structured survey to obtain further quantitative feedback. Regarding the goodness of the data we analyzed for this preliminary study, the main limitation concerns the selection of focus group participants: almost all of them come from large urban centers or live in a city like Rome, where there are more apps like To go to go that help prevent food waste.

Managerial implications. The study has several implications, the most interesting of which concern future research and the development of strategies for food waste management in the foodservice sector. The theoretical implications concern the development of models that attempt to explain consumer behavior related to food waste and provide a cognitive advantage. The practical implications concern food waste and consumer education.

In particular, the study offers implications for restaurateurs who implement consumer awareness interventions to reduce waste. Previous studies have shown that restaurateurs prioritize customer satisfaction over waste reduction (Hennchen, 2019). This study offers insights on how to combine food waste reduction with customer satisfaction and provides guidance for restaurant professionals.

The study has implications for institutions and policymakers that could incentivize food waste reduction efforts in the hospitality industry.

Originality of the study. *The results provide the first confirmation of a conceptual model that combines variables from different theoretical streams, with the aim of understanding the emotions and practical variables that influence the sense of responsibility for food waste behavior in restaurants. And they allow the first reflections on interventions that can use the sense of responsibility to promote responsible consumption behaviors.*

Keywords: *food waste; restaurants; attribution theory; focus group.*

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Trashing the Planet: A Study of Out-of-Home Food Waste in Public Establishments[♦]

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Framing of the research. *Today we are faced with an incredible paradox. Globally about one third of the food produced for human consumption is lost or wasted every year while, at the same time, up to 811 million people go hungry (FAO, et al., 2021). Reducing food loss and waste (FLW) is essential to create a more sustainable food system, which is why its halving has been included in the UN Sustainable Development Goals (SDGs). Even though FLW is generated at various points in the food supply chain, most of it occurs in the final stages (Secondi et al, 2015). Indeed, according to the latest Food Waste Index Report published by the UN Environment Program, 17% of the total amount of food produced globally is wasted at the household, retail, and food service levels. In particular, according to the same report, the latter has a global average FW of 32 kg per capita per year (UNEP, 2021). Also at the European level, the food service sector is a significant part of the problem, representing the third largest source of FW after the household and food processing industries (Stenmarck et al., 2016).*

Bearing the above issues in mind and given the evident tendency towards out-of-home consumption (d'Angelo et al., 2020; Corrado et al., 2018; Pires et al., 2022) the need to prevent and mitigate FW in this sector has become a key priority from both a scientific and practical perspective (Principato et al., 2021; Dhir et al., 2020; Filimonau et al., 2022; Papargyropoulou et al., 2016; Principato et al., 2018). In this sense, understanding the causes that lead to the creation of FW in this sector is essential to implement strategies to prevent, reuse and redistribute such waste. Indeed, according to the European Food Waste Hierarchy, preventing the generation of waste is the first priority, followed by its redistribution and reuse. If this is not possible, the next choices, in order of preference, would be recycling, combustion for energy recovery and lastly landfilling (Directive 2008/98/EC). The implementation of these actions is important not only for environmental and social benefit, but also for the resulting economic implications (Hanson and Mitchel, 2017). Indeed, as indicated by Hanson and Mitchel (2017), reducing FW means optimizing costs and thus better management control of one's own business. In particular, the study has showcased that for every dollar invested in programs to reduce waste in the food service sector, there is an average saving of \$7 in operating costs (Hanson and Mitchel, 2017). Nonetheless, most restaurant managers do not seem to be aware that FW reduction and redistribution initiatives could also mean a reduction in costs (Principato et al., 2018).

In this context, thanks to the development of digital platforms and the spread of the sharing economy, interesting innovative solutions have recently been proposed to mitigate FLW in the catering sector (Filimonau et al., 2019). This is the case of food sharing platforms whose main objective is to redistribute the food surpluses generated at the production, distribution, and catering levels through a variety of roles and forms of collaboration (Michelini et al., 2018; 2019). In particular, according to the study by Michelini et al., (2018) three types of food sharing models can be distinguished: (i) sharing for money, for platforms that redistribute food by asking for a monetary payment (for profit); (ii) sharing for charity, for platforms that redistribute food for charity (such as Caritas or Banco Alimentare); and (iii) sharing for the community for peer-to-peer platforms, i.e. that distribute food for free among peers, connecting demand and supply of surplus food. Among the most popular food sharing platforms at the moment is the Too Good To Go app, which belongs to the sharing for money category. Founded in 2016 in Denmark, the app has expanded to 17 countries, including Italy, where it has saved more than 52 million meals (TGTG, 2021). At present, there is a lack of literature on how this particular application can benefit not only its consumers but also the public establishments that utilize it. Despite its growing importance as a topic of concern, to the best of our knowledge, there has been little research conducted on the issue of FW in the food service sector in Italy. In addition, most of the existing literature has focused on the quantification of waste rather than an in-depth study of its causes and potential management practices (Dhir et al., 2020; Martins et al., 2018; Principato et al., 2018). Indeed, the absence of a cohesive view of the strategies aimed

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at reducing FW limits managers from readily implementing these strategies, and researchers from identifying the constraints involved (Vizzotto et al., 2021).

Conceptual framework. FW management in the food service sector is a multifaceted phenomenon that involves a wide range of factors and activities (Martin-Rios et al., 2018). These can be associated both with service-related aspects, (Principato et al., 2021;2018) as well as with personal consumer variables (Principato et al., 2021; 2023 Lorenz et al., 2017; Rhom et al., 2017). In this regard, according to the literature, the factors contributing to FW among consumers vary based on their relationship with food, culinary preferences, emotional state, and hunger levels during meals (Principato et al., 2021, Lorenz et al., 2017; Rohm et al., 2017). On the other hand, when it comes to kitchen FW, the primary reason for its generation is the challenge of accurately forecasting the amount of food that will be consumed each day, leading to excessive preparation and surplus food (Silvennoinen et al., 2019; Principato et al., 2021; Papargyropoulou et al., 2016). Based on the above, to minimize FW, it is necessary to identify where and how this waste occurs. Principato et al. (2021) classify three stages where FW can occur: (i) food preparation, (ii) food service, and (iii) consumption by customers. Similarly, Bezt et al. (2015) find that FW in the restaurant sector can occur during the stages of acquisition and storage, preparation, service, and post-service (leftovers on plates). Overall, therefore, it can be argued that FW management focuses on three operational stages: (i) pre-cooking; (ii) cooking; (iii) post-cooking (Filimonau et al., 2019).

In light of the above-mentioned scientific literature, a conceptual framework was formulated in the present study to illustrate the phenomenon of out-of-home FW, with a specific focus on public establishments. Five stages in which the phenomenon of FW occurs among public establishments were highlighted: (i) provisioning, (ii) food preparation, (iii) storage, (iv) service, and (v) final customer. For each of these, the actors most responsible for the phenomenon are highlighted as well as procedures and misbehaviors that cause the waste. Finally, the framework highlights possible actions to prevent, reuse or redistribute food waste, in line with the European food waste hierarchy.

Purpose of the paper. The objective of this study has been to investigate the levels of FW, the underlying causes of the phenomenon, and possible practices to prevent, reduce and redistribute such surpluses from the perspective of public establishments. In particular, it sought to: (i) investigate the level of awareness of public establishments regarding the phenomenon of FW and its relative impacts; (ii) quantify the monthly economic losses resulting from FW; (iii) identify the existence or non-existence of a system for measuring waste and, if it does not exist, identify its possible barriers; (iv) define the main waste management practices implemented by the of public establishments; (v) determine which are the operational phases in which the greatest amount of food is wasted and the possible causes related to waste; (vi) verify the knowledge of the Gadda law and the incentives to donate; (vii) finally, to analyze the reasons for adopting the Too Good To Go platform, highlighting its strengths and weaknesses.

Methodology. The present study was designed to gather data on Italian public establishments. A combination of qualitative and quantitative methods was used to achieve this goal. In both cases, the survey was conducted on Italian public establishments that adhere to the Too Good To Go platform and the participation was voluntary and conducted online. The first step was to conduct in-depth qualitative interviews with 9 public establishments that were selected by Too Good To Go organization. The interviews were conducted online via computer-assisted web interviewing (CAWI) between April and May 2022. The establishments were selected based on their type and geographical distribution to ensure a representative sample of the entire Italian territory. In particular, 4 public establishments from Northern Italy, 2 from the Centre and 3 from the South were selected. The interview procedures ensured anonymity and confidentiality according to current standards. They were digitally recorded and conducted through a semi-structured interview template that was designed specifically for the present study, adapting to the conceptual framework described above. More specifically, the questionnaire comprised a set of 30 questions organized into 5 sections: (i) food waste: knowledge and attitudes; (ii) food waste: data, causes and actions to reduce it; (iii) actors responsible for food waste (iv) actions put in place or that would be put in place to reduce food waste; (v) focus section on Too Good To Go.

Based on the results of the qualitative interviews, a quantitative survey was developed and conducted. In this case, data was collected by means of a questionnaire consisting of 37 questions, including multiple-choice and open-ended answers, divided into 4 sections: (i) food waste: knowledge and attitudes; (ii) food waste: data, causes, actions to reduce it (iii) focus section on Too Good To Go; (iv) indications on the public establishment. The survey started in July 2022 and involved a total of 329 interviewed public establishments. Of these, only 166 completed the section about their use of the Too Good To Go application. The majority of the interviews were conducted with owners, proprietors, and managers of public establishments, and the survey included a variety of food service businesses such as bars, bakeries, restaurants, pizzerias, takeaways, fruit and vegetable shops, and gastronomies.

Preliminary results and discussion. The present research is still in progress. From the preliminary results, it emerges that the majority of public establishments are conscious of the environmental, social, and economic impacts associated with FW. Of these, the economic impacts represent those of which they are most aware. In this respect, 31% of respondents declare wasting an amount of food equivalent to more than 400 euros per month, followed by another 18.5% who declare an economic loss of between 200 and 400 euros per month. In addition, about 80% of the respondents state that they are committed to reducing waste, indicating as the main ways of FW mitigating the use of apps against FW (83%), the donation of food surpluses to friends and relatives, the self-consumption, the reuse, and, lastly, the donation to charities. Despite the high level of awareness of the impacts generated by FW, only 13.6% of public establishments claim to have implemented a FW measurement system. This is mainly due to the apparent futility of doing so or reasons related to loss of time, in line with previous studies (Filimonau et al. 2019a; Filimonau et al., 2020). Among the measurement methods implemented, the most common seems to be the use of IT tools, weighing, and

control of sales and orders. Concerning the operative stage in which the public establishment claims to waste more food, in accordance with the conceptual framework elaborated in this paper, 72% of the respondents identify the service phase as the one where the greatest amount of FW occurs. Here, the inability to predict customer flow, resulting in unsold products at the end of the day, is considered the main cause of waste by 73% of public establishments. Besides this, the need to provide a wide choice to the consumer, overproduction, procurement errors, and a lack of awareness are other reasons mentioned by respondents. In relation to the knowledge of the Gadda Law and its incentives to donate only 8% said they were aware of it. With respect to the last objective of the present study, which aimed to explore the reasons behind using the Too Good To Go platform, the preliminary results revealed that 73% of respondents joined the platform with the intention of reducing FW, rather than for financial gain. Additionally, 61% indicated social, ethical, or environmental reasons as their motivation. The same trend is also reflected in the reasons for using the app. In terms of earnings, the data shows that a significant proportion of interviewees (39%) reported making between 0 and 50 Euro per month using Too Good To Go, while a much smaller percentage (only 3.6%) claimed to earn over 400 Euro per month. Finally, the majority of participants, precisely 84.3%, identified the "daily unsold" category as the primary type of food offered in the Too Good To Go box. Among the products offered, pastries and bakery items emerged as the most frequently popular options.

Research limitations. This study presents some limitations that need to be acknowledged. Firstly, the study only focused on public establishments in Italy that adhere to the Too Good To Go platform, which may not be representative of the entire food service industry. Therefore, more public establishments are suggested to address the issue. However, considering the still limited existing literature concerning this topic, we believe that the preliminary results obtained can help stimulate further study on the topic. Secondly, the sample size of the study is relatively small, particularly in the section regarding the use of the Too Good To Go application, with only 166 establishments completing this section. Finally, the survey only includes the views of owners, proprietors, and managers of public establishments, which may not fully represent the views of all staff members.

Managerial implications. From a managerial perspective, contributions will be manifold: 1) the need to prioritize waste prevention action rather than distribution. Our preliminary results suggest that it is necessary to broaden the range of corrective tools. Indeed, many public establishments declare utilizing apps against FW as their primary tool for mitigating FW. This, in accordance with the European Food Waste Hierarchy, highlights the importance to focus more on preventive actions rather than redistribution. To this end, it's critical to improve forecasting techniques and inventory management. In this sense, managers should prioritize training staff to minimize FLW and use the available resources efficiently; 2) the need to implement FW measurement system in the food service sector. In accordance with the previous literature (Filimonau et al., 2019; 2020; Papargyropoulou et al. 2016; Pirani and Arafat, 2016), this study shows how the lack of accurate FW assessments is a persistent factor in the catering sector that prevents effective FW mitigation; 4) understanding the causes of FW and the operational stages in which occurs. Understanding the reasons why waste is generated in the food service sector is essential for developing strategies to prevent, reuse, and redistribute such waste. This requires conducting in-depth research on the subject and identifying the specific stages where FLW occurs; 4) the need for increased education and awareness-raising efforts around the Gadda Law and its benefits for public establishments. Our preliminary results show how only a small part of the interviewed was aware of the Gadda Law and its incentives for donation is concerning. By promoting a better understanding of the Gadda Law, more public establishments may be encouraged to donate, which can have a positive impact on society as a whole. Overall, the study results underscore the importance of continuing efforts to increase awareness of the Gadda Law and the benefits of donating; 5) the importance for small businesses that need to make themselves known to join the app Too Good To Go. As highlighted on the app's website itself, the use of the platform is as useful for customers as it is for public establishments, allowing them to increase their visibility and attract new customers.

Originality of the paper. In terms of originality, the present research provides a comprehensive overview of the issue of FW in the food service sector, with a particular focus on Italy. The study sheds light on the economic implications of reducing FW, a crucial aspect that is often overlooked in the current literature. It also points out the lack of research on FW management practices in Italy and the need for additional studies to identify the constraints involved in implementing FW reduction strategies. In addition to this, the paper examines innovative solutions such as food-sharing platforms that can significantly contribute to reducing FW in the catering sector. These platforms can connect businesses with surplus food to those in need, thereby reducing FW and simultaneously addressing food insecurity. Overall, the present study provides valuable insights and recommendations for researchers, policymakers, and managers in the food service sector to tackle the issue of FW and create a more sustainable food system. The findings can contribute to more effective resource management and the promotion of social and environmental responsibility within the food service sector.

Keywords: food waste; food service sector; food waste management; digital platform; public establishment; out of home food waste

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Applying Behavioural Insights to Sustainable Mobility Behaviour

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Abstract

The present study is an ongoing research project that focuses on the application of behavioural science to sustainable mobility behaviour. The research project aims to experimentally test different behavioural interventions, designed to promote and facilitate the use of sustainable transport practices, and provide recommendations for mobility management policies and strategies. The research also focuses on the relationship between individual heterogeneity and sustainable mobility behaviour and addresses the question of behavioural insights' knowledge among transport planners and policy-makers.

Framing of the research. *Air pollution is one of Europe's biggest environmental health risks (European Environmental Agency, 2022). According to Legambiente (2023), air pollution is decreasing too slowly in Italian cities. This makes the latest recommendations of the World Health Organization (WHO, 2021) more difficult to achieve. Although there is no single cause, urban traffic is one of the main sources of common air pollutants. Urban traffic is affecting the quality of life of residents not only through pollution and safety issues but also through road congestion and other driving-related issues (lack of parking areas, noise, territorial impacts, etc.). This makes necessary a shift from private car mobility—considered as the less sustainable level of transport (Waygood and Avineri, 2013), to alternative modes. In this framework, the understanding of the decision-making processes underlying mobility behaviour can be critical to providing clear context and guidance for effective sustainable urban mobility.*

To date, decision mechanisms shaping mobility behaviour are affected by cognitive biases that can prevent individuals from exercising a rational choice and cost-benefit analysis (Avineri, 2012). For instance, over- and underestimation of Local Public Transport (LPT) features, such as costs or travel time, can have potential negative consequences on the perception of service quality and the demand for public transport services. If this occurs, a change in the quality of services provided alone cannot necessarily support the use of public transport in favour of individual mobility options. Moreover, the choice of transport mode has been found to be characterized by high levels of habit formation in consumption preferences that can be difficult to break (Mackett and Robertson, 2000).

A promising approach to the problem is promoting more sustainable mobility decisions through the use of Behavioural Insights (BIs) tools. The BIs term was coined in 2010 by the UK's Behavioral Insights Team (BIT). BIs can be defined as “an inductive approach to policymaking that combines insights from psychology, cognitive science, and social science with empirically-tested results to discover how humans actually make choices” (Organization for economic cooperation and development - OECD, 2023). This approach applies behavioural science to the study of decision-making by direct observation of people's beliefs and decisions, starting from the dual-system model where our decisions often rely on and are driven by unconscious and automatic processes, rather than deliberative ones (Kahneman, 2012). In some cases, these automatic processes may introduce biases that affect individual actions with possible negative consequences for subjective and community well-being (Thaler and Sunstein, 2021; Kahneman, 2012; Frederick et al., 2002; Loewenstein and Prelec, 1992; Tversky and Kahneman, 1992; Thaler, 1981; Kahneman and Tversky, 1979). For example, according to the sunk cost effect, people may “continue an endeavor once an investment in money, effort, or time has been made” (Arkes and Blumer, 1985, p.1). In line with this view, individuals may prefer the private car as a transport mode since they are already paying for the costs of owning their vehicle.

Different BIs methodological framework exists. For instance, the BASIC toolkit (Behaviours, Analysis, Strategies, Interventions, and Change; OECD, 2019) or the MINDSPACE (Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitments, Ego; BIT, 2010; see also Dolan et al., 2012). Nevertheless, one thing all these tools have in common is the underlying structure, which must contain the identification of the behavioural drivers of the target problem, the possible strategies to be implemented, and the preliminary testing of the identified approaches before a large-scale intervention. BIs make extensive use of experimental designs, especially Randomized Control Trials (RCTs) and can be applied in a variety of research areas (e.g., Soman and Yeung, 2021; Viale e Macchi, 2021; Bucher, 2020; Mondino, 2019; Teraji, 2018; Halpern, 2015; Wendel, 2013). Moreover, the strategies that can be implemented in the BIs approach can be of different types. Among them, we can particularly find nudges which have been defined as “any aspect of the choice architecture that alters people's behaviour in a predictable way without

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forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting the fruit at eye level counts as a nudge. Banning junk food does not.” (Thaler and Sunstein, 2008, p.6; see also Thaler and Sunstein, 2021; Sunstein, 2017). Nudges have roots in behavioural economics (Thaler, 2018; Kahneman, 2012). Notably, they can take the form of defaults, feedback, graphic warnings, social norms and peer comparison, in terms of sustainable mobility behaviour (Metcalf and Dolan, 2012; Toledo, 2008), or even of specific choice architecture characteristics (Gössling, 2013; Pucher and Buehler, 2008). BIs’ strategies can however take different shapes, characterized by different levels of paternalism. Namely, the boosting approach is an ensemble strategy in which cognitive and motivational competencies are targeted to promote individual competencies (e.g., communication, information, and disclosure; see Hertwig and Grüne-Yanoff, 2017; Grüne-Yanoff and Hertwig, 2016).

As applied to mobility choice, a variety of behavioural drivers and strategies have been already identified (e.g., Stockhammer et al., 2021; Törnblad et al., 2014; Innocenti et al., 2013; Avineri and Goodwin, 2010). Among others, we can find the use of default options and social norms, and the framing of information (Pietroni and De Rosa, 2021; Ortman et al., 2017; Lehner et al., 2016; Mattauch et al., 2015). Larrick and Soll (2008) found that the use of “miles per gallon”, rather than “gallons per mile”, seems to relate to an underestimation in the valuation of replacement of inefficient vehicles due to systematic misunderstanding of the measure of fuel efficiency. Also, Bartle et al. (2013) showed that user-generated information can be used for promoting sustainable mobility behaviour within a group commuting to work, particularly among those who lack information because they are new to the workplace/transportation mode. As for default options, Pedersen et al. (2011) found that habitual car users tend to underestimate their satisfaction with public transport which indeed increased in the sample after using LPT for a full month. As noted earlier, habits can be initially difficult to break. However, using the behavioural approach, simple plans can be implemented to remove the identified driver by proceeding in small steps (the participants were indeed travelling free of charge).

Despite these encouraging results, however, the application of behavioural science—especially with respect to sustainable mobility, is quite recent and even a more clear-cut definition of BIs is needed (Hallsworth and Kirkman, 2020); not to mention that the heterogeneity in people’s responses to different strategies may reduce the replicability of the intervention at intra- and inter-individual levels, thereby increasing the context-dependence (Lehner et al., 2016). If, on one hand, the available evidence is not completely sufficient, and further investigation is required, on the other hand, publication bias can enhance the true size effect of strategies whose results have been published. Moreover, once an intervention has been found to be successful on a large-scale level, the effects of the identified approaches are not necessarily long-term. For instance, Gravert and Collentine (2021) recently found that long-term habit formation is stimulated by economic incentives (trial period) but not by social norms. The role of infrastructure and the quality of the service, to be considered as a hard measure to stimulate sustainable mobility, as well plays a crucial role in mobility behaviour (Fraquelli, 2021).

Another crucial aspect is that travel preference can be considered a social dilemma in which people must cooperate to achieve the group’s interest (Fujii and Taniguchi, 2006; Fujii et al., 2001). This widens the mobility choice into a social decision problem, possibly of moral value, and creates the need for control of additional variables, such as altruism proxies or risk-taking propensity, and identification of individuals that may be more cooperative.

Purpose of the paper. Moving from the framing of the research, the present study aims to test different types of behavioural interventions promoting and facilitating the use of sustainable mobility, particularly local public transport. We also want to test whether individual heterogeneity may influence sustainable mobility behaviour and assess the level of knowledge on BIs among transport planners and policy-makers.

There are three main hypotheses to be tested. The first hypothesis (H1) is that, overall, classical economic incentives promote better than BIs sustainable mobility. However, according to the second hypothesis (H2), BIs strategies are more effective for certain segments of individuals (i.e., depending on the cultural and social context, attitude towards sustainable mobility and the LPT, and biased decision-making processes). The third and last hypothesis (H3) predicts that the level of knowledge on behavioural science approaches among transport planners and policy-makers remains limited.

Methodology. The study is an ongoing research project. To test the hypotheses outlined in the previous section, we intend to conduct a randomized experiment, accompanied by a post-experiment survey questionnaire, and a qualitative semi-structured, in-depth interview.

More specifically, as for H1, three different types of intervention will be tested using a between-subjects design: economic incentive, nudging, and boosting. Participants will be asked to complete a decision-making task including a choice experiment on sustainable mobility. In this experiment, each type of intervention corresponds to a treatment. Subjects will be assigned an economic incentive in one treatment. In the other two treatments, they will be instead presented with a stimulus targeting the automatic processes (nudging treatment) or information targeting the cognitive system (boosting treatment). A control condition will be included. Immediately after the between-subjects experiment, to test H2, all the participants will be administered the post-experimental questionnaire including socio-demographics items, public transport attitudes and preferences, and measures of economic preference, including such as intertemporal choice and pro-social behaviour. This part of the study is expected to be tested on a large-scale trial, by using online platforms, after a preliminary pilot experiment.

Finally, the H3 hypothesis will be examined using qualitative semi-structured, in-depth interviews, to be conducted among selected transport planners and policy-makers, eliciting the level of knowledge on BIs as applied to sustainable mobility behaviour.

A pre-registration of the study design will address the publication bias and other related issues.

Expected results. In line with the outlined hypothesis, we expect that BIs strategies are more effective for certain subgroups and that the segmentation of individuals can take into account the behavioural drivers underlying their decision-making in sustainable mobility. As for the behavioural science approaches among transport planners and policy-makers, we expect to confirm the hypothesis that the level of knowledge remains limited and, if not, BIs strategies are only slightly applied and are not typically part of the set of actual policy instruments. We also expect that the two parts of the study will provide recommendations for policy implications and future research directions.

Research limitations. The present study has limitations that might provide opportunities for future research. First, the experiment is not testing the long-term effects of the identified approaches. This can be further investigated by observing decision-making from experience rather than description, using a field experiment. Second, each experimental procedure has its drawbacks (Bateman et al., 2002; Pearmain, et al., 1991). As a result, to reduce this limitation, alternative procedures should be also tested in conjunction with choice experiments to compare the obtained results. The same applies to qualitative semi-structured, in-depth interviews. Finally, the use of BIs such as nudging has been criticised, especially about the manipulation of choice with potential ethical issues (e.g., Madi, 2020). We intend to address this limitation by providing a detailed discussion in the full-length version paper. However, future research can also address this issue by assessing subjects' acceptability and preference for different policy interventions.

Managerial implications. The results of this study are supposed to provide relevant suggestions for mobility management in promoting sustainable transport. In this regard, the present study aims to identify the strategies that can be more effective in formulating mobility policies at different levels and that would be suitable for changing travellers' attitudes and behaviour—particularly private car mobility, in favour of more sustainable modes of transport. Furthermore, the results of this study can be expected to recommend where mobility management programmes may have more impact (households, workplaces, etc.). Policy-makers can make large use of behavioural evidence and, since the proposed strategies are relatively low-cost measures, the sustainable mobility approaches can result in a high benefit-cost ratio. In addition, not only the results may be informative for promoting new programmes, but for communication strategies as well. The qualitative interview can eventually improve the effectiveness of managers in the mobility area, or at least provide some useful insights into how to include behavioural science in their work.

Originality of the paper. Although previous studies have already addressed the importance of behavioural science in mobility choice, to the best of our knowledge, the literature is still very limited when compared with more traditional approaches, mainly focusing on acceptability and socio-demographics (e.g., Loukopoulos et al., 2005; Thorpe et al., 2000). Most importantly, the originality of this paper lies in the simultaneous testing of such different behavioural interventions aimed to promote and facilitate the use of sustainable transport practices. Equally important is the use of segmentation, taking account of the heterogeneity of mobility behaviour, and the use of both qualitative and quantitative measures. Finally, the present study has important implications for both practice and theory since better deliberative processes that occur between transport planners/policy-makers and individual users can be shaped. This in turn has important implications for promoting residents' safety and decreasing the global and local impacts of unsustainable mobility behaviour.

Keywords: Behavioural insights; Mobility behaviour; Sustainable development, Experiment, Survey, Qualitative interview.

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Sustainability driven mimetic isomorphism in organizational fields' configuration: Evidence from US interlocking directorates

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Framing of the research. *Organizational fields have been theorized by institutional theorists as the domain where the network relationships of an organization influence its actions (Warren, 1967). Scott (1995: 56) defined an organizational field as “a community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field”. Most recent research has claimed that they can be perceived as relational spaces, where ties are formed for different motivations, such as geographical proximity, technological similarity, or environmental protection (Wooten and Hoffman, 2008). Whereas the concept of field in organization theory is well established, field formation still remains a theoretical puzzle (McInerney, 2008).*

For example, a stream of literature analyzed trade fairs and other temporary gatherings as field configuring events (Lampel and Meyer, 2008; Schüßler et al. 2015), because of their capability to create loci that “allow disparate constituents to become aware of their common concerns, join together, share information, coordinate their actions, shape or subvert agendas, and mutually influence field structuration” (Anand and Jones 2008, 1037).

Research in institutional theory has pointed to transorganizational structures as critical to the process of field configuration (Anand and Watson, 2004). We focus here on board interlocks as relevant transorganizational structures. They have been under the scrutiny of organizational scholars since early '80s (e.g., Burt, 1983; Davis, 1991; Mizruchi, 1982, 1996; Zajac, 1988), when they have been considered as forms of social networks, conduits of information between organizations, and a good indicator of interfirm ties (Galaskiewicz and Wasserman 1989, Mizruchi 1996, Mizruchi and Galaskiewicz 1993).

Since then, they have been a good setting where to test different theories about organizational fields. Among them, institutional isomorphism, configuring as optimal structures for spreading imitative behaviors, certainly played a central role (Galaskiewicz & Wasserman, 1989). In fact, the process of homogenization between organizations is a common driver of the spread of information among them and, consequently, of the structuring of organizational fields and interlocking directorates (Mizruchi, 1996).

Scholars identified three main categories of institutional isomorphism (Di Maggio and Powell, 1983), as coercive isomorphism (the result of direct pressure from powerful organizations or society); mimetic isomorphism (it occurs when an organization models its behavior or structure on other similar organizations as a way to reduce uncertainty in its environment), and normative isomorphism (it occurs primarily through professionalization and the dissemination of best practices) (Krause et al., 2019). For example, Meyer and Rowan (1977) state that organisations tend to become isomorphic with the environment in which they operate. Environments create needs that spread beyond the boundaries of the organisation, so organisations incorporate isomorphic elements to manage these interdependencies.

Since interlocking directorates are relational structures, our analysis investigates drivers of network architectures. In this respect, existing literature pointed at four primary perspectives (Ahuja et al., 2012): agency, opportunity, inertia, and exogenous and random factors. We focus on opportunity, which is based on the idea that agents tend to prefer linking within groups rather across them (Li and Rowley 2002), being driven by homophilic behavior (i.e., assortativity, Ahuja et al., 2012).

Lazarsfeld and Merton (1954) coined the term “homophily” to refer to “a tendency for friendships to form between those who are alike in some designated respect” (p. 23) and initiated a rich tradition of research that has investigated the tendency toward assortativity in a variety of social contexts and relations (McPherson et al. 2001). Different organizations' characteristics can attract others to form relationships. Focusing on homophilic attitudes (i.e. those possibly driving mimetic isomorphism), the literature suggests that organizations can be likely to have relationships with others, for example, with similar experience, size, target markets, supply channels, technology, location, or those operating in the same or complementary sectors.

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Here we originally focus on sustainability driven mimetic isomorphism because of the increasing relevance of sustainability concerns in leading organizations' decisions (Greenwood et al., 2002; Howard-Grenville et al., 2007). Sustainability is more and more attracting the attention by management scholars (Williams et al., 2017). This is relevant also for organizational fields. In fact, Hoffman (1999: 352) pointed at the importance to consider an organizational field as "more than just a collection of influential organizations", but as "the center of common channels of dialogue and discussion", and he firstly linked the concept of organizational field with environmentalism, analyzing the US chemical industry. As a result of his analysis, he claims that field membership can be based on a central issue (the environmentalism, in his case), not on a common technology or market.

Some contributions have already linked sustainability and isomorphic attitudes of organizations. For example, scholars investigated how coercive isomorphism has exerted a significant influence on an organization's social and environmental reporting (Othman et al., 2011). Despite this, we still have very little knowledge on the role of sustainability as a possible driver of mimetic isomorphism in organizational fields. Grounding on the literature on organizational fields' formation and structuring, mimetic isomorphism, and sustainability we precisely aim at filling this research gap.

Purpose of the paper. The objective of this article is to show whether and how sustainability dimensions in mimetic isomorphism are institutional mechanisms for the configuration of organizational fields (Scott, 1991). Specifically, this work aims at exploring this aspect elaborating on interlocking directorates explicitly adopting a relational perspective. As suggested by established literature on organizational networks, micro-level dynamics play a fundamental role in understanding their structures (Ahuja et al., 2012). Micro-foundations have received increased attention in strategy and organization theory over the past decade (Felin and Foss, 2005), recognizing the importance for management and organization scholars to unpack collective constructs and look at the aggregate and emergent dynamics associated with individuals and their interactions (Felin et al. 2015). Moreover, scholars studying institutional isomorphism have long considered precisely board interlocks as a vehicle for spreading mimetic strategic practices among organizations operating in a specific field, such as foreign expansion and the adoption of poison pills (Connelly et al. 2011, Davis 1991).

Specifically, we focus on the opportunity to establish homophilic ties driven by sustainability concerns, with the effect of configuring an organizational field, which possibly overcomes the boundaries of geographic proximity, industrial sectors, technological regimes, or other typical factors traditionally used to group similar organizations.

In order to do so we explain homogeneity of organizational forms and practices by the means of a set of indicators that allows us to distinguish among different sustainability dimensions which can drive mimetic isomorphism among organizations. They are: 1) Environmental (ENV), which evaluates the existence of clean energy programs, pollution prevention programs and environmentally proactive activities; 2) Community (COM), which measures community engagement programs; 3) Employee relations (EMP); which is designed to identify companies that have practices in place to develop strong employee relations; 4) Product (PRO), which evaluates the existence of quality control programs and if the company invests in R&D and innovation; 5) Governance (GOV), which analyses the existence of transparency programs and policies to prevent corrupt business dealings. These five categories are selected also because they correspond to the five certifications of B-Corps (community, customers, environment, governance, workers, as listed by B Lab Global). A B-Corp-driven approach is relevant for our purposes because B-Corps are "businesses that meet the highest verified standards of social and environmental performance, public transparency, and legal accountability in terms of balancing profit and purpose" (Blasi and Sedita, 2021, 108).

In sum, we aim at crafting a theory around institutional and organizational network literatures (mainly through the concept of assortativity) focused on the role of sustainability dimensions in shaping mimetic isomorphism in field configuration. Thus, exploiting an empirical application in US interlocking directorates, we investigate the following: How does the sustainability behavior of organizations affect tie configuration among them (i.e., organizational field configuration)? Are there heterogenous roles of different dimensions of sustainability in tie configuration?

Methodology. Following an established tradition, we study interlocking directorates taking a network perspective (Mizruchi, 1996). Sharing a member between two different boards of directors is seen as a tie of a network. In this way, the complete network is a representation of the structure of the totality of companies' boards which share at least one member with other companies.

Moreover, taking a geographical perspective to set the boundary of the network, leads to leave room also for isolated firms as companies where boards' members do not serve in any other firm but are located within the same geographical unit.

From the methodological point of view, we implement an Exponential Random Graph Model (ERGM) (Robins et al., 2007) to analyze the structure of the network made by interlocking directorates.

ERGMs are based on exponential graphs, which have a general specification (Robins et al., 2007) as:

$$\Pr(X = x) = \left(\frac{1}{k}\right) \exp \left\{ \sum_A \eta_A g_A(x) \right\}$$

$\Pr(X=x)$ is the probability that the network (X) created in the exponential random graph process is identical, in terms of a number of specific characteristics, with the observed network (x). η_A is the parameter corresponding to the

network configuration A , and $g_A(x)$ is for the network statistics. Network statistics obtain values equal to 1 if the corresponding configuration is observed in the network x and 0 otherwise. κ is a normalizing constant defined as

$$K = \sum_x \exp \left\{ \sum_A \eta_A g_A(x) \right\}$$

with $\chi(n)$ being the space of all possible networks with n nodes. Thus, the probability $\Pr(X=x)$ depends on the network statistics $g_A(x)$ in the network x and on the parameters represented by η_A for all considered configurations A . The value of η_A indicates the impact of the configuration on the log-odds of the occurrence of a tie between two nodes.

In ERGMs, estimations are preferably achieved with Maximum Pseudo Likelihood or Markov Chain Monte Carlo Maximum Likelihood Estimations. They allow to generate a distribution of random graphs by stochastic simulation from a set of starting parameters and then they are refined by comparing the obtained random graphs against the observed one. This procedure is repeated until it (possibly) stabilizes.

Following theoretical literature on architectures of networks, often applied to organizational settings (Ahuja et al., 2012), ERGMs can investigate features at the nodal, dyadic, and structural level (Hunter et al., 2008). Finally, they provide several assessments of the quality of the model, such as goodness of fit (GOF) statistics, the Akaike Information Criterion (AIC), and the Bayesian Information Criterion (BIC).

We considered a sample of 2234 US-based companies listed in the MSCI ESG KLD STATS Dataset Universe D in 2015. They have 12758 interlocking directorates relationships. The database divides sustainability-related activities into several macro-categories, of which we included in the analysis the ones above recalled (Environmental; Community; Employee relations; Product; Governance).

Each sustainability-driven category is composed of a different number of entries (that take the value of 1 or 0 if the answer to specific questions is yes or no, respectively), which are further disaggregated into positives (strengths) and negatives (concerns) indicators. Positive indicators capture the company's good practices, negative indicators the bad ones. For each category, we constructed a unique index by adding the positive indicators and subtracting the negative ones.

Moreover, we also control for other factors that may affect the propensity of companies to have interlocking relationships. They are: 1) Cognitive similarity. It aims at detecting firms' sectoral similarity building on the idea that operating in same or different industries can affect propensity to establish interlocking relationships. We build this variable on NACE four-digit codes. 2) Experience. It aims at detecting the propensity of companies to form interlocking relationships with older others building on the idea that firms' experience can influence the propensity to form interlocking relationships. This variable takes into account years of every company from their foundation. 3) Institutional similarity. It aims at detecting the similarity of the regulatory environments under which companies operate since they can influence the propensity to form interlocking relationships. We build this variable with reference to US States where companies are located.

Finally, we also included in the estimation two network-based covariates. They are "Edges" and "GWESP" (Geometrically-Weighted Edgewise Shared Partnerships). Edges adds a network statistic, which is equal to the number of ties that connects the agents in a network. It is a structural variable of ERGMs and it is usually included in such models to control for the overall density of the network (Hunter et al., 2008). It investigates the tendency towards having ties and it usually results in a negative estimate because nodes are less likely to have ties with each other in comparison to what is observed in random networks. GWESP statistic models triad closure. It is based on the idea that triads that contain two ties will tend to form the third, i.e., if two people A and B know the same person C , it will likely that they also know each other. Triad closure can be considered a network creation process that leads to network transitivity, i.e., the formation of complete triangles (Goodreau et al., 2009).

GWESP is expressed as follows (Hunter 2007):

$$w = e^\alpha \sum_{i=1}^{n-2} \{1 - (1 - e^{-\alpha})^i\} p_i$$

Where α is the GWESP decay parameter, n is the number of nodes in the network, and p_i is the number of actor pairs who share i partners.

ERGMs can be designed according to specific effects at the nodal, dyadic, or structural level. We adopt the "absdiff" (absolute difference) effect on our five core variables since it allows us to estimate homophilous or heterophilous behaviors of members of interlocking directorates as a function of the selected dimensions. This effect is computed for numerical continuous nodes' attributes, and it investigates if one node is more likely to have a tie with others which have similar or different values on the same attribute. In our case, it can let us know if a member of a company's directorate is more likely to be in another directorate once the two companies have different grades in terms of specific sustainability dimensions (e.g., if one company is very good in environmental sustainability and the other one is very bad in the same dimension). "absdiff" is measured in differences, so a negative estimate suggests the presence of homophily (companies sharing a member of their directorates have similar values in the selected sustainability dimension, i.e., they have small absolute difference), while a positive one the prevalence of heterophily

(companies sharing a member of their directorates have different values in the selected sustainability dimension, i.e., they have large absolute difference).

We also adopted specific terms on control variables. The “nodematch” term is implemented for the estimation of cognitive (“Cognitive Similarity”) and institutional similarities (“Institutional Similarity”). In fact, it allows us to investigate if companies operating in the same industry and if companies operating in the same institutional setting (proxied by the State where a company is located) are more or less likely to share a member between their boards of directors. The “nodecov” term is implemented in the case of experience (“Experience”) and it allows us to investigate if companies are more or less prone to share a member of its board with older companies.

Results. Table 1 provides some descriptive statistics at the network level. Network density appears to be quite low (0.5%), as only a relatively small portion of relationships (12758) occur out of the maximum number of possible relationships (2494261). However, this value is in line with density of other networks of interlocking directorates computed on such a large scale and including all the isolates originally composing the sample (van Veen and Kratzer, 2011).

Despite this, the network structure is quite pervasive, since 1805 out of 2234 companies (around 81%) have at least one interlocking directorate relationship with another company. Among them, the most interlocked company has 205 linkages with others (it shares at least one member of its board of directors with 205 other companies). In contrast, 429 companies (around 19%) are not connected.

Tab. 1: Descriptive statistics at the network level

Network feature	Value
Nodes (members of boards of directors)	2234
# Connected nodes / # Isolates	1805 / 429
Edges (shared members in two boards of directors)	12758
Maximum number of possible relationships	2494261
Density	0.5%
Lower degree/Higher degree	0/205

Source: our elaboration

Table 2 shows some descriptive statistics at the firm level. All the sustainability dimensions under investigation range from negative (minimum is -3 in the case of “EMP” and “PRO”) to positive values (maximum value is +7 in the case of “EMP”) and the most likely value is always null. Mean values are always slightly positive, suggesting - on average - a general, but moderate, predisposition for sustainability dimensions for firms under study. Among control variables, only “Experience” is numeric, and descriptive statistics show that the youngest company is 3 years old and the oldest one is 278 years old, with a median value equal to 37 years and a mode equal to 23 years.

Tab. 2: Descriptive statistics at firm level

	Min	Mode	Mean	Max	Obs.
ENV	-2	0	0.40	6	2234
COM	-1	0	0.01	1	2234
EMP	-3	0	0.50	7	2234
PRO	-3	0	0.035	3	2234
GOV	-2	0	0.044	1	2234
Cognitive (Industry)	/	/	/	/	2234
Experience (Years)	3	23	37.14	278	2234
Institutional (Location - State)	/	/	/	/	2234

Source: our elaboration

Table 3 shows estimates of the ERGM. Model M1 to model M5 include “Edges” and a core variable one by one (“ENV Difference” in M1, “COM Difference” in M2, “EMP Difference” in M3, “PRO Difference” in M4, “GOV Difference” in M5”). Model M6 estimates all the previously included variables, one structural variable to take into account the propensity to form triangles (“GWESP”) and three selected control variables (“Cognitive Similarity”, “Experience” and “Institutional Similarity”) which may affect the architecture of the interlocking directorates under investigation.

The full model - M6 converges, and it presents quite appropriate goodness-of-fit statistics (matching degree, edgewise shared partners, and geodesic distributions) and horizontal parameter traces. They are useful to assess to what extent the parameters of the ERGM accurately predicted the observed network (Hunter et al., 2008).

Tab. 3: ERGM results

	M1	M2	M3	M4	M5	M6
Edges	-5.229*** (0.010)	-5.258*** (0.009)	-5.219*** (0.011)	-5.190*** (0.010)	-5.230*** (0.009)	-1.108*** (0.023)
ENV Difference	-0.057*** (0.008)					-0.0440*** (0.0037)
COM Difference		-0.226*** (0.040)				-0.008 (0.016)
EMP Difference			-0.063*** (0.008)			-0.084*** (0.005)
PRO Difference				-0.213*** (0.016)		-0.120*** (0.007)
GOV Difference					-0.183*** (0.021)	-0.091*** (0.010)
Cognitive Similarity						-0.022 (0.029)
Experience						-0.027*** (0.0001)
Institutional Similarity						0.057*** (0.014)
GWESP						-0.257*** (0.024)
GWESP Decay						4.472e-05 (5.642e-02)
AIC	160019	160034	160008	159878	159988	299929
BIC	160044	160059	160034	159903	160013	300070

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. Source: our elaboration

Estimates of “Edges” always result in negative and statistically significant coefficients. Negative estimates for this structural variable are common in ERGMs and they suggest that boards are less likely to share a common member in comparison to what is observed in a random network.

Estimates of all the core variables included from model M1 to model M5 result in negative and statistically significant coefficients, suggesting that the more two companies are distant in terms of the sustainability issues under scrutiny the less likely they share a member of their boards of directors.

Looking at control variables inserted in model M6, “GWESP” results in a negative and statistically significant coefficient and this suggests the presence of fewer triangles than expected. “Experience” results in a negative and statistically significant coefficient and this suggests that companies are less likely to share a member of their boards of directors with other firms characterized by high experience (measured as the years from the foundation). Also “Institutional Similarity” results in a negative and statistically significant coefficient and this suggest that companies working in more similar institutional settings (proxied by the fact of being located in the same State in the U.S.) are less likely to share a member among their boards of directors. Finally, “Cognitive Similarity” results in a not statistically significant coefficient, thus we cannot interpret this finding with statistical confidence.

All the core variables included in model M6 confirm previously acknowledged results except the case of “COM Difference” that retains the negative estimate, but it loses the statistical significance in the full model.

Research limitations. First, this work does not study the frequency of interactions or the length of interlocking relationships, neither other types of ties (being them related with sustainability issues or not) that go beyond the sharing of a member between pairs of companies’ boards, or the control variables included in the model specifications. Certainly, investigating more on such aspects may be of interest for further research. Second, the analysis is based on static data, and it is not able to investigate the evolution of the relations across time or to focus on potential and latent ties as other contributions have done. Third, data are collected from an US database, thus, findings can be extended in other geographical settings with caution. Fourth, despite the fact that a variable controlling for co-location in the same state of pairs of companies is inserted, this only partially takes into account the possible role played by spatial proximity. A proper variable for spatial proximity is not inserted because models including it do not converge.

Managerial implications. Findings of this study may be considered by managers operating across different sectors because they suggest the possibility of implementing firms’ strategic planning in favor of different forms of interactions among companies and in favor of more inclusive knowledge-sharing within networks, when sustainability issues are taken into account. Specifically framing the study of such networks on sustainability issues, allow them to enlarge their knowledge on current sustainability related knowledge sharing as well as to develop further interactions for strategic and effective inter-firm relationship networks in achieving sustainable outcomes and practices. Finally, findings can be of interest for companies simultaneously operating on different domains of sustainability. In fact, as suggested by estimates included in the full model, some sustainability dimensions as those closer to environmental issues, employees’ relations, product and governance-related aspects are more likely to stimulate the configuration of boards interlocks; while others, as those more associated to community engagement programs, might be addressed adopting other strategies.

Originality of the paper. *To the best of our knowledge this paper is the first one to empirically investigate organizational field configuration (by the means of a study on US interlocking directorates) specifically focusing on how different dimensions of sustainability may be associated with attitudes of companies to mimetic isomorphism. On the one hand, this approach provides an original contribution on field formation which seems to be an under investigated issue in organizational theory; on the other, this work elaborates on an aspect increasingly relevant in organizational theory and organizational field literature, as sustainability dimensions; thus going beyond traditionally investigated factors as geographical proximity, technological similarity, or environmental protection. Specifically, it contributes to previous literature by exploring sustainability driven assortative mechanisms as micro-foundations of mimetic isomorphism, and therefore networking in interlocking directorates.*

Keywords: *Organizational fields; Field configuration; Mimetic isomorphism; Interlocking directorates; ERGM*

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Measuring Museum Sustainability. A Dictionary-Based Content-Analysis of French and British National Museums' Annual Reports

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Framing of the research. Sustainability is intrinsically linked to each museum's mission, embedded both in its long-lasting nature as a permanent institution and in the need to serve current and future generations (Cerquetti, Montella, 2021). This connection has finally been included in the museum definition approved in Prague, on 24 August 2022. The Extraordinary General Assembly of ICOM recognized the role of sustainability both explicitly and implicitly. On the one hand, the museum definition clearly states that "museums foster sustainability"; on the other, the social dimension of sustainability is recalled by shaping museums as "accessible and inclusive" institutions, which "foster diversity" and "operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing" (ICOM, 2022).

As already argued (Cerquetti, Montella, 2021), a two-way relationship between museums and sustainability arises: first, social, economic and environmental sustainability can support museum development (sustainability for museums); second, museums can contribute to sustainable development (museums for sustainability). In addition, sustainability should be framed as a multifaced concept composed of intertwined dimensions - cultural, economic, social and environmental (Stylianou-Lambert et al., 2014; Magliacani, Sorrentino, 2021). Among them, culture acts as a center point for the other pillars of sustainability (Culture as Sustainability) and, therefore, "an overarching dimension of sustainability" (Soini, Dessen, 2016, p. 3).

The Covid-19 pandemic and the energy crisis have strengthened the unprecedented problems and uncertainties that emerged in the Age of Disruption (Lindqvist, 2012; Janes, 2014; Lobo Guerrero Arenas, Zuluaga Medina, 2021; Giusti, 2023), proving the environment to be one of the most pressing needs. On this matter, Pomian (2022) has recently argued that, in the long run, global warming and the need to save energy will be a threat to museums. According to the philosopher, ecological ideology opens up a perspective that is difficult to reconcile with museums. As structurally loss-making institutions, they will no longer be state priorities. However, it is worth noting that museums can greatly contribute to climate action through their use of resources and their educational and research programs (McGhie, 2020). In other words, they are responsible not only for environmentally conscious operation and use, but also for shaping environmentally conscious visitor attitudes (Ásványi et al., 2021) and promoting visitors' criticality, introspection and agency (Navas Iannini, Pedretti, 2022).

In this scenario, climate change stands out as society's largest and most complex challenge, calling for a radical transformation in all sectors and countries (NEMO, 2022; Da Silva, Walbe Ornstein, 2022). A recent survey on the climate crisis answered by 578 museums from 38 European countries between April and June 2022 reveals some weaknesses in the sector (NEMO, 2022). Even though almost 80% of museums state that SDGs are reflected in their strategic plans, only 8.9% have made an analysis of possible challenges resulting from climate change. The main causes for impeding museums' sustainable transitions are the lack of funds (59.7%), the lack of support from public administration or policy direction (38.8%) and the lack of knowledge (30.5%). Almost 70% think there is insufficient knowledge about SDGs and climate action. The survey results also suggest that "there is hardly any difference between small, mid-sized and large museums when it comes to prioritizing sustainability, emphasizing sustainability in the planning and management of the museums' premises and properties, or providing opportunities for training around climate-related issues or public actions" (NEMO, 2022, p. 17).

Aiming to contribute to the debate, in recent years, the scientific literature has been discussing how to measure, evaluate and communicate sustainability. Some scholars tried to provide evidence of the impacts of market orientation, customer value approach and innovation on museum sustainability (Recuero Virto et al., 2017). Other studies focused on sustainable criteria for evaluating museum performances and improving their results (Orea-Giner, 2021) or suggested a specific model for measuring museum sustainability (Müller, Grieshaber, 2023). Moreover, given the importance of stakeholder collaboration in the sector, effectively communicating sustainability policies and practices

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has been proven to have a strategic role for its implications across an organization's entire supply chain (Wickam, Lehman, 2015).

When it comes to accountability tools, the quality of annual reporting by museums shows room for improvement (Botes et al., 2013; Brown, 2014; Bambagiotti-Alberti et al., 2016). According to the NEMO survey (2022), 61.8% of museums do not have methods or criteria to measure and assess their sustainable efforts and less than 20% are not required to report their sustainable or green actions to their funding organizations.

Purpose of the paper. This research aims to measure the degree of sustainability in European museums' annual reports and similar documents (e.g., annual reports and accounts, "rapports d'activité" and "bilans d'activité").

To have a large, representative, and comparable sample, the research focused on the United Kingdom (UK) and France national museums. As reported by the 2021 edition of the Global Attractions Attendance Report, the annual attendance study for the entertainment and museum industries, published by TEA and AECOM, these countries host the 20 most-visited museums in the world: 5 museums are located in London (UK) and registered 5.4 million visitors in 2021 and 2 in Paris (France) with an attendance of 3.8 million visitors (TEA, AECOM, 2021, pp. 74-75). Moving the focus to the EMEA (Europe, Middle East, and Africa) 20 most-visited museums provided by the same study, 55% (11) are in the UK or France (Tab. 1). Together, in 2021, these institutions registered an attendance of 13.2 million visitors, corresponding to 56.5% of the total attendance of the 20 museums included in the ranking (TEA, AECOM 2021, p. 83).

Tab. 1: EMEA top 20 most-visited museums in 2021 (source: TEA, AECOM, 2021)

Country	City	Museum	Attendance
France	Paris	Musée du Louvre	2,825,000
Russia	St Petersburg	State Hermitage	1,649,000
Spain	Madrid	Reina Sofia	1,643,000
Vatican	Vatican City	Vatican Museums	1,613,000
Russia	Moscow	State Tretyakov Gallery	1,581,000
UK	London	Natural History Museum	1,564,000
France	Paris	Centre Pompidou	1,501,000
UK	London	British Museum	1,327,000
Spain	Madrid	Museo Nacional Del Prado	1,175,000
UK	London	Tate Modern	1,156,000
France	Paris	Musée D'Orsay	1,044,000
France	Paris	Cité Des Sciences et de l'industrie	984,000
Italy	Florence	Galleria degli Uffizi	970,000
UK	London	Victoria & Albert Museum	858,000
UK	London	National Gallery	709,000
UK	Edinburgh	National Museum of Scotland	661,000
UK	London	Science Museum	646,000
Netherlands	Amsterdam	Rijksmuseum	625,000
Poland	Oświęcim	Auschwitz-Birkenau Museum	563,000
Netherlands	Amsterdam	Van Gogh Museum	366,000
Total attendance			23,460,000

Additionally, the UK and France are the countries where annual reporting practices are most deeply rooted, due to both legal and cultural issues.

Since the 1980s, the UK government has implemented a reform program across the public services aimed at differentiating activities at the core of the public sector and those functions that can be undertaken either within or outside the public sector. Along this process, national museums were asked to make and publish annual reports and financial statements through the institution of the board of trustees, thus discharging accountability to external users (Wei et al., 2008, p. 32). In England, the annual report and account (ARA) is a mandatory document for national museums sponsored by the Department for Culture, Media and Sport (DCMS). As stated by the Museums and Galleries Act 1992, each body shall prepare an annual statement of accounts giving a true and fair view of the state of its affairs (par. 9, c. 4); this document shall comply with directions given by the secretary of state in terms of form, content, methods, and principles to be followed (par. 9, c. 5). A similar situation is found in Scotland, Northern Ireland, and Wales, where national museums are supported and funded by the devolved legislatures and specific acts provide directions on annual reporting practices: the National Heritage (Scotland) Act 1985 established that the board of trustees of national museums shall prepare an annual statement following the instructions of the secretary of state (sched. 1, par. 9, c. 3); the Museums and Galleries (Northern Ireland) Order 1998 expressly refers to the annual report

as a mandatory document, to be prepared by the museum board of trustees and transmitted to the department (par. 11); in Wales, the majority of museums operates under the Public Libraries and Museums Act 1964, which placed public museums and art galleries under the superintendence of the secretary of state, thus allowing local authorities to provide and maintain museums and art galleries and establishing the obligation of annual reporting (par. 17).

In France, annual reporting practices for national museums are not an explicit legal obligation. In this country, museum regulations depend on the ownership structure, specifically whether it is a non-profit organization (NPO) or a public body entity. Regarding NPOs, the decree n. 2009-540 of May 14, 2009, generically refers to associations and foundations and establishes the obligation to publish a balance sheet for those who received more than 153,000 euros of donations during the year. Thus, neither museums nor annual reports as mandatory documents are mentioned. Considering the public entity's perspective, the Code du patrimoine establishes as mandatory the annual reporting activity only for the Haut Conseil des musées de France, a national consultative body providing recommendations to French museums, which is required to make and publish an annual report (art. R430-5). Nevertheless, the number of national museums accustomed to reporting documents (mainly "rapports d'activité" or "bilans d'activité") is significantly high. This aspect, together with the continuity of these practices over time (the first public editions of these documents date back to 1973¹), shows how the need for transparency and accountability is well established in the French national museums' context.

Given these premises, we compared the degree of sustainability intensity in strategic and performance reporting of national museums of the UK and France. The role of the government in managing public museums should impact on the sensitivity to sustainability of these organizations. However, it is interesting to inspect whether there are cross-country differences, especially considering that British museums are legally-bounded to report, while French museums are not. To date, no research has investigated sustainability intensity in European public museums' reporting. Furthermore, the paper aims at assessing the impact of the Covid-19 pandemic on the degree of sustainability-related reporting of public museums.

Methodology. In the UK, among the English museums and galleries sponsored by the DCMS, 15 are defined as "national" - as they are established by Acts of Parliament - and 5 are classed as "non-national", namely public-funded museums, other than those directly funded by the central government (NMDC, 2003). In addition, there are national museums in Scotland, Wales and Northern Ireland, supported by the devolved legislatures: national museums in Scotland are funded by the Scottish Executive Education Department and include 5 institutions; in Wales the national museums group funded by the Welsh government is called Amgueddfa Cymru and includes 7 bodies; national museums in Northern Ireland are funded by the Department of Culture, Arts and Leisure of the Northern Ireland Executive and are grouped within the National Museums NI, which looks after 4 institutions. In France, the network of national museums (Réseau des Muséaux Nationaux) includes 66 institutions. Among them, 18 are classed as "établissements publics", as they belong to public institutions, thus having administrative and financial autonomy, 17 are "services à compétence nationale", being part of institutions with national competence and 11 are under the supervision of other ministries.

For the purpose of this research, a group of 37 national museums has been considered (Tab. 2). In the case of the UK, being annual reporting practices mandatory for all museums, we considered the 15 English national museums, in addition to National Museums of Scotland, Amgueddfa Cymru and National Museums NI. Regarding France, 19 museums have been included in the analysis: 15 museums with special autonomy and 4 museums under the supervision of other ministries. A total of 120 documents in both English and French language have been analysed: 67 annual reports and accounts (ARA) and 3 annual review (AR) related to UK museums, and 44 rapports d'activité (RdA) and 6 bilans d'activité (BdA) referred to French museums. As the reporting documents in the UK straddle two years, the last four editions of each document have been considered; in the case of French museums, as the reporting activity corresponds with the solar year, the analysis included the last three editions of each document.

This timeframe also made it possible to consider the COVID-19 dimension and analyze its impact on the perception of museums about sustainability issues, by comparing documents editions published both before and after the deflagration of the pandemic.

¹ Musée national d'art moderne. Centre Georges Pompidou. Bilan d'activité, <https://www.centrepompidou.fr/fr/le-centre-pompidou/bilans-activite>.

Tab 1: Museums and documents considered for the analysis (source: authors 'elaboration)

Country	City	Museum	Type	Document	Editions
England (UK)	London	British Museum	Historical	ARA	2018/19 - 2021/22
England (UK)	London	Imperial War Museums	Historical	ARA	2018/19 - 2021/22
England (UK)	London	National Gallery	Artistic	ARA	2018/19 - 2021/22
England (UK)	London	Royal Museums Greenwich	Historical	ARA	2018/19 - 2021/22
England (UK)	Liverpool	National Museums Liverpool	Artistic	ARA	2018/19 - 2020/21
England (UK)	London	Science Museum Group	Scientific	ARA	2018/19 - 2021/22
England (UK)	London	National Portrait Gallery	Artistic	ARA	2018/19 - 2021/22
England (UK)	London	Natural History Museum	Scientific	ARA	2018/19 - 2021/22
England (UK)	London	Royal Armouries	Historical	ARA	2018/19 - 2021/22
England (UK)	London	Sir John Soane's Museum	Artistic	ARA	2018/19 - 2021/22
England (UK)	London	Tate	Artistic	ARA	2018/19 - 2021/22
England (UK)	London	Victoria and Albert Museum	Artistic	ARA	2018/19 - 2021/22
England (UK)	London	Wallace Collection	Artistic	ARA	2018/19 - 2020/21
England (UK)	London	Geffrye Museum of the Home	Historical	ARA	2018/19 - 2021/22
England (UK)	London	Horniman Museum	Historical	ARA	2018/19 - 2021/22
Scotland (UK)	Edinburgh	National Museums of Scotland ²	Group of museums	ARA	2018/19 - 2021/22
Wales (UK)	Cardiff	National Museums of Wales ³	Group of museums	ARew	2018/19 - 2021/22
Northern Ireland (UK)	Cultra	National Museums NI ⁴	Group of museums	ARA	2018/19 - 2021/22
France	Paris	Musée du Louvre	Artistic	RdA	2019 - 2021
France	Paris	Musée d'Orsay	Artistic	RdA ⁵	2019 - 2021
France	Paris	Musée de l'Orangerie des Tuileries	Artistic	RdA	2019 - 2021
France	Paris	Musée national d'art moderne. Centre Georges Pompidou	Artistic	BdA	2019 - 2021
France	Paris	Musée du quai Branly «Jacques Chirac»	Historical	RdA	2019 - 2021
France	Versailles	Musée national des châteaux de Versailles et de Trianon	Artistic	RdA	2019 - 2021
France	Paris	Musée Picasso	Artistic	RdA	2019 - 2021
France	Paris	Musée des civilisations de l'Europe et de la Méditerranée (MUCEM)	Historical	RdA	2019 - 2021
France	Paris	Musée Rodin	Artistic	RdA	2019 - 2021
France	Paris	Musée national de l'histoire et des cultures de l'immigration	Historical	RdA	2019 - 2021
France	Fontainebleau	Musée national du château de Fontainebleau	Artistic	RdA	2019 - 2020
France	Sevres	Musée national de la céramique à Sèvres	Artistic	RdA ⁶	2019 - 2021
France	Limoges	Musée de la porcelaine Adrien Dubouché à Limoges	Artistic	RdA	2019 - 2021
France	Paris	Musée de la musique	Historical	BdA	2019 - 2021
France	Paris	Musée de l'École nationale des beaux arts	Artistic	RdA	2019 - 2021
France	Paris	Musée de l'Armée	Historical	RdA	2019 - 2021
France	Paris	Musée de l'air et de l'espace	Historical	RdA	2019 - 2021
France	Paris	Musée national de la Marine	Historical	RdA	2019 - 2021
France	Paris	Musée des monnaies et médailles	Historical	RdA	2019 - 2021

Depending on the main focus of the museum, we categorized each museum into one of 4 possible types: artistic, historical (including ethnographical museums), scientific, or group of museums. We adopted a dictionary-based approach to test the hypotheses. Therefore, we constructed a dictionary of expressions related to sustainability. A first panel of words and expressions was constructed starting from the glossary of GRI standards and from the inspection of the most frequent sustainability-related words of the non-financial reporting documents of two well-known international organizations (the annual report of the Van Gogh Museum, and the sustainability report of the Ferrero

² It includes the National Museum of Scotland, the National Museum of Flight, the National War Museum, the National Museum of Rural Life, and the National Museums Collection Centre.

³ It includes the National Museum Cardiff, the St. Fagans National Museum of History Cardiff, the Big Pit National Coal Museum, the Blaenavon National Wool Museum, the Dre-fach Felindre near Llandysul National Slate Museum, the Llanberis National Roman Legion Museum, the Caerleon National Waterfront Museum and Swansea.

⁴ It includes the Ulster Museum, the Ulster Folk Museum, the Ulster Transport Museum and the Ulster American Folk Park.

⁵ A unique "rapport d'activité" for the "établissement public des musées d'Orsay et de l'Orangerie" is produced.

⁶ A unique "rapport d'activité" for the "établissement public des musées nationaux de la céramique à Sèvres et de la porcelaine Adrien Dubouché à Limoges" is produced.

Group). This initial bag of expressions was enriched with additions made by the authors individually and through collective brainstorming. Finally, each of the authors categorized each expression into one of four categories: the three categories of ESG reporting (Environmental, Social, and Governance) and a Transversal category, encompassing general sustainability-related terms. The inter-coder agreement (De Swert, 2012) was deemed satisfactory (Krippendorff's alpha = 0.71), and any disagreement on the categorization of specific expressions was solved through collective discussion. The sustainability dictionary was then translated into French, paying attention to preserving the original meaning of words. In translating to French, all relevant synonyms were considered, while some English expressions resulted in duplicated French occurrences, that were dropped from the final list. For these reasons, the English and French dictionaries did not include the exact same number of words.

Each document was tokenized and, in addition to unigrams (individual words), also relevant n-grams (multiple-words expressions) were preserved as meaningful tokens and not divided into individual words. This procedure was employed to allow the subsequent computation of frequencies of both single-word and multiple-words sustainability-related expressions.

Following the textual editing stage, for each document we computed the E (Environmental), S (Social), G (Governance) and T (Transversal) scores, as the percentage of category frequencies over the number of the document's total occurrences. Then, a comprehensive sustainability score (ESG score) was calculated as the average of the four category-scores. The ESG score was used as the dependent variable (DV) of a mixed-models with random intercept and the museum ID as the grouping variable. As independent variables, we considered two fixed-effect variables at the museum level and two fixed-effect variables at the document level. The museum-level variables were the country of origin (UK or France), and the museum type (historical, artistic, science, or mixed), while the document-level variables were the cut-off year (i.e., whether the document was published before or after than 2020, the year of insurgence of the pandemic), and Covid text relevance (i.e., the presence of Covid-related words within the document).

Results. The findings show that the museums' country of origin and the presence of Covid-related words within the documents had a statistically significant influence on the ESG score (Tab. 3).

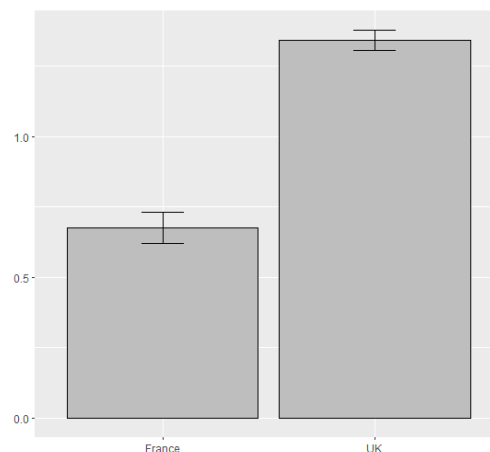
Tab. 3: ANOVA table; DV: ESG score (source: authors 'elaboration)

	MS	NumDF	DenDF	F-value
Country	5.142	1	36.337	168.222***
Museum type	0.033	3	23.857	1.095
Cut-off year	0.099	1	81.569	3.228
Covid relevance	0.297	1	86.412	9.605**

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 1

More specifically, British museums' reports had significantly higher scores ($M = 1.343$, $SE = 0.0355$) than French museums' reports ($M = 0.675$, $SE = 0.055$; t -ratio = -12.950, p -value .0001; Fig. 1).

Fig. 1: Mean difference in ESG score by country (source: our elaboration)

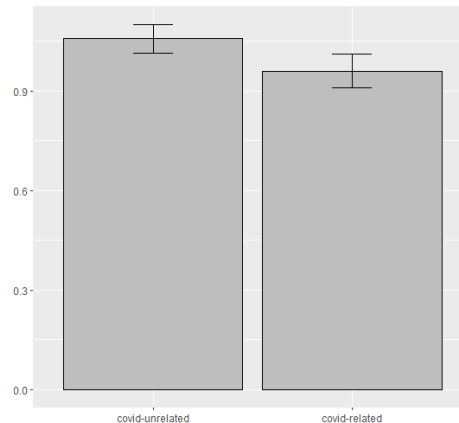


In addition, the documents mentioning Covid-19 or related words had significantly higher ESG scores ($M = 1.117$, $SE = 0.0389$) than Covid-unrelated documents ($M = 0.901$, $SE = 0.0629$; t -ratio = -3.075; p -value = 0,0028, Fig. 2). Instead, museum typology and the cut-off year had no effect on the ESG score.

Therefore, it seems that British museums had in general a greater awareness of the sustainability impact of their activities, as compared to French museums. This might be due to contextual differences, and especially to the fact that in the UK annual reports are mandatory, while in France they are not. Being required by law to publish the annual report, British organizations might feel increased pressure to comply with the law by putting greater emphasis on the positive externalities of their activities. Furthermore, this sensitivity to sustainability reporting might also be the result of higher efforts in sustainable activities.

As for the impact of Covid-19, our results provide interesting insights. Indeed, it turns out that the insurgence of the pandemic is not a sufficient condition to spur sustainability intensity in reporting, since the cut-off year did not have a significant effect on the ESG score. However, when the reports mentioned the Covid theme, they ended up having higher ESG score. Thus, awareness of the pandemic seems to imply greater sensitivity to the environment and the social implications of business activities.

Fig. 2: Mean difference in ESG by Covid relevance (source: our elaboration)



Research limitations. This study shed light on aspects of sustainability reporting that have been neglected by previous literature. However, it is limited in the scope of the analysis. Further research is needed to extend the boundary of investigation toward different national contexts and private museums. For instance, local museums might have a very different perspective on the relevance of the community than national museums have. Similarly, further investigation is needed to inspect how different aspects of sustainability are affected by contextual and textual variables. Finally, we did not delve into the relationship between the textual ESG score that we computed and the actual sustainability performance of museums. About this issue, future studies might focus on measuring the actual level of sustainable activities carried out by museums, so to uncover potential greenwashing issues.

Managerial implications. Our findings can be translated in policy and managerial advice. Firstly, from a policy point of view, the research suggests the need to support museums' annual reporting, its culture and methods as a tool to improve museum awareness of sustainability issues and the active role each institution can play in facing climate change (museums for sustainability). Secondly, a strengthened culture of accountability can have a significant impact on museum sustainability, fostering better use of resources, value creation for different stakeholders and caring for the environment (sustainability for museums). More implications can be better detailed after further investigation.

Originality of the paper. To date, this is the first paper to focus on the sustainability reporting of public museums. The study adopts a dictionary-based content-analysis approach to measure the level of sustainability expressed by strategic and performance reports (annual reports and accounts, annual report and accounts, rapports d'activité, bilans d'activité) of the national museums of the UK and France. The cross-nation sample allows to inspect the embeddedness impact on sustainability reporting. The study takes into account the effect of exogenous environmental shock (i.e., the Covid pandemic) and assesses its influence on national museums' sustainability reporting.

Keywords: museum sustainability; dictionary-based content-analysis; sustainability reporting; ESG

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The social media strategy of cultural institutions in the pandemic: the case of Italian opera houses

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Framing of the research. *The use of social media as a marketing tool is by now well established in businesses (Creevey et al., 2022; Infante & Mardikaningsih, 2022) and the Covid-19 pandemic clearly had an impact also in social media marketing behaviors (Dubbelink et al., 2021; Mason et al., 2021; Taha et al., 2021). Similarly, cultural actors had increasingly engaged in social media (Siracusa, 2020).*

Opera houses do present, however, some very significant specificities, like the aging of audiences. There is a paradox in this: opera survived in centuries thanks to its adaptability to changing social, cultural, and economic contexts, and yet nowadays opera is perceived as having lost connection with the contemporary world and the new generations. For some decades now, the attraction of younger people has become a major and widely unresolved issue. Various attempts failed to deliver the expected results: the opening of some performances to supposedly price-discriminated audiences (“students and workers”), the re-packaging into more accessible and “cross-over” formats and the content modernization through Regie-theater approaches. Thus “democratization” in opera has a distinctively generational character and digital marketing is inescapably part of this trend, as Internet opens a new field for the dialogue between this kind of performing art. Opera houses are now present on the most important social media, although - in a global perspective - the heterogeneity of approaches, of the level of engagement and of the contents is extreme, also due to very different propensities to “go digital” in individual organizations (Bellini, 2021).

As “synchronous collaborative performing arts”, requiring the audience’s physical presence, opera has been severely impacted by lockdown rules (Seetharaman, 2020). In Italy, theatrical performances were suspended nationally as of March 2020. In June, performances open to the public were allowed on strict terms, but in October, facing the second wave of the epidemic, the government ordered closure once again and did not allow limited re-opening until the end of April 2021. Finally, full opening began on October 11.

During the lockdowns, digital technologies shifted from a “nice to have” perception to a “critical to have” one, forcing a move from discretionary to forced innovation (Akpan, Soopramanien, and Kwak 2021; Heinonen and Strandvik 2021). To opera house the priority was to “un-distance” customers (Kolokytha & Rozgonyi, 2021), but there was also an opportunity to test and develop new ways to approach the market both in terms of products and of media (Bellini & Raglianti, 2023; Chatzichristodoulou et al., 2022). Resulting differences in digitalization strategies can be explained by several factors: the more or less advanced position on the learning curve of digital markets and technologies; the digital mindset of human resources; conservative attitudes of market leaders, confident in the stability of their market position in the long term; the profile of the top management, decisively nurtured by their previous experiences in different contexts; the level of external integration with other companies and with institutions (like research centers and universities) (Bellini & Raglianti, 2023).

Both Italian and foreign opera houses have increasingly adopted digital marketing, contributing to the emergence of an opera-related digital community on a global scale. They are now present on several social media platforms such as Facebook, YouTube, Twitter, and Instagram. However, the level of engagement on these marketing tools is quite heterogeneous and also the choice of platforms varies substantially. No significant structural relation emerges, e.g., with the reputation or international ranking. The most famous and largest opera houses are not necessarily the most digitally active.

In most cases (and remarkably so in Italy, until the pandemic) the adoption of social media has been limited to provide an alternative channel for the communication of “one-way” information about events, plans, contingent information (like the cancellation of events, changes in the artists’ cast) etc. However, the interactivity dimension has been developing with different patterns. Opera houses have been engaging audiences mostly the use of images and videos (especially on Facebook, Instagram and YouTube). These may be trailers of new productions, backstage

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documentaries, expert introductions to operas, interviews with artists or memories of related past events (including the video recording of past performances), reports of attendants' experiences, and even discussions about controversies affecting the reputation of opera houses, like those concerning inappropriate behavior by world-famous artists in the wake of the "MeToo" movement.

One must also mention the role played by a number of specialized external media (opera magazines and blogs), fully or partially operating on the web, that are influential in shaping opera houses' reputation. Popular social networks accounts are also held by individual artists. To them social network activities are a necessary promotional tool and an effective way to maintain a constant flow of information towards the communities of their fans. Some accounts create opportunities for a more personal and empathic interaction, that is not limited to professional achievements, as the artist shares backstage and personal stories and opinions (Bellini, 2021).

Purpose of the paper. In this paper, with reference to the case of Italy, we investigate how opera houses interacted with their audience during those months and how this changed their social media strategy. Our research questions can be summarized as follows:

- Which opera house was most active and successful in interacting with its audience during these months?
- What social strategy was adopted by the opera houses to cope with the health emergency and subsequent closure to the public?
- From a strategic perspective, were there any major changes between the period before and after the opera houses closed?

Methodology. The research was made possible by the cooperation with the IT company Linkfluence France. "Radarly", their AI-powered Social Media Intelligence platform, allows for a highly effective data scraping, combined with human expertise. Radarly can collect a potentially infinite amount of data (from public profiles), without geographical, linguistic, or temporal boundaries. The process to extrapolate and store data and contents online, referred as "data scraping", is far more difficult to carry out nowadays than it used to be in the past, mainly because of the quantity of data potentially available, but also because of two important and very tight limitations: the General Data Protection Regulation and Application Programming Interface (API) data scraping thresholds. These limitations made data exploration and analysis very difficult for many authors. The innovative contribution that this study wants to give is based on the use of a tool capable of overcoming these boundaries. Thanks to third party providers, social media APIs and web distributed scraping, Radarly collects data from more than 400 million sources. This process of retrieval changes according to the region, language or period and is carried out through a first "query", a set of keywords, hashtags or sentences which recall to a specific or general topic. After all sources are analyzed and all the contents captured, a phase of enrichment occurs, in which AI tools assign different indicators to the contents as sentiment or topic. In a second moment, results are requested through another "query" that, as well as the first one, includes keywords, sentences and mentions that recall the topic of the study. In fact, privileges obtained by Linkfluence are only possible thanks to commercial agreements with major social network platforms and data providers.

Our research was based on a sample of Italian opera houses that included all major ones, i.e.:

- the 13 "opera foundations" (as defined by the Italian law): Fondazione Teatro Massimo di Palermo, Teatro Comunale di Bologna, Teatro del Maggio Musicale Fiorentino, Teatro Carlo Felice di Genova, Teatro di San Carlo, Teatro dell'Opera di Roma, Teatro Regio di Torino, Teatro Lirico G.V. Di Trieste, Gran Teatro La Fenice, Arena di Verona, Teatro Lirico di Cagliari, Petruzzelli e Teatri di Bari, and
- two "tradition theaters" with a proven reputation of engagement in digital innovation: Teatro Comunale Luciano Pavarotti in Modena and Teatro Coccia in Novara.

Their social media performance was monitored in the 2-year period from Nov. 2019 to Oct. 2021, a time range that begins before the pandemic outbreak and ends after the reopening of theatres, therefore including both lockdown periods.

Results. Their use of social media shows a fluctuating but continuous trend, with peaks during the first lockdown. The opera houses in the sample generated more than 12,300 posts on major social platforms (Facebook, Instagram, and Twitter) (Fig. 1). Facebook was mostly used (56% of posts), followed by Instagram (39%) and Twitter (5%). Preferences for individual platforms were quite diversified. Some of the Theaters and Foundations have preferred to use one platform, while others have diversified their use. E.g., the Maggio Fiorentino shared more than 2,500 posts, mostly on Facebook. Only in some cases does Instagram turns out to be the most used platform, while Twitter nowhere asserts itself as the main platform (Fig. 2).

Fig. 1: Number of posts shared by the Italian Opera houses on the main platforms from November 2019 to October 2021

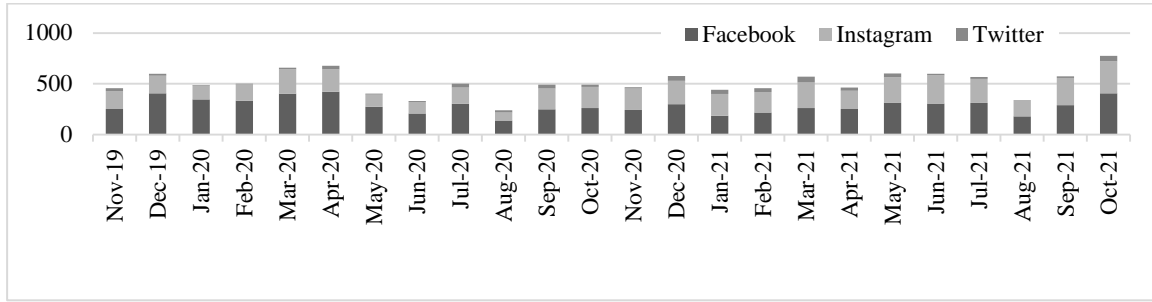
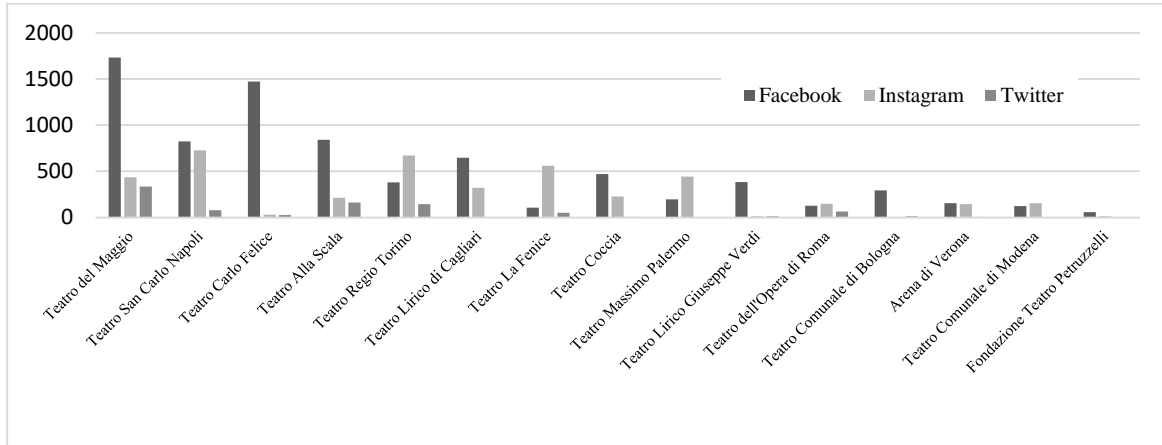


Fig. 2: Number of posts by opera house



Considering online interactions and audiences reached (Tab. 1), Teatro alla Scala’s social performance was undoubtedly the best, standing at more than one million interactions and reaching 32 million online users. Before the first lockdown the prominence of the main Italian opera house was out of question. In terms of interactions with the public and visibility the Teatro Alla Scala had no equal. Almost 40 percent of the sample’s interactions, in fact, were generated precisely by the content shared by the Scala, with an audience reaching close to 4 million users online. The premiere of the 2019/2020 season, “Tosca” by Giacomo Puccini, achieved more than 120,000 interactions, with an average of 1428 interactions/post.

Other opera houses (like the Maggio in Florence) did not translate high number of publications into large numbers of interactions or audiences reached. The La Fenice opera house in Venice did very well in terms of interactions, but less so in terms of viewership. This is partly explained by their preference for Instagram, which provides greater user engagement, but limits the sharing and, consequently, the number of online users exposed to the content. Most opera houses however had a much more limited levels of visibility and interaction. The Carlo Felice Theater Foundation ranks third in number of publications. However, the values of interaction and audience reached are not comparable to other Theaters, which, despite the lower frequency of publication, still achieved wide visibility and interaction.

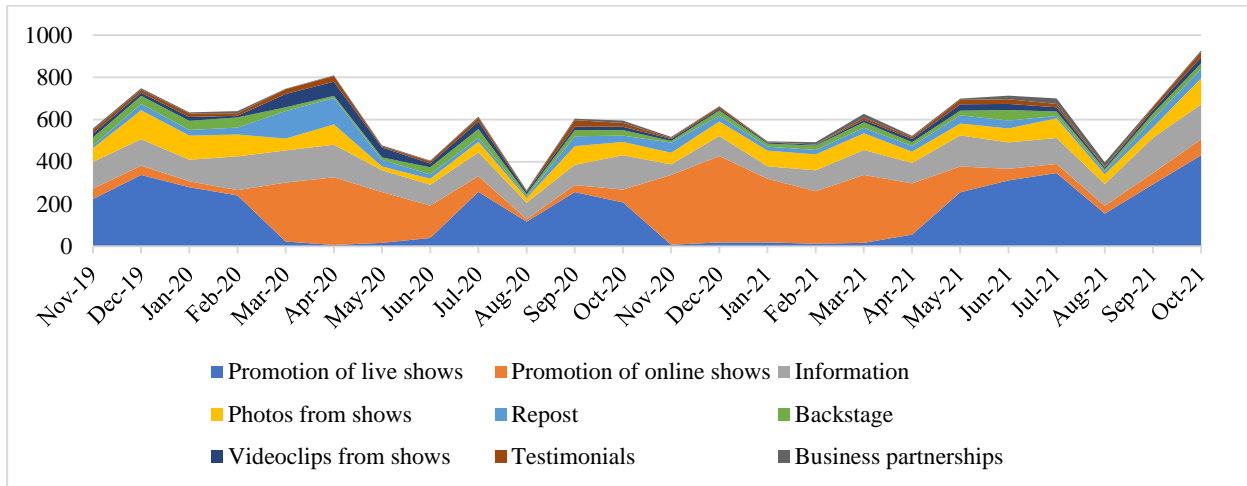
Tab. 1: Number of posts, interactions and audiences reached (million)

	Audience reached	Interactions	Posts
Teatro Alla Scala	32,22	1,02	1217
Teatro San Carlo Napoli	13,38	0,50	1628
Teatro Del Maggio	8,11	0,34	2503
Teatro La Fenice	6,82	0,65	716
Arena di Verona	4,77	0,17	305
Teatro Carlo Felice	3,35	0,10	1529
Teatro dell’Opera di Roma	3,05	0,14	337
Teatro Massimo Palermo	2,34	0,20	641
Teatro Regio Torino	2,20	0,15	1197
Teatro Lirico di Cagliari	1,60	0,11	968
Teatro Comunale di Bologna	0,94	0,03	309
Teatro Coccia	0,48	0,03	703
Teatro Lirico Giuseppe Verdi	0,35	0,03	409
Teatro Comunale di Modena	0,24	0,02	276
Fondazione Teatro Petruzzelli	0,20	0,01	69

Looking at the contents, nine categories were identified: 1) promotion of live performances; 2) promotion of online shows (opera streaming, digital productions); 3) information to the audience (times of performance, cast changes etc.); 4) photos from performances; 5) reposts; 6) backstage photos and videos; 7) video excerpts from performances; 8) testimonials (e.g., interviews with cast); 9) business collaborations.

The promotion of performances was the main theme, with a strong duality between live and online, the latter being neglected during regular opening periods. The pattern was reversed during the lockdown. During the first lockdown, promoting shows online was the most published content category by theaters. Interactions with communities increased but audiences reached dropped. The performance of the Teatro Regio di Torino was interesting (Fig. 3).

Fig. 3: Posts shared on Facebook, Instagram and Twitter by type (November 2019 - October 2021)



Commercial partnerships had the highest visibility per post. Teatro alla Scala originated nearly 26% of this, however, greatly influencing these results due to their large online community. Content of an informational nature, on the other hand, has very high interaction values per post. Promotion of performances, especially the live ones, failed to stimulate digital communities, receiving low interactions per post (Tab. 2).

Tab. 2: Impact per type of posts

Content	Audience/post	Interactions/post	Number of posts
Videoclips from shows	6969	241	3937
Backstage	6683	344	3554
Information	6693	379	2819
Photos from shows	9679	364	1678
Repost	3425	301	867
Business partnerships	15222	341	612
Promion of online shows	6991	278	520
Testimonials	9746	278	338
Promotion of live shows	5974	213	194

During the lockdowns, being unable to accommodate audiences in the auditorium, theaters have increased their use of social media. Following the announcement of the state of emergency and subsequent closure to the public, the theaters' social profiles feverishly increased the intensity of posting. Among them, the Regio di Torino had the largest increase, reaching the first position among the most active Theaters during the months of closure.

Some campaigns were launched aimed at increasing audience interaction and engagement, through messages of solidarity towards the opera house and its artists. The social campaign #ProudToBeRegio, launched by the Teatro Regio di Torino itself, generated 135 pieces of content, receiving more than 27 thousand interactions, and reaching more than 345 thousand online users. The Maggio Fiorentino opera house (hashtag #NoiSiamoIlMaggio), with 63 posts, reached 143 thousand online users and got more than 15 thousand interactions. Similar initiatives, but with less media resonance, were also carried out by Teatro Alla Scala (#WeAreLaScala) and Teatro La Fenice.

A multitude of free-of-charge digital content was made available through the Theaters' official channels, with the use of hashtags to specify the content. In this, the San Carlo Theater in Naples stood out positively, with 191 posts related to live broadcasts on Facebook and to recorded performances on the Theater's official WebTV. They achieved 47 thousand interactions and more than 15 million users reached. The Maggio opera house in Florence focused on live performances. With nearly 190 pieces of content, nearly 18 thousand interactions were recorded with an audience close to 620 thousand online users. On the other hand, Teatro Carlo Felice promoted a multichannel type of content, broadcasting live archival performances both on social channels and on the dedicated website.

The 2020 summer season was marked by the gradual reopening of theaters and performance venues. As a result, content veered toward promoting live events. Digital content, on the other hand, declined sharply. Behind-the-scenes content increased. With audiences now ready to be welcomed, digital content took a back seat, at least according to the data. The particularity of this period was the frequency with which the opera houses advertised and promoted performances of a “traveling” nature, thus no longer inside the theaters but in picturesque places in the open air. This is the case of Cagliari’s Teatro Lirico, with the performance of “La Cavalleria Rusticana” staged at the Parco della Musica Arena. Or again the Coccia Theater, which, on the occasion of #EstateNovarese2020, promoted a series of performances right in the Courtyard of the Castle of Novara. Behind-the-scenes content increased significantly during the summer period, ranking as the fifth most frequently published category of content. Among the Theaters most active on this front is Teatro La Fenice, which was responsible for 20 percent of the overall behind-the-scenes content shared during the quarter.

During the second lockdown, after a summer full of live events, hashtags used for the first lockdown were back in fashion, such as #LaCulturaNiSiFerma and #ApertiNonostanteTutto. Solidarity campaigns were dusted off. The Teatro Regio di Torino recovered its social campaign #ProudToBeRegio, with which it stimulates its community. With 92 posts, less than the 135 previously recorded, the Regio still managed to reach 49 thousand users and record 10 thousand interactions. The Teatro del Maggio launched its social campaign #UnaFotoAlGiorno, chronicling performances and spaces: 226 pieces of content for nearly 28 thousand interactions.

However, it is online events that are now dominating (56% of total posts). Among the most active were the Teatro San Carlo in Naples, the Teatro del Maggio and the Teatro Lirico in Cagliari. This second closure recorded almost twice as many interactions per post (308 vs. 178), as well as greater audience reached per post (6,500 vs. 5,000) for this type of content.

In contrast to what happened after the first reopening in June 2020, the “new normal” after the second reopening shows substantial continuity with previous months and is characterized by an above-average frequency of publication. The promotion of live performances is back as the first topic, but the promotion of online shows increases from 7% to 16 %, and monthly publication of content is well above average.

Research limitations. The scope of research has been limited to a number of Italian opera house because of time and resource constraints. Of course, following this explorative study, an extension to other countries would allow for a comparative analysis of the performance of different business models, e.g., to opera houses that are less dependent on public subsidies and more on corporate sponsorships. An ex-post assessment of the longer-term impact of the pandemic experience on social media strategies can be an important task for future research.

Managerial implications. Italian opera houses clearly performed as “newcomers” in the social landscape. Their approach was differentiated, and the frequency of publication did not always translate into community interactions or number of users reached. This can be explained by the choice of platforms, the previous record on social media, but also - as other streams of our research project show through case studies (Bellini & Raglianti, 2023) - by the availability of appropriate “dynamic capabilities” within the organization. An open question concerns the lasting character of the pandemic legacy. Data being presently collected confirm that the legacy is there, although approaches to digitalization are still highly differentiated.

A most interesting aspect of this is the shaping of digital audiences. Radarly data are being elaborated and show a significant impact on young audiences, also thanks to additional actors in the social landscape, such as artists, commercial brands, and influencers (Agostino et al., 2019).

Originality of the paper. The paper contributes to the analysis and interpretation of the impact of the Covid-19 experience on the business models of cultural institutions with reference to their digital marketing strategies. It is based on a unique set of data, professionally collected in cooperation with a social media intelligence platform.

Keywords: social media strategy; opera house; pandemic

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Assessing willingness to pay for different ecosystem services: results from a comparative study on river basins

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Framing of the research. *The last two decades has seen the rise of interest for the concept of ecosystem services (ES) and their monetary evaluation. The increasing understanding of the urgency to create a framework to promote a sustainable development for the thrive of human society and economy while sustainably using natural resources for future generations (UN, 1987), led to the necessity to develop a concept to bridge the principles of ecology and natural science with social science and economy (Braat and De Groot, 2012). This necessity encompasses, indeed, the arising awareness on the connections between the natural world and the anthropic one, which implies the comprehension that human well-being depends on the good ecological status of natural ecosystems (Guerry et al., 2015). Therefore, the concept of ecosystem services has gained attention not only between scholars, but also in the context of policy making, public management, and corporate responsibility. The definition of ES finds its roots in the Millennium Ecosystem Assessment (MEA, 2005), where ES are defined as “the benefits people obtain from ecosystems” and it evolves, few years later, in the “direct and indirect contributions of ecosystems to human well-being” (TEEB, 2010), thanks to the common acceptance of the role of ES in guaranteeing health, livelihood and survival of human societies.*

A step forward into the progress of the ES concept for a sustainable development and a responsible use of natural capital, has been represented by the efforts made by scholars and TEEB’s working groups to assess an economic and monetary value to ES. Despite its controversial aspects, the monetary valuation of ES has been recognized as an important tool for the sustainable and efficient management of natural resources, with practical implications on the decision-making process for environmental protection (Costanza et al., 2014). According to Costanza, the valuation of ES is inevitable, due to the intrinsic interconnections between the natural environment and human societies. We already use ES at different levels, from everyday life to business, and any time we make a decision regarding their application or maintenance we are considering a benefit trade-off based on their evaluation. Standardized and universally accepted methods for ES evaluation may, therefore, increase the transparency and accountability of the considerations achieved, resulting in an improved and unbiased decision-making process. Furthermore monetary evaluation of ES may be considered helpful in raising awareness on the usefulness of any goods and services provided by natural resources and translating it in economic terms, providing a tool to communicate efficiently ecological fundamentals and their contribution in sustaining human life, to different targets and in different contexts (Chee, 2004).

The monetary valuation of ES came up against several issues, considering that, first, many ES belong to the category of common good (Barnes, 2006) or common pool resources (Lant et al., 2008); and second, only a few ecosystems may be priced and traded in a real market (TEEB, 2010). As a matter of fact, according to the most accredited classification, while some ES (such as the provisioning ones) are consumptive and therefore, own a direct use value, most ES fall into the category of non-use or indirect-use value. Those latter ones may have a direct use value, but are considered not consumptive (as the case of recreational ES); may be necessary for benefiting other ES (as the case of supporting and regulating ES); and finally, may be esteemed for their intrinsic value (as the case of spiritual and aesthetic ES).

In order to deliver a correct evaluation of all the distinct typologies of ES, several approaches have been developed and tested during the last thirty years (Freeman III et al., 2014). Among them, the Contingent Valuation Method (CVM; Mitchell et al. 1989) is among the most applied techniques for assessing the non-market value of public goods such as

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the ES. This stated preference technique relies on questionnaire-based surveys where the respondents are asked to establish how much they would be willing to pay (WTP) for having access to a public good or service which is relevant for their livelihood or wellbeing, or how much they would be willing to accept (WTA) as a form of compensation for the loss or the inaccessibility of that good or service, in a hypothetical market.

Considering the emerging concerns on water security (Jury et al., 2007) at a global level and the incoming drought emergency in Italy (ISPRA), it is more than ever relevant to understand factors underlying citizens support for projects aimed at restoring degraded ecosystems and guaranteeing the possibility of benefiting ES related to clean and accessible freshwater for multiple uses. Therefore, this study will assess WTP for restoring freshwater ecosystems and investigate the motivations behind attitudes and behavioral intentions in the context of pro-environmental behavior. This is mostly relevant in the light of the commitment of key stakeholders, society and policy makers to improve the overall health of water resources and restore degraded ecosystems.

Purpose of the paper. Considering the emerging evidences that have shown the increased influence of psychometric characteristics of the target population (Deng et al., 2016, Raymond and Kenter, 2016, Sánchez et al., 2018, Wakita et al., 2019) over socio-demographic and economic variables that have been conventionally addressed by traditional economic theories, recent studies led to the urgency to develop a multi-disciplinary approach that includes not only the socioeconomic, but also the psycho-social dimension of population (Obeng and Aguilar, 2018), embracing moral (Shan et al., 2019), ethical (Spash et al., 2009) and emotional (Lam et al., 2022) factors.

Addressing the above-mentioned need, this study provides a comprehensive framework for analyzing the expressed preferences of WTP for the restoration of two drainage basins located in the northern Italy, comparing two scenarios that differ for the level of restoration of the ecosystems, and, consequently, for the ES that will be provided, and the uses of water resources guaranteed in the mid-term future. The results have been interpreted under the frame of the Theory of Planned Behavior (TPB; Ajzen, 1991) and the Value-Norm-Belief Theory (VNB; Stern et al., 1999), which have been successfully applied to explain a wide range of pro-environmental behaviors, including WTP (Yuriev et al., 2020). Therefore, this study aims at: i) providing useful insights on the comprehension of the psycho-attitudinal factors underpinning pro-environmental behavioral intention, with specific reference to WTP for freshwater ecosystems' restoration; ii) Compare the estimated value of ES that own a direct use-value and ES that don't; iii) investigating the role of psycho-attitudinal factors and the perceived benefits from different categories of ES in the evaluation process.

Methodology. We used the CVM to assess the citizens' WTP to finance an intervention to restore a river basin and improve the quality of ES provided by the area. The payment vehicle identified was an increase in the water bill. The choice of using WTP instead of WTA is due to the increased evidence that WTP allows to obtain a more reliable economic value (Del Saz-Salazar et al., 2009). In order to test our hypotheses, we replicated the same conceptual framework in two different sites. Firstly, we carried out a questionnaire-based survey on a representative sample of residents in Emilia Romagna, in the area between the cities of Forlì-Cesena, Ravenna e Rimini, which is close to the river basin to be restored in the hypothetical scenario proposed. This first survey was conducted on 518 respondents (Study 1). Second, to test the reliability of the first findings, we replicated the general structure applied in Study 1, to a smaller sample of citizens (278 respondents) living in Piemonte (Study 2). The two sites are characterized by similar features: both areas are considered urban zones with a strong presence of industrial, agricultural, and commercial activities.

In order to produce consistent results, the survey has been structured following the guideline developed by NOAA (Arrow et al., 1993) for contingent valuation studies. Each survey was divided into five sections, made mostly up by closed answers questions:

- the first section contained questions on socio-demographic and economic characteristics of respondents (age, gender, family members, income, residence, education, job role);
- in the second section, the area of the intervention was presented with pictures and a brief, but clear description;
- in the third session we included some questions to investigate the habit of the respondents to spend time in the area and their knowledge of it;
- in the fourth section, we explained the different scenario of the hypothetical market. In both the studies we described two different scenarios. In the first scenario the intervention on the ecosystem will provide residents with safe and clean drinking water for personal use only, while, in the second one, recreational activities and clean water for industrial and agricultural use will be guaranteed as well. In order to produce valuable results and reliable measure of non-market value of ES, goods and services provided by the river basin were explained in detail using plain language and providing simple and realistic examples. In addition to the text description, the section presented also images of the hypothetical appearance of the area after the intervention and the activities that will be carried out thanks to the ES provided. After the description we asked the respondents to make a bid for financing the intervention in both scenarios, and we added some question to distinguish true zero bids from protest voters (Ramajo-Hernández and del Saz-Salazar, 2012);
- in the last section we investigated psychometric, behavioral and attitudinal traits of respondents with 5-points Likert scale questions.

The data collected by the two different surveys were analyzed separately by means of Structural Equation Modelling (SEM), and regression analysis. Structural Equation Modelling is gaining momentum in the analysis of psychological traits since it allows to combine exploratory (EFA) and confirmatory factor analysis (CFA) with path analysis, and, therefore, to model the direct and indirect relationships between latent (unobservable) variables. This method allows, thus, to test different structural models, compare them and measure their validity. SEM was used mostly to assess the

influence of the psychometric and attitudinal traits on the WTP in the first (WTP1) and second scenario (WTP2). Then we use bivariate and multivariate logistic regression to investigate the differences between the WTP elicited in the two scenarios.

The psycho-attitudinal model was developed starting from two of the most popular approaches to explain pro-environmental behaviors: the Theory of Planned Behavior (TPB; Ajzen, 1991) and the Value-Norm-Belief Theory (VNB; Stern et al., 1999). Ajzen argued that each environmental behavior may be predicted by the intention to perform the behavior, which, in turn, is defined by: i) the attitude towards the behavior (i.e. whether the behavior is considered right or wrong to be performed); ii) the social norms, which is due to the perceived social pressure to engage in a certain behavior (i.e. pressure exerted by familiars, colleagues or friends); iii) the perceived behavioral control, which reflects the easiness to perform the behavior. On other side, Stern proposed a model where the principal value orientations (biospheric, altruistic and egoistic) reflect on general beliefs (i.e. beliefs regarding the concern for environmental status in generic terms) and specific beliefs (i.e. beliefs on the awareness of the context related problems and on the ascription of responsibility for self or other), which influence, in turns, the development of the personal moral norms that determine the engagement in a specific behavior. The majority of studies that apply these theories to explain WTP, employ extended or mixed version of them, by introducing new variables or modifying the assumed direct or indirect relations between the variables (Yuriev et al., 2020).

In this preliminary phase of the data analysis, the psycho-attitudinal variables that we consider to explain the variance in WTP are:

- attitude towards environmental activism behavior, which measures the inclination to perform behavior that imply “active involvement in environmental organizations or demonstrations” (Stern et al., 1999);
- Environmental concern, which measures the awareness of the general compromised status of natural ecosystems and related risks;
- Ascription of responsibility to the Government and public authorities;
- Perceived benefits of ES, which refers to the awareness and knowledge of the different typologies of ES provided by the area subjected to the intervention.

The model has been enriched with the following socio-demographic and economic variables, which are generally applied as predictors of WTP results:

- Age;
- Gender;
- Presence of children in the family;
- Education;
- Income;
- Frequency of visits in the area;
- Residence’s time lapse in the area.

Results. Although the study presented is still “work in progress”, to date, the preliminary results of the statistical data analysis showed some interesting results.

First of all, a two sample t-test was performed to compare the WTP in the two scenarios proposed for each study. According to the results of Wakita et al. (Wakita et al., 2019) on invisible and visible MES, in both studies the mean value of WTP1 (Study 1: $M = 33,06$, $SD = 32, 26$; Study 2: $M = 37,95$, $SD = 38, 65$) was significantly higher, than WTP2 (Study 1: $t(df) = 2.36$, $p = 0,01$; Study 2: $t(df) = 2.03$, $p = 0,02$). These results are validated additionally by a robust test where the protest voters are excluded.

In Study 1, 103 respondents (20% of the total sample) weren’t willing to pay to support the intervention in the first scenario, while 112 respondents (22%) weren’t in the second. It’s important to underlying that among them, only a minority was considered true zero, since 86 respondents were identified as protest voters. In most cases (59%) respondents showed no differences in eliciting a bid in the two different scenarios, but the 26% of respondents presented a higher WTP1, while the remaining (15%) a greater WTP2.

In the Study 2, 45 respondents (16 % of the total sample) weren’t willing to pay to support the intervention in the first scenario, while 53 respondents (19%) weren’t in the second. In this case 34 respondents were identified as protest voters. As for Study 1, also in Study 2 the majority of respondents (63%) offered the same bid for WTP1 e WTP2 and the 26% of them a higher WTP1, while the remaining a greater WTP2 (11%).

Our Structural Equation Model (SEM) predicted that the four independent psycho-attitudinal variables identified have a direct influence on WTP, considered as a behavioural intention. Both models had an acceptable model fit (Study 1: $\chi^2=464.431$, $p<0.001$; $RMSEA=0.041$; $CFI=0.963$; Study 2 $\chi^2=441.967$, $p<0.001$; $RMSEA=0.065$; $CFI=0.928$). According to expectations, and to TPB, attitude towards environmental activism behavior was positively related to WTP in both scenarios, in Study 1 and Study 2 ($p<0.001$), while the other variables didn’t significantly predict WTP in any case.

On the other hand, surprisingly, no psycho-attitudinal variables are significantly related to the relevant difference between WTP1 and WTP2 value in both studies. The only variables that seem to explain the tendency to evaluate discordantly the two scenarios are the habit to visit the area, the age, the education level and the residence’s time lapse. Nonetheless these results need further in-depth analysis to be interpreted properly and provide valuable insights.

Research limitations. The most relevant limitation of this study refers to the conceptual framework proposed to understand the factors influencing WTP. Even if our framework is based on the Stern’s VBN theory and the model includes the main psycho-attitudinal and socio-economics factors, the emotional, moral and ethics aspects have been

only poorly addressed. Nonetheless, in the last few years many scholars have advocated the necessity to evaluate the weight of emotional and ethical factors in the adoption of pro-environmental behaviors. Emerging evidence has shown that besides the traditional economic approach based on utilitarianism and consequentialism which focus on the usefulness of preserving ES for human beings, many environmental decisions may be based on a deontological set of values (De Groot and Steg, 2008, Spash, 1997). Additionally, this ethical implication seems to be relevant also in the context of WTP (Ojea and Loureiro, 2007, Raymond and Kenter, 2016, Spash et al., 2009). Moreover, in the recent years, some authors have discussed that emotions, such as feeling guilty, may play a relevant role in determining the adoption of pro-environmental behaviors, directly or acting as a mediator on value, beliefs and moral norms formation (Bamberg and Möser, 2007, Notaro et al., 2019). Despite these considerations, as argued by Kollmuss and Agyeman (Kollmuss and Agyeman, 2002), since there are numerous external and internal factors that may affect pro-environmental behaviors, which should be related in a complex and structured system, developing a model that includes all the different potential explaining variables may be “neither feasible nor useful”. In order to avoid unnecessary complexity that may have hidden some other relevant factors, thus, our model doesn't take into account ethics and emotions, but we recommend that will be considered in future research.

Another limitation that it's worth mentioning, regards the choice of relying on CVM to assess the value of non-use and indirect-use ES. Some scholars, whose considerations are corroborated by a few empirical studies (Sauer, U. , Fischer, A. 2010), argued that a hypothetical market doesn't represent necessarily the behavior that would be adopted in the real world. Despite these reservations, CVM is commonly accepted as a reliable system by most researchers and it's, so far, one of the few techniques available to measure non- market value. Moreover it's largely appreciated for its versatility, because it is applicable to a wide range of contexts and ES (Freeman III et al., 2014).

Managerial implications. Despite of this increasing awareness and the rise of academic literature on the relevance of natural capital for the livelihood and survival of human societies, our development is still occurring at the expense of ecosystem maintenance and natural fund, leading to an alarming degradation of ecosystems, severe loss of biodiversity and an unsustainable use and extraction of natural finite resources (MEA, 2005).

As highlighted by the last report of IPCC (IPCC, 2022) the effects of climate change and anthropic pressure on ecosystems and water availability is dramatically increasing and is leading to catastrophic consequences. For this reason, risks correlated to water insecurity, defined as ‘the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability’ (Grey and Sadoff, 2007), are gaining more and more attention (WEF). Consequently policy and decision makers at international levels are addressing the water crisis, promoting ecological conservation policies, circular strategies, the development of innovative technologies for wastewater treatment and the sustainable use, management and consumption of the water resource. Considering this, the ecosystem approach, encompassing the identification of ES, their economic valuation and the comprehension of the several factors that contribute to the assessment of their value, provides valuable insights for policy and decision makers in the light of the Water Framework Directive, introduced in Europe in 2000 to protect and restore the water environment and ensure its long-term, sustainable use (Vlachopoulou et al., 2014). This consideration is even more relevant, given the recent decision of United Nations members to restore 30% of degraded areas by 2030 (COP15). Provided the enormous investments needed for achieving this ambitious goal, the evaluation of ES would become more and more significant at different stages of the policy and decision making process.

Originality of the paper. To the best of our knowledge, there aren't academic publications on willingness to pay for freshwater ecosystem services that compare two different scenarios of ecosystem restoration and, following, of the ecosystem services provided in the different cases. This structure allows to investigate not only the underlying socio-demographic and psycho-attitudinal factors affecting WTP but offers important insights on the perceived usefulness and benefits from different kind of ecosystem services and how this perception may affect the respondents' intention of adopting pro-environmental behavior. As a matter of fact, perceived benefits from ES, defined as the positive outcomes derived from the good and services provided by a functioning ecosystem which are clearly recognized by the respondents, are positively correlated with attitude towards pro-environmental behavior and consequently, with the intention to perform the behavior (Chiou et al., 2021). The difficulty to assess the economic value of ES and to engage citizens in program of eco-compensation rely partially on the poor knowledge and awareness of the wide range of services provided by natural ecosystems. Regarding this, some scholars have shown how the concepts of “ecosystem”, “ecosystem services” and “ecosystem restoration” are still poorly recognized and understood by the general public and how this gap in knowledge inevitably affects the perceived usefulness and benefits of ES (Chiou et al., 2021). In addition, cultural, regulating and supporting ES are difficult to intellectualize and materialize due to their intangible nature. Wakita et al. (Wakita et al., 2019) carried out a first comparison between visible and invisible marine ecosystem services, by assessing, in a comparative study, the WTP for regulating and provisioning ES. Surprisingly their results show that the WTP for the invisible MES exceeded the WTP for the visible one. Following the experiment on MES, we verified that the influence of knowledge and perceived benefits of ES on WTP hasn't been largely investigated by academic research, and this paper represents a first attempt to fill this gap.

Keywords: Willingness to pay (WTP); regenerative economy; ecosystem services; ecosystem management; river basin; comparative study

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To stay or not to stay in eco-friendly hotels: A norms perspective

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Framing of the research. *Tourist activities play a relevant role in environmental degradation (Liu et al., 2022). Particularly, hotels operating 24 hours a day represent one of the most energy-intensive type of business activity (Huang et al., 2015). Against this backdrop, tourists can mitigate their negative effect on the environment by deciding to opt for an eco-friendly hotel, namely, a specific type of accommodation that follows environmentally friendly programs and implements environmental management activities, such as green marketing, corporate social responsibility (CSR) strategies, and a green supply chain management (Chen and Peng, 2012; Mohd Suki and Mohd Suki, 2015).*

Focusing on the demand side, the tourism industry is still far from being sustainable (Buckley, 2012), as evidenced by the existence of an awareness-attitude-behavior gap correlated with a range of personal and psychological barriers (Antimova et al., 2012; Cocolas et al., 2020; Hibbert et al., 2013; Juvan and Dolnicar, 2014). Against this backdrop, both scholars and practitioners are suggesting changing individuals' patterns of behavior via norms intervention (Landon et al., 2018; Perry et al., 2021; Wang et al., 2022; Wu et al., 2021). According to Thøgersen (2006), it is possible to distinguish between descriptive social norms, injunctive social norms, and personal norms. Descriptive social norms concern the individual's perception of what other people do or don't do in any given situation. Hence, descriptive social norms move individuals to act via social information (Cialdini, 2007). Injunctive social norms regard the individual's perception of what others approve of or expect of them. Therefore, as highlighted by Cialdini (2007), individuals engage in a given behavior because they feel social pressure (e.g., family, peers, school/work, community). Personal norms differ from descriptive and injunctive norms because they concern moral obligations (Schwartz and Howard, 1981). Personal norms are incorporated into individuals. Contrarily, both injunctive and descriptive norms are external factors, which in turn can be internalized as personal norms (Thøgersen, 1996). Therefore, they may exert a positive effect on a given behavior indirectly, through internalized norms (Silvi and Padilla, 2021).

According to the extant literature, individuals' intention to stay in eco-friendly hotels is positively influenced by injunctive social norms (Chen and Peng, 2012; Kim and Han, 2010; Nimri et al., 2020) and personal norms (Bashir et al., 2019; Yan and Chai, 2021). A negative correlation was found between descriptive norms and intention to stay in eco-friendly hotel (Wang et al., 2023). Focusing on the mediating role of personal norm on the impacts of descriptive and injunctive norms on intention to stay in eco-friendly hotel, Doran and Larsen (2016) showed that personal norms mediated the link between injunctive social norms and intention to choose eco-friendly travel options. No empirical studies to date investigated the mediating role of personal norm in the effect that descriptive norms have on intention to stay in eco-friendly hotel. However, this aspect has been tested on other specific pro-environmental behaviors in the tourism context, such as young vacationers' waste reduction and recycling intentions (Han et al., 2018), or tourists' pro-environmental behaviors (Wang et al., 2020).

Purpose of the paper. *The study assumes a normative perspective to investigate how tourists are willing to opt for eco-friendly hotels. Since sustainability is everyone's responsibility this study adopts a cross-generational perspective. Hence, we investigated how different generational cohorts are willing to opt for eco-friendly hotels. Generational analysis is of paramount importance to recognize demand changes and opportunities in a given market or industry (Li et al., 2013). As maintained by Dimock (2019), there are five major generations: the Silent Generation, Baby Boomers, Generation X, Generation Y, and Generation Z. Those who were born between 1928 and 1945 are considered as the Silent Generation. Baby Boomers were born from 1946 to 1964. Generation X were born between 1965 and 1980. Generation Y, also known as the Millennials, were born between 1981 and 1996. Finally, Generation Z includes anyone born between 1997 and 2012. In this study we compared Generation X, Millennials, and Generation Z.*

Based on the literature concerning normative theories and empirical studies about behavioral intention to stay in eco-friendly this study advanced the following hypotheses:

H1: Personal norms have a significant and positive impact on tourists' intention to book an eco-friendly hotel.

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H2: Descriptive social norms have a significant and negative impact on tourists' intention to book an eco-friendly hotel.

H3: Injunctive social norms have a significant and positive impact on tourists' intention to book an eco-friendly hotel.

H4: Personal norms mediate the relationship between descriptive social norms and tourists' intention to book an eco-friendly hotel.

H5: Personal norms mediate the relationship between injunctive social norms and tourists' intention to book an eco-friendly hotel.

See Figure 1 for more details.

Methodology. This study adopted a self-administered questionnaire distributed by mail. We employed previous tourism literature to develop the measurement items for the present research. Specifically, personal norms were measured using four items based on the scale of Landon et al. (2018) (i.e., "PN1: As a tourist, I feel morally obliged to do whatever I can to minimize my environmental impact"; "PN2: I would feel guilty if I were responsible for damage to the environment as a tourist"; "PN3: Minimizing my impact on the environment is the right thing to do"; "PN4: I am obliged to do my part to reduce my impact on the environment as a tourist"). Injunctive social norms were measured using four items adapted from Chen and Tung (2014) (i.e., "ISN1: People whose opinions I value would prefer that I stay at a green hotel when travelling"; "ISN2: Most people who are important to me think I should stay at a green hotel when travelling", "ISN3: Most people who are important to me would want me to stay at a green hotel when travelling). Descriptive social norms were measured using a scale, which comprised two items, developed by De Leeuw et al. (2015) (i.e., "DN1: Most people who are important to me will stay at a green hotel when travelling"; "DN2: Most people whose opinions I value will stay at a green hotel when travelling"). Finally, three items adopted from Nimri et al. (2021) were used to measure tourists' intention to book an eco-friendly hotel (i.e., "INT1: I am willing to stay at an ecofriendly hotel when travelling"; "INT2: I plan to stay at an eco-friendly hotel when travelling"; "INT3: I will make an effort to stay at a green hotel when travelling"). All items were measured on a seven-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree).

We used Google Form to create and distribute the online survey. We collected 570 answers between September and December 2022 in the Italian context (Male = 45.4%, Female = 54.6%; Mean age = 33.7, Std. error of mean = 0.504, Std. deviation = 12.05). Structural equation modelling (SEM) and multigroup analysis via SPSS® AMOS were performed to analyze collected data. Before proceeding with the SEM analysis, we conducted a confirmative factor analysis (CFA) to investigate model reliability, as well as convergent and discriminant validity of the measures (Hair et al., 2017). A bootstrapping procedure (5000 subsamples) with a bias-corrected interval of 95% proposed by Hair et al. (2014) was adopted to evaluate the statistical significance of the path coefficients (β). A multigroup analysis was performed to evaluate significant differences between Generation X, Millennials, and Generation Z regarding their intention to opt for an eco-friendly hotel.

Results. Good model fit values were found in CFA ($X^2 = 104.107$, $df = 48$, $X^2/df = 2.169$, Incremental fit index (IFI) = 0.984, Normed fit index (NFI) = 0.971, Comparative fit index (CFI) = 0.984, Tucker Lewis Index (TLI) = 0.978, and Root mean square error of approximation (RMSEA) = 0.045. As showed in Table 1, Cronbach alpha values were found above the accepted significance level of ≥ 0.70 (Hair et al., 2010). Composite reliability (CR) values are also above the threshold of ≥ 0.60 suggested by Hair et al. (2010). Therefore, the results indicate that the reliability of the measurement model is acceptable. The validity of the measurement model was estimated by examining both convergent validity and discriminant validity (Hair et al., 2010). The average variance extracted (AVE) was used to measure convergent validity. All the AVE of each construct are above 0.50 (Hair et al., 2010). Thus, the convergent validity is acceptable. Finally, we used the criteria of Fornell and Larcker (1981) to test discriminant validity. According to the results depicted in Table 1, the square root of the average variance extracted of each construct was higher than inter-construct correlations; hence, discriminant validity was supported.

Tab. 1: Reliability and validity assessment.

	PN	ISN	DN	INT
PN	0.850			
ISN	0.411	0.898		
DN	0.611	0.428	0.935	
INT	0.664	0.488	0.489	0.829
Cronbach's alpha	0.872	0.880	0.857	0.773
Composite reliability	0.856	0.881	0.865	0.774
Average variance extracted (AVE)	0.723	0.806	0.874	0.687

Note: Bold values = square root of AVE.

According to the results of the SEM analysis (see Table 2 and Figure 1) except for H2, all the other hypotheses are supported. Personal norms ($\beta = 0.524$, $p < 0.001$) represent the main predictor of intention to stay in an eco-friendly hotel, followed by injunctive social norms ($\beta = 0.245$, $p < 0.001$). The correlation between descriptive social norms and intention to stay in an eco-friendly hotel was not statistically significant ($\beta = 0.065$, $p = 0.29$). While injunctive social

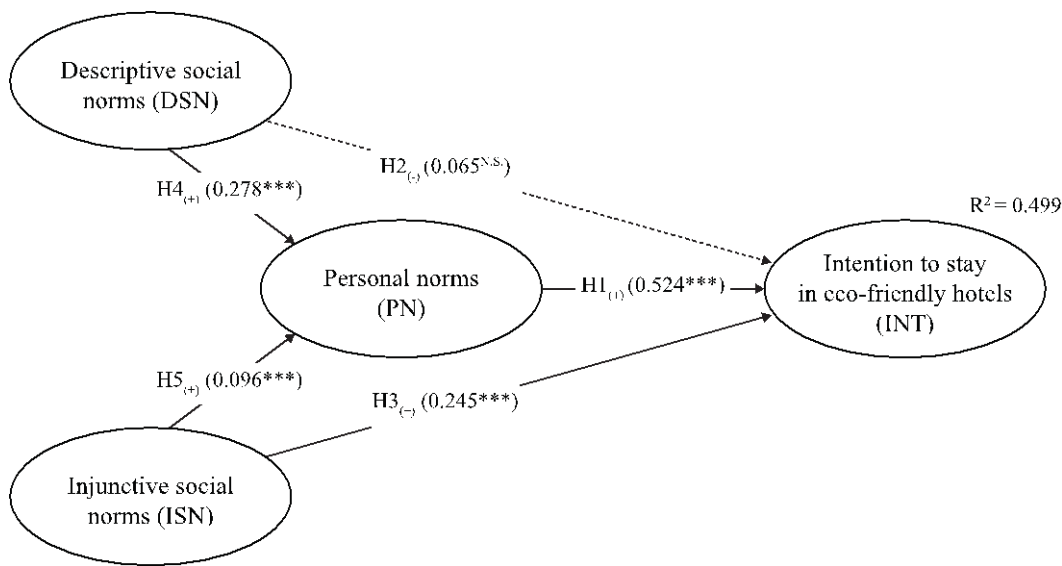
norms influence intention both directly and indirectly through personal norms, descriptive social norms influence intention to stay in an ecofriendly hotel only indirectly through personal norms.

Tab. 2: Results of hypotheses testing.

Paths	β	95% CI		P-value	Hypothesis
		Lower	Upper		
PN \rightarrow INT	0.524	0.411	0.628	$p < 0.001$	H1 supported
DN \rightarrow INT	0.065	-0.05	0.173	0.29	H2 not supported
ISN \rightarrow INT	0.245	0.164	0.324	$p < 0.001$	H3 supported
DN \rightarrow PA \rightarrow INT	0.278	0.208	0.006	$p < 0.001$	H4 supported
ISN \rightarrow PA \rightarrow INT	0.096	0.052	0.151	$p < 0.001$	H5 supported

Note: β = Standardized β Weights; CI = Confidence interval.

Fig. 1: Figure 1. Hypotheses results and path coefficients. Notes: **** $p < 0.001$; N.S. = not significant.



Results of the multigroup analysis indicate that respondents of Generation X ($n = 172$) are more prone than other cohorts to book an eco-friendly hotel while traveling, the predictive power of the model is 50.9% ($R^2=0.509$). Follows Generation Z ($n = 208$), the model predicts the 47.7% ($R^2=0.476$) of the intention, and Millennial ($n = 190$), the model predicts the 41.9% ($R^2=0.419$) of the intention. The significant influence of personal norms on behavioral intention characterizes all three generational cohorts. Descriptive norms do not exert a direct effect. Whereas injunctive social norms exert both a direct and indirect effect through personal norms.

Research limitations. This research has limitations that may represent avenues for future research. First, this study has been conducted only in one country, that is, Italy. Hence, future research can perform cross-cultural analysis to increase the generalizability of the results. Second, we investigated the behavioral intention. Therefore, future studies could measure actual behavior. For example, a survey could be administered on-site to the consumers of an eco-friendly hotel.

Managerial implications. This research informs practitioners in several respects. First, the results of the study advise practitioners about the relevance of personal norms in influencing individuals' intention to opt for eco-friendly hotels. This means that people are motivated by inner values rather than external forces such as social information and peer pressure. Furthermore, this study highlighted that tourist sustainability matter different generations. Specifically, since Generation Z will represent the central work force in society (Yamane and Kaneko, 2021) and it is expected to dominate the consumer market in the near future (Su et al., 2019), hoteliers should pay attention to this cohort, for example by adopting specific product offering and communication strategies to promote eco-friendly hotels.

Originality of the paper. To the best of our knowledge this is the first study to investigate the phenomenon of individual's intention to opt for an eco-friendly hotel while travelling by assuming a cross-generational perspective. To the best of our knowledge, it is also the first to investigate the mediating role of personal norm in the effect that descriptive norms have on intention to stay in eco-friendly hotel.

Keywords: Generational analysis; sustainable tourism; norms; eco-friendly hotels

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Oleotourism: a bibliometric review of the literature and valuable paths for rural Italian territories

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Framing of the research. *The tourism industry is facing significant challenges due to high levels of competition among destinations and the growing knowledge and specialization of consumers, which require constant innovation and attention to the desires of modern tourists (Goffi et al., 2019; Streimikiene et al., 2021). Consumers seek emotional and experiential products capable of enhancing their life quality and well-being; thus, tourism firms must offer intangible value through tangible proposals (Sigala, 2019).*

To do so, tourism firms are called to rethink how their business takes place, and this can be done by re-establishing the connection to their local roots, from which to draw inspiration and resources for innovative strategies and value creation and sharing among multiple actors at multiple levels, with cascading positive economic, social, and environmental impacts (Attig and Brockman, 2017; Mair et al., 2016; Paniccia and Leoni, 2019; Soderstrom and Weber, 2020; Sternad et al., 2017).

In this vein, gastronomic tourism is a popular practice providing experiential contact between tourists and destinations (Lin, 2014; Ryu and Jang, 2006). It involves learning about a territory through its culinary culture, including the traditional dishes, history, knowledge, and social customs of local communities, providing authenticity, involvement, and education to tourists (López-Guzmán et al., 2014; Germann Molz, 2007). In particular, gastronomic tourists have three main characteristics: i) They are interested in tourism offering that provide emotions, authenticity, and learning; ii) They would like to contribute to the sustainability of the territory they visit; and iii) They seek that food is able to improve their health and well-being (Lin, 2014).

In this sense, among the different types of gastronomic tourism, Oleotourism is in line with these characteristics. In fact, Oleotourism - or olive oil tourism - has been gaining ground in recent years, especially due to its environmental and cultural values, favouring the preservation of both tangible and intangible assets linked to the olive-growing areas (Alonso and Krajsic, 2013). This type of tourism is particularly important for Mediterranean countries - such as Spain, Italy, and Greece - that are almost the only holders of this heritage worldwide; thus, the largest producers (Sabbatini et al., 2016).

Accordingly, Oleotourism can be considered a strategic resource due to its social, economic, and cultural value and its potential to revitalise and differentiate rural areas of Mediterranean countries, increasing and improving their international attractiveness (Alonso, 2010; Alonso and Krajsic, 2013; Northcote and Alonso, 2011). Furthermore, it is worth noting that this form of tourism embraces and satisfies different types of tourism and related tourists, such as rural (e.g., agritourism), nature-based (e.g., health tourism), and cultural tourism (e.g., gastronomic tourism) (Pulido-Fernández et al., 2019).

Purpose of the paper. *Based on the above, the aim of this work is twofold. The first one is to identify and investigate the literature produced up to now about oleotourism, to establish the current state of the art on the subject and its future research venues. The second objective is to identify possible lines of action for Italian rural territories that produce olive oil based on best practices reported in the literature.*

For the sake of clarity, it is worth noting that reviews on oleotourism already exist (e.g., Hernández-Mogollón et al., 2019; Pulido-Fernández et al., 2019). However, our study differs from previous ones since it provides a clear bibliographic coupling analysis, thus adding to Hernández-Mogollón et al. (2019)'s bibliometric and content analysis that resulted in having identified oleotourism demand, oleotourism supply, and SWOT analysis; and Pulido-Fernández et al. (2019)'s contribution that classified literature on two perspectives (i.e., demand and supply) and seven links (e.g., gastronomy, industrial, rural, nature) to olive-oil tourism.

Methodology. *Bibliometric reviews in business and management fields are increasing (Zupic and Čater, 2015) because they provide more objective and reliable literature analyses compared to "classical" reviews by quantitatively*

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analyse the academic literature and providing a comprehensive map of a research field (Diodato and Gellatly, 2013; López-Fernández et al., 2016). This article used the Scopus research database.

To ensure that all pertinent evidence was gathered, ad-hoc keywords were developed and used, associating them with Boolean logic, namely “OR”, “AND”, and truncation (i.e., *) when appropriate. Hence, the following research strings were used: (olive* OR oleo* OR ole*) AND (touris*). The set of keywords was based on those used by Hernández-Mogollón et al. (2019).

The query was run on 13th March 2023, in “Title, Abstract, Keywords” and was limited to “Business, Management and Accounting” as the subject area. It is worth noting that we avoid using the term “oil” since it returned contributions related to oil for transportation. Thus, a total of 68 contributions resulted from the following query:

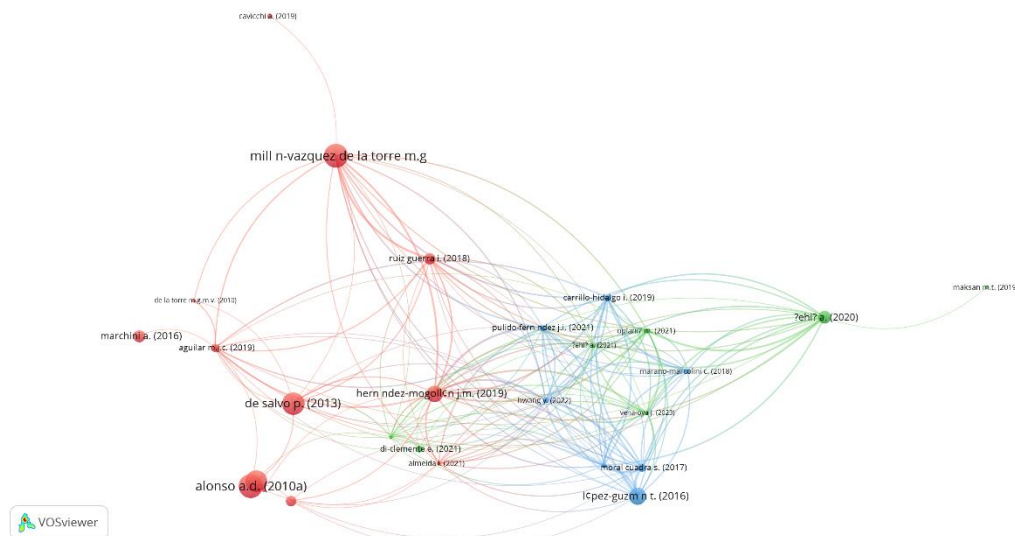
TITLE-ABS-KEY (((olive* OR oleo* OR ole*) AND (touris*))) AND (LIMIT-TO (SUBJAREA , “BUSI”))

We then proceeded in revising the titles and the abstracts of these papers to identify our intellectual core that eventually resulted in 37 papers. Several studies, in fact, entered in the initial set of papers because they contained reference to Oliver’s expectancy disconfirmation theory or linkages to other authors mentioned in the abstract (such as O’Leary and de Oliveira). Our final sample is smaller than Hernández-Mogollón et al. (2019)’s one that considered 52 documents based on “Olive oil tourism, Oleotourism, Olive tourism, olive-based agrotourism” research string in Scopus and Web of Science databases, plus doctoral theses, and books, and then the contribution by Pulido-Fernández et al. (2019) that returned in 39 papers on Web of Science, Scopus, SciELO and Google scholar databases.

The smaller number (than the previous literature reviews) of the contributions we selected resulted, however, in a more focused and replicable analysis. Moreover, our intention was to select only peer-reviewed articles published in journals. Therefore, all grey literature (e.g., theses) was not taken into account. Furthermore, we concentrate exclusively on the Scopus database because it is recognized as one of the main databases used in bibliometric related studies (Ellegaard, 2018; Lei and Liu, 2019; Yu et al., 2018) and about 99.11% of the journals indexed in Web of Science are also indexed in Scopus (Singh et al., 2021); therefore, we can hypothesize that our query exclusively in Scopus was able to extrapolate all those contributions that we would have found after searching in Web of Science as well.

To analyse the final sample, we used VosViewer software, and we found 3 clusters (minimum cluster size equal to 5) based on 27 out of 37 contributions, as represented in Figure 1. This denotes very disconnected research, which does not have an established knowledge base.

Fig. 1: Bibliographic coupling analysis



(Source: VosViewer)

Results. The first cluster (red) comprises 13 papers on the timespan 2010-2021. It looks at the producers and the other stakeholders who might be involved in developing the oleotourism offer. In particular, there are several type of organizations and “format” to consider such as museums and specialized shops (Almeida and Silveira, 2021), the development of gastronomic routes (Millán-Vazquez de la Torre et al., 2017), and events such as open oil mills (Marchini et al., 2016). In fact, there are different types of tourism, based on specific pull factors such as experimental (meant as the involvement of the tourists in ‘in-field’ activities), nature and sports (e.g., walking), and other attractions and cultural heritage (Ruiz Guerra et al., 2018).

The second cluster (green) comprises 7 papers that consider how to develop oleotourism. In this vein, tourist experiences (Campón-Cerro et al., 2022; Čehić et al., 2021), the role of residents’ involvement (Di-Clemente et al., 2021), but also oil mills, oil-related museums, olive farms, olive oil roads, and oleotece (Čehić et al., 2020) are important. A crucial aspect it also related to the identification of certified (PDO) olive oil (Maksan and Brečić, 2019).

The third cluster (blue) comprises 7 papers in the timeframe 2016-2022 about the factors affecting oleotourists. In this regard, the literature mainly refers to three aspects: (a) socio-demographic characteristics, such as gender, country of origin, age, professional category, income, with a particular relevance of education (Hwang and Quadri-Felitti, 2022); (b) types of experience (Hwang and Quadri-Felitti, 2022); (c) variables related to the tourists destinations such as shopping area, sports (López-Guzmán et al., 2016).

Based on these three clusters and on an analysis of the remaining papers that did not appear in the VosViewer analysis, we provided an overarching framework that could guide future research.

Firstly, we noticed that there is a broad heterogeneity in terms of countries. Specifically, countries differ among them both in terms of demand (what tourists are looking for) and offer based on the level of oleotourism development (i.e., life cycle). Surprisingly, we found contributions from Croatia (Maksan and Brečić, 2019), beyond the more traditional Spain (Aguilar and García, 2019) and Portugal (Almeida and Silveira, 2021), while little is known with respect to the Italian context (Cavicchi and Santini, 2019; De Salvo et al., 2013). This occurs despite the fact that Italy has a long-lasting tradition and reputation in term of oleo production and a huge potential, just little exploited at the moment, in term of oleotourism. This urges to deepen the scientific debate on this still emergent type of tourism, especially in certain countries (i.e., Italy).

Secondly, extant research noticed the need to involve multiple stakeholders. In other terms, we think that there is a need to deeply understand the extent to which whether, and the extent to which, the tourism stakeholders share a common boundary object (Del Chiappa et al. 2018) as per needed to develop an oleotourism ecosystem capable of connecting multiple stakeholders, no latter residents, at multiple levels, namely: micro (i.e., local level), meso (i.e., regional level), and macro (i.e., national, and even international, level). To this respect, we suggest moving from the already identified activities (Čehić et al., 2020; Marchini et al., 2016), but also involve all the other associations that could play an important role on the promotion and valorisation of the olive oil. In particular, we think that the activities identified by Pulido-Fernández et al. (2019) - based on a panel of experts - could contribute to developing the oleotourism. In this respect, a co-evolutionary approach to oleotourism and all the involved actors may be beneficial in order to understand how to create the ecosystem (Cristofaro et al., 2019; Leoni and Cristofaro, 2022; Paniccia and Leoni, 2019). The co-evolution concept, in fact, has demonstrated to be a valid perspective to grasp the key interdependencies among the natural, socio-cultural, and economic resources of firms and their external environment, as well as their dynamics over time (Brouder and Eriksson, 2013), especially in tourism contexts (Paniccia and Baiocco, 2020). In fact, co-evolution in tourism allows identifying the factors that can promote co-evolutionary adaptations between tourism firms, institutions, local communities, and tourists that co-determine the tourist offering, enhancing the natural and cultural identities of a destination with positive effects in terms of life quality (Bramwell et al., 2017; Ma and Hassink, 2013) and, in turn, on sustainability (Li et al., 2022; Zutshi et al., 2022). In particular, co-evolution in tourism allows considering the interactions that take place among multiple stakeholders at multiple levels, namely micro (tourism entrepreneurs and their firm), meso (the destination in which the tourism firms are rooted) and macro (the wider socio-economic and natural system); thus, it constitutes a valid lens with which future studies could investigate the actors and processes related to oleotourism.

Thirdly, we acknowledged the presence of studies on consumption (Sabbatini et al., 2016), while little is known about tourists' buying behaviour and how tourists are willing to pay more for olive oil, beyond the PDO designation (Maksan and Brečić, 2019).

Fourthly and lastly, we did not see contributions on the role of new technologies in shaping oleotourists' experiences and on how they can be adopted, for example, by all those stakeholders that might create an oleotourism ecosystem.

Research limitations. The paper has focused only on Scopus database, while it has not considered Web of Science and Google Scholars. Similar to the other two reviews identified (i.e., Hernández-Mogollón et al., 2019; Pulido-Fernández et al., 2019), also our results show that there are two aspects to consider (i.e., supply and demand), but we propose to stretch the existing research towards the broader concept of oleotourism ecosystem.

Managerial implications. This manuscript advances current research on the oleotourism, introducing four main factors that oleotourism' stakeholders might consider in designing their strategies: the Italian oleotourism positioning within the European context and beyond it (little is known on other countries characterized by both tourism and olive oil production); the actors that need to be involved in proposing an oleotourism offering (in terms of the development of an oleotourism ecosystem); the oleotourists' profiles that, contrary to other products such as wine, are less investigated; how to use technologies in both supply and demand sides for helping oleotourism.

These four factors represent the basis on which to build valuable paths for rural Italian territories, especially in the South of the country. In this regard, it is important to underline that 80% of the Italian production of olive oil derives from the regions of southern Italy such as Puglia, Calabria and Sicily, and that Italy holds more than 40 denominations of Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) recognized by the European Union (Associazione Nazionale Città dell'Olio, 2019). Despite this, oleotourism was recognized, by law, like wine tourism only in 2021 (see the current article 2135 of the Civil Code). Furthermore, according to the report "La valorizzazione turistica dell'olio" (Garibaldi, 2019), 37% of Italian tourists have visited an oil firm and/or an oil mill during their most recent trips and 69% would like to take part in them. Moreover, the desire to discover olive oil is not limited to the place of production. As many as 60% of Italian tourists would like to be able to taste different types of olive oil and find a specific olive oil list in combination with the dishes offered by restaurants.

The above demonstrates the existence of a market that need to be satisfied, as well as the need to go beyond the traditional offering - mostly linked to visits to production sites and tastings - in order to build broader and more segmented proposals, capable of stimulating tourists' curiosity and active participation. To this end, the ability of Italian destinations to integrate - within their own tourism portfolio - the experiences related to olive oil becomes crucial.

Therefore, the development of oleotourism in Italy represents an extraordinary chance to offer new opportunities to Italian and foreign tourists, based not only on a taste experience, but also on the culture and history of each specific olive-oil growing area.

Originality of the paper. This paper identifies valuable possible paths that rural Italian territories rich in olive trees can implement to enhance local territories through tourism and with positive cascading effects in social, environmental, and economic terms at multiple levels (local, regional, national/international).

Keywords: Oleotourism, Tourism, Olive oil, Sustainable tourism, Local tourism, Review.

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