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Boosting knowledge & trust for a sustainable business

June 30th and July 1st 2022

Electronic Conference Proceedings

Extended Abstracts

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To the reader,

this volume contains the full papers of the Sinergie-SIMA 2022 Management Conference, hosted by the University of Bocconi of Milan on June 30th and July 1st 2022.

The resource-based view (RBV) has been one of the most cited streams of research in the management literature. This theory has been one of the few theories completely developed within the management disciplines. Since the initial pioneering research in the 80s and 90s, the study of knowledge- and trust-based resources has interested many theoretical and empirical works concerning many issues: company strategies, mergers and acquisitions, alliances and partnerships, organization and HR, innovation, marketing, consumer behavior, channel relationships, entrepreneurship, internationalization, and more. Today the post-pandemic world presents new challenges for managers, organizations, and researchers on which a deeper understanding of knowledge- and trust-based resources can help and shed a new light.

Sustainability and a fast digital transformation are nowadays considered key goals for many companies, managers, public organizations, and governments under the umbrella of EU Next Generation Recovery Plan. The real challenge now is to enhance and leverage the intangible resources heritage - namely knowledge and trust - to get a more sustainable, inclusive and digital world and, as a consequence, for building a better society. In this perspective, also the long-term goals of the firm and its finalism have to be totally re-shaped.

Sinergie Italian Journal of Management dedicated a special issue to this topic more than 20 years ago and many scholars have studied and deepened this multi-faced topic with original approaches in our community.

The Sinergie-SIMA 2022 Management Conference was a great occasion to discuss about the research efforts of our research community on knowledge and trust, also to find new ways to interpret the future economic and social environment to face the post-pandemic challenges.

The Conference call for papers gave the opportunity to submit either an *extended abstract* or a *full paper*. Overall, the editorial staff received 135 *extended abstracts* and 60 *full papers*.

For the *extended abstracts*, the evaluation of the submissions was carried out by the Conference Chairs and the Scientific Committee, on the basis of their consistency with the Conference topic and/or with management studies, according to SIMA Thematic Groups. The clarity and (even potential) relevance of the contributions were evaluated, as well.

For the *full 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,
- consistency of the contents with the Conference topic/tracks and/or with management studies,
- contribution in terms of originality/innovativeness,
- relevance in relation to the Conference topic/tracks and/or with management studies,
- clarity of communication,
- significance of the bibliographical basis.

The *peer review* process resulted in full acceptance, acceptance with revisions or rejection of the submissions. In the case of disagreement among reviewers' evaluations, the decision was taken by the Conference Chairs. Each work was then sent back to the Authors together with the referees' reports to make the revisions suggested by the referees.

The evaluation process ended with the acceptance of 30 *full papers* and 121 *extended abstracts*, which were published in two distinct volumes.

All the *full 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 boosting knowledge and trust for a sustainable business.

The Conference Chairs

Sandro Castaldo, Marta Ugolini, and Gianmario Verona

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Consumer nostalgia in the Commonwealth of Independent States

An explorative study

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Research background. *Nostalgia is a complex emotional state (Cui, 2015, p. 126), and it can be defined as “a positive preference for the past involving negative feelings toward the present or future” (Davis, 1979, p. 18). Nostalgia is particularly tied to experiences that are object related (Cervellon et al., 2012). The bonding of objects to nostalgic memories bears significant relevance to the consumer-goods markets and, as it persists over time, is equated to intense brand loyalty (Holbrook and Schindler, 2003). Unlike materialistic objects with public symbolic value, nostalgic products are of a private nature (Rindfleisch et al., 2000), and the actual stages of nostalgic consumption gradually change and correlate with age (Holbrook, 1993). Moreover, Holak and Havlena (1992) demonstrated that nostalgia for specific past periods or events can affect people and influence their feelings and attitudes, also if those people were not born or did not live these historical moments.*

Nostalgia is frequently adopted by companies in order to impact and persuade customers (Marchegiani and Phau, 2010). In fact, an increasing number of companies are implementing the use of nostalgia into their marketing strategies (Jun et al., 2022), and marketing studies have highlighted the positive role that nostalgia plays in consumers' evaluation of advertising (Muehling and Pascal, 2011) and brand extension (Jun et al., 2022).

Holak and Havlena (1998) identified four categories of nostalgia: (a) personal nostalgia, based on individuals' experiences; (b) interpersonal nostalgia, where nostalgia stems from others' experiences; (c) cultural nostalgia, which is interrelated with personal nostalgia, includes common feelings and experiences for all the community of groups or subcultural groups; (d) virtual nostalgia, which is based on fantasy and indirect experiences (such as films, books). Concerning personal identity, nostalgia is a defence system that enables an individual to deal with changes and overcome challenges during adaptation to new conditions (Davis, 1979).

Recent studies (e.g., Romanova and Fedorova, 2021) demonstrate that nostalgia for the Soviet past is still a relevant phenomenon of collective memory in modern Russia. Post-Soviet nostalgic sentiments and their influence on various aspects of people's lives, including consumption and marketing, were explicitly studied in the context of the Russian Federation as the main successor of the Soviet Union (e.g., Holak et al., 2008; Aleksandrova, 2018; Romanova and Fedorova, 2021; Popova, 2021; Platt, 2013; Fedorishina, 2017; Boym, 1995). The literature has witnessed the presence of personal, interpersonal, cultural and virtual nostalgias, as well as related market responses, especially in the category of grocery products and entertainment, not only among the current citizens of the Russian Federation (Holak et al., 2008) but also among people who left Russia and the ex-Soviet countries for immigration purposes in the USA, Germany, Israel (Holak, 2014).

Nevertheless, post-socialist memory has multiple meanings, and it gives rise to different practices within different historical, cultural and economic environments (Nadkarni and Shevchenko, 2014). The prevailing sentiments among the citizens towards the Soviet past are shame, guilt for the Soviet experiences, disassociation from the socialistic history and, to a lower extent, regret about the lost epoch and its attributes (Galeja, 2015).

After the collapse of the Eastern Bloc, the strong sense of otherness, struggles with identity and availability of previously unattainable goods became a reminder of the vanished world and gave impulse to nostalgia development (Cole, 2021). The specific role of food in memory conservation resulted in the fact that the Soviet food did not even have to taste good, be plentiful or varied; the memories of the dishes prepared from hard-obtained products and shared with friends during kitchen feasts and cozy family dinners outweigh the emotions from empty grocery shelves and long lines (Goering, 2017). Thus, the variety lack and scarcity gave additional power to the products. Furthermore, some studies (e.g., Goering, 2017) also witness that trust in old brands, rather than in new ones, are frequently not motivated by nostalgia but by products' “better taste” and “higher quality”. However, unlike Baltic or former members of the Eastern Bloc among other European countries, the body of knowledge of post-Soviet nostalgia outside the Russian

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Federation within the Commonwealth of Independent States (CIS) population is based on a few studies dedicated to post-Soviet nostalgia in general, almost totally neglecting themes related to consumption and marketing practices (e.g., Dadabaev, 2021; Goering, 2017; Masci, 2017; Solovyov, 2011).

Purpose of the paper. *Different studies (e.g., Boym, 1995; Masci, 2017; Holak et al., 2008; Platt, 2013; Fedorishina, 2017) have investigated the nostalgia-towards-USSR phenomenon in political science, sociology and marketing in the Russian Federation, Baltic states or other former members of the Eastern Bloc. Given the relevance of nostalgia in the marketing field and other disciplines, the present work aims to fill the gap in marketing studies by investigating the interplay between nostalgia and consumption practices in CIS countries. In particular, this paper aims to identify common post-Soviet nostalgia patterns in marketing and consumption in the CIS and to identify the key factors that influence them. Moreover, the current paper commits to identifying the positive and the negative features of the consumption experience of the Soviet Union and analyze the offer examples that answer post-Soviet nostalgia demand on the modern market.*

Methodology. *The study adopts a qualitative research method. One native Russian speaker researcher conducted fourteen in-depth interviews in September 2021. The interviewees were (a) representatives of Generation X (1965-1980) - those who experienced both the Soviet “golden era” (Dadabaev, 2021) and post-Soviet times; and (b) Generation Y/Millennials (1981-1996). Apart from entering critical age and being more prone to nostalgia (Stem, 1992), Gen X and Gen Y represent the largest economically independent cohort, therefore, the most solvent part of the population.*

All interviewees were conducted in Kazakhstan, and they were chosen by adopting a purposeful sampling technique (Campbell et al., 2020) among the interviewer’s acquaintances. Following the methodology held by Bonnett & Alexander (2013), the interviewer maintained the attitude of the compassionate listener towards interviewees, inspiring and stimulating them. Interviews lasted from 30 to 60 minutes, depending on the interviewee’s involvement and openness. These interviews with narratives, life stories about everyday experiences and opinions were audio and video-recorded, transcribed and analyzed.

The average age for Gen X was 54 years, and Gen Y was 32 years, of which eight women and six men. Most interviewees declared a middle-class status, which should also neutralize the “winner and loser” effect (Duvold & Ekman, 2016). The interviewees also covered different occupations (i.e., housewife, entrepreneur, designer, yoga teacher, fashion designer, web designer, marketer, lawyer, accountant).

For the critical characteristics of the product context, shopping and consumption experiences were explored in two conventional audience cohorts - subjects with primarily indirect and direct memories of the Soviet past, the young and middle-aged people, respectively.

Results. *Results show that nostalgic emotional motivators vary by category and across customer segments (Magids et al., 2015). The content analysis of the interviews allowed five themes to emerge that articulate the relationship between nostalgia and consumption experiences.*

1. *Market organization: according to the interviewees, during the Soviet Union, the Government controlled all aspects of life, including good production and distribution (Cole, 2021). Opinions about a limited and wide assortment of goods and services of those who experienced both witnessed the presence of specific generation-related confusion in the face of a wide variety of qualities and prices in the capitalistic market. This confusion results from usually limited financial resources that do not match the high requirements and expectations under the influence or outside the Soviet nostalgia sentiments towards the products. As a response to the Soviet “scarcity trauma”, finding an option of good products that fit requirements and then searching for an even better one is a meaningful example of attitude influenced by past traumatic events (Dadabaev, 2021). The generation with direct memories of the Soviet experience tries to find various ways to adapt to the current free-market conditions: it could be reducing risks by initially buying a small number of unfamiliar brands, relying on the trustworthy opinion of more adapted to free-market conditions, younger generation or searching for reduced prices to buy expensive high-quality products: “I would prefer the limited assortment with guaranteed quality not to waste time and energy” (Woman, 54).*

2. *Shopping experience: Long lines. Looking back into the Soviet past, interviewees name long lines and product shortages as the main reasons for the rise of low-levelled corruption. People went to the nearby big city to stay in lines for several hours and eventually realized that goods were already sold out. Most goods were produced in quantities insufficient to fulfil the demand.*

Shortfalls. The scarcity of resources to conduct a “decent” life became an everyday reality, depriving people of the opportunity, for example, to repair their house or own private auto. Furthermore, although cities were supplied with essential products to some acceptable extent, a shortage outside the cities forced people to go there to buy food and other necessities. Shortfalls were considered undesirable for Gen Y: “People had money and wanted to create better conditions for life but had no opportunity. Would I agree with the same order of life as my parents had? Certainly, no!” (Female, 34)

Speculation and smuggling. High demand for goods in the context of shortage gave birth to black markets. Since selling new merchandise outside the official state-established stores was prohibited and legally punishable, scarce products, such as clothes, were sold under the counter. For example, clothes considered a status symbol, like jeans and other denim garments, were sold two to three times higher than store prices and were not affordable for families with a single salary.

Lack of choice. Another trait of the Soviet shopping reality was the lack of product assortment and sale points. For example, people could not see the furniture they were staying in line for and buying in the stores, unable to examine them for fitting with the room size or matching the home interior style and color. Paradoxically, the lack of choice contributes to Soviet nostalgia for past products. As Goering (2017) claimed, the scarce products consumed by mass became the era's touchstones, and some interviewees saw the reason for "tastier food" as nothing more than the consequences of a lack of choice.

Privileged shopping. Although the trading system was formally under control, no other measures to maintain fair trade were taken. People working in high-rank government positions, agencies, or embassies, living in strategically important places, always had officially prescribed privileged access to various local and imported products. Simultaneously, trade employees of standard Soviet stores were "always the first in each queue" (Male, 54), putting away the goods to keep for themselves or selling their surpluses later. Privileged shopping was also extended to people "with connections" in trade or employed in places with access to goods warehouses. Shopping in the Soviet kind of meaning had mostly negative characteristics related to the experience itself and its attributes. Therefore, people with indirect memories of the USSR have noted some of them as possible to resist only in the case of unavoidable circumstances or extraordinary affordability of high-quality, trendy goods. In their turn, interviewees with direct memories highly appreciate the contemporary culture of trade, service and overall culture of commercial relationships in comparison, even though some ambivalence in purchase perception during the Soviet Union was present.

Joy and delight of long-awaited purchase. Despite the prevailing negative, many interviewees with direct memories also noted joy and delight in the purchase as a Soviet-shopping characteristic. Scarcity and exhausting shopping experience added additional value to the goods during the USSR. This value was sharply increasing, especially after the long-awaited purchase. People cherished any new purchase, sometimes even celebrating this occasion as a feast with family and friends.

3. Positive features of the Soviet production: Among the CIS citizens who remember the Soviet past and at the same time recognize a wide assortment of modern goods, developed service standards, and scientific and technological achievements, there is an apparent high demand for specific features of product categories. This plank was established by simple common sense and their satisfaction with specific Soviet production. People's perception of quality and affordability varies from person to person. Nevertheless, within the context of Soviet products, the quality seems opposite to beauty and variety, and affordability embraced not the personal financial capacities but the average affordability of identical goods for the mass.

Quality. The opinions of interviewees with direct memories were quite critical and reflective, counterpointing unsightliness with good quality of the Soviet production. They see the main grounds for quality in strict adherence to Soviet standardization norms (GOST) in manufacturing and legal punishment for violating. They are highly critical about, for example, the length of modern home appliances' lifecycle and guarantees limited to several years. Although most of the interviewees with indirect memory share the opinions of seniors, some argue that the quality was guaranteed only by the availability of cheap materials during the Soviet Union: "According to what I heard, sausages by GOST used to be done with a big amount of meat" (Male, 34).

Affordable price. Equal affordability of high-quality goods for an average worker-peasant family was underlined in a comparative analysis of direct memories with the modern quality of products available to the same average customer. Others argue that affordability was connected to the solvency of the Soviet ruble when with an average salary, people could afford everything on store shelves. "Food was cheap, and we had money" (Klumbyté, 2009). However, the conditions of the overall shortage of goods and the lack of choice are worth reminding. Modern CIS citizens highly demand naturalness, practicality, and durability. Interviewees frequently mentioned these features as critical for several of them even though these requirements are always present to some extent in every product category.

Naturalness. Specific food categories are mentioned most frequently during the interviews, and as Holak et al. (2008) pointed out, nostalgic food is associated with nature and naturalness. It is proved by food-related expressions of both direct and indirect memory possessors.

Durability. According to memories of the Soviet epoch, limited durability is another critical characteristic of modern production, especially in construction, furniture, clothes and shoes. However, in the Soviet context, durability, as it happened with quality, was frequently mentioned as incompatible with aesthetics and trendiness.

Practicality. The Soviet dishware was frequently mentioned during the interviews compared to modern analogues concerning practicality. According to some opinions, modern dishware is fragile and does not properly comply with its direct functional roles. Additional value, added by scarcity and exhausting shopping experience, could cause a subsequent careful attitude. Thus, the positive features of durability and quality could have been not only ingrained features of the products but affected by cautious exploitation.

4. Negative features of the Soviet production: Despite the differences in perception, direct and indirect memory possessors emphasize aesthetic, ergonomic and technological backwardness as the main negative features of the Soviet products: "Even though it wasn't beautiful and elegant, but rather unsightly and even ugly, it was strong and of good quality" (Man, 50).

Aesthetic backwardness. Aesthetics was noted in the close connection with quality, and in the context of limited financial resources, the interviewees with direct memories could not precisely decide what was more important or could be renounced. In contrast, indirect memory possessors made clear that the opportunity to be original and bright,

avoiding dull colours and colourful tastelessness, and appreciating minimalism in its modern expressions are much more critical.

Ergonomic backwardness. Recognizing durability, the interviewees underlined the absence of critical characteristics within the Soviet electrical appliances and kids' accessories. However, the lack of modern understanding of usability and ergonomics affected almost all commodities transforming them only into objects for necessity satisfaction, not to make life more comfortable by increasing convenience.

Technological backwardness. According to Grębosz-Krawczyk (2018), technical parameters are crucial in the automotive industry; therefore, nostalgic emotions cannot change the customer's opinions. Nostalgic sentiments to the retro cars, quite natural in the Western culture, seems irrelevant to the Soviet car manufacturing. Made by clumsy work, unstable in performance, cold in winter and hot in summer, with the constant smell of gasoline inside, Soviet cars, compared with modern, comfortable cars, have appeared to be not attractive even to sit inside, not to mention to own them.

5. Modern products with Soviet nostalgia: Not all young USSR citizens have seen the jeans as a symbol of Western freedom (Cole, 2021) or any "ideal" political behavior (Nadkarni *and* Shevchenko, 2014). Instead, it was the tool to transmit a simple message "to be not like everyone". Some direct memory possessors still search for the specific nostalgic jeans brand and buy them strictly following the old habits.

Interviewees with direct memories of the Soviet past insist that the same products no longer exist despite the same wrapper. Nevertheless, some of them notice goods like old ones on store shelves and buy tea, chocolate and marmalade candies, and laundry soap. "Sgushennoe Moloko" ("condensed milk" from Russian) or simply "sgushenka" is the leader among those products. As it happened with the brand Buratino (Goering, 2017), it became a generic product name associated with a sweet rather than with a particular manufacturer. The Soviet package design - name, description, image and colors - became a Soviet-quality guarantee of the current products: "We choose especially sgushenka, based on the similarities of the packaging and description. Those products with cans written not simply "sgushenka" but "sgushennoe moloko" and with the image as it was in the USSR always are not bad" (Female, 54). Modern food production faces the awareness about the danger of chemical additives and growing healthy food movements rising among consumers (Goering, 2017) that in the perception of the nostalgic audience, the Soviet products were perfectly able to satisfy.

In the interviewees' apprehension, the best food taste is connected to no savings on natural ingredients, quality, and technologies - either sustained in the USSR or bought abroad. Despite the risks of being one of the dozens of products that leverage the GOST-label only for the marketing aims (Goering, 2017), some food producers from Kyrgyzstan and Belarus are already perceived as those who went further in applying those standards. They are winning the attention due to the naturalness and fewer preservatives expressed in a shorter expiration period and strict storage conditions, taste and value for money.

Research limitations. While possibly valuable, this research has some limitations. First, the empirical investigation is limited to reflecting the Soviet values and traits. It does not include other nostalgic directions in the post-Soviet societies after the collapse of the USSR, born affected by the idea of freedom from colonialism and the desire to return to the pre-colonial era (Bonnett, 2010). Second, the empirical analysis was conducted only in one CIS country, Kazakhstan. Future research could profitably enlarge the geographical scope of the investigation.

Furthermore, interviews were conducted in Russian. In the future, it could be interesting to explore the possible differences in the manifestation of Soviet nostalgia in the consumption and perception of marketing appeals of Russian-speaking and local languages speaking people. Finally, the study is of an explorative type and adopts a qualitative research method. Future investigations could fruitfully further examine this phenomenon by employing quantitative methods, such as surveys.

Managerial implications. The research can help marketers craft strategies that appeal to Soviet-nostalgic feelings, leveraging the positive attributes that consumers perceive in relation to the past while eliminating the negative aspects that could damage the company's image. Especially in some product categories, such as apparel and food, people still search for elements associated with the merchandise on the market at the time of the USSR. Accordingly, at least for some consumer segments, reproducing past goods with similar shapes, tastes, packaging, exploiting visual elements - such as old logos, used colors, etc. - can facilitate companies attempting to penetrate or reinforce their presence in the CIS market. Unlike food, other product categories - furniture, dishware, household supplies, clothes and shoes, cars and electric appliances- cannot survive relying on purely intergenerational nostalgia about the Soviet past. Their charm for the younger generations was corrupted by emotional visual tiredness and biased by the negative associations with the historical and political context. Therefore, for the successful establishment of those nostalgic product categories, creative nostalgia methods by rethinking, getting rid of production cons and increasing benefits for modern customers should be applied. Moreover, not to be dependent only on direct and intergenerational nostalgia, the marketing of those products should be built on cultural/virtual nostalgia through the subsequent generation's informational channels such as social media, podcasts, TV series, movies, books, etc.

Originality of the paper. This research contributes to the body of knowledge on nostalgia in marketing and consumption by incorporating customer opinions and attitudes from post-communist CIS countries other than the Russian Federation. These countries have been largely neglected by the existing literature dedicated to the subject in the context of other former members of the Eastern Bloc. The study is based on in-depth interviews with the direct and indirect memory possessors among former and current citizens of the CIS and former citizens of the Soviet Union.

Research findings help address the current scarcity of marketing research leveraging an authentic representative voice of the society and have real-world value in integrating post-Soviet nostalgia into the marketing strategy of organizations operating in or entering the CIS market.

Key words: *Consumer nostalgia, Commonwealth Independent States, Post-Soviet nostalgia, Post-communist society*

References

- ALEKSANDROVA M. (2018), "Soviet Era Stylistics in Modern Mass Culture: Conceptual Cafes and Restaurants (Стилистика советской эпохи в современной массовой культуре: концептуальные кафе и рестораны)", *Yaroslavl Pedagogical Bulletin (Ярославский Педагогический Вестник)*, vol. 4, pp. 270-275.
- BONNETT A. (2010), "Worlds we have lost: nostalgia in anti-colonialism and post-colonialism", In *Left in the Past* (pp. 87-113), <https://doi.org/10.1080/13538322.2010.485722>
- BONNETT A., ALEXANDER C. (2013), "Mobile nostalgias: Connecting visions of the urban past, present and future amongst ex-residents", *Transactions of the Institute of British Geographers*, vol. 38, n. 3, pp. 391-402.
- BOYM S. (1995), "From the Russian Soul to Post-Communist Nostalgia", *Representations*, vol. 49, n. 49, pp. 133-166.
- CAMPBELL S., GREENWOOD M., PRIOR S., SHEARER T., WALKER K., YOUNG S., BYWATERS D., WALKER K. (2020), "Purposive sampling: complex or simple? Research case examples", *Journal of Research in Nursing*, vol. 25, n. 8, pp. 652-661.
- CERVELLON M., CAREY L., HARMS T. (2012), "Something old, something used: Determinants of women's purchase of vintage fashion vs second-hand fashion", *International Journal of Retail & Distribution Management*, vol. 40, n. 12, pp. 956-974.
- COLE C. (2021), "The Clothing Manifesto : A Post-Communist Analysis of Nostalgia in Fashion Advertising", *Elon Journal of Undergraduate Research in Communications*, vol. 12, n. 1, pp. 5-17.
- CUI R. (2015), "A Review of Nostalgic Marketing", *Journal of Service Science and Management*, vol. 8, n. 1, pp. 125-131.
- DADABAEV T. (2021), "Manipulating post-Soviet nostalgia: Contrasting political narratives and public recollections in Central Asia", *International Journal of Asian Studies*, vol. 18, n. 1, pp. 61-81.
- DAVIS F. (1979), *Yearning for Yesterday. A Sociology of Nostalgia*. The Free Press, A Division of Macmillan Publishing Co., Inc.
- DUVOLD K., EKMAN J. (2016), "Nationality-driven Soviet Nostalgia: Determinants of Retrospective Regime Evaluation in the Baltic States", *Twentieth Century Communism*, vol. 11, n. 11, pp. 43-66.
- FEDORISHINA M. (2017), "Back to the Past: How Russian Business Makes Money from Nostalgia for the USSR (Назад в прошлое: как российский бизнес зарабатывает на ностальгии по СССР)", <https://vc.ru/marketing/22678-ussr-nostalgia-business>
- GALEJA L. (2015), "The Leftism Ideology or Nostalgia for the Socialist Past? Searching for Lieux de Mémoire in the Post-Soviet Cultural Spaces", *Culture Crossroads*, vol. 8, pp. 53-62.
- GOERING L. (2017), "Marketing Soviet nostalgia: The many faces of Buratino", *Gastronomica*, vol. 17, n. 4, pp. 88-101.
- GRĘBOSZ-KRAWCZYK M. (2018), "The impact of nostalgia on brand equity in a post-communist economy", *Economics and Sociology*, vol. 11, n. 2, pp. 216-228.
- HOLAK S.L. (2014), "From Brighton Beach to blogs: Exploring food-related nostalgia in the Russian diaspora", *Consumption Markets and Culture*, vol. 17, n. 2, pp. 185-207. <https://doi.org/10.1080/10253866.2013.776308>
- HOLAK S.L., HAVLENA W.J. (1992), pp. "Nostalgia: an exploratory study of themes and emotions in the nostalgic experience", *Advances in Consumer Research*, vol. 19, pp. 380-7.
- HOLAK S.L., HAVLENA W.J. (1998), "Feelings, Fantasies, and Memories: An Examination of the Emotional Components of Nostalgia", *Journal of Business Research*, vol. 42, n. 3, pp. 217-226.
- HOLAK S.L., MATVEEV A.V., HAVLENA W.J. (2008), "Nostalgia in post-socialist Russia: Exploring applications to advertising strategy", *Journal of Business Research*, vol. 61, n. 2, pp. 172-178.
- HOLBROOK M.B. (1993), "Nostalgia and Consumption Preferences: Some Emerging Patterns of Consumer Tastes", *Journal of Consumer Research*, vol. 20, n. 2, pp. 245.
- HOLBROOK M.B., SCHINDLER R.M. (2003), "Nostalgic bonding: exploring the role of nostalgia in the consumption experience", *Journal of Consumer Behaviour*, vol. 3, n. 2, pp. 107-127.
- JUN S.Y., PARK H.K., KIM K.H. (2022), "The effects of nostalgia marketing on consumers' brand extension evaluation", *Journal of Brand Management*. <https://doi.org/10.1057/s41262-021-00264-4>
- KALININA E. (2014), *Mediated post-soviet nostalgia* [Södertörn University]. https://bibl.sh.se/skriftserier/hogskolans_skriftserier/Mediated_Post-Soviet_Nostalgia/diva2_746181.aspx
- KLUMBYTÉ N. (2009), "Post-Socialist Sensations: Nostalgia, the Self, and Alterity in Lithuania. *Lithuanian Ethnology: Studies in Social Anthropology & Ethnology*, vol. 9, n. 18, pp. 93-116.
- MAGIDS S., ZORFAS A., LEEMON D. (2015), "The New Science of Customer Emotions", *Harvard Business Review*, November.

- MARCHEGIANI C., PHAU I. (2010), "Effects of personal nostalgic response intensity on cognitions, attitudes, and intentions", *Journal of Research in Interactive Marketing*, vol. 4, n. 3, pp. 241-256.
- MASCI D. (2017), *In Russia, nostalgia for Soviet Union and positive feelings about Stalin*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2017/06/29/in-russia-nostalgia-for-soviet-union-and-positive-feelings-about-stalin/>
- MUEHLING D.D., PASCAL V.J. (2011), "An Empirical Investigation of the Differential Effects of Personal, Historical, and Non-Nostalgic Advertising on Consumer Responses", *Journal of Advertising*, vol. 40, n. 2, pp. 107-122.
- NADKARNI M., SHEVCHENKO O. (2014), "The Politics Of Nostalgia In The Aftermath Of Socialism's Collapse: A Case For Comparative Analysis", In *Anthropology and Nostalgia* (pp. 61-95).
- PLATT K.M.F. (2013), "Russian empire of pop: Post-socialist nostalgia and Soviet Retro at the New Wave competition", *Russian Review*, vol. 72, n. 3, pp. 447-469.
- POPOVA O. (2021), "'Soviet retro' in the system of modern catering («Советское ретро» в системе современного общепита)", *Russian Science and Education Today: Problems and Prospects (Российская Наука и Образование Сегодня: Проблемы и Перспективы)*, vol. 2, pp. 7-10.
- RINDFLEISCH A., FREEMAN D., BURROUGHS J.E. (2000), "Nostalgia, Materialism, and Product Preference: an Initial Inquiry", *Advances in Consumer Research*. <https://www.acrwebsite.org/volumes/8332>
- ROMANOVA A., FEDOROVA M. (2021), "Soviet nostalgia of the post-Soviet digital generation («Советская ностальгия» несоветского цифрового поколения)", *South Russian Journal of Social Sciences (Южно-Российский Журнал Социальных Наук)*, vol. 22, n. 1, pp. 6-18.
- SOLOVYOV B.D. (2011), *Soviet nostalgia binds divergent CIS states*. Reuters. <https://www.reuters.com/article/us-cis-idUSTRE7B713O20111208>
- STEM B.B. (1992), "Historical and personal nostalgia in advertising text: The fin de siecle effect", *Journal of Advertising*, vol. 21, n. 4, pp. 11-22.

The influence of the local context on the internationalization performance of family firms and non-family firms: Evidence from the “Made In Italy”

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Framing of the research. Family firms represent the predominant form of business organization in both developed and emerging economies (Basco, 2018) with a pervasive presence in any size and sector (Sharma, 2004). In the last two decades, family business research has evolved as a prolific research area, gaining a solid legitimacy progressively among the academic community (Rodríguez and Basco, 2011), practitioners (Zellweger and Nason, 2008), and policy-makers (European Commission, 1999). Despite a lack of consensus on the family business definition, scholars agree that family involvement in the business makes family firms atypical (Chua et al., 1999). Since its inception, the family business field has mainly focused on how the combination of two interacting and overlapping systems, the family and the business, shape uniquely family firms and contribute, in such a way, to differentiate these organizations markedly from non-family counterparts (Rodríguez and Basco, 2011). In this perspective, it is widely accepted as the juxtaposition of family and business domains results in a unique behavior of family firms and, therefore, a source of differential performance compared to non-family counterparts (Yu et al., 2012). Among these is the internationalization performance, with family firms features that may constrain or facilitate the firm’s international scope (Arregle et al., 2021). That said, both the decision to start exporting and the degree of involvement in the international trade may be strongly influenced by the local context where firms, family and non-family, are located (Amato et al., 2020). Indeed, the spatial proximity to exporters may enable the exchange of knowledge and information about the practice of exporting and the features of foreign markets (i.e., local export spillovers) (Andersson and Weiss, 2012), potentially affecting the export performance of nearby firms (Choquette and Meinen, 2015). However, the family firm status may represent a relevant attribute to explain the firm’s ability to benefit from the location for international purposes (Amato et al., 2020). By leveraging close, reciprocal, and trust-based relationships within local networks, family firms may exploit uniquely localized knowledge and information (Baù et al., 2018), outperforming non-family counterparts in terms of internationalization performance (Arregle et al., 2021). The relevance of spatial proximity may be noticeable in local production systems such as the Marshallian industrial districts (MIDs), where community ties enmesh with economic relationships (Becattini et al., 2009). District firms are embedded in a homogenous setting, stemming from belonging to the same community and sharing values, practices, and behaviors. This setting enables the creation of a “Marshallian atmosphere” (Belussi and Caldari, 2009), bringing various advantages for firms, including higher internationalization performance compared to firms located elsewhere (Boix and Trullén, 2010). The close economic links family firms establish with the local milieu (Cucculelli and Storai, 2015) and a deep sense of place attachment of family members (Smith, 2016) may confer differential advantages to family firms in terms of international scope. As MIDs represent a natural socio-spatial basin for family entrepreneurship (Becattini et al., 2009), the research on family firms’ internationalization is mostly “place-less” (James et al., 2020). Indeed, family firms research has overlooked the territorial dimension of the economic activity explaining family firms’ growth in the international markets.

Purpose of the paper. The present study explores the interplay between family firm status and location on firms’ internationalization performance using secondary data on 14,725 manufacturing firms specializing in the so-called “Made in Italy”. Italy represents a captivating setting because of its peculiar manufacturing sector characterized by the prevalence of highly internationalized SMEs localized in Marshallian industrial districts (MIDs) and specialized in the so-called «4-Fs», namely: Food and wines, Fashion, Furniture, and building materials, Fabricated metal products, and machinery. Such a research context allows us to exploit the unique features of the «Made in Italy» enterprises (MIEs) to

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deepen our understanding of the mechanisms of local spillovers in export performance and how they spread in the geographical and industrial space, focusing on the heterogeneity that derives from the firms' characteristics, the structure of the industrial sector and the local milieu. The literature on international trades suggests that only the most productive (Bernard and Jensen, 2004) and innovative (Brancati et al., 2018) firms can overcome the sunk costs of entering foreign markets. Also, SMEs and firms specialized in low-tech sectors - such as the MIEs - need to overcome even greater organizational and financial costs to export (Choquette and Meinen, 2015). In this regard, the local export spillovers arising from the geographical proximity with incumbent exporters may affect the international scope of nearby firms. Thus, we investigate whether MIEs' international performance is influenced by those of geographically proximate firms. Hence, our first research question is as follows:

RQ1: conditional to firm-specific characteristics, do spatial proximity to exporters influence firms' internationalization performance?

Notwithstanding a considerable research interest in family firms' internationalization, current evidence is inconclusive of whether family firms differ from non-family firms in internationalization performance. From one side, risk-aversion, affective factors, and family firms' unique goals (e.g., those related to socio-emotional wealth preservation) may hamper family firms' international scope (Arregle et al., 2021). On the other side, family commitment, international experience, and the generation in charge of the business may heighten the firm's international performance (Pukall and Calabrò, 2014). Therefore, our second research question is as follows:

RQ2: other things being equal, do family firms show higher internationalization performance than non-family counterparts?

At the foundation of Italian SMEs' success on global markets lies the co-location in the MIDs. In such contexts, competitive advantages are embedded in localization externalities related to a pool of qualified workers, specialized suppliers, localized knowledge, and information (i.e., knowledge spillovers) available in the economic actor networks (Boix & Trullén, 2010). Both market and community logics govern economic activities in MIDs (Chiarvesio et al., 2010), where competitive dynamics are balanced with trust-based cooperation. While MIDs represent an ideal environment for the diffusion of local export spillovers (Propriis et al., 2008), there is a firm heterogeneity related to the different abilities of local firms to benefit from the location in MIDs (Hervás-Oliver et al., 2018). When located in MIDs, family firms display superior inter-organizational and inter-personal networks (Cucculelli & Storai, 2015), resulting in higher capability in intercepting and exploiting such a knowledge-rich local environment for international purposes (Basco et al., 2021). Hence, our third research question is as follows:

RQ3: all things considered, do family firms take more advantage from district localization than non-family counterparts?

Finally, an underdeveloped research area with potential interest to academics, practitioners, and policy-makers relates to core-periphery divergence and internal economic heterogeneity at the territorial level (Beugelsdijk and Mudambi, 2013). The world is characterized by an increasing disparity in which locations in the periphery tend to suffer, whereas centrally located areas benefit from agglomeration effects (Iammarino and McCann, 2006). Italy well represents the case in which core areas and peripheral regions coexist within the same national borders, and its global integration path still sustains strong geographical differentials (Berman et al., 2019). Thus, we test whether the internationalization performance of MIEs located in peripheral areas would differ from that of MIEs dwelling in core locations. However, family firms outperform non-family firms in peripheral areas, whereby the family- and community-embeddedness is deemed to compensate for the lack of agglomeration economies (Backman and Palmberg, 2015). Hence, we posit the following research questions:

RQ4: Are firms located in peripheral areas less likely to engage in internationalization activities? Do family firms perform better than non-family counterparts in peripheral areas?

Methodology. We based our analysis on a comprehensive sample of manufacturing firms identified through their main NACE Rev. 2 classifications to be part of the so-called «Made in Italy» sectors of specialization as identified in Table 1. We collected information from several secondary data sources. Information related to the firm's ownership, governance and financial performance are drawn from Aida - Bureau Van Dijk. Only active firms were selected, resulting in 14,725 observations. We completed the information with data on international sales from ISTAT (Italian National Institute of Statistics), the firm's affiliation with the network contract from the Italian Chamber of Commerce, and, finally, their localization in the so-called Marshallian Industrial Districts from ISTAT.

This study relies on spatial econometric techniques to estimate the influence of geographical proximity on firms' internationalization performances accounting for spatial autoregressive lag and disturbances in the data. According to the previous literature, the reasons for spatial dependence to arise are twofold. First, the decision of a given firm to export is likely to depend on the international choices of nearby firms. Second, a firm's export propensity (or intensity) depends not only on its internal-specific characteristics - i.e., size, productivity, innovativeness - but also on the level of

internationalization of spatially proximate firms from which knowledge spillovers are likely to occur. To this end, geographic coordinates, that is firm's latitude and longitude information, are exploited to define the firm's vicinity structure (i.e., geographic proximity).

A preliminary step in the spatial econometric analysis is the detection of spatial autocorrelation. To this end, we perform the Moran's I test, which inspects the degree to which one object is similar to other nearby objects. For our study, the Moran's I test examines whether and to what extent exporting firms tend to cluster together. The null hypothesis is that errors are i.i.d. Because of the positive and significant value of the statistic (3.689***), we reject the null hypothesis, which suggests the existence of spatial autocorrelation in exporting firms in our sample. In other words, firms active in international markets tend to co-locate. Hence, the inspection of spatial autocorrelation justifies the adoption of spatial econometric models. The starting point for selecting the most appropriate spatial model specification is the Spatial Durbin Model (SDM), which embodies spatial lags of both the dependent and independent variables. Confronting the SDM model with other specifications, the Likelihood ratio (LR) tests reveal that this model describes the data better than all the others. To test the robustness of our results to different matrix configurations, we also repeat the baseline estimation using different distance cut-off thresholds. In detail, we analyze export activity, commonly used for measuring the success of the international performance of SMEs, employing the following model (for a detailed explanation of the variables, see Table 2):

$$\text{Export} = \alpha_0 + \alpha_1 \text{Family} + \alpha_2 \text{NonCore} + \alpha_3 \text{District} + \alpha_{12} \text{Family} * \text{NonCore} + \alpha_{13} \text{Family} * \text{District} + \beta \text{Controls} + \varepsilon$$

Results. Table 3 reports the main preliminary findings of our study. We only report results for the spatial weight matrix (SWM) truncated at 100 km, but results are also robust for 50 km and 300 thresholds. First, the autoregressive coefficient ρ (0.0721***) is statistically significant, implying a spatial dependence in the internationalization performance across firms. Hence, the firm's internationalization performance level is affected by that of geographically proximate firms. Second, family firms show a lower level of internationalization performance. Indeed, all things being equal, the coefficient of Family is negatively associated with the dependent variable ($\beta = -0.3527$). However, the coefficient of District ($\beta = 0.1239$) and NonCore ($\beta = -0.3282$) are not significant, meaning that a “district effect” and “core region preference” seems not to be in place. To ascertain whether family firms take more advantage of MID locations or core locations than non-family counterparts, we introduce the interaction terms. The coefficient Family*District is negative and significant ($\beta = -0.1608^*$), while Family*NonCore is positive and statistically significant ($\beta = 0.1938^*$). As such, family firms are found to outperform non-family counterparts when located in peripheral areas, while the same is not valid for location in a district.

These preliminary results represent the starting point to explore in-depth the role of local export spillovers in accounting for different internationalization performances. Additional analyses are required to disentangle such mechanisms and refine the estimation from a computational point of view.

Research limitations. Our study has several limitations which pave the way for future research. First, since the study relies on cross-sectional data, a natural extension of this research is investigating the territorial dimension of firms' internationalization in a longitudinal setting. Second, our research encompasses only manufacturing firms. Hence, future research might also take into account services firms. Third, due to data limitations, we did not measure the different channels (i.e., backward and forward linkages, labor mobility, and social interactions) through which local export spillovers occur. In line with previous research (Choquette and Meinen, 2015), we may explore what channels Italian manufacturing firms rely on for identifying and exploiting localized export information. Fourth, since we lacked information on market-specific destinations, future studies should investigate whether and to what extent being located close to firms exporting to a particular destination influences domestic firms' decision to start exporting to that destinations. Five, as the non-spatial dimensions of proximity (e.g., social, cognitive, and institutional) may complement or replace classical geographical proximity (Boschma, 2005), future extensions should consider the interplay of proximity dimensions in investigating the influence of location on firms' internationalization choices. Finally, there is room for studies investigating the interplay of family-firm attributes (e.g., level of professionalization, generation in charge, family social capital) and location on family firms' internationalization performance (Arregle et al., 2021).

Managerial implications. Our preliminary results provide helpful hints about the location choices. In this regard, both family and non-family firms would benefit from local export spillovers arising from closeness to exporting firms. Traditionally, family firms are considered to take more advantage of being located in local production systems such as MID locations and business clusters. In such contexts, the territorial embeddedness of family firms and the place attachment of family members are deemed to confer advantages in the exploitation of agglomeration economies. This result suggests that family members and managers of family firms should keep nurturing the local roots and intimate connections with the local milieu as a lever of competitive advantage. This study also has policy implications. Indeed, this study points out the importance of spatial proximity to strengthen the international scope of firms, localities, and regions.

Originality of the paper. This research aims to stimulate cross-fertilization between entrepreneurial and regional studies concerning territorial enabling conditions for the internationalization and global competitiveness of MIEs and other SMEs operating in low-tech industries. In detail, we contribute to the current debate on the territorial dimension of firm internationalization by exploiting geocoded location information and leveraging sophisticated spatial econometrics techniques whose application has been mainly overlooked in the business-related fields while being robust in other regional or macroeconomics branches. The preliminary results show that spatial proximity matters for the firm's international scope besides firm-internal characteristics. Additionally, while the location in MID locations is not correlated with firms' internationalization performance, family firms are able to extract more value from MID locations.

location. And, regarding the detrimental effect of peripheral areas on the firm's international scope, family firms are found to overcome the disadvantages of remoteness. Taken together, such preliminary findings advance the current and novel debate on the "family firm-territory nexus" (Amato et al., 2021; Basco et al., 2021).

Keywords: internationalization; family firms; location; spatial model; Made in Italy; industrial districts;

References

- AMATO S., BASCO R., BACKMAN M., LATTANZI N. (2020), "Family-managed firms and local export spillovers: evidence from Spanish manufacturing firms", *European Planning Studies*, n. 4313. <https://doi.org/10.1080/09654313.2020.1743238>
- AMATO S., PATUELLI A., BASCO R., LATTANZI N. (2021), "Family Firms Amidst the Global Financial Crisis: A Territorial Embeddedness Perspective on Downsizing", *Journal of Business Ethics*, n. 0123456789, pp. 1-24.
- ANDERSSON M., WEISS J.F. (2012), "External Trade and Internal Geography: Local Export Spillovers by Industry Characteristics and Firm Size", *Spatial Economic Analysis*, vol. 7, n. 4, pp. 421-446.
- ARREGLE J.L., CHIRICO F., KANO L., KUNDU S.K., MAJOCCHI A., SCHULZE W.S. (2021), "Family firm internationalization: Past research and an agenda for the future", *Journal of International Business Studies*, vol. 52, n. 6, pp. 1159-1198.
- BACKMAN M., PALMBERG J. (2015), "Contextualizing small family firms: How does the urban-rural context affect firm employment growth?", *Journal of Family Business Strategy*, vol. 6, n. 4, pp. 247-258.
- BASCO R. (2018), "Family Business in Emerging Markets", In Grosse R., Meyer K.E. (Eds.), *The Oxford Handbook of Management in Emerging Markets* (pp. 527-546), Oxford University Press.
- BASCO R., STOUGH R., SUWALA L. (2021), *Family Business and Regional Development*. Routledge.
- BAÙ M., CHIRICO F., PITTINO D., BACKMAN M., KLAESSON J. (2018), "Roots to Grow: Family Firms and Local Embeddedness in Rural and Urban Contexts", *Entrepreneurship Theory and Practice*, vol. 43, n. 2, pp. 360-385.
- BECATTINI G., BELLANDI M., DE PROPRIIS L. (2009), *A Handbook of Industrial Districts*, Elgar Edward.
- BELUSSI F., CALDARI K. (2009), "At the origin of the industrial district: Alfred Marshall and the Cambridge school", *Cambridge Journal of Economics*, vol. 33, n. 2, pp. 335-355.
- BERMAN A., MARINO A., MUDAMBI R. (2019), "The global connectivity of regional innovation systems in Italy: a core-periphery perspective", <https://doi.org/10.1080/00343404.2019.1672865>, vol. 54, n. 5, pp. 677-691.
- BERNARD A.B., JENSEN J.B. (2004), "Why some firms export", *Review of Economics and Statistics*, vol. 86, n. 2, pp. 561-569.
- BEUGELSDIJK S., MUDAMBI R. (2013), "MNEs as border-crossing multi-location enterprises: The role of discontinuities in geographic space", *Journal of International Business Studies*, vol. 44, n. 5, pp. 413-426.
- BOIX R., TRULLÉN J. (2010), "Industrial districts, innovation and I-district effect: Territory or industrial specialization?", *European Planning Studies*, vol. 18, n. 10, pp. 1707-1729.
- BOSCHMA R. (2005), "Proximity and innovation: A critical assessment", *Regional Studies*, vol. 39, n. 1, pp. 61-74.
- BRANCATI R., MARROCU E., ROMAGNOLI M., USAI S. (2018), "Innovation activities and learning processes in the crisis: Evidence from Italian export in manufacturing and services. *Industrial and Corporate Change*, vol. 27, n. 1, pp. 107-130.
- CHIARVESIO M., DI MARIA E., MICELLI S. (2010), "Global value chains and open networks: The case of Italian industrial districts", *European Planning Studies*, vol. 18, n. 3, pp. 333-350.
- CHOQUETTE E., MEINEN P. (2015), "Export Spillovers: Opening the Black Box", *World Economy*, vol. 38, n. 12, pp. 1912-1946.
- CHUA J.H., CHRISMAN J.J., SHARMA P. (1999), "Defining the Family Business by Behavior", *Entrepreneurship: Theory & Practice*, vol. 23, pp. 19-39.
- CUCCULELLI M., STORAI D. (2015), "Family firms and industrial districts: Evidence from the Italian manufacturing industry", *Journal of Family Business Strategy*, vol. 6, n. 4, pp. 234-246.
- EUROPEAN COMMISSION. (1999), *Final Report of the Expert Group. Overview of Family-Business-Relevant Issues: Research, Networks, Policy Measures and Existing Studies*.
- HERVÁS-OLIVER J.L., ALBORS-GARRIGOS J., ESTELLES-MIGUEL S., BORONAT-MOLL C. (2018), "Radical innovation in Marshallian industrial districts. *Regional Studies*, vol. 52, n. 10, pp. 1388-1397.
- IAMMARINO S., MCCANN P. (2006), "The structure and evolution of industrial clusters: Transactions, technology and knowledge spillovers", *Research Policy*, vol. 35, n. 7, pp. 1018-1036.
- JAMES A., HADJIELIAS E., GUERRERO M., DISCUA CRUZ A., BASCO R. (2020), "Entrepreneurial families in business across generations, contexts, and cultures", *Journal of Family Business Management*, July.
- PROPRIIS L. DE, MENGHINELLO S., SUGDEN R. (2008), "The internationalisation of production systems: Embeddedness, openness and governance", *Entrepreneurship and Regional Development*, vol. 20, n. 6, pp. 493-515.
- PUKALL T.J., CALABRÒ A. (2014), "The Internationalization of Family Firms: A Critical Review and Integrative Model", *Family Business Review*, vol. 27, n. 2, pp. 103-125.

- RODRÍGUEZ M.J.P., BASCO R. (2011), “The cognitive legitimacy of the family business field”, *Family Business Review*, vol. 24, n. 4, pp. 322-342.
- SHARMA P. (2004), “An Overview of the Field of Family Business Studies: Current Status and Directions for the Future”, *Family Business Review*, vol. 17, n. 1, pp. 1-36. x
- SMITH C. (2016), “Environmental Jolts: Understanding How Family Firms Respond and Why”, *Family Business Review*, vol. 29, n. 4, pp. 401-423.
- YU A., LUMPKIN G.T., SORENSON R.L., BRIGHAM K.H. (2012), “The Landscape of Family Business Outcomes: A Summary and Numerical Taxonomy of Dependent Variables”, *Family Business Review*, vol. 25, n. 1, pp. 33-57.
- ZELLWEGER T.M., NASON R.S. (2008), “A stakeholder perspective on family firm performance”, *Family Business Review*, vol. 21, n. 3, pp. 203-216.

Tables*Tab. 1. NACE Rev.2 classification of the «Made in Italy» Enterprises (MIEs)*

Division	Group	Class	Description
10	10.3	10.39	Other processing and preserving of fruit and vegetables
10	10.7	10.73	Manufacture of macaroni, noodles, couscous and similar farinaceous products
10	10.8	10.84	Manufacture of condiments and seasonings
11	11.0	11.02	Manufacture of wine from grape
11	11.0	11.04	Manufacture of other non-distilled fermented beverages
13	13.2	13.20	Weaving of textiles
13	13.1	13.10	Preparation and spinning of textile fibres
13	13.9	13.91	Manufacture of knitted and crocheted fabrics
14	14.1	14.13	Manufacture of other outerwear
14	14.1	14.19	Manufacture of other wearing apparel and accessories
14	14.3	14.39	Manufacture of other knitted and crocheted apparel
14	14.3	14.31	Manufacture of knitted and crocheted hosiery
14	14.1	14.11	Manufacture of leather clothes
14	14.2	14.20	Manufacture of articles of fur
15	15.2	15.20	Manufacture of footwear
15	15.1	15.12	Manufacture of luggage, handbags and the like, saddlery and harness
15	15.1	15.11	Tanning and dressing of leather; dressing and dyeing of fur
20	20.6	20.60	Manufacture of man-made fibres
23	23.3	23.31	Manufacture of ceramic tiles and flags
23	23.7	23.70	Cutting, shaping and finishing of stone
24	24.2	24.20	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
24	24.3	24.31	Cold drawing of bars
24	24.5	24.52	Casting of steel
25	25.3	25.30	Manufacture of steam generators, except central heating hot water boilers
26	26.5	26.52	Manufacture of watches and clocks
27	27.5	27.52	Manufacture of non-electric domestic appliances
28	28.9	28.93	Manufacture of machinery for food, beverage and tobacco processing
28	28.9	28.91	Manufacture of machinery for metallurgy
30	30.9	30.91	Manufacture of motorcycles
30	30.1	30.12	Manufacture of jewellery and related articles
31	31.0	31.09	Manufacture of other furniture
32	32.1	32.12	Manufacture of jewellery and related articles

Source: Confartigianato and authors' elaboration.

Tab. 2. Description of variables

Variable	Description
Dependent Variable	
Export - intensive margin	Foreign sales (logarithmic transformation)
Main explanatory Variables	
Family	Dummy equals to one if the firm is family-owned and managed
NonCore	Dummy equals to one if the firm headquarters is registered outside a core region (as per
District	Dummy equals to one if the firm is located within an MDI (from Istat)
Control Variables^a	
Labor cost ratio	Cost of labor per employee
Total factor productivity	Total factor productivity taken in logarithmic terms
Intangibles	Ratio of intangibles over turnover
Size	Number of employees (Logarithmic transformation)
FDI	Percentage of foreign shareholders with more than 10% equity
Legal entity	Dummy variable equal to "1" if the firm is an LTD enterprise
Group	Dummy variable coded "1" if the firm is part of a business group
Age	Number of years since firm's establishment
Age squared	Squared number of years since firm's establishment
Listed	Dummy variable coded "1" if the firm is publicly listed
Sector	Fixed-effect as Pavitt taxonomy

^a All the control variables are lagged at t-1 to reduce reverse causality.

Tab. 3: Regression results with Weighting Spatial Matrix truncated at 100 km

	(1) OLS	(2) SDM	(3) SARAR	(5) SAR	(6) SEM	(7) SLX
Family	-0.3673*** (0.0795)	-0.3527*** (0.0792)	-0.3498*** (0.0793)	-0.3596*** (0.0792)	-0.3514*** (0.0793)	-0.3619*** (0.0794)
NonCore	-0.3752*** (0.0755)	-0.3282 (0.3763)	-0.3939*** (0.0836)	-0.3046*** (0.0766)	-0.3665*** (0.0788)	-0.2908 (0.3770)
District	0.3233*** (0.0595)	0.1239 (0.0919)	0.3297*** (0.0616)	0.3068*** (0.0593)	0.3236*** (0.0609)	0.1188 (0.0921)
Family*NonCore	0.2170** (0.1103)	0.1938* (0.1147)	0.2035* (0.1146)	0.2113* (0.1149)	0.2045* (0.1148)	0.1995* (0.1150)
Family*District	-0.1269 (0.0897)	-0.1608* (0.0898)	-0.1568* (0.0900)	-0.1385 (0.0900)	-0.1543* (0.0900)	-0.1468 (0.0900)
Size	0.6286*** (0.0284)	0.6368*** (0.0266)	0.6311*** (0.0266)	0.6271*** (0.0265)	0.6305*** (0.0265)	0.6361*** (0.0266)
Age	0.0367*** (0.0035)	0.0360*** (0.0036)	0.0363*** (0.0036)	0.0366*** (0.0036)	0.0364*** (0.0036)	0.0362*** (0.0036)
Age squared	-0.0002*** (0.0001)	-0.0002*** (0.0001)	-0.0002*** (0.0001)	-0.0002*** (0.0001)	-0.0002*** (0.0001)	-0.0002*** (0.0001)
Labor cost ratio	0.4652*** (0.0354)	0.4575*** (0.0358)	0.4636*** (0.0358)	0.4580*** (0.0358)	0.4620*** (0.0358)	0.4603*** (0.0359)
Total factor productivity	1.8907*** (0.0399)	1.8848*** (0.0353)	1.8966*** (0.0353)	1.8820*** (0.0352)	1.8945*** (0.0353)	1.8847*** (0.0354)
Intangibles	0.8385*** (0.2868)	0.8709*** (0.2994)	0.8808*** (0.2996)	0.8441*** (0.2996)	0.8755*** (0.2997)	0.8615*** (0.3000)
Legal entity	0.9592*** (0.1298)	0.9318*** (0.1290)	0.9464*** (0.1288)	0.9420*** (0.1286)	0.9446*** (0.1288)	0.9442*** (0.1293)
Group	0.4251*** (0.0625)	0.4309*** (0.0622)	0.4270*** (0.0621)	0.4228*** (0.0621)	0.4265*** (0.0622)	0.4321*** (0.0623)
FDI	1.3283*** (0.1936)	1.3181*** (0.1936)	1.2997*** (0.1935)	1.3173*** (0.1939)	1.3037*** (0.1937)	1.3308*** (0.1940)
Constant	-8.9885*** (0.1910)	-8.8757*** (0.3122)	-8.9198*** (0.1965)	-9.1053*** (0.1869)	-8.9837*** (0.1868)	-9.2455*** (0.3075)
Family		-0.3313** (0.1620)				-0.4141** (0.1618)
NonCore		-0.0443 (0.3931)				-0.1429 (0.3935)
District		0.0699 (0.1396)				0.0807 (0.1398)
Family*NonCore		0.2842 (0.2171)				0.3296 (0.2174)
Family* District		0.6142*** (0.1808)				0.6575*** (0.1811)
Size		-0.0753 (0.0502)				-0.0292 (0.0498)
Age		0.0018 (0.0080)				0.0054 (0.0080)
Age squared		0.0000 (0.0001)				0.0000 (0.0001)
Labor cost ratio		0.0812 (0.0719)				0.0897 (0.0720)
Total factor productivity		-0.2122*** (0.0667)				-0.0954 (0.0643)
Intangibles		-1.1813* (0.6257)				-1.2205* (0.6269)
Legal entity		0.5672** (0.2445)				0.5049** (0.2448)
Group		-0.0881 (0.1248)				-0.0448 (0.1248)
FDI		0.4031 (0.3649)				0.5497 (0.3649)
Rho		0.0721*** (0.0112)	-0.0207 (0.0185)	0.0512*** (0.0094)		
Lambda			0.1018*** (0.0221)		0.0806*** (0.0114)	
var(e.export_In)		6.7514*** (0.0787)	6.7632*** (0.0793)	6.7860*** (0.0791)	6.7707*** (0.0790)	6.7786*** (0.0790)
Sector F.E.	Yes	Yes	Yes	Yes	Yes	Yes
R-Square		0.4887	0.4868	0.4863	0.4868	0.4887
Log likelihood	-35,011	-34,964	-34,986	-34,997	-34,987	-34,984
AIC	70,059	70,001	70,014	70,033	70,014	70,040
BIC	70,196	70,282	70,174	70,185	70,166	70,314
Observations	14,725	14,725	14,725	14,725	14,725	14,725
LR vs SDM			45.40	66.21	46.64	41.05
			0.000	0.000	0.000	0.000

*** p < 0.01, ** p < 0.05, * p < 0.1.

Robust standard errors in parantheses.

Asian Consumers' Willingness to Pay for Organic Olive Oil: a Qualitative Comparative Analysis

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Abstract

In the last years, several forces have changed the international food system that brought a significant change in consumer behavior. The consumers' easy access to information on new production and processing technologies has resulted in a constantly increasing demand for foods quality and organic food, especially for organic olive oil. Several studies have investigated the consumers' willingness to pay for organic olive oil by focusing attention on developed economies as well as in countries producing organic olive oil (e.g., Italy, Spain, and Greece). This study aims to investigate an unexplored context, but with great interest, that is the Asian consumers' willingness to pay for organic olive oil.

Framing of the research. *Over the last decades, consumers have been influenced in their consumption preferences by different drivers such as environmental concerns (pollution, food production waste, carbon footprint, etc.) and food-safety related instances (foodstuff poisoning, food contamination, etc.). Thus, consumers' interest in terms of food consumption is shifting toward healthier and more environment-friendly choices (Thompson and Darwish, 2019). In this perspective of higher consumers' awareness concerning the effect of their food on the ecosystem and their health and the environment, the demand for organic foodstuffs has been growing exponentially (Aryal et al., 2009). Despite this increasing enthusiasm demonstrated by consumers for organic food, scholars have been observed a greater demand in developed economies with respect to developing ones (Ghali, 2020). However, it is noteworthy that developing markets have been addressed mainly as research settings in opposition to the emerging markets, from where scholars have collected fewer observations and conducted fewer studies (Ghali and Toukabri, 2019). Accordingly, the present study aims to conduct explorative research on what drives Asian consumers' willingness to pay for organic olive oil.*

Asian countries, especially China, are considered the most dynamic and growing economies, and they have immense potential in terms of commercialization of olive oil, although this product counted in 2020 for less than 1% of the total consumption of edible oil (Daxue Consulting, 2020). Olive oil, especially in China, is mainly imported due to the absence of the adequate geographic and climate conditions needed for extensive production for mass commercialization. The interest in Asia is corroborated by the fact that only China imports (mainly from Spain, Italy, Greece, and other producers) around 5.6% of world olive oil (García and Ruiz, 2021).

Purpose of the paper. *In the last years, several forces have changed the international food system (Krystallis et al., 2006) that brought a significant change in consumer behavior. Consumers increased awareness of the relationship between correct nutrition and health (Brown et al., 2011), the consciousness of food quality features (Ergönül, 2013). Additionally, the consumers' easy access to information on new production and processing technologies (Meijer et al., 2021) has resulted in a constantly increasing demand for foods quality (Sadilek, 2019) and organic food (Stubbs et al., 2018). As stated by Willer and Lernoud (2018), there has been a consistent growth in the world market for the production and consumption of organic products in the last thirty years. According to the Research Institute of Organic Agriculture (FiBL 2021), the state-of-the-art of organic cultivation shows that 2020 was a further good year for global organic agriculture¹.*

From the consumers' viewpoint, the sensation that organic foodstuffs have superior sensory qualities (Waldrop & McCluskey, 2019), are sustainable and more environmentally friendly (Ghvanidze et al., 2016), and are healthier (Roman et al., 2017) than their conventional equivalents led to a positive consumer behavior toward organic food (Jorge et al., 2020). Additionally, previous research shows that consumers have a more willingness to pay (WTP) for organic foods than their conventional counterparts (e.g., Britwum et al., 2021). This variation in consumers' habits and dispositions is more evident concerning organic olive oil, considering the increased attention to food security

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¹ <https://www.fibl.org/fileadmin/documents/shop/1344-organic-world-2022.pdf>

(Tsakiridou et al., 2006) and the product's quality (Pagliuca and Scarpato, 2011). According to the Centre for the Promotion of Imports from developing countries (CBI, 2022), organic olive oil consumption is growing and is expected to increase in the short term.

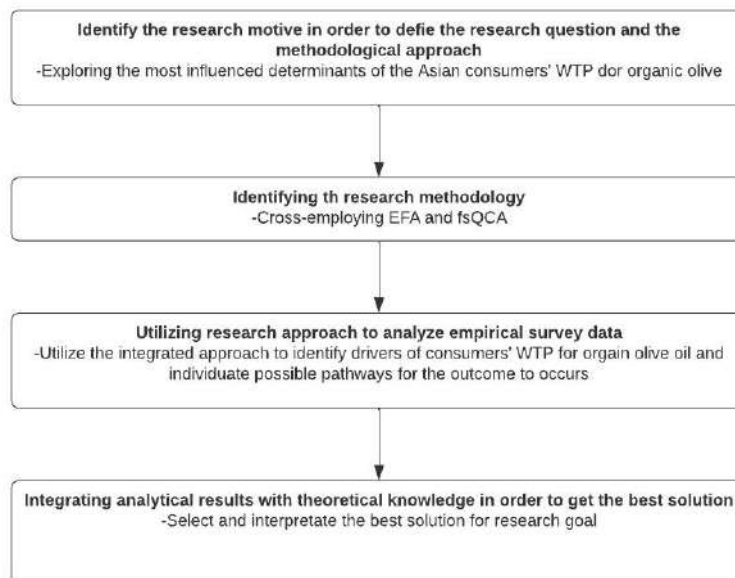
Several studies have provided evidence concerning consumers' willingness to pay for organic olive oil in different countries (e.g., Ghali, 2020; Kalogeras et al., 2019; Rizzo et al., 2020). The organic character of the olive oil (i.e., without aggressive chemical activities and any residue) leads to more significant Dutch consumers' WTP for the product (Ghali, 2020). According to Gil and Soler (2006), consumer attitudes (e.g., towards food safety, environment, and labeling) and consumers' knowledge (e.g., about organic food) influence the decision to pay a premium for organic olive oil. Kalogeras et al. (2019) provided evidence that consumers' WTP for the organic olive oil is influenced by consumers' awareness, experience, and perceptions concerning the better quality of the product, and preference for the retail distribution of organic olive oil. Krystallis et al. 2006 have shown that Greek consumers declared a willingness to pay +58.6% for organic olive oil compared to conventional. According to Liberatore et al. (2018) aspects such as food safety, health and nutrition seem to influence Italian consumers' WTP. Additionally, Rizzo et al. (2020) have shown that the contribution of the health aspect to determine the average premium price for organic olive oil is 78.9% of its total premium price. By comparing different sustainability quality labels (i.e., Protected Designation of Origin, Organic Farming, and Carbon Footprint) on olive oils, Erraach et al. (2017) have provided evidence that Spanish consumers are willing to pay about 1.23 €/l for the Organic label, being the highest WTP. Additionally, Marozzo et al. (2021) have shown that the perceived product authenticity and sustainability of the product positively affect the Spanish consumers' WTP for the organic olive oil.

Given these considerations, this paper aims to investigate an unexplored context, but with great interest, the driver for Asian consumers' willingness to pay for organic olive oil.

Methodology. Since the goal of this paper is to individuate the most influential determinants of the willingness to pay (WTP) for the organic olive oil, our outcome variable proper refers to the WTP. In order to capture what conditions could determine the willingness to pay more for the organic olive oil, the submitted survey covers different aspects, that range from the perception of product's sustainability and authenticity to perception of risk reduction of food fraud and traceability of the product. In this case literature review about WTP and consumers' behaviour was combined with the expertise gained by the group of researcher working group. In addition, the survey includes socio-demographic aspects, consumption habits and Corona Virus information. The survey overall includes 64 items.

In order to explore the most influential determinants of WTP, quantitative methodology cross-employs factor analysis (FA) approach and fuzzy set Qualitative Comparative Analysis (fsQCA) method, to strengthen research reliability and validity to analyze the research question. The research framework includes different steps, shown in Figure 1, including identifying research goal and research methodology, utilizing research methodology to analyze survey data, and combining analytic results with theoretical knowledge in order to individuate the best solution for the research question.

Fig. 1: Research Strategy



FA was originally created to evaluate the correlation coefficient among each variable to obtain communality of each analytical variable (Dunlap, 1994). FA approaches include both Explanatory factor analysis (EFA) and confirmatory factor analysis (CFA). They were originally developed to test the validity of each analytical variables and are both based on the common factor model. Since they are useful tools for dimensionality reduction, they are able to reproduce the correlation structure among a set of measured variables with a small set of latent constructs. Subsequently FA approaches have been employed in different research areas because it can deal with complex directly

and indirectly influenced factor, around the research problem. Specifically, EA allows all factors to relate to all measured variables, while CFA restricts relationships between factors and measured variables to those specified by the analyst (Widaman, 2012). Moreover, some argue that the purpose of EFA is to identify the latent constructs and/or to generate hypotheses about their structure while the purpose of CFA is to test and evaluate the hypothesized structure of latent constructs. In EFA the distinct step to attention is the factor extraction because it will affect the results of the analysis, by directly impacting the definition of constructs.

Then, in order to individuate what could be the potential pathways of combinations among all the evaluated elements, we use the qualitative analysis of Qualitative Comparative Analysis (QCA) approach. QCA is specifically designed for the analysis of small samples that does not require representativeness, and it allows to individuate the condition or some useful combinations of conditions able to explain the presence of an outcome or the occurrence of a particular final state (Fiss, 2011). We employed the fuzzy set qualitative comparative analysis (fsQCA), still based on the Boolean functioning, with a fuzzy calibration of the data. In this case, instead of using a simple presence/absence categorization of the data, membership scores range from 0 (fully out membership) to 1 (fully in membership) and they can take any values, according to the calibration method adopted (Ragin, 2008). In fsQCA, sufficient and necessity analysis are the two analytical situations. The former individuates what conditions can possibly result in the outcome condition, while the latter individuates individual and combination of conditions that are necessary for the occurrence of the outcome variable. Necessity and sufficient conditions have been analyzed through inclusion score and coverage score. Finally, the solution was identified and interpreted based on the intermediate solution, often taken into account the parsimonious and complex ones.

Results. Data was collected from a sample of Asian population through an online questionnaire built on Qualtrics software platform. Among 137 respondents, 63 questionnaires were without missing and incomplete data. Of those 63 that are complete, two were discarded, resulting in a final sample of 61 respondents. The final sample consisted of 26.2% of men, 68.9% of women, and 4.9% of other. In terms of age, it varies between a minimum of 18 and a maximum of 61 years old, with the 67.2% aged less than 25. Regarding the occupation, 47.5% of interviewees are student, the 45.9% are employees, the 4.9% declared other as occupation type, and only one respondent was self-employed. Finally, regarding the household size, the 32.8% of respondents had household size of four, followed by the 24.6% with a three-sized household and the 19.7% with a five-sized household. The remaining 22.9% declared to have a smaller-sized household (13.1% of one and 9.8% of two).

All the analysis were performed in RStudio software. FA was computed through the combined use of psych (Revelle, 2021) and EGA (Golino, 2021), while fsQCA was performed with QA package (Dusa, 2019).

As a consequence of the overall reflection of the items included in the survey, a FA was decisive. After a preliminary analysis of variables to include and a data screening (linearity, normality, outlier detection) we evaluated the appropriateness of the EFA model through the Kaiser-Meyer-Olkin (KMO) test. After deleting one factor whose MSA coefficient was low ($<.5$), the final overall MSA was sufficiently high (.77): values greater than .05 means that FA approach is appropriate and able to evaluate the data of 61 Asian interviewees.

We then choose the factors to retain through a mixed approach. We preliminarily checked the scree plot, that suggest extracting three components, and then we run a parallel analysis, with the principal component (PCA) extraction method², that instead suggests extracting two components. Moreover, applying an Exploratory Graph Analysis to our variables of interest, we estimate the sufficient number of dimensions to extract: three dimensions could be sufficient, but not necessary they are exhaustive. Even if these guidelines are useful, there is no guarantee that they are correct, so that based on authors' experience of the research question and including theory, we decided to retain four factors. In factor analysis we selected an oblique rotation, because of intercorrelations among social science variables, and among the available methods, we choose the promax rotation.

We considered the goodness-of-model fit, the Chi-squared, the root-mean square error of approximation (RMSEA) and the standardized root mean square residuals (SRMR) indices were used. A non-significant Chi-squared indicates that the model has an acceptable fit of the data. Values less than .8 for RMSEA and SRMR indicates an acceptable model fit. The Chi-squared statistics is not significant, RMSEA is acceptable (.078) and SRMR is .06. In addition, we checked for over factoring, by looking at inter-factor correlations: all coefficients are less than .06. Moreover, we checked the robustness of our results across rotation methods: we run exploratory factor analysis with varimax and oblimin rotation methods, and the results are consistent.

Internal consistency has been controlled using Cronbach's alpha coefficients of at least .60 as a criterion. Cronbach's alpha coefficients ranged from a minimum of .849 for the second item to a maximum .939 for item 1.

Based on the literature review about WTP and consumers' behavior, we defined the following items: i) Consumer Ethnocentrism (CET) able to measure consumers' ethnocentric tendencies related to purchasing foreign versus home-made product, consisting of 10 items; ii) Product Authenticity (AUTH) that regards genuineness, related to the place of production, country of origin and handmade production process (Marozzo, 2021), captured through nine items; iii) Sustainability and Traceability (SUST), able to capture both environmental and social-related aspects of organic olive oil and traceability as indicator of safety perceptions. It consists of 5 items; iiiii) Food fraud (FRAUD), in terms of perceptions of food fraud reductions, summarized through two items ("Buying organic olive oil reduces the risk of food fraud" and "Buying a sustainable product reduce the risk of food fraud").

² We used PCA extraction instead of the eigenvalue criterion, because it has been found to be more accurate (Auerwald, 2019)

Our dependent variable is the willingness to pay (WTP), measured using three items scale adopted from Ghali (2020) and evaluated for reliability ($\alpha=0.8$).

We used the four extract items as conditions for fsQCA. Moreover, we also included socio-demographic variables. The first analytic step in fsQCA is the calibration of row data. For continuous variables in our dataset (the WTP, CET, AUTH, SUST and FRAUD) we choose the the value 1, .67, .33 and 0 as thresholds (or breakpoints) which will transform the data into the log-odds metrics with values ranging from zero to one. For gender variable (GENDER) we use a three values scale (0: men, 1: women, .5: other). Moreover, we use a four-values scale for the occupation of each interview (OCCUP, for which 1: Employees and Self-Employed, .67: Unemployed and Homemaker, .33: Students and Retired, 0: other). Finally, we controlled for the household size, by distinguishing between household size less than 3 (membership score of 0) and household size more than 3 (membership score of 1), using the three-sized household as breaking point (fuzzy score of .5). After calibration of data, we checked for necessity conditions.

Based on the existing recommendations, the minimum level of consistency for the test of necessity is 0.965 (Schneider, 2012). With this threshold, among all the OR-configurations, the analysis revealed that none of the conditions alone was a necessary condition for our outcome variable. Then, the analysis of sufficient condition was made with a frequency benchmark of 1.0 e a consistency cut-off of 0.75.

The analysis identified five configurational pathways that can lead to a higher WTP for organic olive oil. Finally, in order to individuate what combinations lead to the outcome variable, we focus on the intermediate solution of fsQCA, because it is more suitable for theoretical interpretation (Fiss, 2011). Given the complex solution, obtained by including in the minimization process all logical reminders, and the parsimonious (simplest) solution, the intermediate solution represents the complex solution reduced by the conditions that run counter to fundamental theoretical knowledge. Given the authors' expectation on the variables of interest, we individuated five pathways that can lead to a positive willingness to pay for organic olive oil. The overall inclusion score was .784 and the coverage score complied with the criteria given by Ragin (2008). Among all the combinations, even if the effect of sociodemographic variables was mixed (positive contribution in some pathways and negative in other ones), all the five pathways showed a positive contribution of consumers' ethnocentrism (CET), product authenticity (AUTH) and sustainability and traceability (SUST). Finally, also the contribution of Food Fraud (FRAUD) is mixed, depending on the combination with other consumers' perception.

Research limitations. As with every study of this kind, 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, especially if compared with the extensiveness of the territory addressed. Indeed, a larger sample might offer a more comprehensive and exhaustive analysis, especially if linked with further qualitative explorations in terms of interviews. Second, Asian countries are very different, and diverse behaviors and beliefs drive consumers in terms of food. A more focused analysis may depict a more precise picture of consumers' preferences at the country level, offering companies more focused information on whose setting their strategies. Third, further explorations might include socio-demographic variables in the data collection criteria to allow in-depth evaluations of olive oil consumption and consumers' purchasing habits. Finally, it might be a valuable exercise to extend studies of this kind to other typical organic foodstuffs (such as wine) to explore if the same drives move the consumers even in beverages.

Managerial implications. The present study results provide companies and policymakers insights to set rules and strategies. From the managerial point of view, it emerges that the origin and the quality of the product deliver high added value for those firms able to penetrate the Asian market. Moreover, consumers' attention toward sustainability confirms the importance of the quality label and the ability of firms to communicate the intrinsic characteristics and the exported product. Those considerations represent a starting point to set successful marketing strategies that consider the product's origin and assess its life cycle from the environmental point of view to target consumers adequately.

In turn, results suggest to policymakers the importance of the reputation of the country of origin in terms of quality of the products and attention to the environmental issues. At the general level, informed consumers recognize the quality of the products according to their origin. Thus it emerges the importance of having a solid regulation that, on the one hand, provides a strong reputation for the country of origin and, on the other hand, protects farmers that invest in quality and attention to the environment from unfair competitors.

Originality of the paper. To the best of our knowledge, exploring such a complicated phenomenon of the willingness to pay for organic olive oil in countries with a diet very dissimilar from the Mediterranean one is still an underexplored field. Despite its very explorative nature, this study starts in shedding light and provides initial empirical evidence regarding the processes that lead Asian consumers to buy organic foodstuffs with particular attention to the product's quality, origin, and sustainability.

Keywords: organic olive oil; willingness to pay; origin, product authenticity fsQCA; Asia

References

ARYAL K., CHAUDHARY P., PANDIT S., SHARMA G. (2009), "Consumers' willingness to pay for organic products: a case from kathmandu valley", *Journal of Agriculture and Environment*, vol. 10, pp. 15-22.

- AUERSWALD M. (2019), "How to determine the number of factors to retain in exploratory factor analysis: A comparison of extraction methods under realistic conditions", *Psychological Methods*, n. 24, pp. 468-491.
- BRITWUM K., BERNARD J.C., ALBRECHT S.E. (2021), "Does importance influence confidence in organic food attributes?", *Food Quality and Preference*, n. 87, pp. 104056.
- BROWN K.A., TIMOTIJEVIC L., BARNETT J., SHEPHERD R., LÄHTEENMÄKI L., RAATS M.M. (2011), "A review of consumer awareness, understanding and use of food-based dietary guidelines", *British Journal of Nutrition*, vol. 106, n. 1, pp. 15-26.
- DAXUE CONSULTING (2020), "The olive oil market in China driven by health-oriented consumers", available at: <https://daxueconsulting.com/the-olive-oil-industry-in-china/> (accessed 18 January 2021)
- DUNLAP W.P. (1994), "Factor analysis of ipsative measures", *Multivariate Behavioral Research*, vol. 29, n. 1 pp. 115-126.
- DUSA A. (2019), "QCA with R. A Comprehensive Resource. Cham, Switzerland: Springer International Publishing.
- ERGÖNÜL, B. (2013), "Consumer awareness and perception to food safety: A consumer analysis", *Food control*, vol. 32, n. 2 pp. 461-471.
- ERRAACH Y., SAYADI S., PARRA-LÓPEZ C. (2017), "Measuring preferences and willingness to pay for sustainability labels in olive oil: Evidence from Spanish consumers. In XV EAAE Congress, Parma, Italy. Retrieved from https://www.researchgate.net/profile/Carlos_Parra-Lopez2/publication/319393009 (10.05.2018).
- FISS P. (2011, 04), "Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research", *Academy of Management Journal*, n. 54. doi:10.5465/AMJ.2011.60263120
- GARCÍA J.A., RUIZ B. (2021), "Spain's reputation in China: analysing its effects on attitudes towards Spanish olive oil", *British Food Journal*.
- GHALI Z.Z. (2020), "Effect of utilitarian and hedonic values on consumer willingness to buy and to pay for organic olive oil in Tunisia", *British Food Journal*, vol. 122, n. 4, pp. 1013-1026.
- GHALI Z.Z., TOUKABRI M. (2019), "The antecedents of the consumer purchase intention: sensitivity to price and involvement in organic product: moderating role of product regional identity", *Trends in Food Science and Technology*, Vol. 90, pp. 175-179.
- GHVANIDZE S., VELIKOVA N., DODD T.H., OLDEWAGE-THERON W. (2016), "Consumers' environmental and ethical consciousness and the use of the related food products information: The role of perceived consumer effectiveness", *Appetite*, n. 107, pp. 311-322.
- GOLINO H.A. (2021), EGAnet: Exploratory Graph Analysis - A framework for estimating the number of dimensions in multivariate data using network psychometrics.
- JORGE E., LOPEZ-VALEIRAS E., GONZALEZ-SANCHEZ M. B. (2020), "The role of attitudes and tolerance of ambiguity in explaining consumers' willingness to pay for organic wine", *Journal of Cleaner Production*, n. 257, pp. 120601.
- KALOGERAS N., VALCHOVSKA S., BAOURAKIS G., KALAITZIS P. (2009), "Dutch consumers' willingness to pay for organic olive oil", *Journal of International Food & Agribusiness Marketing*, vol. 21, n. 4 pp. 286-311.
- KRYSTALLIS A., FOTOPOULOS C., ZOTOS Y. (2006), "Organic consumers' profile and their willingness to pay (WTP) for selected organic food products in Greece", *Journal of international consumer marketing*, vol. 19, n. 1 pp. 81-106.
- LIBERATORE L., CASOLANI N., MURMURA F. (2018), "What's behind organic certification of extra-virgin olive oil? A response from Italian consumers", *Journal of Food Products Marketing*, vol. 24, n. 8 pp. 946-959.
- MAROZZO V., VARGAS-SÁNCHEZ A., ABBATE T., D'AMICO A., LA ROCCA E.T. (2021), "Perceptions and Implications of Product Sustainability and Product Authenticity in the Agri-food Sector: The Case of Organic Olive Oil in Spain", *Micro & Macro Marketing*, vol. 30, n. 1 pp. 113-140.
- MEIJER G.W., LÄHTEENMÄKI L., STADLER R.H., WEISS J. (2021), "Issues surrounding consumer trust and acceptance of existing and emerging food processing technologies", *Critical reviews in food science and nutrition*, vol. 61, n. 1 pp. 97-115.
- PAGLIUCA M.M., SCARPATO D. (2011), "Food quality, consumer perception and preferences: An analysis on olive oil", *Electronic Journal of Applied Statistical Analysis*, vol. 4, n. 2 pp. 215-226.
- RAGIN C. (2008), "Redesigning Social Inquiry: Fuzzy Sets and Beyond. University of Chicago Press, Chicago. doi:10.7208/chicago/9780226702797.001.0001
- REVELLE W. (2021), "psych: Procedures for Psychological, Psychometric, and Personality Research. Tratto da <https://CRAN.R-project.org/package=psych>
- RIZZO G., BORRELLO M., DARA GUCCIONE G., SCHIFANI G., CEMBALO L. (2020), "Organic food consumption: The relevance of the health attribute", *Sustainability*, vol. 12, n. 2 pp. 595.
- ROMAN S., SÁNCHEZ-SILES L.M., SIEGRIST M. (2017), "The importance of food naturalness for consumers: Results of a systematic review", *Trends in food science & technology*, n. 67, pp. 44-57.
- SADILEK T. (2019), "Perception of food quality by consumers: literature review", *European Research Studies Journal*, vol. 22, n. 1 pp. 57-67.
- STUBBS R.J., SCOTT S.E., DUARTE C. (2018), "Responding to food, environment and health challenges by changing meat consumption behaviors in consumers", *Nutrition Bulletin*, vol. 43, n. 2 pp. 125-134.

- THOMPSON L.A., DARWISH W. (2019), "Environmental chemical contaminants in food: review of a global problem", *Journal of Toxicology*, vol. 2019, pp. 1-14.
- TSAKIRIDOU E., MATTAS K., TZIMITRA-KALOGIANNI I. (2006), "The influence of consumer characteristics and attitudes on the demand for organic olive oil", *Journal of International Food & Agribusiness Marketing*, vol. 18, n. 3-4 pp. 23-31.
- WALDROP M.E., McCLUSKEY J.J. (2019), "Does information about organic status affect consumer sensory liking and willingness to pay for beer?", *Agribusiness*, vol. 35, n. 2 pp. 149-167.
- WIDAMAN K.F. (2012), "Exploratory factor analysis and confirmatory factor analysis", In Cooper P.M.H., *APA handbook of research methods in psychology* (p. 361-389), American Psychological Association. doi: <https://doi.org/10.1037/13621-018>
- WILLER H., LERNOUD J. (2018), *The world of organic agriculture. Statistics and emerging trends 2018*.

Environmental sustainability and customer experience management. Towards an integrated framework

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Framing of the research. *Two of the most relevant terms in management and marketing studies are currently environmental sustainability and customer experience. The environment and customer centricity are the key priorities for companies to survive and compete more effectively (Gil-Gomez et al., 2020; Gartner, 2019; Signori et al., 2019). Especially after the events related to the Covid-19 pandemic, the importance of preserving the environmental ecosystem has become a topic that has raised the sensitivity of citizens, firms and governments. At the same time, the centrality of customers has become crucial to attract and maintain them in an increasingly competitive context (Fader, 2020; Peppers and Rogers, 2017; Forrester, 2010; Polonsky, 2011). However, it's astonishing to see how harder and rare is to put at the heart of the business the customer and the environment.*

From a theoretical point of view, the two issues have mostly been analyzed separately and only recently, some researches are approaching to the joint study of sustainability and customer experience (Signori et al., 2019; Gil-Gomez et al., 2020) without, however, yet to come to integrated models.

However, even this new emerging research does not capture the integration and the dynamics of multiple meanings for a company. Additionally, the researches ignores the fact that there are multiple dimensions to this phenomenon and new trends in what companies want as part of their competitive advantage, such as the environmental sustainability, innovation and experience orientation at a corporate level. This paper tries to contribute by offering an integrated framework that pulls all these together.

Theoretical background. *Commitment to the natural environment gained a great importance on national agendas and policymakers' interests, becoming a crucial variable in the current economic competition and forcing many companies to change their attitude towards environmental issues (Shrivastava, 1995). In this vein, company environmental management (CES) is becoming a growing trend in modern business, reflecting the reciprocal relationship between the natural environment and a firm's strategy and operations (Boutillier, 2011; Walls, Berrone, and Phan, 2012). Firms that incorporate natural environment objectives in their strategies may reduce operating costs, have better use of resources and capabilities and take advantage of market opportunities created by an increasing demand for environmentally friendly goods and services (Berrone and Gomez-Mejia, 2009), in addition to managing risk, including reputational risk, and, in general, increasing the economic benefits derived from improved stakeholder relations (Cordeiro and Tewari, 2015).*

Environmental sustainability differentiation strategy can be implemented by improving brand image, developing sustainable products and services (Walsh and Doodds, 2017). In other words, if a company wants to gain a sustainability differentiation advantage, it must integrate environmental thinking into all aspects of marketing (Moravcikova et al., 2017).

Marketing is essential in this process since it can play a key role for the creation of a green market (e.g. Rex and Baumann, 2007) by communicating with consumers to increase their awareness about environmental sustainability and informing them about the benefits of environmentally sustainable products and services.

Among the others, a great contribution to improve the firm's differentiation advantage based on environmental sustainability is to use potentiality offered by the Customer Experience approach.

Customer experience (CE) has been theorized as "the cognitive, emotional, behavioural, sensorial and social responses during the entire journey" so it begins with the first interaction with the firm and seamlessly continues through to the period after the consumption (Brakus et al. 2009; Lemon and Verhoef, 2016; Homburg et al., 2017). However, some authors (Homburg et al., 2017) pointed out that the customer experience should not be considered in an experiential marketing perspective only, but it should imply a strategic process which embraces the entire company process and mindset. The Customer Experience Management (CEM), is a strategic approach based on the customer-firm relationship which may offers the opportunity to differentiate the product offering and help firms to increase the

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customer loyalty and the positive word of mouth, promote the cross-selling, reduce of price sensitivity, and stimulate the reputation growth (Klink, Zhang and Athaide, 2020), can be employed help to improve.

Results of the study conducted by Homburg, Jozić, & Kuehnl, (2017) have identified three dimensions that affect company's strategic contribution toward customer experience, that is the probable size of the CEM orientation: a. Cultural mindset, b. Strategic directions and c. Firm capabilities.

Specifically, the "cultural mindset" refers to managers' mental orientation to describe their competitive advantage and includes three latent dimensions called experiential response orientation, touchpoint journey orientation and alliance orientation. The second factor "strategic directions" refer to the design of CEM and includes the thematic cohesion of touchpoints, consistency of touchpoints, connectivity of touchpoints. The third second-order factor "firm capabilities" refer to the ability to continually renew CE over time and includes: touchpoint prioritization, touchpoint journey monitoring and touchpoint adaptation. The model so defined, frames a concept of CEM which is referred not only to the marketing orientation, but it comprises all the internal process and the cultural aspects.

From the practitioners' world, another model which tries to map the dimensions to achieve a CEM orientation as differentiation strategy has been designed by KPMG.

They have identified six dimensions called 'Six Pillars' as follow: Customization, Integrity, Expectations, Resolution, Time and Commitment and Empathy. These factors represent six fundamental dimensions through which a customer judges the interaction with a brand. It is precisely on these elements that companies must focus on improving customer relations.

Individually, both CES and CEM are deeply investigated in their specific field, but current research rarely pursues the integrated perspective, with an uncharted potential.

Muller (2014) pointed out a few opportunities derived from an integrated approach between CRM and sustainability. First, there is a theoretical gap which opens the opportunity to examine the interconnectedness of the three dimensions of sustainability in customer-related contexts. Second, there is the need to specifically consider the environmental sustainability propensity of the customers when firms design the customer experience.

More recently, Signori et al. (2019) contributed to the debate, by exploring the link between corporate Sustainability and Customer Experience, confirming a theoretical gap into considering both approaches together and the need to integrate the perspectives.

In particular, Signori et al. (2019) (p. 161) coined the term concept of "Sustainable Customer Experience" (SCE) as the "process that creates holistic value thanks to the customer's engagement derived by sensations, feelings, cognitions, and behaviors evoked by sustainable stimuli, based on economic, social and environmental sustainability". This new definition is an upgrade of the traditional definition of customer experience which includes the concept of sustainable stimuli but without any successful empirical evidence to support the definition.

Indeed, the sustainability-oriented approach, based on stakeholders' perspective, considers as key partners the totality of actors, resources and activities related to sustainability. According to this approach, to create corporate value, it's fundamental to consider the wellbeing of every stakeholder related with firms' activities, including the customers and the employees. On the other hand, from the literature review, it emerges that there exist an increasing consumers' interest toward "green" and "experience" oriented choices (Signori et al., 2019).

A more recent study (Gil-Gomez et al., 2020) explored the importance of CRM as technological application able to help companies to achieve a sustainable economic and financial growth.

Despite both researcher and practitioners are devoting a growing interest on these topics, at the best of our knowledge, they still fail to shed the lights on the opportunity that can come from merging these two goals.

Currently, the only empirical phenomenon which link the environmental sustainability and customers is the communications of green practices. To develop an integrative model, firms should consider the dimension of environmental sustainability in their customer experience management scale measurement not only considering the operative and short-term objectives, but also the potentiality that can emerge at strategic level.

Indeed, firms should consider all the changes in customers' needs. The new trend in customers' behavior are caused by pandemic or by wider awareness on personal and social health and a higher respect for environment. For instance, people is more willing to buy local, organic food and experience nature, especially using digital channels.

Thus, company should consider to profitably exploit these opportunities using the proper the strategic and marketing tools. In parallel, consumers are passive, impatient and cynical, consequently it is difficult but at the same time vital, to design purchase and consumption experiences that can attract and retain them. In this vein, an integrated approach that exploits digital processes and innovation could make it possible to achieve both goals of environmental sustainability and customer experience orientation more efficiently with multiple benefits on both the supply side (e.g. costs efficiency, logistics, reputation improvement) and on the demand side (e.g. increase in satisfaction, loyalty, word of mouth)

The research opportunities presented show that, even though research has already dealt with a multitude of customer- and sustainability-related issues, an integrated perspective considering the interconnectedness of the environmental dimension of sustainability and the effects of sustainability-oriented CEM initiatives throughout the entire customer experience is missing.

In our opinion, it is possible to glimpse some meetings points merged the two approaches, which open to interesting synergies between the two strategies. First, both are currently considering crucial to be distinctive from the competitors; second, both the perspectives are considered at a strategic level which include an internal and an external

perspective; third, both are other-oriented value being focused on customers and environment and finally, both are oriented toward a long-term success.

Purpose of the paper. Environmental strategies are increasingly employed in the strategic marketing planning of companies as key practice to survive and improve their position in the market. In parallel, customer experience management is also dominating the business practice, by affecting consumer behaviours. Indeed, while both approaches affect competitiveness and reputation, there is the need to further explore which is the optimum blending that could effectively propel the potential of environmental sustainability toward enhancing customer experience.

Indeed, while there is a growing interest among scholars and practitioners on these two topics, they are mainly approached separately and the opportunity to investigate the potentiality of a possible integrated relationship is very underestimated. In this light, the research question is: “can CES and CEM be integrated”? Specifically, the research objectives are twofold. First, to identify meeting points between CES and customer experience management (CEM): secondly, to pinpoint an integrated innovative approach to help companies to be more efficient.

Methodology. To achieve the research aims, we adopted a traditional inductive research design. An inductive approach, as opposed to a deductive approach, is not guided by a structuring framework (Eisenhardt, 1989). It does not begin with asserting preconceived categories into which the data fit; instead, it begins with specific observations and evaluations to identify patterns that are then articulated into propositions.

Therefore, the categories emerge as the data are analysed and, following a theory-building approach grounded in the context of rich data, we generate theoretical propositions from qualitative data. Consequently, we implemented an explorative case study analysis to generate theory in the shape of propositions (Eisenhardt, 1989).

The dimensions of analysis were 1) the customer experience orientation; 2) the corporate environmental strategy employed by company. These two approaches are explored in terms of strategic, tactical, internal orientation and action tools developed.

The research is set in the food delivery industry. Online Food Delivery comprises services which deliver prepared meals and food that was ordered online for direct consumption, and it is considered a market with a potential for robust growth (McKinsey & Company, 2016).

New-delivery operators use digital technologies to allow consumers to compare offerings and order meals from a group of restaurants through a single website or app. Crucially, the players in this category also provide the logistics for the restaurant.

In addition, these players can control the complete customer experience; with their wide portfolio of restaurants that previously served meals only on their premises, new delivery players are able to tap into a new tier of consumers for home delivery of meals.

Thus, the industry represents an interesting set to investigate the search for new and alternative way to improve customer experience by contemporary reducing environmental impact or to using environmental sustainability to build a reliable customer experience.

In particular, the paper reports the case study analysis of Alfonsino (<https://alfonsino.delivery>) an online food ordering and delivery service launched in 2016 in Caserta, a small town in the southern Italy by three young entrepreneurs. The primary mission of the company is to provide food delivery services to small cities, where the leading players of food delivery, such as Uber eats, Just Eat or Deliveroo were not present or not present yet.

Primary data have been collected by conducting several interviews to internal company’s manager and Alfonsino customers. The interviews took place both physically at the headquarter of the company as well as using call conferences platforms.

The field research allowed us to have contact with several key persons of the company as well as see how internal operations are conducted, and then have a personal perception of the company’s organizational culture.

A qualitative inquiry approach for the interviews gave us room to acknowledge multiple realities, different point of view - the personal opinions and perceptions - of the various interviewees.

Avoiding fully unstructured interviews, we used pre-written interview questions that were sent to the respondent some days ahead of time to help us maintain theoretical focus and set a pace for the actual interview.

Primary data was then combined with the public data serving as important triangulation and supplementary sources for understanding discrepancies among informants and gaining additional perspectives on key issues. Secondary data were conveniently collected from well-documented sources, such as official press releases, crowdfunding platforms or association websites.

Preliminary results. The explorative case study confirms that, despite it is still little considered in practice, the integration of environmental strategy and customer experience orientation is possible.

Starting from the empirical evidence shown in the Alfonsino case study, is possible to identify the key features of each approach and the possible meetings points.

A new integrated model, called “environmental-oriented customer experience management” (EOCEM) can be defined as novel approach that could help company to remain competitive thanks a customer experience orientation that contemporarily satisfy environmental sustainability (see table 1 below).

The main feature of the EOCEM have been explained at three different levels: strategic, tactical, and internal.

At strategic level, an EOCEM approach calls for a green cultural mindset oriented to the open innovation and the collaborations to find innovative touchpoints to facilitate the customer experience and achieve contemporarily the dual objective of being environmentally sustainable and customer oriented.

Propensity to collaborate with external partners allow to reach resources and competences not owned by a single company. In the specific case, partners who can help firm to digitalize processes or provide environmentally friendly solutions for packaging or deliveries add value to the entire value proposition, increase the reputation and improve the customer satisfaction.

From the tactical point of view, both approaches are oriented to product re-design and quality. Regarding customer experience, companies use the customer journey model to map the strategic stages and the touchpoints to implement for a satisfying consumer-brand relationship; the environmental strategy rather also requires a process and supply chain re-design.

In the integrated EOCEM approach, company should face a product and process re-design by contemporarily satisfying the environmental and customer experience target. In other words, the integrated approach requires the design green products and touchpoints: firm should force to put environmental sustainability in the creation of customer journey by using digital channels, green packaging and by evoking “green emotions” by communicating their commitment for the environment in their communication and brand image.

The third level is the internal orientation. Both approaches require a cultural mindset based on the employee engagement. Employees are considered the primary customers of any firm and precursors to delivering great customer experiences. So, firms that well engage and invest in the wellbeing of their employees, are far more likely to have those employees treat customers well and, consequently, they will see their image and reputation improve. According to the strategic level discussed before, from an environmental point of view, firm should implement the EOCEM also in their physical ambient by getting the servicescape and internal rules greener (for example smart working, car sharing services, elimination of plastic by encouraging the use of water bottles and introducing taps, creating recyclable lunch boxes, etc.).

Drawing on the study findings, various propositions can be developed.

P1. To implement the EOCEM, company should start to contemporary consider at strategic level both environmental sustainability and customer experience.

P3. The internal efforts shown by employees is important to drive company toward the EOCEM at both strategic level and operational implementation.

P4. Digital technology covers a pivotal role into the definition of the action tools required by the system.

P5. The effective implementation of EOCEM requires the collaboration among different players and a propensity to the open innovation.

Tab. 1: Towards an integrative model of environmental-oriented customer experience management (EOCEM)

	CES	CEM	EOCEM
Strategic Orientation	Resource efficiency, environmental differentiation, alliance	Customer-centric cultural mindset, experience oriented, alliance	Green cultural mindset oriented to the experience and the collaborations
Tactical Orientation	Re-design of product and services, re-design of production process, re-design Supply chain	Re-design of products and services, Omnichannel touchpoints, customization, empathy	Design of green touchpoints
Internal Orientation	Employees engagement towards environment	Employees engagement towards customers	Employees engagement towards EOCEM
Primary goals	Customer environmental awareness, reduce production and consumption environmental impact	Customer satisfaction Perceived value, customer loyalty and reputation growth	Design successful customer experience through <i>green emotions</i>
Action tools	Green product life-cycle Green innovation Green collaborations	Customer journey Cross-selling, digital innovation	Green experience providers that allow the reduction of price sensitivity

Research limitations. *The study presents some important limitation that can be considered a good starting point for future research. Being an explorative study based on a point of view, the study needs to be enriched by more data to evaluate the effectiveness of the proposed model. In particular, the theoretical propositions should be demonstrated by employing empirical study. Moreover, the same final conceptual speculations should be applied in other industry to verify their validity.*

Managerial implications. *The paper offers some interesting thinking about the managerial implementation of the model. Managers should take in consideration the opportunity to integrate the work of the department for the sharing implications derived. First, the EOCEM represents a way by which firms implement a green cultural mindset experience oriented to differentiate their value proposition.*

In doing so, in the short term, they could benefit of the opportunity to reduce the price sensitivity because the perceived value of their product (or service) offering will be higher. Indeed, customers will be more positively attracted

from firms who care about the environment and people experience and it's probable that they will be more willing to pay for premium price because of a higher perceived brand value.

Moreover, in the long term, this integrated strategy will stimulate customer loyalty, brand image and reputation growth, by improving the stakeholders' perception.

From management standpoint, it suggests having more consideration of marketing tools to effectively implement environmental activity and catch the value of differentiation advantages.

The outcome of this merged process is the creation of firms' embedded value creation, where not just customers or primary stakeholder could take the advantage of this strategy, but indirectly also the natural environment and the whole society.

Finally, at an operational level, through the definition of an EOCEM, the entire purchasing process may become green. An inevitable positive externality derives from the fact that through the integration of CES and CEM, the delivery of green experiences may arise. At this point, an interesting integration is the possibility to define the and induce the "green emotions" and the possibility to implement the "green touchpoints" along the journey.

Originality of the paper. This study investigates the extent to which environmental sustainability characteristics play a role in customer experience management and how corporate environmental sustainability orientation in general as well as specific sustainability measures are linked to customer experience. It enriches the general management literature by offering an original integrated model. On the practical front, the initial findings of this paper may suggest ways for entrepreneurs and managers to implement more efficient processes which can implement new processes that can have cost and market benefits. It provides directions on how the current two mega trends for competitiveness may be combined in an integrative way to support corporate strategies and marketing processes.

Keywords: Corporate Environmental Sustainability (CES); Customer Experience Management (CEM); integrated approach

References

- BERRONE P., GOMEZ-MEJIA L.R. (2009), "Environmental Performance and Executive Compensation: An Integrated Agency-Institutional Perspective", *Academy of Management Journal*, vol. 52, n. 1, pp. 103-126.
- BOUTILIER R. (2011), *A stakeholder approach to issues management*. Business Expert Press.
- BRAKUS J.J., SCHMITT B.H., ZARANTONELLO L. (2009), "Brand experience: what is it? How is it measured? Does it affect loyalty?", *Journal of marketing*, Vol. 73, n. 3, pp. 52-68.
- CORDEIRO J.J., TEWARI M. (2015), "Firm characteristics. Industry context and investor reactions to environmental CSR: A stakeholder theory approach", *Journal of Business Ethics*, vol. 130, n. 4, pp. 833-849.
- EISENHARDT K.M. (1989), "Building Theories From Case Study Research", *Academy Of Management Review*, vol. 14, n. 4, pp. 532-550.
- FADER P. (2020), *Customer centricity: Focus on the right customers for strategic advantage*. Wharton digital press.
- FORRESTER (2010), *Environmental sustainability and customer experience*, Available at https://go.forrester.com/blogs/10-12-environmental_sustainability_and_customer_experience/
- GARTNER (2019), *Customer Experience. Increase customer loyalty and retention with smart CX strategy*, Available at <https://www.gartner.com/en/marketing/insights/customer-experience>
- GIL-GOMEZ H., GUEROLA-NAVARRO V., OLTRA-BADENES R., LOZANO-QUILIS J.A. (2020), "Customer relationship management: digital transformation and sustainable business model innovation" *Economic research-Ekonomska istraživanja*, vol. 33, n. 1, pp. 2733-2750.
- HOMBURG C., JOZIĆ D., KUEHNL C. (2017), "Customer experience management: toward implementing an evolving marketing concept", *Journal of the Academy of Marketing Science*, vol. 45, n. 3, pp. 377-401.
- KLINK R.R., ZHANG J.Q., ATHAIDE G.A. (2020), "Designing a customer experience management course", *Journal of Marketing Education*, Vol. 42, n. 2, pp. 157-169.
- LEMON K.N., VERHOEF P.C. (2016), "Understanding customer experience throughout the customer journey", *Journal of marketing*, Vol. 80, n. 6, pp. 69-96.
- MCKINSEY&COMPANY (2016), "The changing market for food delivery", Mckinsey report <https://www.mckinsey.it/file/6624/download?token=aqkEiiWF>
- MORAVCIKOVA D., KRIZANOVA A., KLIESTIKOVA J., RYPAKOVA M. (2017), "Green Marketing as the Source of the Competitive Advantage of the Business", *Sustainability*, vol. 9, n. 12, 2218.
- MÜLLER A.L. (2014), "Sustainability and customer relationship management: current state of research and future research opportunities", *Management Review Quarterly*, vol. 64, n. 4, pp. 201-224.
- PEPPERS D., ROGERS M. (2016), *Managing customer experience and relationships: A strategic framework*. John Wiley & Sons.
- POLONSKY M.J. (2011), "Transformative green marketing: Impediments and opportunities", *Journal of Business Research*, vol. 64, n. 12, pp. 1311-1319.
- REX E., BAUMANN H. (2007), "Beyond ecolabels: what green marketing can learn from conventional marketing", *Journal of cleaner production*, vol. 15, n. 6, pp. 567-576.

- SHRIVASTAVA P. (1995), "Environmental technologies and competitive advantage", *Strategic management journal*, vol. 16, n. S1, pp. 183-200.
- SIGNORI P., GOZZO I., FLINT D.J., MILFELD T., NICHOLS B.S. (2019), *Sustainable Customer Experience: Bridging Theory and Practice*. In *The Synergy of Business Theory and Practice* (pp. 131-174), Palgrave Macmillan, Cham.
- WALLS J.L., BERRONE P., PHAN P.H. (2012), "Corporate governance and environmental performance: Is there really a link?", *Strategic management journal*, vol. 33, n. 8, pp. 885-913.
- WALSH P.R., DODDS R. (2017), "Measuring the choice of environmental sustainability strategies in creating a competitive advantage", *Business Strategy and the Environment*, vol. 26, n. 5, pp.672-687.

Le Smart Retail Technologies nel fashion: quali risorse e nuove competenze?

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Inquadramento della ricerca. *Le tecnologie digitali che vengono utilizzate nel retail stanno modificando non solo il modo in cui le imprese competono sul mercato, ma anche il modo in cui i retailers danno servizio al proprio cliente sia on-line che off-line (Kapperman, 2013, Singhal et al., 2020). Le esigenze dei clienti possono essere viste come una guida per i processi di innovazione aziendale (Pantano, 2018). L'adozione di un'innovazione dipende dalle capacità delle organizzazioni di rispondere con precisione alle esigenze degli utenti finali, infatti l'innovazione potrebbe non riuscire a soddisfare le esigenze degli utenti. Mentre i retailers si concentrano su tecnologie in grado di ridurre i costi operativi (in particolare il costo del personale), i consumatori mostrano un crescente interesse verso l'esperienza di consumo presso il punto vendita, pertanto, i consumatori spingono i retailers a sviluppare tecnologie in tal senso. La partecipazione dei consumatori alla (co) creazione di servizi crea una sorta di sinergia tra il retail (fornitore di servizi) e i consumatori perseguendo l'obiettivo comune di un servizio soddisfacente. Oltre al personale di servizio, i consumatori si aspettano di trovare nuovi strumenti per supportare: la ricerca, il processo decisionale, l'intrattenimento, ecc, ciò allo scopo di ricevere una risposta rapida alle richieste, e/p per ridurre i tempi di attesa. A loro volta, i retailers possono utilizzare questi nuovi strumenti per raccogliere dati sul comportamento di scelta e di acquisto dei consumatori, attraverso i dispositivi mobili dotati di NFC (Near Field Communication), nuove tecnologie contactless, tecnologie di realtà aumentata, definita come la combinazione di mondo reale e scenari virtuali (costituiti da un computer) per creare un nuovo scenario, così facendo i negozi possono aggiungere elementi virtuali come immagini, video, informazioni testuali, ecc. nel negozio reale.*

Negli ultimi tempi, i progressi tecnologici hanno accelerato cambiamenti radicali e causato interruzioni significative nel panorama della vendita al dettaglio (Shankar et al., 2021). Ad esempio, con innovazioni basate sulla tecnologia che vanno dall'ordine con un clic alla raccomandazione personalizzata agli altoparlanti intelligenti alla spedizione anticipata, Amazon ha ridefinito gli acquisti e sostituito molti retail fisici (Nichols, 2018; Shankar 2019; Xiao e Benbasat 2007). Molte di queste tecnologie sono alimentate dall'intelligenza artificiale (IA), che sta rimodellando la vendita al dettaglio in grande stile (Shankar 2018). "IA si riferisce a programmi, algoritmi, sistemi o macchine che dimostrano intelligenza. Più in generale, è usato per denotare un insieme di strumenti che possono migliorare l'intelligenza di un prodotto, servizio o soluzione" (Shankar 2018). Le applicazioni dell'IA nella vendita al dettaglio includono sistemi di personalizzazione e raccomandazione, gestione del rapporto vendite/cliente, gestione del servizio clienti, ottimizzazione della catena di fornitura, gestione dell'inventario e creazione di attività di negozio. Aumentare qualcosa significa aumentarlo o migliorarlo. La Realtà Aumentata è la Realtà Virtuale potenziata, in cui le viste dal vivo, dirette o indirette degli ambienti fisici del mondo reale, sono aumentate con immagini sovrapposte generate al computer (Carmigniani e Furth, 2011; Webel, 2013; Yim et al., 2017; Beck e Grido, 2018; Henningsson et al., 2020). L'AR fonde e intreccia i contenuti del marchio con l'ambiente e i corpi degli utenti.

La Smart Mirror Fashion Technology, ad esempio, è una forma di tecnologia di realtà aumentata (Ogunjimi, 2021). Poiché sia il mondo virtuale che quello reale coesistono, gli utenti dell'SMFT sperimentano un mondo naturale nuovo e migliorato in cui le informazioni virtuali vengono utilizzate come strumento per aiutare nelle attività quotidiane (Jung et al., 2015; Boardman et al., 2020). Chitrakorn (2018) ha evidenziato che una delle caratteristiche uniche di questa tecnologia è che creerebbe una pratica soluzione di acquisto omnicanale, facendo sembrare che i clienti si trovino all'interno di un ambiente di acquisto online. Un recente sondaggio rileva che SMFT aumenta la soddisfazione dei clienti del 20% e riduce il costo del servizio ai clienti del 15% (Bidwell, 2020). Pantano et al. (2017) sostengono che ci sono tre aree chiave in cui i retailers possono vedere vantaggi unici da questa tecnologia: marketing immersivo (creando una maggiore connessione con i clienti); favorire la funzionalità pratica (es. provare un vestito senza togliersi

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di dosso); consentire ai marchi di creare rappresentazioni virtuali dei propri negozi. SMFT aiuta i retailers di abbigliamento fisici a rassicurare i propri clienti sul fatto che stanno acquistando la cosa reale (Wright, 2020).

In letteratura è oggetto di approfondimento, da diverse angolazioni, il concetto di Smart Retail Technology (SRT), che fa riferimento a una tecnologia avanzata che permette al retailer di offrire servizi di vendita di alta qualità (Adapa, 2020). Secondo questi ultimi autori, la novità e il suo beneficio dipendono dalla percezione dei consumatori circa la capacità delle SRT nel supporto all'attività di shopping in modo più completo e piacevole rispetto alle tecnologie di vendita al dettaglio finora esistenti. I retailers ambiscono all'accesso ai dati e alle analisi che le SRT può generare della gestione delle relazioni con i clienti, per orientare i consumatori verso determinati tipi di shopping a loro congeniali. L'obiettivo principale di questa attività è controllare la progettazione dell'esperienza di consumo e il coinvolgimento dei clienti, inoltre così facendo è possibile raccogliere dati importanti sulla creazione di valore per i clienti stessi. I retailers possono ottenere un vantaggio competitivo e attuare una strategia di differenziazione rilevando, comprendendo e integrando i dati delle SRT e dell'Internet of Things con analisi specifiche: è possibile capire quindi quando il cliente ha bisogno di aiuto o di un incentivo per l'acquisto di un bene e possono rispondere in modo proattivo utilizzando queste tecnologie.

La tecnologia sta influenzando, in modo diretto nei retailers che le adottano e indiretto per coloro che non ancora le hanno adottate, la strategia di marketing e induce i retailers di ogni dimensione a rispondere ad un mercato in continua evoluzione: il cambiamento che sta vivendo il canale retail è di vasta portata e mette in seria discussione il ruolo del tradizionale brick-and-mortar retail (Helm et al., 2019). I retailers, inclusi anche quelli di piccola dimensione, non possono esimersi dal considerare in che modo è opportuno utilizzare le tecnologie digitali nelle loro operazioni quotidiane per sperare di riuscire a tenere testa all'intensità competitiva di colossi della vendita al dettaglio, come Amazon e Alibaba. Questi ultimi, d'altro canto, stanno realizzando operazioni di successo in punti vendita fisici: in questo scenario appare interessante comprendere la rivisitazione delle logiche retail tradizionali della vendita in-store applicate in chiave innovativa da retailers nati e cresciuti esclusivamente on-line, e in che modo vengono utilizzate, ovvero come individuano e rielaborano le risorse informative critiche per fornire servizio superiore ai consumatori finali.

Alcuni studi focalizzano l'attenzione sul grado di diffusione di tali tecnologie nel retail (Pantano et al., 2019): è stato rilevato che le tecnologie più diffuse nella vendita al dettaglio sono tablet, sistemi di digitalizzazione dei sistemi di registrazione e raccolta ordini/ informazioni; i punti vendita del fast fashion, sport e calzature sono gli unici ad oggi ad aver introdotto più di tre tecnologie digitali quindi sono classificabili come innovatori. Pochissimi negozi hanno più di tre diversi tipi di tecnologia digitale. All'aumentare del numero di tecnologie digitali corrisponde un aumento delle dimensioni del negozio.

L'organizzazione del retailer viene riconfigurata a seconda delle esigenze del mercato, in cui la tecnologia è semplicemente un mezzo per raggiungere un fine. Quindi l'innovazione nel retail si può interpretare come allocazione di risorse disponibili per nuovi usi (Hristov, 2012), è molto interessante comprendere come questo avviene. L'adozione di nuove tecnologie nel retail implica la gestione di dati. Il retailer deve analizzare i dati raccolti sui clienti per crearne profili e rilasciare messaggi promozionali mirati, che puntino all'edonismo dei clienti stessi conoscendone i gusti. L'innovazione del modello di business in corso può condurre a un vantaggio competitivo, mentre la tecnologia funge da fattore abilitante per un cambiamento del modo in cui i retailers sono organizzati (modifica dei formati di vendita, adozione di nuovi canali di vendita, assunzione di un diverso posizionamento nella catena del valore, ecc.) e del modo in cui svolgono la propria attività. Le quantità aggiuntive di dati da elaborare e analizzare da varie fonti - punto vendita, social media e siti aziendali o siti di recensione dei prodotti - aumentano le sfide, ma permettono anche di aumentare la capacità dei retailer di trasformare queste informazioni in soluzioni e azioni praticabili, come quelle mirate a programmi personalizzati di pubblicità, couponing e fedeltà digitale. Il modello di business di ciascun retailer è valido nella misura in cui lo stesso è in grado di formulare una proposta d'offerta allineata alle aspettative dei clienti.

In alcuni casi, la situazione potrebbe richiedere cambiamenti radicali del modello di innovazione, mentre in altri casi un cambiamento dei processi o dei prodotti potrebbe essere sufficiente. Trovare un equilibrio e mantenere la flessibilità organizzativa, insieme al monitoraggio delle tecnologie e delle tendenze dei clienti, è fondamentale per mantenere aggiornato il modello di business.

Alcuni autori (Grewal et al., 2021) concettualizzano una ruota strategica del retail nell'era della nuova tecnologia post Pandemia, che enfatizza la tecnologia come il principale abilitatore delle strategie relative alle 6P della vendita al dettaglio (gestione dei punti vendita e della catena di approvvigionamento, prodotto, prezzi, promozione, personale e presentazione). L'intelligenza artificiale, ad esempio, è un potente strumento che può elaborare dati in modo da agevolare le decisioni del retailer. (focus processo decision making retailer). A causa delle intuizioni e delle informazioni che l'IA può fornire ai retailer, alcuni prevedono che l'IA diventerà una forza dominante nel retail (Chui et al. 2018). Tuttavia in letteratura non sembra sia stato studiato in modo approfondito quali risorse e competenze siano necessarie all'organizzazione per elaborare efficacemente tali dati al fine di migliorare la qualità del servizio per il consumatore finale. Grewal, Noble et al. (2020) propongono un framework per classificare le tecnologie innovative e futuristiche in-store in base al loro livello di convenienza e presenza sociale per il consumatore. Davenport et al. (2020) avanzano un quadro multidimensionale per comprendere l'impatto dell'IA e Shankar (2018) e Guha et al. (2020) e Grewal, Kroschke et al. (2020) offre approfondimenti su come l'IA sta trasformando la vendita al dettaglio. Shankar et al. (2021) approfondiscono l'impatto della tecnologia sulla vendita al dettaglio analizzando i driver e i risultati dell'adozione della tecnologia su acquirenti, punti vendita e dipendenti. Gli scenari futuri dell'impatto della

tecnologia sulla vendita al dettaglio includono il distanziamento intelligente, la disintermediazione dei retailer, la sharing-economy, i bundle ibridi e i nuovi tipi di retailer.

Obiettivo del paper. L'obiettivo del paper è comprendere in che modo le Smart Retail Technologies (SRT) nel fashion possono essere usate per creare valore per il cliente finale e per il retailer. In particolare l'obiettivo è comprendere quali risorse e competenze è necessario attivare e in che modo per elaborare efficacemente i dati provenienti dalle SRT in modo da formulare una strategia retail e una proposta d'offerta allineata al profilo e alle esigenze del proprio target di mercato e quali modelli organizzativi sono in grado di supportare la strategia omnicanale nel retail e permettono di sfruttare le SRT in modo da elaborare efficacemente i dati ai fini della formulazione strategica. L'utilizzo delle SRT può consentire al retailer di migliorare la relazione col cliente nel punto vendita in termini di proposta d'offerta finalizzata, di esperienza d'acquisto appagante, di soddisfazione d'acquisto, ma è interessante capire cosa avviene all'interno della struttura organizzativa del retailer, a monte del processo decisionale, in termini di risorse e competenze attivate per interpretare i dati e formulare le decisioni destinate a ottimizzare il servizio nel punto vendita in collegamento sinergico con la vendita e con la comunicazione on-line. La ricerca mira a comprendere quali risorse e competenze, di cui il fashion retailer non dispone, sono necessarie per analizzare i dati sul consumatore; quali, fra quelle di cui dispone, sono utili all'efficace utilizzo delle SRT e come queste vengono adoperate. Dall'analisi della letteratura emergono diversi elementi d'interesse oggetto di verifica: in particolare s'intende se e come interviene a supporto dell'efficace utilizzo delle SRT l'integrazione Off-line/On-line (Patten, 2020) e il retail design (Quartier et al., 2020). Secondo questi ultimi, è necessario comprendere meglio come gli sviluppi della digitalizzazione e della vendita al dettaglio omnicanale influenzano le competenze dei (futuri) designer delle vendite al dettaglio. Il designer è quella figura che comprende il consumatore e allo stesso tempo definisce e analizza le esigenze del retailer, facendo poi una somma tra i due e inserendo il tutto in un concetto, così che il design e l'esperienza di un marchio divengono molto legate e altamente apprezzate. Oltre alle competenze progettuali necessarie, il retailer dovrebbe avere un'ampia conoscenza di tutti i parametri di vendita al dettaglio e dovrebbe essere in grado di integrare le conoscenze e le competenze del marketing, del branding, dell'omnicanalità e del digitale. Dovrebbero essere capaci di condurre ricerche su una moltitudine di aspetti contestuali (ad es marchio, mercati, consumatori, tendenze, ecc.) per promuovere lo sviluppo e la mentalità di strategie commerciali, concetti e design. Oltre a sviluppare concetti per l'ambiente del negozio fisico, il retailer ha bisogno della capacità di pensare attraverso i canali e di generare idee per la vendita al dettaglio in cui tutti i punti di contatto col cliente sono rilevanti. Poiché la pratica del design al dettaglio è frutto di un lavoro di squadra altamente multidisciplinare, un designer al dettaglio ha bisogno della capacità e volontà di collaborare con gli altri. In questo contesto, il progettista al dettaglio può comunicare in modo efficace (visivo e verbale) con tutte le parti interessate coinvolte nel processo gestendo persone e processi e tutelando la validità generale di un concetto.

D'altro canto, la qualità dell'integrazione online/offline secondo alcuni autori (Patten, 2020) è l'essenza del vantaggio competitivo per i retailers omnicanale: funge da catalizzatore e da supporto nel rafforzare le reazioni del cliente alla qualità del servizio fisico e digitale al fine di fornire un'esperienza unica e ottimizzata nel servizio. Non esiste un 'taglia' unica per tutti, poiché ogni gruppo di clienti ha driver distintivi, ovvero caratteristiche comportamentali e percezioni riguardanti il negozio fisico, digitale e la qualità- gratificazione. Pertanto, la domanda fondamentale per i retailer multicanale dovrebbe essere: 'Quale specifico tipo di cliente vogliamo come target?' per essere in grado di impostare una strategia efficace e di successo.

Metodologia. Il paper intende sviluppare una analisi di un caso studio (Yin, 1984; Eisenhardt, 1989), prendendo in esame una primaria impresa del fashion integrata a valle, che permetta di andar a fondo delle problematiche manageriali e organizzative, in termini di risorse umane e competenze specifiche in grado di elaborare e interpretare i dati ottenibili dalle SRT utilizzate nei punti vendita monomarca diretti e in franchising. L'analisi sarà condotta attraverso intervista in profondità al marketing manager dell'impresa finalizzata a raccogliere informazioni sull'impostazione strategica e organizzativa che questa importante impresa adotta nei suoi punti vendita e nel collegamento On-line/Off-line nel retailing. Nella dinamica relazionale emergente dai collegamenti fra on-line e off-line, i clienti interagiscono con i retailers attraverso una moltitudine di canali online e punti di contatto durante il cosiddetto "customer journey" (Lemon e Verhoef, 2016): è intuitivo considerare il grado di complessità per il retailer nel gestire e collegare i flussi informativi derivanti da fonti molto diverse in modo da offrire un servizio competitivo e soddisfacente per il consumatore finale. Al fine di ottenere risultati sostenibili per il retailer, il quadro teorico delle Dynamic Capabilities (Teece, 2007) può intervenire a supporto del processo decisionale del retailer attraverso l'esercizio e l'affinamento delle capacità di percezione (sensing), mobilitazione (seizing) e trasformazione (transforming) di un'organizzazione. Il 'sensing' si riferisce all'identificazione e alla valutazione delle opportunità correlate alle esigenze del cliente (ad es., possibilità tecnologiche o sviluppo tecnologico). Il 'seizing' si riferisce alla mobilitazione di mezzi e all'impegno di risorse per affrontare le opportunità identificate e distribuire valore ai clienti. Il 'transforming' concerne la necessità per le aziende di impegnarsi nella dinamica di rilevamento e acquisizione per continuare a fornire valore ai clienti e acquisire valore per l'azienda allineandosi e investendo in capacità aggiuntive o esistenti.

L'analisi muove dal quadro teorico basato sulle capacità dinamiche (Eisenhardt & Martin, 2000; Teece, 2007), per focalizzare e approfondire in che modo le risorse organizzative quali lo store manager, il retail designer e il personale di vendita intervengono nell'elaborazione dei dati provenienti dalle SRT e quali attività vengono poste in essere per creare e distribuire valore ai clienti durante il customer journey.

Risultati. *L'analisi dello specifico caso di studio individuato, condotta attraverso lo strumento dell'intervista in profondità ai referenti aziendali, opportunamente integrata con fonti secondarie in merito all'esperienza dell'impresa osservata in termini di Smart Retail Technologies, riteniamo possa confermare le ipotesi del lavoro di ricerca. Il primo risultato atteso è riconducibile alla manifesta consapevolezza di quanto le SRT possano incidere nella capacità di creare valore per la clientela da parte di un'impresa leader e ritenuta sulla frontiera dell'innovazione nel retail. L'efficace ed efficiente applicazione di nuove tecnologie trova sempre origine nella piena consapevolezza della loro rilevanza a tutti i livelli dell'organizzazione e nella capacità di rendere tali applicazioni tecnologiche parte integrante del ridisegno complessivo della proposta di valore. Appare evidente che l'applicazione delle SRT andrà ad incidere in maniera significativa sul sistema di risorse e competenze della specifica impresa, richiedendo investimenti non solo di natura tecnologica ma anche di carattere formativo specifico in grado di incidere in maniera longitudinale sul processo di creazione del valore dell'impresa. Nello specifico, ci si attende un processo di rivisitazione degli store aziendali nella loro capacità di erogare un'esperienza di visita e acquisto capace di creare valore alla clientela che necessiti investimenti in un set ampio e differenziato di nuove risorse e competenze.*

In termini di risorse che divengono critiche, si segnala la nuova rilevanza che assumono figure quali lo store manger, il personale di vendita ed il retail design. La "trasformazione tecnologica" del punto vendita deve trovare adeguata complementarietà nella capacità del personale di vendita e, prima ancora in chi ha responsabilità di concettualizzare lo store, nel mettere la clientela a proprio agio nell'utilizzo delle nuove tecnologie, nel rendere alla clientela manifesto il maggior valore che tali tecnologie possono garantire loro e nell'integrare in maniera naturale e con adeguata flessibilità tali strumenti tecnologici nella complessiva esperienza di visita e di acquisto nello store.

Il nuovo modo di interpretare attività tradizionali, quali l'accoglienza in uno store, e la conseguente necessità di investire in nuove risorse è, peraltro, fortemente correlato allo sviluppo di nuove competenze. Tali competenze sono di natura organizzativa e di coordinamento e di natura tecnica - operativa associate all'adozione delle specifiche nuove tecnologie. In termini di competenze organizzative e di coordinamento ci attendiamo la comprensione, per il tramite del caso di studio, di come investimenti in SRT incidano sui processi di coordinamento dell'azione delle risorse umane ai vari livelli coinvolte nel processo esperienziale di vendita nello store, dalla progettazione alla concreta gestione della relazione con la clientela. In termini di competenze operative i risultati attesi riguardano forme e modalità organizzative per rendere chi opera nel punto vendita in grado di favorire una triangolazione di valore tra cliente, SRT, personale di vendita.

Limiti della ricerca. *Lo studio presenta il limite principale insito nell'analisi delle ricerche di natura qualitativa con metodologia case study, che, nel caso in specie, è circoscritta ad un solo caso aziendale. Per quanto l'impresa esaminata sia rilevante, non è possibile generalizzare con immediatezza i risultati emergenti, per cui sarebbe opportuno riscontrarli, estendendo l'analisi ad un numero d'impresе più ampio, del medesimo settore di riferimento. Il presente studio presenta, inoltre, il limite di focalizzare l'attenzione su un singolo settore, non consentendo una previsione, in maniera attendibile, di replicabilità del modello, nonché delle relative evidenze emerse, nell'ambito di altri settori, attestando così in generale la validità dell'ipotesi avanzata.*

Implicazioni manageriali. *Le implicazioni manageriali sono associate alla definizione, concettualizzazione e al concreto utilizzo delle SRT in ambito retail nel fashion. Tale ricerca consente, infatti, di acquisire - pur con le limitazioni tipiche di un caso di studio singolo non sempre immediatamente generalizzabile nei risultati evidenziati - di cogliere come la proposta di valore nel punto vendita viene riprogettata per il tramite degli interventi sul sistema delle risorse e competenze associate all'adozione delle SRT. In particolare, l'analisi dell'esperienza di una primaria impresa integrata a valle intende fornire una fotografia critica e ragionata di come debba modificarsi il sistema delle risorse e competenze in funzione dell'adozione di tali tecnologie. Diviene, pertanto, oggetto di riflessione critica l'insieme delle scelte strategiche ed operative che le imprese saranno chiamate a compiere per l'introduzione di tali tecnologie nel retail. Ulteriore implicazione manageriale della presente ricerca consiste nella possibilità di cogliere le eventuali "resistenze al cambiamento" associate all'introduzione di tali tecnologie nelle risorse umane che lavorano nel punto vendita. Tale aspetto è fondamentale in quanto la capacità di creare maggior valore nel cliente attraverso le SRT è comunque parte di una più ampia "store experience" in cui l'interazione con il personale di vendita risulta determinante.*

Originalità del paper. *Studi sulle Smart Retail Technologies (SRT) sono presenti in letteratura, tuttavia si riscontrano pochi approfondimenti volti ad indagare nel fashion le dinamiche che interessano la progettazione dell'esperienza di consumo e il coinvolgimento dei clienti. In tal senso, il lavoro presenta l'originalità di raccogliere elementi cruciali in grado di individuare le indicazioni potenzialmente utili in vista della creazione di valore per i clienti stessi. Tali informazioni, a nostro giudizio, possono fornire ai retailers un vantaggio competitivo nell'attuazione di strategie commerciali efficaci attraverso la rilevazione, comprensione e integrazione dei dati delle SRT e dell'Internet of Things con analisi specifiche. Ciò consentirebbe di individuare quella fase del processo di acquisto in cui il cliente ha bisogno di aiuto o di un incentivo per l'acquisto di un bene, dove il retailer è chiamato a partecipare in modo proattivo attraverso l'utilizzo di tali tecnologie.*

Parole chiave: *Smart Retail Technologies; risorse; competenze; fashion.*

Bibliografia

- ADAPA S., FAZAL-E-HASAN S.M., MAKAM S.B., AZEEM M.M., MORTIMER G. (2020), "Examining the antecedents and consequences of perceived shopping value through smart retail technology", *Journal of Retailing and Consumer Services*, vol. 52, pp. 101901.
- BECK M., CRIE D. (2018), "I virtually try it. I want it! Virtual fitting room: a tool to increase on-line and off-line exploratory behaviour, patronage and purchase intentions", *Journal of Retailing and Consumer Services*, vol. 40, n. 1, pp. 279-286.
- BIDWELL J. (2020), "Redefining retail beyond 2020 Available at: https://www.newwestend.com/wp-content/uploads/2019/10/Redefining-retail-beyond-2020_FINAL.pdf.
- BOARDMAN R., HENNINGER C.E., ZHU A. (2020), *Augmented reality and virtual reality: new drivers for fashion retail? Technology-driven sustainability*, Palgrave Macmillan, Cham, pp. 155-172.
- CARMIGNIANI J., FURHT B. (2011), *Augmented reality: an overview*, Handbook of Augmented Reality. Springer, New York, pp. 3-46.
- CHITRAKORN K. (2018), *5 Technologies Transforming Retail in 2018* Available at: <https://www.businessoffashion.com/articles/fashion-tech/5-technologies-transforming-retail>.
- CHUI M., MANYIKA J., MIREMADI M., HENKE N., CHUNG R., NEL P., MALHOTRA S. (2018), "Notes from the AI frontier: Insights from hundreds of use cases", *McKinsey Global Institute*, vol. 28.
- DAVENPORT T., GUHA A., GREWAL D., BRESSGOTT T. (2020), "How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, vol. 48, n. 1, pp. 24-42.
- EISENHARDT K.M. (1989), "Building theories from case study research", *Academy of management review*, vol. 14, n. 4, pp. 532-550.
- EISENHARDT K.M., MARTIN J.A. (2000), "Dynamic capabilities: what are they?", *Strategic management journal*, vol. 21, n. 10-11, pp. 1105-1121.
- GREWAL D., NOBLE S.M., AHLBOM C.P., NORDFÄLT J. (2020), "The sales impact of using handheld scanners: Evidence from the field", *Journal of Marketing Research*, vol. 57, n. 3, pp. 527-547.
- GREWAL D., GAURI D.K., ROGGEVEEN A.L., SETHURAMAN R. (2021), "Strategizing retailing in the new technology era", *Journal of Retailing*, vol. 97, n. 1, pp. 6-12.
- GREWAL D., KROSCHKE M., MENDE M., ROGGEVEEN A.L., SCOTT M.L. (2020), "Frontline cyborgs at your service: How human enhancement technologies affect customer experiences in retail, sales, and service settings", *Journal of Interactive Marketing*, vol. 51, pp. 9-25.
- GUHA A., GREWAL D., KOPALLE P.K., HAENLEIN M., SCHNEIDER M.J., JUNG H., HAWKINS G. (2021), "How artificial intelligence will affect the future of retailing", *Journal of Retailing*, vol. 97, n. 1, pp. 28-41.
- HELM S., KIM S.H., VAN RIPER S. (2018), "Navigating the 'retail apocalypse': a framework of consumer evaluations of the new retail landscape", *Journal of Retailing and Consumer Services*, <https://doi.org/10.1016/j.jretconser.2018.09.015>.
- HENNINGSSON S., VAIDYANATHAN N., ARCHIBALD P., LOHSE M. (2020), "Augmented reality and customer experiences in retail: a case study", in AMCIS 2020 Proceedings (p. 18). Association for Information Systems. AIS Electronic Library (AISeL). https://aisel.aisnet.org/amcis2020/strategic_uses_it/strategic_uses_it/18/
- HRISTOV L., REYNOLDS J. (2015), "Perceptions and practices of innovation in retailing: Challenges of definition and measurement", *International Journal of Retail & Distribution Management*, Vol. 43 No. 2, 2015 pp. 126-147.
- JUNG T., CHUNG N., LEUE M.C. (2015), "The determinants of recommendations to use augmented reality technologies: the case of a Korean theme park", *Tourism Management*, vol. 49, pp. 75-86.
- KAPPERMA C. (2013), "Taking on technology", *Nat. Foods Merch.*, vol. 34, n. 4, pp. 8.
- LEMON K.N., VERHOEF P.C., (2016), "Understanding customer experience throughout the customer journey", *Journal of Marketing*, vol. 80, n. 6, pp. 69-96.
- NICHOLS MEGAN R. (2018), "Amazon Wants to Use Predictive Analytics to Offer Anticipatory Shipping, (last accessed August 4, 2020 <https://www.smartdatacollective.com/amazon-wants-predictive-analytics-offer-anticipatory-shipping/>
- OGUNJIMI A., RAHMAN M., ISLAM N., HASAN R. (2021), "Smart mirror fashion technology for the retail chain transformation", *Technological Forecasting and Social Change*, vol. 173, pp. 121118.
- PANTANO E., RESE A., BAIER D., (2017), "Enhancing the online decision-making process by using augmented reality: a two-country comparison of youth markets", *Journal of Retailing and Consumer Services*, vol. 38, pp. 81-95.
- PANTANO E., PRIPORAS C.V., DENNIS C. (2018), "A new approach to retailing for successful competition in the new smart scenario", *International Journal of Retail & Distribution Management*, vol. 46 No. 3, 2018 pp. 264-282
- PANTANO E., VANNUCCI V. (2019), "Who is innovating? An exploratory research of digital technologies diffusion in retail industry", *Journal of Retailing and Consumer Services*, vol. 49, pp. 297-304.
- PATTEN E., OZUEM W., HOWELL K., LANCASTER G. (2020), "Minding the competition: The drivers for multichannel service quality in fashion retailing", *Journal of Retailing and Consumer Services*, vol. 53, pp. 101974.

- QUARTIER K., CLAES S., VANRIE J. (2020), "A holistic competence framework for (future) retail design and retail design education", *Journal of Retailing and Consumer Services*, vol. 55, n. C,
- SHANKAR V. (2018), "How artificial intelligence (AI) is reshaping retailing", *Journal of retailing*, vol. 94, n. 4, pp. vi-xi.
- SHANKAR V., KALYANAM K., SETIA P., GOLMOHAMMADI A., TIRUNILLAI S., DOUGLASS T., WADDOUPS R. (2021), "How technology is changing retail", *Journal of Retailing*, vol. 97, n. 1, pp. 13-27.
- SINGHAL C., MAHTO R.V., KRAUS S., (2020), *Technological innovation, firm performance, and institutional context: a meta-analysis. IEEE Transactions on Engineering Management*.
- XIAO BO, IZAK BENBASAT (2007), "E-Commerce Product Recommendation Agents: Use, Characteristics, and Impact", *MIS Quarterly*, vol. 31, n. 1, pp. 137-209.
- TEECE D., (2007), "Explicating dynamic capabilities: the nature and micro-foundations of (sustainable) enterprise performance", *Strategic Management Journal*, vol. 28, n. 13, pp. 1319-1350.
- WEBEL S., BOCKHOLT U., ENGELKE T., GAVISH N., OLBRICH M., PREUSCHE C., 2013. An augmented reality training platform for assembly and maintenance skills", *Robotics and autonomous systems*, vol. 61, n. 4, pp. 398-403.
- WRIGHT G., (2020), *Top retailers who are using augmented reality* Available at: <http://www.chargedretail.co.uk/2020/03/16/top-retailers-using-augmented-reality-apple-john-lewis-ikea-lululemon-asos/>.
- YIM M.Y.C., CHU S.C., SAUER P.L. (2017), "Is augmented reality technology an effective tool for e-commerce? An interactivity and vividness perspective", *Journal of Interactive Marketing*, vol. 39, pp. 89-103.
- YIN R.K. (1984), *Case Study Research: Design and Methods*, Sage Publications, Beverly Hills.

Corporate heritage communications and transgenerational succession in family business: a theoretical framework

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Purpose of the paper. *The purpose of the present extended abstract is to introduce a theoretical model concerning how the communication of corporate heritage in family businesses influences the process of transgenerational succession. Further paragraphs frame the theoretical background and address the expected results.*

Framing of the research.

The issue of transgenerational succession in family businesses

Transgenerational succession, i.e. the event “in which the family board chair steps down and passes the board chair position to the next-generation successor” (Li et al., 2022: p. 201), is well recognized as critical for the survivability of family firms, and it is one of the most debated topics in family business research. In fact, the average lifespan of a family-owned business is only 24 years (Family Business Center, 2010): the transition to the second generation is crucial for most of family firms and transgenerational transitions are even riskier after the second generation takes control (De Massis et al., 2008). Previous research widely explored this issue at three different levels of analysis (Long and Chrisman, 2014): the micro-level (i.e. the individual attributes of incumbent and successors), the meso-level (i.e. interpersonal/group relations within the family and between the family and stakeholders) and the macro-level (i.e. firm processes and strategies).

At the micro-level, scholars focused on what are the most desirable successor characteristics, with an emphasis to both the successor’s ability and commitment to lead the firm (i.e. Chrisman et al., 1998; Richards et al., 2019). In particular, the commitment to the firm is consequence of the fulfilment of the successor’s own career and identity within the family business (Handler, 1994). However, while these studies widely explore the “what” of succession and successors, there is a lack of studies about how families can encourage successor commitment to the family business and its continuity, which actions they should take or avoid.

At the meso-level, previous research explored both relationships within the organization and relationships with the external environment impacting the succession process. Trust, cohesion, and shared vision are considered as imperative for the effective building and transfer of resources and relationships from incumbent to successor (Bruce and Picard, 2006; Cabrera-Suárez et al., 2001; Lansberg, 1988). Moreover, long-term customers and suppliers sometimes develop personal relationships with an incumbent and may resist extending that relationship to the successor (De Massis et al., 2008). However, although these relational assets are an impactful issue of family business dynamics, there isn’t significant understanding of how they are developed and how they are passed through generations.

Family business research has therefore acknowledged the multi-level nature of family business succession, however few studies attempt to explore its multi-level relationships dynamics (Long and Chrisman, 2014).

Marketing in family businesses

Family business studies at the intersection of marketing and family business are relatively new (Beliaeva et al., 2022) and limited (Reuber and Fisher, 2011). Research has been conducted primarily from a consumer marketing point of view, reporting how branding the business with family attributes can lead to competitive advantage (Parmentier, 2011; Beck and Prügl, 2018). Studies show that the products/services of family firms enjoy higher status and greater consumer preferences than those of non-family firms (Binz et al., 2013). Literature on the branding of family businesses explains that the family attribute increases brand trust, reinforcing a long-term relationship between the family brand and consumers (Lude and Prügl, 2018), thus positively influencing new product acceptance (Beck and Kenning, 2015).

The synthesis of the family element and the business element gives rise to unique identity dynamics within family firms: members of family-owned businesses often take pride in identifying with their family enterprise (e.g., Berrone et al., 2010; Dyer and Whetten, 2006). From an internal point of view, the identity of a family firm’s owner is inextricably tied to the organization that usually carries the family’s name: this has a significant impact on the relationship with employees and quality of products/services provided (Carrigan and Buckley, 2008; Teal et al., 2003). From an external point of view, family firm members are sensitive about the image of the firm as perceived by external stakeholders and therefore they often try to pass their family values to employees and non-family stakeholders, also through specifically

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crafted communication strategies (Micelotta and Raynard, 2011). As the organization grows, family values become embedded into the firm's management culture (Gomez-Mejia et al., 2011). This set of assets identifies the family business as a peculiar organizational type to investigate (Blombäck and Botero, 2013), which implies the need for further studies on marketing issues in the specific family business context.

Only in recent times, few studies have investigated the issue of transgenerational succession from a marketing perspective, focusing on i) how family firms manage their founder-based brand identity during succession (Casprini et al., 2020), ii) how the relationship between family involvement and family firm image is mediated by transgenerational succession intention (Van Gils et al., 2019), and iii) how transgenerational communication interacts with the succession process (Leiß and Zehrer, 2018). Therefore, the existing studies on the transgenerational succession with a marketing perspective are mostly contextualized the transgenerational succession event. They do not explore, however, how the marketing strategies of the family firm, which are ongoing processes within the firm and independent from the succession event, interact with it.

Corporate heritage: an understudied asset for family businesses

A recurring theme in the existing marketing studies within family businesses is that of heritage. Dodd et al. (2013) conceptualize that in family businesses “the (inherently mutable) heritage of the past, and the (ever changing) shared projections of the future, are both linked and enacted by actions in the present” (p. 35). In fact, one major difference between family and non-family firms is the potential for continuity of values across generations, which are revealed through symbols, rituals, and heroes (Sorenson, 2014). Existing studies assert that the family element in combination with the business's traditions and heritage can work to create competitive advantage (Byrom and Lehman, 2009; Blombäck and Brunninge, 2016). Although the continuity of the family element has such a relevant stand in family business, limited attention has been devoted to the analysis of whether there is a relationship between heritage marketing strategies and the transgenerational succession process.

It could be useful to understand if and how heritage interacts with critical issues in the transgenerational succession process, at both the individual and relational level. On this note, it could be fruitful to explore the interaction of family business research and corporate heritage management (Balmer, 2013). In particular, Balmer and Burghausen (2015) hypothesize that it is organisational heritage, rather than corporate heritage, that is likely to be particularly relevant for multigenerational family business. In fact, existing studies have already empirically proven how organizational heritage can facilitate corporate heritage management activities in family businesses (Burghausen, 2013; Balmer and Chen, 2015).

The idea of corporate heritage has been formalized by Burghausen and Balmer (2014), that define it as all the aspects of an organization that connect its past, present, and future in a meaningful and relevant way. It is thus considered a “transtemporal” dimension of the corporate identity, representing the institutional traits that remained meaningful over time (Balmer and Burghausen, 2015). In this sense, corporate heritage is recognised as a dimension of a brand's identity, “found in its track record, longevity, core values, use of symbols, and particularly in an organisational belief that its history is important” (Urde et al., 2007, p. 4). From the point of view of consumer marketing, corporate heritage represents a source of competitive advantage, as it conveys to the consumer a sense of expertise, legitimacy, perceived authenticity, trust, and responsibility (Pecot et al., 2018). Therefore, corporate heritage is an asset through which companies can profit as its communication fosters image associations and awareness that result in brand knowledge that facilitates the purchase journey, ultimately contributing to brand equity (Balmer, 2013).

Within this stream of research, what is theorized to be relevant for family business is the concept of “organisational heritage cultural identification”, i.e. “organisational members' multi-generational identification/self-categorisation vis-à-vis the perceived and reminisced omni-temporal traits of their work organisation's corporate culture” (Balmer and Burghausen, 2015: pp. 403-404). In this sense, a key asset are corporate heritage communications, which have been proven to strengthen organizational identity and to influence employees' identification with the company across past, present, and future (Maier and Andersen, 2017; Rindell and Strandvik, 2021).

To the authors' knowledge, however, the research on organizational heritage has been fairly limited in the intersection with family business, except for Ljungkvist and Boers (2019), where organisational heritage emerges as a key trait in the event of the sale of a family business to a third party.

Corporate heritage communications and heritage marketing

Corporate heritage communications are defined as the use of all written, verbally stated, or visually presented components of a company for the strategic enhancement of its brand identity among its internal and external audiences (Micelotta and Raynard, 2011). They aim at providing experience and knowledge about the corporate heritage and contribute to building brand image and reputation by leveraging the corporate heritage and strengthening customers' and stakeholders' relationships and engagement with the brand (Balmer, 2013). The aim is to positively influence the corporate image heritage, i.e., “an individual customer's company-related images constructed over time, which can act as a frame of reference for the consumer when interpreting company actions in the present” (Rindell, 2017, p. 276). Corporate heritage communication strategies rely on a “packaged past” (Ooi, 2002, p. 607), a corporate narrative about historical events or allusions to company history in several ways (i.e., packaging or slogans). Corporate heritage communications are the main tool for heritage marketing, which is “concerned with the ‘marketing’ of history and with brands that evoke and represent a particular era” (Balmer, 2013: p. 294) and it represents the set of activities that companies adopt in building and strengthening relationships among organisations and customers, by exploiting the

history, the culture, and the values of the organisation (Napolitano et al., 2018). The heritage marketing mix toolbox is defined as the “reconstruction and managerial management of a narrative concerning the history of an organisation and/or its brands/products” (Martino, 2013, p. 86), and allows showing the authentic past of the organisation focusing on the heritage (Salmon, 2008).

Moreover, in their aforementioned study, Micelotta and Raynard (2011) confirmed that corporate heritage and family identity are two elements that family businesses can leverage in their external communication in order to achieve competitive advantage. However, since corporate heritage communications are recognized to strengthen organizational identity and employee’s identification with the firm (Maier and Andersen, 2017; Rindell and Strandvik, 2021), it could be useful to understand the interplay between corporate heritage communications and transgenerational succession.

In particular, we propose that the implementation of corporate heritage communication as part of the family firm marketing strategy can have a positive influence on the successor’s identification with the family firm, i.e. the “identification of family members with the firm” dimension of the SEW model.

H1: The implementation of corporate heritage communication strategies positively influences the identification of the successor with the firm

Heritage marketing strategies are also recognized to leverage emotional reactions (Pecot et al. 2019; Labaki et al., 2019), often adopting as their strategic foundation consumer nostalgia, i.e. “a preference (general liking, positive attitude or favourable effect) towards experiences associated with objects (people, places or things) that were more common (popular, fashionable or widely circulated) when one was younger (in early adulthood, in adolescence, in childhood or even before birth)” (Holbrook and Schindler, 2003, p. 108).

The emotional attachment of family members to the firm can “facilitate self-continuity by connecting a person with a desirable past self (e.g., memories), a present self (me now), or a future self (who I am becoming)” (Kleine et al., 1995: p. 328). Previous studies (Eddleston and Kellermanns, 2007; Berrone et al., 2012). show that in family businesses the longer history of shared experiences and past events shape current activities, events, and relationships. It is therefore possible to propose that the direct or indirect exposure of the successor to corporate heritage communications could positively influence their emotional attachment to the family firm. Thus, we theorize:

H2: The implementation of corporate heritage communication strategies positively influences the emotional attachment of the successor to the firm

Among the issues of transgenerational succession of our previous analysis, we reported the significance of successor’s commitment to the family firm. Commitment to the family business enterprise involves a deep connection with the firm and identification with the family firm values, so that family managers are willing to make sacrifices in order to contribute to the firm’s well-being (Klein et al., 2005) and Socioemotional Wealth. The Socioemotional Wealth (SEW) model suggests that family firms are typically motivated by the preservation of their SEW, i.e. nonfinancial aspects or “affective endowments” of family owners (Berrone and Cruz, 2012). This model proposes that family principals prioritize risk averseness to socioemotional endowment over risk averseness to financial losses (Gomez-Mejia et al., 2007; Jones et al., 2008; Cruz et al., 2010).

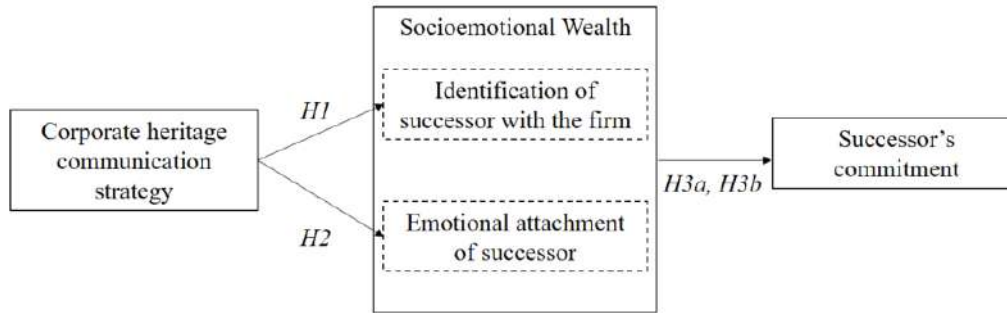
We here propose that this commitment can be influenced by the implementation of corporate heritage communications, because of their influence on the sense of identification with the family business and emotional attachment to it. In doing so, we leverage the existing knowledge on SEW, according to which identification with the firm and emotional attachment to the firm influences family members’ affective endowments (Berrone and Cruz, 2012). Moreover, family identification with firm and emotional attachment are positively associated with firm performance and that this relationship is mediated by family commitment (Razzak et al., 2019).

H3a: The identification of the successor with the firm mediates the relationship between corporate heritage communication strategy and successor’s commitment

H3b: The emotional attachment of the successor to the firm mediates the relationship between corporate heritage communication strategy and successor’s commitment

Figure 1 proposes a visual representation of the research framework.

Fig. 1: Research Framework



Methodology. The study will adopt a mixed-method approach with an explanatory sequential design (Creswell, 2014): both qualitative and quantitative perspectives will be considered to provide additional understanding and generalizability of findings. The main objective of the adoption of mixed methods in this study is that of contextualization: qualitative data will provide a contextual understanding of generalizable findings uncovered through a survey (Reilly and Jones III, 2017).

Quantitative data will be collected through an online survey to be administered to identified successors of family firms, i.e. “a company that is owned or controlled by a family and in which one or more relatives is involved with management” (Lansberg and Astrachan 1994: p. 39), in which ownership and/or control are expected to be passed to the subsequent generation.

Subsequently, findings will be contextualized through an inductive multiple case study (Stake, 1995; Malhotra et al., 2017). Case studies will be selected according to purposeful sampling criteria (Patton, 2014), which will be defined according to the outcomes of the analysis of quantitative data collected.

Assessing “Corporate heritage communication strategies”

The corporate heritage sphere is assessed through two items. First, a binary “corporate heritage” measure that distinguishes firms that respect the “tri-generational/50-year corporate heritage requisite” (Balmer, 2013, p. 308), (=1) and firms that do not (=0). Second, the survey will include a series of items to convey the successor’s opinion concerning the valorization of the family firm corporate heritage through the heritage marketing mix instruments, as identified by Napolitano et al. (2018): e.g. “I believe that the corporate heritage is valorized through the firm website”. The items are measured on a 5-point Likert scale. We believe this type of measurement is appropriate because it relies on the perception of the successor

Assessing mediating variables

To assess “Identification of successor with the firm” and “Emotional attachment of successor” we adapted the existing items from the FIBER scale developed by Berrone et al. (2012) to measure SEW, considering the successor as the respondent.

Assessing “successor’s commitment”

This variable is measured by adapting the 7 item-scale used by Chrisman et al. (2012). The items are: (1) “family members feel loyal to my business,” (2) “my family and my business have similar values,” (3) “family members publicly support my business,” (4) “family members are proud to be part of my business,” (5) “family members agree with the goals, plans, and policies of my business,” (6) “family members really care about the fate of my business,” and (7) “family members are willing to put in extra effort to help my business be successful”. Items are measured on a 5-point Likert scale.

Expected results. The present study develops a research framework for the exploration of the relationship between transgenerational succession and corporate heritage, thus contributing to succession (De Massis et al., 2008; Magrelli et al., 2020) and marketing literature (Astrachan et al., 2019) within the family business area. We aim to confirm or disprove the developed hypothesis allowing a generalizability of findings. Subsequently, the qualitative portion of the study will allow contextualization of findings and avenues for further research.

Research limitations. The main limitation of the present study is that it does not consider the effects of corporate heritage on the relationship with external stakeholders during transgenerational succession. Although family business literature recognizes the relationship with customers and partners as a key issue during the succession (Steier, 2001; De Massis et al., 2008), and the corporate heritage literature has very strong basis in the research of how the communications of heritage could represent a source of competitive advantage with external stakeholders (Balmer, 2013; Cooper et al., 2015; in this preliminary version of the theoretical model we preferred to focus on internal dynamics. Addressing these relationships within the theoretical framework could, however, be further explored.

Originality of the paper. To the best of the author’s knowledge, this is the first attempt to study the relationship between corporate heritage and transgenerational succession. The outcome of the present research will constitute an

integration of an existing gap in both family business and corporate heritage literature. Moreover, it will offer strategic insight for practitioners on how to exploit heritage communications to increase the commitment of the successor to the firm, thus increasing the chances of a successful transition of ownership and management from the incumbents to successors.

Keywords: family business, transgenerational succession, corporate heritage, socioemotional wealth

References

- ASTRACHAN C.B., PRÜGL R., HAIR JR J.F., BABIN B.J. (2019), Marketing and branding in family business: Assessing the landscape and charting a path forward”, *Journal of Family Business Strategy*, vol. 10, n. 1, pp. 3-7.
- BALMER J.M.T., CHEN W. (2015). “Corporate heritage brands in China. Consumer engagement with China’s most celebrated corporate heritage brand - Tong Ren Tang: 同仁堂”, *Journal of Brand Management*, vol. 22, n. 3, pp. 194-210.
- BALMER J.M. (2013). “Corporate heritage, corporate heritage marketing, and total corporate heritage communications: What are they? What of them?”, *Corporate Communications: An International Journal*, vol. 18, n. 3, pp. 290-326.
- BALMER J.M., BURGHAUSEN M. (2015), “Introducing organisational heritage: Linking corporate heritage, organisational identity and organisational memory”, *Journal of Brand Management*, vol. 22, n. 5, pp. 385-411.
- BECK S., KENNING P. (2015). “The influence of retailers’ family firm image on new product acceptance: An empirical investigation in the German FMCG market”, *International Journal of Retail and Distribution Management*, vol. 43, n. 12, pp. 1126-1143.
- BECK S., PRÜGL R. (2018), Family firm reputation and humanization: Consumers and the trust advantage of family firms under different conditions of brand familiarity, *Family Business Review*, vol. 31, n. 4, pp. 460-482.
- BELIAEVA T., FERASSO M., KRAUS S., MAHTO R.V. (2022), “Marketing and family firms: Theoretical roots, research trajectories, and themes”, *Journal of Business Research*, vol. 144, pp. 66-79.
- BERRONE P., CRUZ C., GOMEZ-MEJIA L.R. (2012), Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research”, *Family Business Review*, vol. 25, n. 3, pp. 258-279.
- BINZ C., HAIR J.F., PIEPER T.M., BALDAUF A. (2013), “Exploring the effect of distinct family firm reputation on consumers’ preferences”, *Journal of Family Business Strategy*, vol. 4, n. 1, pp. 3-11.
- BLOMBÄCK A., BOTERO I.C. (2013), Reputational capital in family firms: Understanding uniqueness from the stakeholder point of view”, In Smyrnios K. X., Poutziouris P. Z., Goel S. (eds.), *Handbook of Research on Family Business*, Edward Elgar Publishing.
- BLOMBÄCK A., BRUNNINGE O (2016), “Identifying the role of heritage communication: A stakeholder-function framework”, *International Studies of Management & Organization*, vol. 46, n. 4, pp. 256-268.
- BRUCE D., PICARD D. (2006), “Making succession a success: Perspectives from Canadian small and medium-sized enterprises”, *Journal of Small Business Management*, vol. 44, n. 2, pp. 306-309.
- BURGHAUSEN M., BALMER J.M. (2014). Repertoires of the corporate past: Explanation and framework. Introducing an integrated and dynamic perspective, *Corporate Communications: An International Journal*, vol. 19, n. 4, pp. 384-402
- BYROM J., LEHMAN K. (2009), “Coopers Brewery: Heritage and innovation within a family firm”, *Marketing Intelligence & Planning*, vol. 27, n. 4, pp. 516-523
- CABRERA-SUAREZ K., DE SAA-PEREZ P., GARCIA-ALMEIDA D. (2001), “The succession process from a resource-and knowledge-based view of the family firm”, *Family Business Review*, vol. 14, n. 1, pp. 37-48.
- CASPRINI E., MELANTHIOU Y., PUCCI, T., ZANNI L. (2020), “Managing founder-based brand identity during succession”, *Journal of Brand Management*, vol. 27, n. 1, pp. 1-14.
- CHRISMAN J.J., CHUA J.H., SHARMA P. (1998), Important attributes of successors in family businesses: An exploratory study”, *Family Business Review*, vol. 11, n. 1, pp. 19-34.
- CHRISMAN J.J., CHUA J.H., PEARSON A.W., BARNETT T. (2012), “Family involvement, family influence, and family-centered non-economic goals in small firms”, *Entrepreneurship theory and practice*, vol. 36, n. 2, pp. 267-293.
- COOPER H., MERRILEES B., MILLER D. (2015), “Corporate heritage brand management: Corporate heritage brands versus contemporary corporate brands”, *Journal of Brand Management*, vol. 22, n. 5, pp. 412-430.
- CRESWELL J.W. (2014), *A concise introduction to mixed methods research*, Sage, Thousand Oaks, CA.
- CRUZ C., GOMEZ-MEJIA L.R., BECERRA M. (2010), “Perceptions of benevolence and the design of agency contracts: CEO-TMT relationships in family firms”, *Academy of Management Journal*, vol. 53, pp. 69-89.
- DE CASTRO K.L.R., CRESPI-CLADERA R. AGUILERA, R.V. (2016), “An organizational economics approach on the pursuit of socioemotional and financial wealth in family firms are these competing or complementary objectives?”, *Management Research: Journal of the Iberoamerican Academy of Management*, vol. 14, n. 3, pp. 267-278.

- DE MASSIS A., CHUA J.H., CHRISMAN J.J. (2008), "Factors preventing intra-family succession", *Family Business Review*, vol. 21, n. 2, pp. 183-199.
- DODD S.D., ANDERSON A., JACK S. (2013), "Being in time and the family owned firm", *Scandinavian Journal of Management*, vol. 29, n. 1, pp. 35-47.
- EDDLESTON K.A., KELLERMANN F.W. (2007), "Destructive and productive family relationships: A stewardship theory perspective", *Journal of Business Venturing*, vol. 22, pp. 545-565.
- GOMEZ-MEJIA L. R., HAYNES K., NUÑEZ-NICKEL M., JACOBSON K.J.L., MOYANO-FUENTES J. (2007), "Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills", *Administrative Science Quarterly*, vol. 52, pp. 106-137.
- HANDLER W.C. (1994), "Succession in family business: A review of the research", *Family Business Review*, vol. 7, n. 2, pp. 133-157.
- HOLBROOK M.B., SCHINDLER R.M. (2003), "Nostalgic bonding: Exploring the role of nostalgia in the consumption experience", *Journal of Consumer Behaviour: An International Research Review*, vol. 3, n. 2, pp. 107-127
- JONES C.D., MAKRI M., GOMEZ-MEJIA L.R. (2008), "Affiliate directors and perceived risk bearing in publicly traded, family controlled firms: The case of diversification", *Entrepreneurship Theory and Practice*, vol. 32, pp. 1007-1026.
- KLEINE S.S., KLEINE R.E. III, ALLEN C.T. (1995), "How is a possession "me" or "not me"? Characterizing types and an antecedent of material possession attachment", *Journal of Consumer Research*, vol. 22, pp. 27-343
- KLEIN S.B., ASTRACHAN J.H., SMYRNIOS K.X. (2005), "The F-PEC scale of family influence: Construction, validation, and further implication for theory", *Entrepreneurship Theory and Practice*, vol. 29, pp. 321-340.
- LABAKI R., BERNHARD F., CAILLUET L. (2019), "The strategic use of historical narratives in the family business", in Memili E., Dibrell C., (eds.), *The Palgrave handbook of heterogeneity among family firms*, Palgrave Macmillan, Cham.
- LANSBERG I. (1988), "The succession conspiracy", *Family Business Review*, vol. 1, n. 2, pp. 119-143.
- LANSBERG I., ASTRACHAN J.H. (1994). "Influence of family relationships on succession planning and training: The importance of mediating factors", *Family Business Review*, vol. 7, n. 1, pp. 39-59
- LEIß G., ZEHRER A. (2018), "Intergenerational communication in family firm succession", *Journal of Family Business Management*, vol. 8, n. 1, pp. 75-90.
- LI W., BRUTON G.D., LI X., WANG S. (2022), "Transgenerational Succession and R&D Investment: A Myopic Loss Aversion Perspective", *Entrepreneurship Theory and Practice*, vol. 46, n. 1, pp. 193-222.
- LJUNGKVIST T., BOERS, B. (2020), "The founder's psychological ownership and its strategic implications", *Journal of Small Business and Enterprise Development*, vol. 27, n. 1, pp. 85-102
- LONG R.G., CHRISMAN J.J. (2014), "Management Succession in Family Business", in Melin L., Nordqvist M, Sharma P., *The SAGE Handbook of Family Business*, Sage, Thousand Oaks.
- LUDE M., PRÜGL, R. (2018). "Why the family business brand matters: Brand authenticity and the family firm trust inference", *Journal of Business Research*, vol. 89, pp. 121-134.
- MAGRELLI V., ROVELLI P., BENEDETTI C., ÜBERBACHER R., DE MASSIS A. (2020), "Generations in Family Business: A Multifield Review and Future Research Agenda", *Family Business Review*, 08944865211069781.
- MAIER C.D., ANDERSEN M.A. (2017), "Strategic internal communication of corporate heritage identity in a hypermodal context", *Corporate Communications: An International Journal*, vol. 22, n. 1, pp. 36-59
- MARTIN G., GOMEZ-MEJIA L. (2016), "The relationship between socioemotional and financial wealth Re-visiting family firm decision making", *Management Research: Journal of the Iberoamerican Academy of Management*, vol. 14 m. 3, pp. 215-233.
- MARTINO V. (2013), *Dalle storie alla storia d'impresa. Memoria, comunicazione, heritage*, Bonanno, Acireale-Roma.
- MICELOTTA E.R., RAYNARD M. (2011), "Concealing or revealing the family? Corporate brand identity strategies in family firms", *Family Business Review*, vol. 24, n. 3, pp. 197-216,
- NAPOLITANO M.R., RIVIEZZO A., GAROFANO A. (2018), *Heritage Marketing. Come aprire lo scrigno e trovare un tesoro*, Editoriale Scientifica, Napoli.
- OOI C.S. (2002), "Persuasive histories: Decentering, recentering and the emotional crafting of the past", *Journal of Organizational Change Management*, vol. 15, n. 6, pp. 606-621
- PARMENTIER M.A. (2011), "When David met Victoria: Forging a strong family brand", *Family Business Review*, vol. 24, n. 3, pp. 217-232.
- PECOT F., MERCHANT A., VALETTE-FLORENCE P., DE BARNIER V. (2018), "Cognitive outcomes of brand heritage: A signaling perspective", *Journal of Business Research*, vol. 85, pp. 304-316,
- PECOT F., VALETTE-FLORENCE P., DE BARNIER V. (2019), "Brand heritage as a temporal perception: conceptualisation, measure and consequences", *Journal of Marketing Management*, vol. 35, n. 17-18, pp. 1624-1643
- RAZZAK M.R., JASSEM S. (2019), "Socioemotional wealth and performance in private family firms: The mediation effect of family commitment", *Journal of Family Business Management*, vol. 9 No. 4, pp. 468-496.
- REILLY T.M., JONES III R. (2017), "Mixed methodology in family business research: Past accomplishments and perspectives for the future", *Journal of Family Business Strategy*, vol. 8, n. 3, pp. 185-195.

- REUBER A.R., FISCHER E. (2011), "Marketing (in) the family firm", *Family Business Review*, vol. 24, n. 3, pp. 193-196.
- RICHARDS M., KAMMERLANDER N., ZELLWEGER T. (2019), "Listening to the heart or the head? Exploring the "willingness versus ability" succession dilemma", *Family Business Review*, vol. 32, n. 4, pp. 330-353.
- RINDELL A. (2017), "Corporate image heritage. A customer view of corporate heritage", in Balmer J.M. (eds.), *Foundations of Corporate Heritage*, Routledge, Abingdon Oxon.
- RINDELL A., STRANDVIK T. (2021), "To be or not to be corporate heritage oriented? A study of managers' corporate heritage mindsets", *European Management Journal*, vol. 40, n. 2.
- SALMON C. (2008), *Storytelling. La fabbrica delle storie*, Fazi Editore, Roma.
- SORENSEN R.L. (2014), "Values in family business", in Melin L., Nordqvist M, Sharma P., *The SAGE Handbook of Family Business*, Sage, Thousand Oaks.
- STEIER L. (2001), "Next-generation entrepreneurs and succession: An exploratory study of modes and means of managing social capital", *Family Business Review*, vol. 14, n. 3, pp. 259-276.
- TORCHIA M., RAUTIANEN M., CALABRO A., IKAHEIMONEN T., PIHKALA T., IKAVALKO M. (2018), "Family ownership goals and socioemotional wealth: evidence from Finnish family firms", *Journal of Enterprising Culture*, vol. 26, n. 2, pp. 207-224.
- SWAB R.G., SHERLOCK C., MARKIN E., DIBRELL C. (2020), "SEW" what do we know and where do we go? A review of socioemotional wealth and a way forward", *Family Business Review*, vol. 33, n. 4, pp. 424-445.
- URDE M., GREYSER S.A., BALMER J.M. (2007), "Corporate brands with a heritage", *Journal of Brand Management*, vol. 15, n. 1, pp. 4-19
- VAN GILS A., HUYBRECHTS J., MINOLA T., CASSIA L. (2019), "Unraveling the impact of family antecedents on family firm image: A serial multiple-mediation model", *Journal of Family Business Strategy*, vol. 10, n 1, pp. 17-27.

Websites

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Fake news as a violation of corporate reputation: The attack strategies in time of Covid-19

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Framing of the research. Fake news, defined as distorted information, misleading content or rumors about an issue or a company is not something new, but their scope and sophistication are new. The speed of spreading of this content and its ability to penetrate the media landscape by generating uncontrolled disinformation have made fake news a powerful tool able to shape public perceptions about social, economic, and political issues (Lewandowsky and van der Linden, 2021). This is because new technologies, and especially social media platforms while on the one hand facilitate the dissemination of communications, on the other, allow unverified news, such as fake news, to be shared with no control (Bovet and Makse, 2019; Mills et al., 2019) because of their structure that allows to publish content without editorial filters (Allcott and Gentzkow, 2017). For this reason, scholars have paid more attention to the theme of fake news in recent years, adopting, among others, perspectives of political communication, sociology, corporate communication and marketing management. Lazer et al. (2018, p. 1094) defined fake news as 'fabricated information that mimics news media content in form but not in organizational process or intent'. Fake news is intentionally false but realistic information, fabricated with the intent to deceive and be taken for truth. To do so, fake news imitates the look and feel of real news, journalist style (Lazer et al., 2018), images and visual content (Pashen, 2019). Hiding under a veneer of legitimacy, it takes on some forms of credibility by trying to appear like real news.

This phenomenon has become even more central since the outbreak of the Covid-19 pandemic - the use of digital channels, in fact, has increased exponentially worldwide and users have encountered fake news more frequently than in the past. For example, a survey by Statista (2021) revealed that 60% of users between the ages of 16 and 24 used digital channels during the pandemic for information on Covid-19, and 59% of these found fake news on this topic. Among the targets of the fake news that circulated online in the months of the health emergency were not only the institutions that were accused by conspiracy theorists of the genesis of Covid-19, but also the companies that produced vaccines to stop the pandemic.

In fact, the issue of fake news worries not only institutions, but also companies that see their corporate reputation increasingly threatened by false and misleading content about their actions. Corporate reputation, indeed, is a trait that signals the likely behavior of a company and that justifies and promotes consumer expectations (Fombrun and Shanley, 1990; Rindova et al., 2005). Companies do not have full control of the signals that circulate about them as many other accredited signalers, such as for instance media and financial analysts (Deephouse, 2000), intervene in the process of corporate reputation formation thanks to their recognized competence and superior access to information (Rindova et al., 2005; Spence, 1974). A common assumption about reputation as a signal is that information reported by these signalers, such as organizations or intermediaries, is assumed to accurately report the organization's qualities (Gardberg et al., 2021). This happens because the signaller is considered to be credible, as low quality signallers will prove not trustworthy in the long term and therefore ignored by individuals who are presumed to efficiently select among sources (Gomulya and Mishina, 2017). On the contrary, in this new media scenario deeply marked by the presence of fake news, users are unfortunately strongly exposed to fake signals in the digital environment and often trust and share fake content (Gardberg et al., 2021). For instance, Visentin et al. (2019) empirically demonstrated the consequences of fake news on brands advertised on websites along with fake content. According to this study, consumer purchase intentions and word of mouth (WOM) are also affected by the impact of fake news circulating on the web.

Fake news therefore represents a threat to organizations (Berthon et al., 2018), which can lose control over their social evaluations and public perceptions as a result of direct or indirect interactions with fake news (Fulgoni and Lipsman, 2017), with serious damages for their corporate reputation.

Therefore, it is crucial for companies to successfully identify the fake news circulating around them, but also to understand the communication processes through which corporate reputation violations are framed in fake news.

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Purpose of the paper. *The topic of fake news has been addressed by recent studies from different research streams and perspectives, however in the academic literature there is a research gap regarding fake news intended as violations of corporate reputation and, in particular, how these fake news threaten the process of formation of corporate reputation on digital platforms. The aim of this study, therefore, is to investigate how fake news fits into the formation of corporate reputation and how they influence this process.*

Methodology. *To achieve our research aim, we opted for a qualitative content analysis. “Content analysis is a method for analysing the content of a variety of data, such as visual and verbal data. It enables the reduction of phenomena or events into defined categories so as to better analyse and interpret them” (Harwood and Garry, 2003, p. 479). This approach, in fact, allows researchers to derive meanings and insights from the text in a holistic way (Kracauer, 1952).*

To answer our research question, we followed the Pennycook et al. (2021)’ work on fake news research. According to the authors, fake news studies may focus on news headlines rather than full articles. In experiments, for example, this happens to avoid methodological difficulties, such as allowing people to decide which part of an article to read or require full attention. Furthermore, as revealed by Gabielkov et al. (2016), most web and social media users don’t read past the full headlines. This is why we focused on the fake news headlines which appeared on the Internet during the Covid-19 pandemic. Specifically, among the fact-checking organizations that collect false or misleading content is the Poynter International Fact-Checking Network, the most prominent network of debunking websites (Pennycook et al., 2021). This database unites fact-checkers in more than 70 countries and includes articles published in at least 40 languages.

On the Poynter.org database, we selected 458 fake news headlines about Covid-19 vaccines. The collected fake news headlines contain the keywords “Astrazeneca”, “Pfizer”, “Moderna” and have been published in the time frame from 2020, when vaccine trials began, until January 2022. First, we created a worksheet in which we imported the 458 fake news headlines with their URLs. Second, we eliminated the fake news headlines that repeated two or more times.

The content qualitative analysis enables us to interpret textual data, classify them systematically and identify themes and patterns (Hsieh and Shannon, 2005). Indeed, in the data analysis phase we identified and interpreted the themes related to the research object by highlighting and labeling key points as codes and then compared the codes with a thematic similarity. In this way relationships and sub-categories have been identified. This process allowed us to analyze qualitative textual data and re-propose them in a meaningful way (Creswell and Poth, 2016).

Results. *In Table 1 the results of this study are presented, revealing that fake news intervenes in the process of formation of reputation by attacking different company assets, and specifically both what company does and what company is.*

Tab. 1: Attack strategies of fake news to corporate reputation

	<i>Thematic clusters</i>	
	<i>Fake company value/identity</i>	<i>Fake procedures</i>
<i>Peer credibility</i>	<i>Bottom up attack on what company is</i>	<i>Bottom up attack on company behavior</i>
<i>Documental/Authority credibility</i>	<i>Certified attack on what company is</i>	<i>Certified attack on company behavior</i>

The fake news that attacks companies have different dimensions and characteristics. In particular, our qualitative content analysis shows that there are two types of borrowed credibility on which fake news are based. We have defined the first type as “borrowed peer credibility”, i.e. the credibility that refers to peers who would have seen something or lived a certain (false) experience, as we can note in the fake news below:

“People say that Mike Yeadon - ex-worker of Pfizer - told that vaccine against COVID-19 will kill 0,8% people after first injection and other people will died within 2 or 3 years”

The second type of credibility on which fake news is based is the “documental/authority credibility”. With this term we mean fake news which, to ensure that their credibility is greater, cite any false documentary source, such as photos, images, videos, or those fake news that, to make their content more realistic, mention institutions, accredited research institutes, scientists, governments and authorities in general which would have disseminated the news.

“Videos show two women having trouble moving or speaking due to tremor side effects of the Pfizer and Moderna vaccines”

“Researchers: Mortality Rates Shoot in Israel After Pfizer’s COVID Vaccination”

In terms of content, the analyzed fake news contain references to two different thematic clusters: (1) fake company value/identity and (2) references to false procedures.

Fake news that contains references to fake value/identity generally question the company’s transparency by hiding something such as negative effects discovered through reports or other sources. They cite conspiracy theories and treat the pandemic as something premeditated by organizations.

“Based on evidence that was presented in a report that was submitted to the World Health Organisation, the Pfizer/BioNTech mRNA vaccine against SARS-CoV-2 can cause infertility in women. This is caused due to the fact that the virus spike protein is very similar to syncytin-1, a protein involved in the process of placental development. Also the vaccine ingredient mNeonGreen is potentially dangerous”

“The Wuhan biological laboratory belongs to the pharmaceutical company Glaxo, in a chain of relationships in which Pfizer, George Soros, Bill Gates and the WHO also participate, which makes clear the origin of a pandemic that enslaves society”

Moreover, the second type of fake news thematic cluster attack companies by criticizing the production chain of vaccines or the methods of managing the administration of vaccines to the population.

“One of the ingredients in the COVID-19 vaccine by AstraZeneca is “ChAdOx1-S” which is recombinant DNA, meaning it contains genes from two different species. This ingredient will cause DNA modifications to any person who gets vaccinated”

Crossing our results and specifically focusing on the two types of borrowed credibility and the two thematic clusters which we identified with this study (see Tab. 1), we note that the attacks of fake news on the corporate reputation of companies that produce vaccines to combat the pandemic of Covid-19 concern both character reputation and capability reputation.

According to Mishina et al. (2012), the character reputation represents what the company is and what distinguishes it; while, with capability reputation the scholars mean what the company does, its behaviors, its relationships with stakeholders. More specifically, as indicated in Tab. 1, with this analysis we identified four ideal types of fake news attack strategies on corporate reputation:

- *Bottom up attack on what company is: fake news affecting corporate values or identity by recurring to the borrowed peer credibility. These are the fake news that attack the corporate character reputation by leveraging corporate values such as ethics, transparency or corporate social responsibility.*
- *Certified attack on what company is: the second type of fake news that attacks the character corporate reputation uses the borrowed documental or authority credibility, that is, using documentary sources (e.g. photos, videos, reports) or authoritative sources (e.g. researchers, institutions, government authorities) which affect the values of companies or their corporate identity.*
- *Bottom up attack on company behavior: the fake news that attack what the company does, and therefore the capability reputation, are those that use the borrowed peer credibility to question certain company procedures and behaviors.*
- *Certified attack on company behavior: finally, the latest type of fake news attack includes those news that hit the capability reputation by using the documental or authority credibility. For example, by recurring to fake sources which reveal something that the company has done and has generally kept hidden.*

Research limitations. *The aim of this research is to investigate how fake news fit into the corporate reputation formation process, with particular reference to the fake news that attacked vaccine companies during the Covid-19 pandemic. However, this study presents the following limitations. The qualitative content analysis sample is 458 fake news headlines spread on the Net, however, diversification on the basis of the virtual space in which these fake news have been shared is lacking, e.g., social media or online newspapers, etc. Secondly, this study did not consider the impacts that these fake news have had on companies, for example by comparing the previous reputation and the current reputation. Finally, this research did not take into consideration the actions taken by companies to counter the spread of fake news and limit the damage related to corporate reputation. Future studies could focus on these three research directions.*

Managerial implications. *The contribution of this study is also detectable in terms of managerial implications. For example, the results of this analysis allow companies to know the main characteristics of fake news that attack corporate reputation, i.e. the three types of credibility and the three types of content. Having a more in-depth knowledge of the characteristics of fake news, companies will be able to develop web monitoring activities with more precision in order to identify these news that concern them and, consequently, adopt effective response strategies to counter them.*

Originality of the paper. *This study investigates how fake news attacks corporate reputation and, in particular, how they threaten the corporate reputation of companies that produce vaccines to combat the Covid-19 pandemic. Although there are some studies that have already investigated the impacts of fake news on companies by adopting a marketing and corporate communication perspective (e.g. Visentin et al., 2019; Di Domenico et al., 2021), this is the first study which focuses on corporate reputation and on how fake news attack this intangible asset. In particular, with our qualitative content analysis we have identified two types of borrowed credibility on which fake news leverage and two thematic clusters that characterize them. By crossing these dimensions we found four different ideal types of fake news attack strategies on corporate reputation. In this way, by assuming the theoretical lens of corporate communication, we contribute to the academic literature of fake news and corporate reputation by identifying the ways in which these attacks try to question corporate reputation in the digital environment.*

Keywords. *corporate reputation; Covid-19 vaccines; disinformation; fake news; social media*

References.

- ALLCOTT H., GENTZKOW M. (2017), "Social media and fake news in the 2016 election", *Journal of Economic Perspectives*, vol. 31, n. 2, pp. 211-36.
- BERTHON P.R., TREEN E.R., PITT L.F. (2018), "How Truthiness, Fake News and Post-Fact Endanger Brands and What to Do About It", *GfK Marketing Intelligence Review*, vol. 10 n. 1, pp. 18-23.
- BORGES-TIAG T., TIAG F., SILVA O., GUAITA J. M., BOTELLA-CARUBBI D. (2020), "Online users' attitudes toward fake news: Implications for brand management", *Psychology & Marketing*, vol. 37, n. 9, pp. 1171-1184.
- BOVET A., MAKSE H.A. (2019), "Influence of fake news in Twitter during the 2016 US presidential election", *Nature Communications*, vol. 10, n. 1, pp. 1-14.
- CHEN Z. F., CHENG Y. (2019), "Consumer response to fake news about brands on social media: the effects of self-efficacy, media trust, and persuasion knowledge on brand trust", *Journal of Product & Brand Management*, vol. 29, n. 2, pp. 188-198.
- DEEPHOUSE D.L. (2000), "Media reputation as a strategic resource: An integration of mass communication and resource-based theories", *Journal of Management*, vol. 26 n. 6, pp. 1091-1112.
- DI DOMENICO G., SIT J., ISHIZAKA A., NUNAN D. (2021), "Fake news, social media and marketing: A systematic review", *Journal of Business Research*, vol. 124, pp. 329-341.
- FOMBRUN C., SHANLEY M. (1990), "What's in a name? Reputation building and corporate strategy", *Academy of Management Journal*, vol. 33, n. 2, pp. 233-258.
- FULGONI G. M., LIPSMAN A. (2017), "The downside of digital word of mouth and the pursuit of media quality: How social sharing is disrupting digital advertising models and metrics", *Journal of Advertising Research*, vol. 57, n. 2, pp. 127-131.
- GABIELKOV M., RAMACHANDRAN A., CHAINTREAU A. (2016), "Social Clicks: What and Who Gets Read on Twitter?", *Acm Sigmetrics*.
- GARDBERG N. A., ZYGLIDOPOULOS S.C., SYMEOU P.C., SCHEPERS D.H. (2019), "The impact of corporate philanthropy on reputation for corporate social performance", *Business & Society*, vol. 58, n. 6, pp. 1177-1208.
- GOMULYA D., MISHINA Y. (2017). "Signaler credibility, signal susceptibility, and relative reliance on signals: How stakeholders change their evaluative processes after violation of expectations and rehabilitative efforts", *Academy of Management Journal*, vol. 60 n. 2, pp. 554-583.
- HARWOOD T., GARRY T. (2003). "An overview of content analysis", *The Marketing Review*, vol. 3, pp. 479-498.
- HSIEH H., SHANNON S.E. (2005), "Three approaches to qualitative content analysis", *Qualitative Health Research*, vol. 15 n. 9, pp. 1277-1288.
- JANG S.M., KIM J.K. (2018), "Third person effects of fake news: Fake news regulation and media literacy interventions", *Computers in Human Behavior*, vol. 80, pp. 295-302.
- KRACAUER S. (1952), "The challenge of qualitative content analysis", *Public Opinion Quarterly*, vol. 16, pp. 631-642.
- LAZER D.M.J., BAUM M.A., BENKLER Y., BERINSKY A.J., GREENHILL K.M., MENCZER F., METZGER M.J., NYHAN B., PENNYCOOK G., ROTHSCHILD D., SCHUDSON M., SLOMAN S.A., SUNSTEIN C.R., THORSON E.A., WATTS D.J., ZITTRAIN J.L. (2018), "The Science of Fake News", *Science*, vol. 359, pp. 1094-1096.
- LEWANDOWSKY S., VAN DER LINDEN S. (2021), "Countering misinformation and fake news through inoculation and prebunking", *European Review of Social Psychology*, pp. 1-38.
- MILLS A.J., PITT C., FERGUSON S.L. (2019), "The relationship between fake news and advertising: brand management in the era of programmatic advertising and prolific falsehood", *Journal of Advertising Research*, vol. 59, n. 1, pp. 3-8.
- MISHINA Y., BLOCK E.S., MANNOR M.J. (2012), "The path dependence of organizational reputation: How social judgment influences assessments of capability and character", *Strategic Management Journal*, vol. 33, pp. 459-477.
- OBADA D. (2019), "Sharing Fake News about Brands on Social Media: a New Conceptual Model Based on Flow Theory", *Argumentum: Journal the Seminar of Discursive Logic, Argumentation Theory & Rhetoric*, vol. 17, n. 2, pp. 144-166.
- PASCHEN J. (2019), "Investigating the emotional appeal of fake news using artificial intelligence and human contributions", *Journal of Product & Brand Management*, vol. 29, n. 2, pp. 223-233.
- PENNYCOOK G., BINNENDYK J., NEWTON C., RAND D.G. (2021), "A Practical Guide to Doing Behavioral Research on Fake News and Misinformation", *Collabra: Psychology*, vol. 7 n. 1, pp. 1-13.
- RINDOVA V.P., WILLIAMSON I., PETOVKA A., SEVER J. (2005). "Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation", *Academy of Management Journal*, vol. 48, n. 6, pp. 1033-1049.
- RISI E., DI FRAIA G. (2020), "Ascolto delle conversazioni online. Dall'analisi dei testi all'interpretazione dei significati", *Micro & Macro Marketing*, vol. 3, pp. 559-584.

- SPENCE M. (1974), "Competitive and optimal responses to signals: An analysis of efficiency and distribution", *Journal of Economic Theory*, vol. 7, n. 3, pp. 296-332.
- SPOHR D. (2017), "Fake news and ideological polarization: Filter bubbles and selective exposure on social media", *Business Information Review*, vol. 34, n. 3, pp. 150-160.
- STEWART M.C., ARNOLD C.L. (2018), "Defining Social Listening: Recognizing an Emerging Dimension of Listening", *International Journal of Listening*, vol. 32 n. 2, pp. 85-100.
- STATISTA (2021), *Share of online fake news related to coronavirus (COVID-19) in Italy between January and May 2020*, available at the following link: <https://www-statista-com.ezproxy.unicatt.it/statistics/1109490/share-of-coronavirus-fake-news-italy/> (Accessed October 14, 2021)
- TANDOC JR E. C., LIM Z. W., LING R. (2018), "Defining "fake news" A typology of scholarly definitions", *Digital Journalism*, vol. 6, n. 2, pp. 137-153.
- VISENTIN M., PIZZI G., PICHIERRI M. (2019), "Fake news, real problems for brands: The impact of content truthfulness and source credibility on consumers' behavioral intentions toward the advertised brands", *Journal of Interactive Marketing*, vol. 45, pp. 99-112.

Communication strategies in the tourism and hospitality sector during the Covid-19 pandemic: A systematic literature review

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Framing of the research. *The tourism and hospitality sector has been deeply affected by the Covid-19 pandemic. This sector has been found extreme vulnerable to crisis events: during the years it has faced several critical events such as unpredictable natural events, crises caused by bad management actions and other events capable of endangering health and people's safety (Breitsohl and Garro, 2016), the latter of which is the Covid-19 health crisis.*

In 2020, the Covid-19 pandemic resulted in a drastic drop in international travel and consequent massive economic losses¹. This event has changed travel arrangements, imposing restrictions even equal to those that occurred during the Second World War (Gössling et al., 2020), and social distancing measures that have revolutionized the tourism product as we have known it until a few years ago (Salem et al., 2022). Among the effects of the crisis, we had massive cancellations, sharp reductions in the number of bookings and greater concerns among the public, more reluctant to travel (Lenggogeni et al., 2021).

If the different economic, financial and social impacts of the crisis have been deeply analyzed in the tourism and hospitality literature (Skare et al., 2021; Foo et al., 2021), less attention has been devoted to the response strategies of the companies and, in particular, to the role of communication as a key to recovery. The corporate communication implemented by a company after a negative event may, in fact, have a significant impact on the crisis overtaking.

Purpose of the paper. *Taking the current Covid-19 situation into account, this study aims to answer the following research questions: What main lessons delivered by scholars to communication practitioners are possible to identify in the existing research on the communication strategies in the tourism and hospitality sector during the Covid-19 pandemic? Did communication play a role in the recovery of the tourism and hospitality sector, following the Covid-19 pandemic crisis?*

In order to answer the aforementioned questions, we develop a systematic literature review, which can be very useful to understand how communication has been used in the tourism and hospitality sector for facing the current pandemic crisis. In this way, the study will bring out the communication elements already used in the past and consolidated over time, for the mitigation of the impact of a negative event, useful for future crises.

Methodology. *Like previous literature reviews on crisis management and crisis communication (e.g., An & Cheng, 2010; Avery et al., 2010) this study was conducted by a systematic literature review (Jesson et al., 2011). A systematic review is capable of answering broader questions than single studies do and contributes to theory development. To systematically investigate the existing research on the communication strategies in the tourism and hospitality sector during the Covid-19 pandemic, this study comprises three steps: (a) identification of resources/articles; (b) selection of the final sample; and (c) systematic analytical work using text mining.*

Identification of papers and selection of the sample. *The identification of the resources followed a well-structured research protocol that envisaged the combined use of the Scopus and Web of Science bibliographic databases to verify the effective inclusion of all relevant documents with respect to the research questions. The search query comprised, after several interactions and refinements: (communication *) AND (tourism * OR hospitality) AND (covid * OR pandemic *).*

We have then continued to filter documents, evaluating their relevance by subject area. On Scopus we selected the research fields related to Business, Management and Accounting; Social Sciences; Decision Sciences; Economics, Econometrics and Finance and Psychology. For Web of Science, the survey was limited to the items Management, Business, Communication, Economics, Social Sciences Interdisciplinary and Psychology, Multidisciplinarity.

Only the documents congruent with the research objectives were kept, evaluating the title, abstract and main content, and eliminating the duplicates in the two databases. At the end of the selection activities, we obtained a final sample of 82 papers.

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¹ <https://www.unwto.org/>

In order to evaluate its scientific relevance, a further screening was carried out keeping in the sample only the articles published in journals that had at least a score of 1 in the Academic Journal Guide 2021², redefining the final sample to 44 articles.

Analytical content analysis procedure. The selected corpus of documents was studied by means of text mining analysis to explore the research topics in more depth and understand their progress. Text mining gathers multidisciplinary perspectives and, for this reason, it has already been used in the management area (Yang & Han, 2021) and in the tourism field (Garner et al., 2022).

In our case, the units of analysis included the title, the abstract, the keywords, the introduction, and the theoretical-managerial implications of every single article. In some cases, the abstract has been reconstructed by the authors due to its absence in the full paper. In relation to keywords, only those able to make a semantic contribution to the overall understanding of each article were included in the analysis.

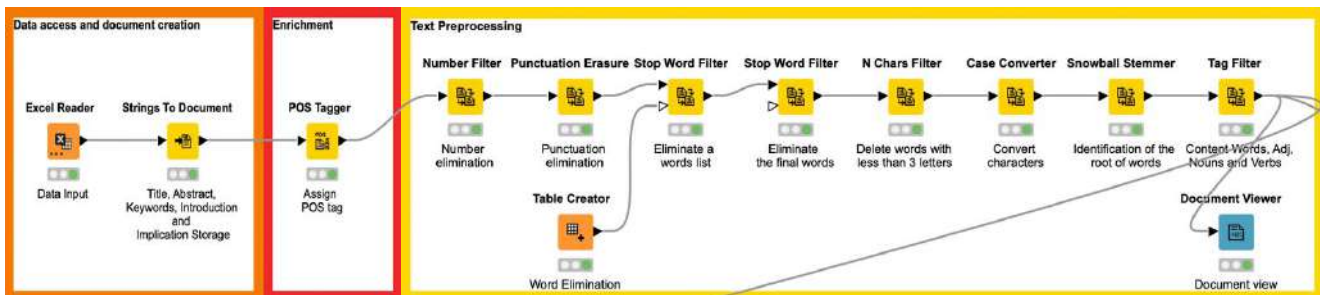
Subsequent investigations were carried out on these units of analysis with the KNIME software. KNIME is suitable for extracting and transforming knowledge from structured and unstructured data sets, analyzing language, aggregating information and infusing knowledge from huge amounts of data (Humphreys and Wang, 2018).

A Topic Detection, aimed at bringing out the latent arguments from the initial corpus of documents, and an Information Retrieval, aimed at understanding the links between the most relevant keywords have been carried out.

In order to proceed with these two investigations, we started with the preparation of the data, in particular with the loading of the information into the KNIME workflow and with its processing. The different phases of text mining were followed: access, enrichment, transformation, extraction of words, analysis and graphical visualization of the data (Thiel, Kötter, Silipo, & Winters, 2015).

Before the data pre-processing, the enrichment phase was performed, using the POS³ tagger node, which allows to label words, recognize entities and apply certain tags to individual terms. In particular, this node classifies words according to the different parts of the speech (e.g. adjectives, nouns, etc.). The pre-processing phases included several nodes that allow for example the elimination of numbers, punctuation, terms not relevant to the search, stop terms, words with less than 3 characters as conjunctions, the replacement of uppercase characters with lowercase characters, the preservation of words at their roots using Porter's algorithm (Porter, 2006) and the assignment of tags (Figure n.1).

Fig. 1: Data access, enrichment and text processing



Once the data has been pre-processed, the analysis relating to the extraction of the topics and the identification of the relationships between the keywords was undertaken.

The LDA algorithm was used to carry out the topic analysis through Topic Modeling, aimed at grouping similar topics to derive hidden thematic structures⁴. The arguments were set at 5, with 8 words each, in order to have a unitary and compliant representation with respect to the initial sample.

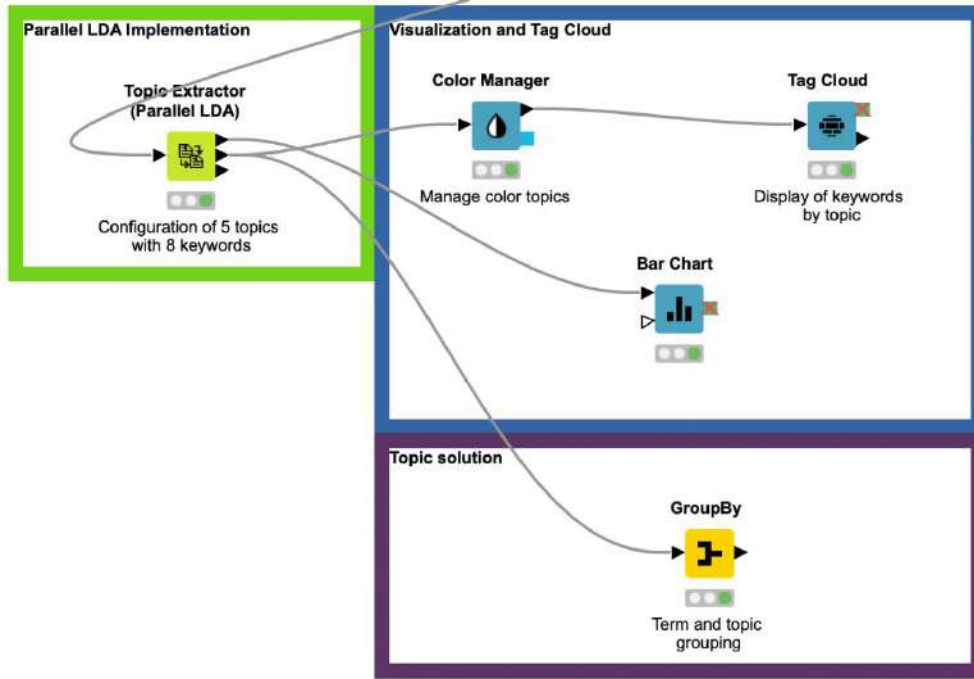
In order to have a graphical representation, different nodes were used: the “Color Management” node which allows to assign a color to each topic; the “Tag Cloud” node which represents the word cloud based on their weight; the “Group by” node to see in more details the keywords of the various topics and the “Bar chart” node to see the most popular topics in the sample (Figure n.2)(Ordenes and Zhang, 2019).

² <https://chartereddabs.org/academic-journal-guide-2021-view/>

³ <https://nlp.stanford.edu/software/tagger.shtml>

⁴ <https://www.knime.com/blog/data-collection-to-text-mining>

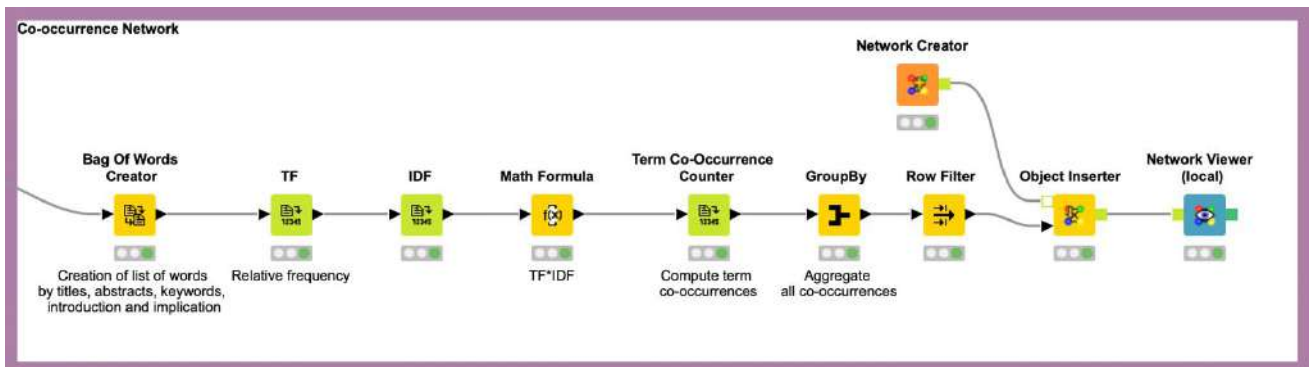
Fig. 2: Topic detection and topic representation



For performing the Information Retrieval analysis, we then proceeded with the “Bag of Words Creator” node that operates on the “pre-processed” documents and creates a table with all the words (Ordenes and Silipo, 2021). Then, we used the relative frequency (TF), which identifies the number of times a word is contained in a document, and the importance of a keyword within the collection (IDF), which identifies a weight that is usually multiplied by TF. Co-occurrence was also used, i.e., the frequency with which two or more words appear next to each other in a corpus of documents to understand the association patterns (Netzer et al., 2012).

From the implementation of these nodes, researchers may evaluate the centrality of some terms to understand their importance and the conceptual networks that are generated (Carley, 1997). Specifically, a value equal to 10 has been set as the lower limit of the sum of co-occurrence, in the Row Filter node, to keep the relationships more graphically visible and clear (Figure n.3)⁵.

Fig. 3: Information retrieval analysis



The figure below summarizes the different steps carried out in the analysis (Figure n.4).

⁵ <https://searchwilderness.com/semantic-keyword-research/#gref>

Topic 0: Building organizational resilience through the service redesign and the adoption of new technologies

Resilience has always been a key feature in tourism and hospitality that has always ensured a positive, rapid, and effective response to various market disruptions (Hallak, Assaker, O'Connor, & Lee, 2018). Even in the context of the Covid-19 pandemic, the sector has been able to promptly respond by making various structural changes (Dolnicar and Zare, 2020), able to bring companies closer to the digital world in order to contain human contacts, guarantee social distancing and increased safety (Lu et al., 2021; Seyitoğlu and Ivanov, 2021). These aspects required a rethinking of the organization and of the offered products/services, as well as their adequate communication to make the public perceive the commitment toward these themes. The adoption of artificial intelligence and robotics, but more generally of all emerging technologies, has guaranteed the possibility of offering, also in this context, a safer and more pleasant travel experience. The promotion of these tools has transmitted to consumers a positive image of resilience and less vulnerability of the tourist structures and activities, immediately committed to the use of new technologies.

Topic 1: Crisis management strategies using social media

Crisis management strategies, in the tourism and hospitality sector, started with communication messages aimed at reactivating the intention to visit certain destinations, especially after particularly adverse moments capable of generating strong concerns and fears in the public (Li et al., 2022). In these contexts, the speed of response and the richness of the conveyed information may play a crucial role in shaping the knowledge and perceptions of tourists (Zheng et al., 2021). Communication must be based on concreteness, quality of argumentation, and assertiveness (Li et al., 2022), with the aim of reducing ambiguity and uncertainty caused by the shock event (Cambra-Fierro et al., 2022). In these situations, a useful tool to quickly transmit information is represented by social media which, for this reason, have become essential media in crisis management (Gretzel et al., 2020). They allow the sharing of updated news, the maintenance of relationships with the public, and the achievement of more interactive communication between companies and consumers (Park et al., 2019). As a result, the combination of traditional communication tools with digital tools has increasingly become an integral part of crisis management strategies (Cambra-Fierro et al., 2022).

Topic 2: Recovery strategies based on data

The communication toward consumers has focused, in the short term, on guaranteeing assistance with regard to a large number of requested refunds and cancellations that have occurred (Villacé-Molinero et al., 2021). Communicating these issues with transparency has increased consumer satisfaction in the early stages of the pandemic.

In the medium-long term, instead, the companies relied on broader recovery goals for the restart of their business. In this sense, the adoption of information and communication technologies has made it possible to transform destinations into intelligent and safe tourist locations even during the pandemic period (Chen et al., 2021). This was made achievable by the aggregation of various information sources coming from different infrastructures and organizations, data which allowed to carry out analyses and forecasts on the crowding of certain places in some periods. These data sets guarantee the possibility of managing the critical situation by monitoring the overcrowding of destinations at certain times, preserving the social distancing required by regulations, and diluting tourist flows to ensure safety with an adequate communication boost.

Topic 3: Safety and health issues: the role on consumer behavior and organization

Individuals' concerns play a significant role in determining the perception of health risks, while traveling, and in relation to visiting specific destinations affected by the pandemic. This risk assessment can influence future travel intentions and, therefore, the communication strategies of tourism and hospitality companies should be based on messages aimed at limiting the risk perception and aimed at sharing safety protocols implemented by them (Bonfanti et al., 2021). This can contribute to the reduction of anxiety and to the adoption of all the recommended behavior while using the service, aimed at limiting the contagions.

Even within the organization, communication must foster a climate of safety and motivate staff to behave correctly even in particularly critical situations (Kim et al., 2021). Transparent intra-organizational communication creates greater awareness of potential risks, a strong sense of community among staff, and increases their motivation to undertake all suitable practices to deal with the crisis (Park et al., 2020). The implementation of these procedures will raise the perceived quality of service, thus increasing the level of public trust placed in the organization (Yuen et al., 2021).

Topic 4: Safety and health issues: the role on the recovery of destinations

Associations and negative evaluations inherent to a specific destination caused by the pandemic, can have a strongly negative impact on the travel behaviors of tourists towards certain locations (Kim et al., 2021). Such information can influence risk perception and compromise future travel intentions (Thirumaran, et al., 2021). In fact, in travel decisions, notoriety and the image conveyed by a country are fundamental in determining the purchase choice. Due to the pandemic, it is essential to actively communicate the adoption of health regulations and compliance with the recommended protocols (Bonfanti et al., 2021). In this sense, disseminating news related to the organizational commitment to guarantee the safety and pleasure of the experience is essential to preserve and stimulate the travel intentions of tourists (Villacé-Molinero et al., 2021).

Lastly, from the implementation of the Network Analysis, we obtained the visualization inserted in Figure n.8.

A key contribution comes from identifying and categorizing the potential roles that can be assumed by communication to address and manage the current pandemic in the tourism and hospitality sector. Furthermore, the paper provides managers with interpretations capable of favoring better exploitation of the available communication levers, in critical situations.

Keywords: *communication; Covid-19; tourism and hospitality sector; systematic literature review; text mining*

References

- AN S.K., CHENG I.H. (2010), *Crisis communication research in public relations journals: Tracking research trends over thirty years*, in Coombs W.T., Holladay S.J. (eds), *The handbook of crisis communication research*. Hoboken, NJ: Wiley-Blackwell.
- AVERY E.J., LARISCY R.W., KIM S., HOCKE T. (2010), "A quantitative review of crisis communication research in public relations from 1991-2009", *Public Relations Review*, vol. 36 n. 2, pp. 190-192.
- BEECH N., ANSEEL F. (2020), "COVID-19 and Its Impact on Management Research and Education: Threats, Opportunities and a Manifesto", *British Journal of Management*, vol. 31, n. 3, pp. 447-449.
- BONFANTI A., VIGOLO V., YFANTIDOU G. (2021), "The impact of the Covid-19 pandemic on customer experience design: The hotel managers' perspective", *International Journal of Hospitality Management*, vol. 94, pp. 1-11.
- BREITSOHL J., GARROD B. (2016), "Assessing tourists' cognitive, emotional and behavioural reactions to an unethical destination incident", *Tourism Management*, vol. 54, pp. 209-220.
- CAMBRA-FIERRO J., FLUENTES-BLASCO M., GAO L.X., MELERO-POLO I., TRIFU A. (2022), "The influence of communication in destination imagery during COVID-19", *Journal of Retailing and Consumer Services*, vol. 64, pp. 1-9.
- CARLEY K.M. (1997), *Network Text Analysis: The Network Position of Concepts*, in Roberts C.W. (eds), *Text Analysis for the Social Sciences*. Mahwah NJ.: Lawrence Erlbaum.
- CHEN S., TIAN D., LAW R., ZHANG M. (2022), "Bibliometric and visualized review of smart tourism research", *International Journal of Tourism Research*, vol. 24 n. 2, pp. 298-307.
- DOLNICAR S., ZARE S. (2020), "COVID19 and Airbnb - Disrupting the Disruptor", *Annals of Tourism Research*, vol. 83, pp. 1-3.
- FOO L.P., CHIN M.Y., TAN K.L., PHUAH K.T. (2021), "The impact of COVID-19 on tourism industry in Malaysia", *Current Issues in Tourism*, vol. 24, n. 19, pp. 2735-2739.
- GARNER B., THORNTON C., PAWLUK A.L., CORTEZ R.M., JOHNSTON W., AYALA C. (2022), "Utilizing text-mining to explore consumer happiness within tourism destinations", *Journal of Business Research*, vol. 139, pp. 1366-1377.
- GÖSSLING S., SCOTT D., HALL C.M. (2020), "Pandemics, tourism and global change: a rapid assessment of COVID-19", *Journal of Sustainable Tourism*, vol. 29, n. 1, pp. 1-20.
- GRETZEL U., FUCHS M., BAGGIO R., HOEPKEN W., LAW R., NEIDHARDT J., PESONEN J., ZANKER M., XIANG Z. (2020), "E-Tourism beyond COVID-19: a call for transformative research", *Information Technology & Tourism*, vol. 22, n. 2, pp. 187-203.
- HALLAK R., ASSAKER G., O'CONNOR P., LEE C. (2018), "Firm performance in the upscale restaurant sector: the effects of resilience, creative self-efficacy, innovation and industry experience", *Journal of Retailing and Consumer Services*, vol. 40, pp. 229-240.
- HUMPHREYS A., WANG R.J.H. (2018), "Automated Text Analysis for Consumer Research", *Journal of Consumer Research*, vol. 44, n. 6, pp. 1274-1306.
- JESSON J., MATHESON L., LACEY F.M. (2011), *Doing your literature review: Traditional and systematic techniques*. Los Angeles, Calif.; London: SAGE Publication Ltd.
- KIM M., KIM J.H., PARK M., YOO J. (2021), "The roles of sensory perceptions and mental imagery in consumer decision-making", *Journal of Retailing and Consumer Services*, vol. 61, pp. 1-11.
- KIM S., KIM P.B., LEE G. (2021), "Predicting hospitality employees' safety performance behaviors in the COVID-19 pandemic", *International Journal of Hospitality Management*, vol. 93, pp. 1-12.
- LENGGOGENI S., ASHTON A.S., SCOTT N. (2021), "Humour: coping with travel bans during the COVID-19 pandemic", *International Journal of Culture, Tourism, and Hospitality Research*.
- LI S., WANG Y., FILIERI R., ZHU Y. (2022), "Eliciting positive emotion through strategic responses to COVID-19 crisis: Evidence from the tourism sector", *Tourism Management*, vol. 90, pp. 1-14.
- LU L., ZHANG P., ZHANG T.C. (2021), "Leveraging "Human-likeness" of robotic service at restaurants", *International Journal of Hospitality Management*, vol. 94, pp. 1-9.
- NETZER O., FELDMAN R., GOLDENBERG J., FRESKO M. (2012), "Mine Your Own Business: Market-Structure Surveillance Through Text Mining", *Marketing Science*, vol. 31, n. 3, pp. 521-543.
- ORDENES F.V., SILIPO R. (2021), "Machine Learning for Marketing on the KNIME Hub: The Development of a Live Repository for Marketing Applications", *Journal of Business Research*, vol. 137, pp. 393-410.

- ORDENES F.V., ZHANG S. (2019), "From words to pixels: text and image mining methods for service research", *Journal of Service Management*, vol. 30, n. 5, pp. 593-620.
- PARK D., KIM W.G., CHOI S. (2019), "Application of social media analytics in tourism crisis communication", *Current Issues in Tourism*, vol. 22 n. 15, pp. 1810-1824.
- PARK E., KIM W.H., KIM S.B. (2020), "Tracking tourism and hospitality employees' real-time perceptions and emotions in an online community during the COVID-19 pandemic", *Current Issues in Tourism*, pp. 1-5.
- PORTER M.F. (2006), "An algorithm for suffix stripping", *Program: electronic library and information systems*, vol. 40, n. 3, pp. 211-218.
- SALEM I.E., ELKHWESKY Z., RAMKISSOON H. (2022), "A content analysis for government's and hotels' response to COVID-19 pandemic in Egypt", *Tourism and Hospitality Research*, vol. 22, n. 1, pp. 42-59.
- SEYITOGU F., IVANOV S. (2021), "Service robots as a tool for physical distancing in tourism", *Current Issues in Tourism*, vol. 24, n. 12, pp. 1631-1634.
- ŠKARE M., SORIANO D.R., PORADA-ROCHON M. (2021), "Impact of COVID-19 on the travel and tourism industry", *Technological Forecasting and Social Change*, vol. 163, pp. 1-14.
- THIEL K., KÖTTER T., SILIPO R., WINTERS P. (2015), *Social Media Analysis - Text Mining Meets Network Mining*, in Hofmann M., Chisholm A. (eds), *Text Mining and Visualization: case studies using open-source tools* (pp. 1-12). New York: Chapman and Hall/CRC.
- THIRUMARAN K., MOHAMMADI Z., POURABEDIN Z., AZZALI S., SIM K. (2021), "COVID-19 in Singapore and New Zealand: Newspaper portrayal, crisis management", *Tourism Management Perspectives*, vol. 38, pp. 1-11.
- VILLACÉ-MOLINERO T., FERNÁNDEZ-MUNOZ J.J., OREA-GINER A., FUENTES-MORALEDA L. (2021), "Understanding the new post-COVID-19 risk scenario: Outlooks and challenges for a new era of tourism", *Tourism Management*, vol. 86, pp. 1-11.
- YANG M., HAN C. (2021), "Revealing industry challenge and business response to Covid-19: a text mining approach", *International Journal of Contemporary Hospitality Management*, vol. 33 n. 4, pp. 1230-1248.
- YUEN K.F., CAO Y., BAI X., WANG X. (2021), "The psychology of cruise service usage post COVID-19: Health management and policy implications", *Marine Policy*, vol. 130, pp. 1-10.
- ZHENG D., LUO Q., RITCHIE B.W. (2021), "Afraid to travel after COVID-19? Self-protection, coping and resilience against pandemic "travel fear"", *Tourism Management*, vol. 83, pp. 1-13.

Websites

- <https://www.unwto.org/>
<https://chartereddabs.org/academic-journal-guide-2021-view/>
<https://nlp.stanford.edu/software/tagger.shtml>
<https://www.knime.com/blog/data-collection-to-text-mining>
<https://searchwilderness.com/semantic-keyword-research/#gref>
<https://coronavirus.jhu.edu/data/animated-world-map>

The Relationship Between Literacy and Sustainable Finance Investment Behavior in Switzerland: The Mediating Role of Trust

NADINE STRAUB* JONATHAN KRAKOW* MARC CHESNEY[▲]

Framing of the research. Investments into seemingly sustainable investment products have sky-rocketed in Switzerland in the past years. Between 2015 and 2020, investments in sustainable finance (SF) have increased from CHF 141.7 billion to over CHF 1,520 billion (Busch et al., 2021). Even across Europe, and the world, SF has become one of the leading trends in the financial industry with \$649 billion flowing into ESG-focused funds worldwide in 2021, accounting for 10% of fund assets worldwide (Kerber and Jessop, 2021). However, more recently, the financial industry has also experienced increased criticism regarding the advertised sustainable finance investment products (Fletcher and Oliver, 2022). NGOs regularly accuse the financial sector of greenwashing (InfluenceMap, 2021; ShareAction, 2022). Furthermore, the industry has been strongly criticized for using varying definitions and inconsistent labeling for sustainable investment products, leading to confusion and distrust among financial market actors (e.g., Berg et al., 2020; Paetzold et al., 2015).

Although the European taxonomy for SF is an attempt to counteract these inconsistencies and provide a framework to identify what can be considered as “green” investments (European Commission, 2022), for retail investors and citizens it becomes difficult to trust and evaluate the products offered by the financial industry without prior knowledge. In fact, a recent representative survey among investors in Switzerland has shown that although Swiss investors score high on general financial literacy, the level of sustainable finance literacy (SFL) is rather low, particularly among women (Filippini et al., 2022). In the past, academics advocated for more initiatives to increase financial literacy among the public. Recent shifts in the financial industry to incorporate climate and sustainability concerns in investment products and decisions now present new challenges for retail investors. Following previous research in finance (Gutsche et al., 2020; Filippini et al., 2022; Nilsson, 2008), we assume that literacy about SF and trust in SF are important factors in explaining SF investment behavior. More specifically, we assume that the relationship between literacy and investment behavior might be mediated by trust into activities of the SF industries.

Theory and purpose of the paper. According to the recent “Swiss Sustainable Investment Market Study 2021”, the market for sustainable investments (SI) in Switzerland increased considerably, with a 48% growth rate for SI funds from 2020 to 2021, and an increase in SI volumes by 31% within the same period. In total, sustainable funds make up 52% of the overall Swiss fund market. In line with the Swiss government’s climate goal to be carbon neutral by 2050, the government is strongly engaged in promoting the Swiss financial markets as a leader in SF (SIF, 2022). Likewise, research, policy, and industry reports are regularly being published to present the status quo of SF in Switzerland-be it by researchers (e.g., Krauss et al., 2016; Thomä et al., 2019), industry associations (e.g., Swiss Sustainable Finance), financial institutions (e.g., Credit Suisse, UBS), or consultancies (e.g., KPMG, EY, or Deloitte). However, most of these reports focus on the state of investments in this area and take the view of the financial markets, the businesses and financial institutions involved (e.g., CEOs, risk managers, investors etc.). Yet, the perspective of the broader public, the Swiss citizens, have rarely been considered in previous research and studies in this field so far.

Knowing what the market thinks about SF is important for the financial industry, but the public equally takes on a crucial role in questioning and legitimizing activities in SF and by investing in SF investment products as retail investors. In this vein, knowing about what SF means and whether it can be trusted as leverage to fight climate change becomes decisive for citizens to engage with the topic and channel investments for a sustainable future. However, research on knowledge about SF and trust in SF activities among citizens is scarce, particularly in Switzerland.

Sustainable Finance Literacy. Filippini and colleagues (2022) have recently published the first study on sustainable finance literacy (SFL), in which they surveyed investors in Switzerland about their knowledge about SF. They define SFL as “the knowledge of regulations, norms, and standards about financial products that have sustainable characteristics” (highlighted in the original, p. 2). Their results show that Swiss investors show a low level of SFL, measured by questions regarding concept, rules, and labels (e.g., ESG), the requirement for an ESG label, as well as the impact of ESG and impact investment on the real economy. While the answers to the multiple-choice questions

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showed a clear gender difference in terms of SFL with women scoring lower than men, this gender gap disappeared once the researchers compared the answers to open-ended questions. However, with a mean value of SFL of 2.37 on a scale from 1-8 across the sample ($n = 3,059$), there is considerable room for improvement among the Swiss investor population to learn and know more about SF.

Policymakers and scholars are increasingly advocating for more knowledge among investors and citizens in this field. The European Commission (2018) stated that “further efforts are needed to empower citizens to choose the financial products and services that best suit their needs. This, in fact, is necessary for sustainable finance literacy efforts to translate into increased demand for sustainable financial products” (p. 49) and the Swiss scholars Berrada et al. (2022) contend that SFL is needed in the field of Sustainability-Linked-Bonds to prevent overpricing (p. 31). However, to the best of our knowledge, there is no study available on SF knowledge or literacy, besides the recent paper, published by Filippini et al. (2022). Hence, there is an urgent need to study and research the state of sustainable finance knowledge among the Swiss public.

Some economists, indeed, argue that financial education leads to more sustainable behaviour, but they lack to provide empirical evidence for this assumption (e.g., Muñoz-Céspedes et al., 2021; Krechovská, 2015). Knowing more about new investment opportunities like in the field of SF could potentially lead to a higher engagement in these investments. Indeed, Anderson and Robinson (2021) have surveyed Swedish households and showed that those with higher financial literacy are significantly less likely to hold passive ESG funds. Furthermore, they find that individuals with high financial literacy and pro-environmental preferences are more likely to hold system labeled ESG funds. Similarly, Filippini et al. (2022) provided evidence that higher SFL is significantly related to sustainable product ownership. Research on general investment behavior and literacy showed equally that financial literacy improves, for example, 401(K) savings (Agnew et al., 2008), or that individuals with lower financial literacy are less likely to invest in stocks more generally (van Rooij et al., 2011). Following previous research, we thus assume: (H1) A higher literacy about sustainable finance is related with a stronger intention to invest in sustainable finance products.

Trust in sustainable finance. A recent survey by Edelman (2021) has shown that individuals worldwide ascribe low levels of trust to the financial markets and its actors. While the trust levels have recovered slowly after the Great Financial Crisis (2007-2009), they have recently declined again since the COVID-19 pandemic. Previous research has shown that particularly individuals with a lower income evince stronger distrust and alienation towards the financial industry (e.g., Bertrand et al., 2006). At the same time, trust has been identified as one of the main heuristics for investment decision making (cf. Baker and Ricciardi, 2014). For example, Ricci and Caratelli (2015) show that trust has a positive influence on retirement planning among households in Italy; Guiso et al. (2008) report that generalized trust levels are positively related with stock market participation in twelve European countries; and Pasini and Georgarakos (2009) found a particularly strong effect between generalized trust and stockholding in countries where stock market trust and participation is low, such as in Austria, Spain, or Italy.

Trust becomes of particular relevance in investment decisions that refer to sustainable, responsible or ethical investments, considering the prevalence of marketing claims by financial institutions regarding SF investment products (Strauß, 2021). Thus, private investors are more likely to use the heuristic of trust in deciding whether to invest in such products or not. In the past, it has been reported that marketers are increasingly facing cynicism and confusion on the side of consumers when marketing green products (e.g., Crane, 2000; Gardyn, 2003). Scholars have labelled the relationship between skepticism vis-à-vis green product claims and the rejection of such products as “green backlash” (Crane, 2000). Hence, the likeliness to invest in SF investment products might be strongly related to the trust that individuals ascribe to SF activities and the SF industry.

Nilsson (2008), for example, finds that trust in sustainable and responsible investments among Swedish investors increases with the proportion being invested in socially responsible investments (SRI). However, when testing a larger model, he does not find a significant relationship between trust in SRI and investors’ SRI behavior. Measuring trust more generally (e.g., trust in people, strangers), Gutsche et al. (2020) only find a positive significant relationship at the 10% level between trust in and the amount invested in sustainable funds in Germany. Given the lack of research on trust and SF investment behavior, we would like to test the relationship between trust in SF and the likeliness to invest in SF investment products, by assuming: (H2) More trust in sustainable finance is related with a stronger intention to invest in sustainable finance products.

When using the trust heuristic, individuals refer to proxies that are indicators for trustworthiness (e.g., ratings, expert opinions, family and friends, reputation etc.), if they do not have the time or resources to process and evaluate complex information themselves (Baker and Ricciardi, 2014). However, the link between financial literacy and trust in the financial markets has only received limited attention in research so far. From consumer research, it is well-known that more knowledgeable consumers can formulate more critical questions (Brucks, 1985). Studies have shown that consumer knowledge is positively related to trust regarding certain food product categories (Puspa and Kühnl, 2006). One of the first studies testing this relationship in the financial context found that knowledge is positively related to narrow-scope (financial service provider) and broad-scope (financial companies) trust (Hansen, 2012). However, the relationship between knowledge and trust is not clear-cut regarding SF investment products, given the controversies and recent criticism expressed (cf. InfluenceMap, 2021; ShareAction, 2022). On the one hand, knowledge could lead to more trust if knowing more indeed means being better informed and being able to distinguish between greenwashing and trustworthy SF practices, becoming convinced that there are impactful and reliable SF investment opportunities. On the other hand, more knowledge could also imply that investors know more about the limitations and criticism

regarding SF investment product, leading to lower trust levels in general. Thus, we pose an open research question: (RQ1) How is sustainable finance literacy related to trust in sustainable finance?

In fact, Balloch et al. (2014), found that trust and stock market literacy are two distinct significant factors that explain stock ownership. More specifically, they find that those households that have more trust in the stock market are more likely to invest in it. Furthermore, they also show that households that trust the stock market are more likely to invest in risky assets (see also: Guiso et al., 2008). We believe that trust might be determined by literacy (positively or negatively), as outlined above, and thus hypothesize that the relationship between SFL and the likeliness to invest in SF products is mediated by trust in SF activities and products by the industry: (H3) The relationship between sustainable finance literacy and sustainable finance investment behavior is mediated by trust in sustainable finance.

Methodology. To test the three hypotheses and the research question, we conducted a representative survey among the Swiss population in the beginning of 2022. The survey was structured in various parts. In the beginning, we informed the respondents about the topic of the survey (“sustainable finance”), the research team, and provided information on data privacy, anonymity of answers, voluntariness and the benefits and risks in participating in this research. Furthermore, a link referred to a more detailed information sheet about the research project conducted. We also informed the respondents that the survey has been approved by the Ethical Commission of the Faculty of Arts and Social Sciences at the University of XY (reference number: 21.9.19). Before starting the survey, respondents had to confirm that they were above 18 years old and that they read and understood the consent form. Wherever possible, the answer options to the questions ranged on a 5-point Likert scale (e.g., 1 = not at all; 5 = a lot) and offered the answer option of “I don’t know” or “I don’t want to answer.” Furthermore, all answer options were randomized to bypass primacy effects in responses (Leeuwen et al., 2009).

Because we wanted to reach all regions in Switzerland, we translated our survey from English into German, French, and Italian. The German translation was done by the first author (native German) and the French and Italian versions were translated by professional translators; the French version was proof-read by the third author (native French). The estimated time to complete the online survey was between 15-20 minutes. To reach a representative sample of the Swiss population, we collaborated with LINK, the Swiss market leader for market and social research. LINK has administered our survey and shared it with their online panel, consisting of 115,000 active Swiss people that reflect the Swiss population, including smaller cantons as well as the German-, French- and Italian-speaking regions. The survey was launched at the end of January and closed by mid-February 2022. Representativeness of the Swiss online population was reached through quotas at the selection as well as completion stage by LINK.

Measurements. In this paper, we only use the responses to the questions regarding SF literacy, trust in SF, SF investment behavior and some control variables to test our hypotheses and research question. To measure sustainable finance literacy, we opted for a mix of four questions that financial providers themselves (UBS, Morningstar) and other organizations (e.g., Global Landscapes Forum) use in their online quizzes on ESG and sustainable investment. The first question deals with the definition of ESG: “What does ESG stand for?” (answer options: ecological, standard, governance; environmental, social, governance (correct); environmental, social, green; I don’t know). The second refers to a common ESG investment approach: “What does ‘the best in class’ investment approach entail?” (answer options: investing in those companies that are leading in their sector regarding ESG factors (correct); investing in those industries that are leading in ESG factors; investing in indices that are leading on ESG factors; I don’t know). In the third question we asked for the name for a common ESG investment approach: “The method of constructing your portfolio so that it excludes or avoids ‘problem’ stocks, such as tobacco companies, is called:” (answer options: impact investing; negative screening (correct); positive screening; I don’t know). In the last question we wanted to know: “What is a green bond?” (answer options: A bond denominated in the national currency (e.g., Euro, U.S. dollars); raising debt to finance environmentally-friendly investments (correct); only sovereign debt issues for the purpose of funding public transportation; I don’t know; $M = 0.326$; $SD = 0.322$). To inquire citizens’ trust regarding SF providers we used the scale by Nilsson (2008) and slightly adjusted it: “To what extent do you agree or disagree with the following statements:” (answer options: 1) I trust the sustainability criteria that the mainstream financial providers use to identify sustainable investments, 2) I trust the measurement of sustainability criteria that the mainstream financial providers use to identify sustainable investments, 3) I trust the data that mainstream financial providers use to identify sustainable investments, 4) I trust the marketing documents that mainstream financial providers use to identify sustainable investments, 5) I trust that mainstream financial providers make use of their right to engage with companies to promote sustainable behavior (e.g., shareholder engagement): 1 = strongly disagree; 5 = strongly agree; I don’t know; ($M = 2.236$; $SD = 1.242$). We used a single question to assess individuals’ likeliness to invest in SF products. “How likely is it for you to invest in sustainable investment products some time in the future?” (answer options: 1 = very unlikely; 5 = very likely; $M = 2.763$; $SD = 1.217$). Besides controlling for socioeconomic variables (age, gender, education, having children, income, rural vs. urban living area, political orientation), we also controlled for financial literacy, climate change awareness and environmental behavior. Financial literacy was gauged by a traditional, international measurement for financial literacy based on three questions from the Baseline Survey of Financial Capability carried out by the Financial Services Authority in 2005 (Atkinson et al. 2006): 1) “Suppose you had 100 CHF in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow: more than 102 CHF, exactly 102 CHF, less than 102 CHF?”, 2) “Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy more than, exactly the same as, or less than today with the money in this account?, and 3) “Do you think that the following statement is true or false? ‘Buying shares in a single company provides a safer return than buying

shares in several companies through a unit trust.’” Correct answers were coded as “1” and false as “0;” all answers to the three questions were added up to form a scale of financial literacy ($M = 0.739$; $SD = 0.298$). Following Roser-Renouf et al. (2016), we also measured affective issue involvement with climate change, by asking: 1) How important is climate change to you personally? (1 = not at all important; 5 = extremely important) and 2) To what extent do you worry about climate change? (1 = none at all; 5 = A great deal). The two items are combined to the climate change awareness index ($M = 3.673$; $SD = 0.996$). We used the scale by Yoon and Kim (2016) of self-efficacy for environmental behavior and asked respondents to indicate their level of agreement regarding the following three statements (1 = strongly disagree; 5 = strongly agree): 1) I lead an environmentally friendly lifestyle., 2) I make environmentally friendly choices whenever possible, and 3) I choose environmentally friendly products over conventional products. Taking the answers to these three statements together, this formed our scale of environmental behavior ($M = 3.399$; $SD = 1.080$).

Preliminary results. Initial analyses imply that trust in sustainable finance significantly increases with SFL (see Table 1). This also holds when controlling for financial literacy, environmental behavior, and further socioeconomic characteristics. In a second model, we then estimate the role of trust for the decision to invest in SF products. Table 2 shows the results. Indeed, trust in finance positively impacts the preference to invest in SF products. This result is robust when controlling for SFL, FL, climate preferences, and other socioeconomic characteristics. We also see, when comparing specifications (1) - (3) that a significant fraction of the SFL coefficient gets absorbed by the trust variable - confirming the mediation role of trust in SF.

Research limitations. This study does not come without limitations. First, using a cross-sectional survey does not allow us to draw any causal inferences about the aspects related to SF investigated. Furthermore, the survey covered too many aspects that resulted in a relatively long completion time (approx. 20 minutes) and a high drop-out rate and respondents that failed our attention checks (35%). In addition, the focus on the Swiss population does not allow any generalization for the entire SF industry. Future research should take a comparative approach and replicate our study across various countries. Given the cultural differences that have been found in previous research related to the urgency of climate action and sustainability-related issues, similar cultural differences might also exist when it comes to SF. Finally, our survey did not allow to get in-depth insights into the reasons, sense-making processes, and motivations of respondents in answering some of our questions in a certain way. Follow-up studies should take a qualitative approach in conducting interviews or focus groups with citizens and investors to learn how and why they think about SF in a particular manner and to find out what heuristics they use in assessing SF activities and products.

Managerial implications. The findings show that building trust into SF products and the industry is crucial in order to increase the likeliness of citizens to invest in sustainable investment products. Furthermore, fostering knowledge about SF is equally important to get a larger share of individuals interested in investing in SF products. Thus, not only should financial providers and institutions improve their information material on SF, but they should also professionalize financial advisory talks with clients, focusing more on transparency, background information on SF investment products, and impact reports of ESG investments. Furthermore, educational institutions should expand the teaching offer in the realm of SF, providing pupils and students more insights into the potentials and pitfalls of SF for a sustainable future. Lastly, trust into the SF industry can only be fostered if the practices and activities are trustworthy, reliable, and transparent. Here, regulations and policies (e.g., EU taxonomy) are useful in setting a framework for the industry that distinguishes greenwashing from honest practice.

Originality of the paper. This study is the first representative survey that studies SFL and investment behavior and the mediating role of trust in the SF investment industry. The data is very recent, as the data collection only finished in February 2022. The role of trust in the context of SF has so far been ignored in research in business, finance, or management. Hence, this study provides preliminary findings that offer practical insights for financial institutions and practitioners active in field of SF.

Keywords: sustainable finance; trust; investment behavior; Switzerland; survey

References

- AGNEW J.R., SZYKMAN L., UTKUS S.P., YOUNG J.A. (2007), “Literacy, Trust and 401(K) Savings Behavior” (SSRN Scholarly Paper Nr. 1299171). *Social Science Research Network*. <https://doi.org/10.2139/ssrn.1299171>
- ANDERSON A., ROBINSON D.T. (2020), “Financial literacy in the age of green investment”, *Swedish House of Finance Research Paper*, vol. 19, n. 6, pp. 1-45.
- ATKINSON A., MESSY F. (2012), “Measuring Financial Literacy: Results of the OECD/International Network on Financial Education (INFE) Pilot Study”, *OECD Working Papers on Finance, Insurance and Private Pensions*, vol. 15, pp. 1-73.
- BAKER H.K., RICCIARDI V. (2014), *Investor Behavior: The Psychology of Financial Planning and Investing*, John Wiley & Sons.
- BALLOCH A., NICOLAE A., PHILIP D. (2015), “Stock Market Literacy, Trust, and Participation”, *Review of Finance*, vol. 19, n. 5, pp. 1925-1963.
- BERG F., KÖLBEL J.F., RIGOBON R. (2020), “Aggregate confusion: The divergence of ESG ratings”, *MIT Sloan School of Management*. Available at: <http://dx.doi.org/10.2139/ssrn.3438533> (accessed 29 March 2020).

- BERRADA T., ENGELHARDT L., GIBSON R., KRUEGER P. (2022), “The Economics of Sustainability Linked Bonds”, *Swiss Finance Institute Research Paper*, vol. 22, n. 26, pp. 1-53.
- BERTRAND M., MULLAINATHAN S., SHAFIR E. (2006), “Behavioral Economics and Marketing in Aid of Decision Making among the Poor”, *Journal of Public Policy & Marketing*, vol. 25, n. 1, pp. 8-23.
- BRUCKS M. (1985), “The Effects of Product Class Knowledge on Information Search Behavior”, *Journal of Consumer Research*, vol. 12, n. 1, pp. 1-16.
- BUSCH T., BRUCE-CLARK P., DERWALL J., ECCLES R., HEBB T., HOEPNER A., KLEIN C., KRUEGER P., PAETZOLD F., SCHOLTENS B., WEBER O. (2021), “Impact Investments - a call for (re)orientation”, *SN Business & Economics*, vol. 1, n. 2, pp. 1-13.
- CRANE A. (2000), “Facing the backlash: Green marketing and strategic reorientation in the 1990s”, *Journal of Strategic Marketing*, vol. 8, n. 3, pp. 277-296.
- EDELMAN (2021), “Edelman Trust Barometer 2021”, Retrieved from https://www.edelman.com/sites/g/files/aatuss191/files/2021-04/2021%20Edelman%20Trust%20Barometer%20Trust%20in%20Financial%20Services%20Global%20Report_website%20version.pdf (accessed 29 March 2020).
- EUROPEAN COMMISSION (2018), “Financing a Sustainable European Economy. Final Report 2018 by the High-Level Expert Group on Sustainable Finance Secretariat provided by the European Commission”, *European Commission*. Retrieved from https://ec.europa.eu/info/sites/default/files/180131-sustainable-finance-final-report_en.pdf (accessed 29 March 2020).
- EUROPEAN COMMISSION (2022), “EU taxonomy for sustainable activities”, *European Commission*. Retrieved from https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en (accessed 29 March 2020).
- FILIPPINI M., LEIPOLD M., WEKHOF T. (2022), “Sustainable Finance Literacy and the Determinants of Sustainable Investing”, *Swiss Finance Institute Research Paper*.
- FLETCHER L., OLIVER J. (2022, February 20), “Green investing: the risk of a new mis-selling Scandal”, *Financial Times*. Retrieved from <https://www.ft.com/content/ae78c05a-0481-4774-8f9b-d3f02e4f2c6f> (accessed 29 March 2020).
- GARDYN R. (2003, Oktober 1), “ECO-FRIEND OR FOE?”, *Ad Age*. Retrieved from <https://adage.com/article/american-demographics/eco-friend-foe/44868> (accessed 29 March 2020).
- GEORGARAKOS D., PASINI G. (2009), “Trust, Sociability and Stock Market Participation”, (SSRN Scholarly Paper Nr. 1509178). Social Science Research Network.
- GUISSO L., SAPIENZA P., ZINGALES L. (2008), “Trusting the Stock Market”, *The Journal of Finance*, vol. 63, n. 6, pp. 2557-2600.
- GUTSCHE G., WETZEL H., ZIEGLER A. (2020), “Determinants of individual sustainable investment behavior-A framed field experiment”, *MAGKS Joint Discussion Paper Series in Economics*, vol. 33.
- HANSEN T. (2012), “Understanding Trust in Financial Services: The Influence of Financial Healthiness, Knowledge, and Satisfaction”, *Journal of Service Research*, vol. 15, n. 3, pp. 280-295.
- INFLUENCE MAP (2021), “Industry Associations and European Climate Ambition”, *InfluenceMap Report*. Retrieved from <https://influencemap.org/report/Industry-Associations-and-European-Climate-Ambition-fdae57dc404c90aaf2f82bbd729733> (accessed 29 March 2020).
- KERBER R., JESSOP S. (2021, December 23), “Analysis: How 2021 became the year of ESG investing”, *Reuters*. Retrieved from <https://www.reuters.com/markets/us/how-2021-became-year-esg-investing-2021-12-23/> (accessed 29 March 2020).
- KRAUSS A., KRÜGER P., MEYER J. (2016), “Sustainable Finance in Switzerland: Where Do We Stand?”, *Swiss Finance Institute White Paper*, pp. 1-52.
- KRECHOVSKÁ M. (2015), “Financial Literacy as a Path to Sustainability”, *Business Trends*, pp. 1-10.
- MUÑOZ-CÉSPEDES E., IBAR-ALONSO R., DE LORENZO ROS S. (2021), “Financial literacy and sustainable consumer behavior”, *Sustainability*, vol. 13, n. 16, pp. 9145.
- NILSSON J. (2008), “Investment with a Conscience: Examining the Impact of Pro-Social Attitudes and Perceived Financial Performance on Socially Responsible Investment Behavior”, *Journal of Business Ethics*, vol. 83, n. 2, pp. 307-325.
- PAETZOLD F., BUSCH T., CHESNEY M. (2015), “More than money: Exploring the role of investment advisors for sustainable investing”, *Annals in Social Responsibility*, vol. 1, n. 1, pp. 195-223.
- PUSPA J., KUHL R. (Eds.) (2006), “Building Consumer’s Trust through Persuasive Interpersonal Communication in a Saturated Market: The Role of Market Mavens”, No 7752, 99th Seminar, February 8-10, Bonn, Germany, European Association of Agricultural Economists.
- RICCI O., CARATELLI M. (2017), “Financial literacy, trust and retirement planning”, *Journal of Pension Economics & Finance*, vol. 16, n. 1, pp. 43-64.
- ROSER-RENOUF C., ATKINSON L., MAIBACH E., LEISEROWITZ A. (2016), “The consumer as climate activist”, *International Journal of Communication*, vol. 10, pp. 4759-4783.
- SHAREACTION (2022), “HSBC’s new climate commitments exclude the bulk of its finance to oil & gas companies”, *ShareAction*. Retrieved from <https://shareaction.org/news/hsbcs-new-climate-commitments-exclude-the-bulk-of-its-finance-to-oil-gas-companies> (accessed 29 March 2020).

- SIF (2022), "Sustainable Finance", *State Secretariat for International Finance*. Retrieved from <https://www.sif.admin.ch/sif/en/home/finanzmarktpolitik/sustainable-finance.html> (accessed 29 March 2020).
- STRAUB N. (2021), "Covering sustainable finance: Role perceptions, journalistic practices and moral dilemmas", *Journalism*, pp. 1-19.
- SWISS SUSTAINABLE INVESTMENT MARKET STUDY (2021), "*Swiss Sustainable Finance*", Retrieved from https://www.sustainablefinance.ch/upload/cms/user/2021_06_07_SSF_Swiss_Sustainable_Investment_Market_Study_2021_E_final_Screen.pdf (accessed 29 March 2020).
- THOMÄ J., MURRAY C., JEROSCH-HEROLD V., MAGDANZ J. (2021), "Do you manage what you measure? Investor views on the question of climate actions with empirical results from the Swiss pension fund and insurance sector", *Journal of Sustainable Finance & Investment*, vol. 11, n. 1, pp. 47-61.
- VAN ROOIJ M., LUSARDI A., ALESSIE R. (2011), "Financial literacy and stock market participation", *Journal of Financial Economics*, vol. 101, n. 2, pp. 449-472.
- YOON H.J., KIM Y. (2016), "Understanding Green Advertising Attitude and Behavioral Intention: An Application of the Health Belief Model", *Journal of Promotion Management*, vol. 22, pp. 49-70.

Tab. 1: Determinants of Trust in Finance

Table 1 displays coefficients of OLS regressions where the dependent variable is *Trust in Finance*. In specification (1), we estimate the relation of SFL on Trust. In specification (2), we add FL to it. In specification (3), we control in addition for both environmental awareness and preferences. Finally, in specification (4), we add socioeconomic characteristics as independent variables. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	(1) Trust	(2) Trust	(3) Trust	(4) Trust
Sustainable Finance Literacy (SFL)	1.215*** (0.141)	1.017*** (0.150)	0.978*** (0.150)	0.963*** (0.156)
Financial Literacy (FL)		0.586*** (0.162)	0.602*** (0.161)	0.547*** (0.170)
Climate Awareness			0.048 (0.055)	0.034 (0.057)
Environmental Behavior			0.119** (0.051)	0.118** (0.051)
Female				0.111 (0.093)
Age				-0.028 (0.039)
Education				-0.003 (0.010)
Income				-0.012 (0.022)
Rural Area				-0.021 (0.057)
Having no kids				-0.071 (0.069)
Political orientation				-0.021 (0.019)
R ²	0.099	0.117	0.133	0.139
Observations	676	676	676	676

Tab. 2: Determinants of Sustainable Finance Investment Preferences

Table 2 displays coefficients of OLS regressions where the dependent variable is *the preferences to invest in SF products*. In specification (2), we estimate the impact of SFL on the sustainable finance preferences. In specification (3), we control for both, trust and SFL. In addition, in specification (4) we control for FL, environmental awareness and preferences. Finally, in specification (5), we add socioeconomic characteristics as independent variables. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	(1) SF Invest	(2) SF Invest	(3) SF Invest	(4) SF Invest	(5) SF Invest
Trust	0.285*** (0.037)		0.228*** (0.038)	0.181*** (0.037)	0.183*** (0.037)
Sustainable Finance Literacy (SFL)		0.965*** (0.141)	0.698*** (0.145)	0.509*** (0.147)	0.471*** (0.150)
Financial literacy (FL)				0.433*** (0.157)	0.295* (0.161)
Climate Awareness				0.281*** (0.053)	0.314*** (0.054)
Environmental Behavior				0.060 (0.048)	0.083* (0.048)
Female					0.239*** (0.087)
Age					-0.040 (0.037)
Education					0.008 (0.009)
Income					0.059*** (0.021)
Rural Area					0.017 (0.053)
Having no kids					0.040 (0.065)
Political orientation					0.040** (0.018)
R ²	0.083	0.065	0.120	0.189	0.226
Observations	676	676	676	676	676

Gamification as a factor of competitive advantage. A case-study analysis

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Framing of the research. *Given the growing importance that sustainable development has assumed since the 1990s and the more recent definition of the 17 Sustainable Development Goals (SDGs) in the 2030 Agenda for Sustainable Development, firms are paying more attention to sustainability and to the ways to improve sustainable behaviours. Sustainability has become a must for many firms, and the possibility to help players to assume sustainable behaviours, and to implement sustainable strategy has become a valuable business for consultancy, and firms operating in the field of education and training.*

Cisco Systems Inc, (Cisco), is a multinational company founded in 1984 in California by Leonard Bosack. It started providing networking equipment, i.e. network devices useful in telecommunications and information technology but it has diversified over time becoming a very important player in the educational field. Regarding this activity, in 1997, he created the Cisco Networking Academy Program, a training program aimed at non-profit organizations, whether universities, colleges, public institutions, vocational training centers, able to provide those ICT skills required by the market and at the same time to offer students job and career opportunities. This program has given birth to the Cisco Networking Academy, whose goal is to transmit knowledge and skills around the world.

Cisco Networking Academy has increasingly used Gamification as a learning method able to attract and capture learner engagement. By Gamification, it is possible to put consumers at the center of business goals, and to better understand the needs of customers, partners, employees, and the communities in which the company operates. Gamification in fact, is a means to speak to deeper levels of people and increase their emotional engagement, allowing subjects to bond to an issue and sometimes enact sustainable behaviours. The use of gamification is very effective to teach sustainable behaviours, and Cisco has been able to enlarge its market by making itself more attractive to consumer because gamification allows it to put the needs of consumer at the center by providing an experience that goes beyond expectations. This allows the company not only to be seen in a different light, but also to attract more people through word of mouth. In addition, the use of gamification within their company allows Cisco to monitor employee progress, improve their skills and through the use of certain techniques accentuate competitiveness among employees for productive and innovative purposes. Moreover, using gamification techniques within its own organizational structure allows Cisco - as well as consumers - to stimulate and incentivize its employees towards sustainable behaviours.

The concept of Ecogamification or Green Gamification (Owen, 2013) has emerged as a branch of Gamification that, through game mechanic and experience design, aims to engaging and motivating individuals towards sustainable behaviours and action. Cisco has used these techniques to attract consumers and engage them in dynamic, intriguing, and highly innovative contexts as well as their efficacy in the field of sustainability. The term sustainability today can describe and be coupled to the most diverse phenomena. In fact, we have sustainable cities, sustainable economies, sustainable resources and above all sustainable development (Scoones, 2010). Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). In this key of interpretation, gamification, intended as a tool for involvement could help subjects to improve their impact on sustainability, sustainable development and to change their behaviours.

For most of firms - and the same is true for societies - sustainability requires deep changes in the way things are usually done, goals achieved, and in the paradigm, the utilitarian perspective imposes. As any form of radical change, it requires the involvement of people; employees and shareholders need to understand the importance and the urgency of changes, and in the profit-oriented organization, it's the utilitarian culture that has to change. Gamification can be very useful: it is indeed a mechanism used by organizations to seek innovative solutions through the involvement of all stakeholders involved (Werbach, 2015).

Gamification techniques exploit people's natural desires of success, competition, social status, and self-expression (Hamari, 2011), and they are not limited to the hedonistic elements but provide practical benefits to the business by allowing for increased productivity among employees and accelerated production process of a product (Agogué et al., 2015). On the other side, the inclination to compete and the desire to succeed it's not the same for all individuals and

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exploring the link among values and effectiveness of gamification, could help firms to customize games and obtaining better results by them. To date, there are not many studies in the literature that relate culture and gamification or the techniques it has (Chow, 2017; Usunobun, 2019; Toda et al. 2020).

In the more recent literature, several studies highlight the possible link between Gamification and sustainable behaviours (Whittaker et al., 2021; Koroleva and Novak, 2020; Günther et al., 2020; Souza et al., 2019; Oppong-Tawiah et al., 2018), and Cisco's experience confirms that the effective use of these techniques helps individuals getting more involved in the topic and more inclined to assume more sustainable behaviours. More generally, it sheds light on the use of gamification to implement innovative behaviours, and to involve individuals in changes and innovations.

Purpose of the paper. Although there are several studies in the literature that explore the relationship between Gamification and sustainability and how the phenomenon has become increasingly relevant, to the point of changing the organizational arrangements of companies and consumer behaviours (Negrus et al., 2015; Xi 2019) the phenomenon remains largely unexplored. Although several authors in the literature (Gimenez-Fernandez 2021; Shahri 2020; Makris 2018) have tried to explain if and how Gamification affects the organizational set-up of companies, there is still no clear view on the phenomenon, even more so if we consider the use of Gamification as a tool to increase corporate competitiveness and help consumers to put in place sustainable behaviors. The purpose of this paper, first of all, is to understand how and if companies can use gamification or gamified approaches to increase their competitiveness in the market, increasing their spatial horizons, attract new consumers or reawakening interest in old ones and achieve socially useful goals. Secondly, it would be interesting to understand if and how companies that use gamification techniques do so within their own organizational structure, with what effects and what aims. Finally, it would be interesting to understand if Gamification as a tool for communicating in an effective, simple, and fun way allows to put in place sustainable individual and collective behaviours and if results are affected by culture.

Methodology. To deepen the understanding of the link between Gamification, competitiveness, and socially sustainable behaviour, we performed a case-study analysis because we are approaching a quite new topic in the literature (Eisenhardt, 1989), which is still in an exploratory stage (Yin, 2003). Although this research method for some turns out to be not rigorous enough, imprecise and leaves too much interpretation on the part of the researcher, the case-study analysis offers the opportunity to explore or describe a phenomenon in context and explore individuals or organizations, simple through complex interventions, relationships, communities, or programs (Baxter, Jack, 2008). We decided to analyze the Cisco System Inc. case-study because we wanted to explore the stream of ecogamification: Cisco is among the top 100 sustainable companies of 2020, according to Forbs magazine, and it uses Gamification largely. To understand to what extent Gamification helps Cisco's competitiveness, and if and how it helps spreading sustainable behaviours, we used the Corporate Social Responsibility Reports released by the company in the last ten years - analyzed through Text Mining techniques and two interviews with employees of the company's Italian branch. More specifically, one was conducted with the Director, Architectures and Innovation Southern Europe and the other with the Global Head Learning Experience of Cisco. Both interviews were aimed at understanding the role that Gamification has in this company and how, through this technique, it is possible to improve the competitive drive of the company and at the same time inspire sustainable behaviours. Text Mining is an Artificial Intelligence (AI) technique that uses natural language processing (NLP) to transform free, unstructured text from documents/databases, newspaper articles, emails, social media, etc., into structured, normalized data (Dang et al., 2014; Patil, 2014). This technique allows you to extract meaning from a text, classify its topics and assign them a polarity, which can be positive, negative or neutral. It also allows you to express graphically through histograms, tables, mind maps, etc., the information analyzed. Text Mining is proper when not all of the data types one is dealing with are quantitative in nature.

Results. The results obtained from our first phase of analysis implemented through Text Mining on the data obtained from the Corporate Social Responsibility Reports show the creation of a cluster in which the words game, play, and Gamification are associated with sustainability. The cluster suggests the existence of a link between Gamification and sustainability. Gamification is used by Cisco to improve corporate sustainability and to teach sustainable choices to, and improve the inclination to sustainable behaviours of its consumer.

In addition, preliminary results of the interviews show that according to the managers, gamification plays a key role for the competitiveness of the company in the educational field. It allows improving not only the engagement of students and those who approach these techniques for the first time, but also provides a push towards the creation of innovation. Examples of this are the events that the company itself launched in 2021. The Green and Blue Smart Marathon - aimed at students, start uppers and innovators - was one of the events launched by Cisco to generate innovative ideas on how digital could help sustainability. Through this initiative, Cisco has set itself the goal of creating an ecosystem where concreteness and inclusiveness are the key words, involving citizens, companies, and institutions in the creation of initiatives in which digital is a useful tool for sustainability. In addition, gamification is used as a tool to put people at the centre of the business, the needs of customers, partners, employees, the community in which the company operates and the managers themselves. In this regard, Cisco also uses gamification techniques within its own organizational structure. Among the most widely used techniques there are the digital badges, useful for recognizing employees who take a significant step forward in their plan to develop new skills, and simulated situations, using cartoons for example, to be effective in transmitting certain ethical and compliance principles to the company's sales force. Gamification, according to the two managers interviewed, is a useful tool for communicating in a direct, simple way that encourages sustainable individual and collective behaviour. In fact, both Gamification and values related to sustainability speak to the deepest emotional levels of the person. In this way, the company can be more effective in creating a global change made up of many micro-changes in the daily lives of individuals.

In summary, Gamification seems to be an excellent tool aimed at increasing the competitiveness of the company, internally as well as externally. This case study confirms that gamification is a socially useful tool by providing learning services with innovative and engaging mechanics to multiple subjects. In addition, it confirms that gamification is useful at the organizational level to implement sustainable practices and behaviours.

Research limitations. *Although the results obtained can provide more information about the phenomenon investigated, providing a clearer view regarding the relationship between Gamification and competitiveness and how using gamification techniques can lead to sustainable behaviours, the analysis has several important limitations. First of all, the data obtained are not generalizable since the study focuses on a specific company in a specific social context and sector, and therefore it cannot be excluded that companies located in other contexts or other sectors present completely different results. Second, the data analyzed could be implemented with data derived from other sources - i.e., customers -thus realizing a triangulation of data that could provide more information about the phenomenon that did not emerge in this first analysis or confirm the results obtained. Moreover, collecting data directly from consumers would not only allow to confirm or overturn the results obtained in the first phase of analysis but could provide completely new perspectives on the phenomenon and insights into the relationship between Gamification, competitiveness, and sustainable behaviors. Finally, there could be the presence of other contextual variables that were not considered, and that could influence the results of the study. In the future, more case studies will be analyzed to test the link between Gamification and competitiveness, as well as Gamification and learning sustainable behaviours. To do what has just been said could be interesting, once obtained a large amount of data make a quantitative study aimed precisely at explaining the possible links between these phenomena and the effects that generate one on the other.*

Managerial implications. *Our study focuses primarily on the relationship between Gamification and sustainability, and secondly on how and if it can have an impact on the competitiveness of companies in the field of education. In addition, we asked ourselves if, through Gamification, we can somehow change the behaviours of individuals. Cisco makes Gamification one of its strengths in the field of learning. Through the networking academy, flipped classrooms are proof of this (Zhamanov, et al, 2018). Gamification has helped Cisco in the learning industry to take full advantage of what is an ever-changing environment to capture the attention of learners and attract more and more subjects with fun, simple, and direct methods. The competitive increase resulting from the use of Gamification certainly determines a significant profit for companies, whether this is in monetary or reputational terms, and attests not only to the positive impact that Gamification has on sustainability but also the possibility for companies to increase their customer base even if spatially dislocated. The main implication is that companies can benefit from Gamification not only for their own organic structure - in fact, using precise techniques, it's possible to improve the performance of employees, stimulate their creativity, improve the productive and innovative processes within the company - but also towards consumers. In fact, using new and creative approaches allows the company to be seen from a different point of view, more attractive. In addition, the use of Gamification has helped Cisco to improve the services it already offers and broaden its horizons in terms of people reached. Our study, moreover, seeks to provide a clearer point of view regarding the possibility of modifying and transferring sustainable behaviours to consumers through Gamification, and whether in pursuing this possibility the company makes itself more attractive in the eyes of consumers and increases its competitiveness in the market. According to the data obtained, it is likely that gamification, or more precisely in this case ecogamification, helps to implement sustainable behaviours. An example of this are the Hackathons launched by Cisco in 2021 on Green&Blue aimed at stimulating not only innovative ideas on how digital could help sustainability but also on how everyone's small changes towards sustainability could make a difference. Furthermore, a full understanding of the potential of Gamification and how it can increase not only the competitiveness of companies but also the implementation of behaviours deemed socially sustainable can help managers implement practices and behaviours that are not only better suited to specific goals but could also accelerate the achievement of those goals.*

Originality of the paper. *This study addresses a topic that is little discussed in the literature and not yet fully delineated. The analysis was developed by taking as object a company that deals with network devices useful in telecommunications and information technology. In particular, we considered a specific branch of this company that deals with learning. The Cisco Networking Academy has been using gamified approaches in its courses for several years already, and although several works link learning to Gamification (Landers 2015; Kim 2017; Toda 2017) both positively and negatively, there are not as many studies that relate gamification, the impact it has on the sustainability of the company that uses it, and the possible impact on consumer behavioural change towards sustainable choices. From a purely theoretical point of view, this research allows us to better understand the relationship between gamification and a company's competitiveness, gamification and learning, and gamification and the pursuit of sustainable behaviours. To provide more validity to this work it might be interesting to obtain additional data, for example, data from consumers so as to perform a data triangulation and observe from a completely different perspective whether the data obtained through this first analysis is confirmed or not.*

In addition, it would be interesting for further future research to carry out other case studies in different contexts and sectors in order to understand if the impact of gamification on other variables remains the same or if there are changes, and in that case, understand what are the variables that in turn impact on gamification.

Keywords: *gamification; sustainable behaviours; involvement; innovation; learning*

References

- AGOGUÉ M., LEVILLAIN K., HOOGE S. (2015), “Gamification of Creativity: Exploring the Usefulness of Serious Games for Ideation”, *Creativity and Innovation Management*, Vol. 24, n. 3, pp. 415-429.
- BAXTER P., JACK S. (2008), “Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers”, *The Qualitative Report*, vol. 13, n. 4, pp. 544-559.
- CHOW I., HUANG L. (2017), “A software gamification model for cross-cultural software development teams”, Paper presented at the *ACM International Conference Proceeding Series*.
- DETERDING S., DIXON D., KHALED R., NACKE L. (2011), “From game design elements to gamefulness: Defining gamification.”, *Proceedings of the 15th International Academic MindTrek Conference on Envisioning Future Media Environments*, vol. 11, pp. 9-11.
- EISENHARDT K.M. (1989), “Building Theories from Case Study Research”, *Academy of Management Review*, vol. 14, n. 4.
- GIMENEZ-FERNANDEZ E., ABRIL C., BREUER H., GUDIENSEN S. (2021), “Gamification approaches for open innovation implementation: A conceptual framework”, *Creativity and Innovation Management*, vol.30, n. 3, pp. 455-474.
- GÜNTHER M., KACPERSKI C., KREMS J. (2020), “Can electric vehicle drivers be persuaded to eco-drive? A field study of feedback, gamification and financial rewards in Germany”, *Energy Research & Social Science*, vol. 63, Article 101407.
- HAMARI J., VEIKKO E. (2011), “Framework for designing and evaluating game achievements”, *Proceedings of Digra Conference: Think Design Play, Hilversum, Netherlands*.
- HUOTARI K., HAMARI J. (2016), “A definition for gamification: anchoring gamification in the service marketing literature, Electronic Markets”, *The International Journal*, vol. 27, pp. 21-31.
- HOFSTEDE G. (1980), “Culture and organization”, *International studies of management & organization*, vol. 10, n. 4, pp 15-41.
- KAPP M.K. (2012), *The Gamification of Learning and Instruction: Game-Based Methods and Strategies for Training and Education*, John Wiley and Sons, Hoboken.
- KIM S., SONG K., LOCKEE B., BURTON J. (2018), *What is Gamification in Learning and Education? In: Gamification in Learning and Education. Advances in Game-Based Learning*. Springer, Cham.
- KOROLEVA K., NOVAK J. (2020), “How to engage with sustainability issues we rarely experience? A gamification model for collective awareness platforms in waterrelated sustainability”, *Sustainability*, vol. 12, n. 2, pp. 712.
- LANDERS R.N., BAUER K.N., CALLAN R.C., ARMSTRONG M.B. (2015), “Psychological Theory and the Gamification of Learning”, In: Reiners T., Wood L. (eds) *Gamification in Education and Business*. Springer, Cham.
- MAKRIS P., EFTHYMIPOULOS N., NIKOLOPOULOS V., POMAZANSKYI A., IRMSCHER B., STEFANOV K., VARVARIGOS E. (2018), “Digitization era for electric utilities: A novel business model through an interdisciplinary s/w platform and open research challenges”, *IEEE Access*, vol. 6, pp. 22452-22463.
- NEGRUSA A.L., TOADER V., SOFICA A., TUTUNEA M.F., RUS R.V. (2015), “Exploring gamification techniques and applications for sustainable tourism”, *Sustainability*, vol. 7, n.8, pp. 11160-11189.
- OPPONG-TAWIAHA D., WEBSTER J., STAPLES S., CAMERO A., ORTIZ DE GUINEA A., HUNG T.Y. (2020), “Developing a gamified mobile application to encourage sustainable energy use in the office”, *Journal of Business Research*, vol. 106, pp. 388-405.
- OWEN P. (2013) *How Gamification Can Help Your Business Engage in Sustainability*, Routledge, UK.
- PATIL P. (2014), “Text Mining Methods and Techniques”, *International Journal of Computer Applications*, vol. 85, n.17.
- PRZYBYLSKI A.K., WEINSTEIN N., RYAN R.M., RIGBY C.S. (2009), “Having to versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games”, *Cyberpsychology & Behavior*, vol. 12, pp. 485-492.
- DANG S., HAMID AHMAD P. (2014), “Text Mining: Techniques and its Application”, *IJETI International Journal of Engineering & Technology Innovations*, vol. 1, n.4.
- SCOONES I. (2007) Sustainability, *Development in Practice*, vol. 17 n.4-5, pp. 589-596.
- SHAHRI A., HOSSEINI M., TAYLOR J., STEFANIDIS A., PHALP K., ALI R. (2020), “Engineering digital motivation in businesses: A modelling and analysis framework”, *Requirements Engineering*, vol. 25, n. 2, pp.153-184.
- SOUZA V.S., MARQUES D.V., VERÍSSIMO M. (2020), “How can gamification contribute to achieve SDGs? : Exploring the opportunities and challenges of ecogamification for tourism”, *Journal of Hospitality and Tourism Technology*, vol. 11, n. 2, pp. 255-276.
- TODA A.M., VALLE P.H.D., ISOTANI S. (2018), “The Dark Side of Gamification: An Overview of Negative Effects of Gamification in Education”, Cristea A., Bittencourt I., Lima F. (eds) *Higher Education for All. From Challenges to Novel Technology-Enhanced Solutions*, HEFA 2017, Communications in Computer and Information Science, vol. 832. Springer, Cham.

- TODA A., KLOCK A.C.T., PALOMINO P.T., RODRIGUES L., OLIVEIRA W., STEWART C., ISOTANI S. (2020), "GamiCSM: Relating education, culture and gamification-a link between worlds", Paper presented at the *IHC 2020 - Proceedings of the 19th Brazilian Symposium on Human Factors in Computing Systems*.
- USUNOBUN I., ANTI E., HU F., HABILA L., SAYED R.H., ZHANG Y., TUUNANEN T. (2019), "Cultural values' influences on users' preferences for gamification techniques", Paper presented at the *40th International Conference on Information Systems, ICIS 2019*.
- WERBACH K., HUNTER D. (2015), *The Gamification Toolkit: Dynamics, Mechanics, and Components for the Win*, Philadelphia: Wharton School Press.
- WHITTAKER L., MULCAHY R., RUSSELL-BENNETT R. (2021), "Go with the flow' for gamification and sustainability marketing", *International Journal of Information Management*, vol. 61.
- WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (1987a), *Our Common Future: Report of the World Commission on Environment and Development*,. Oxford: Oxford University Press.
- XI N., HAMARI J. (2019), "Does gamification satisfy needs? A study on the relationship between gamification features and intrinsic need satisfaction", *International Journal of Information Management*, vol. 46, pp. 210-221.
- YIN R.K. (2003), *Case Study Research: Design and Methods. 3rd Edition*. Sage, Thousand Oaks.
- ZHAMANOV A., YOO S., SAKHIYEVA Z., ZHAPAROV M. (2018), "Implementation and evaluation of flipped classroom as IoT element into learning process of computer network education", *International Journal of Information and Communication Technology Education*, vol. 14, n. 2, pp. 30-47.

Aligning to the firm's strategic objectives. The role of time and identification

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Framing of the research. *This research is part of a wider and still ongoing research project focusing on the microfoundations of strategic agility. Strategic agility entails change to cope with dynamic environments and to develop adequate responses (Volberda, 1997). Strategic agility is cultivated through significant investments of resources and development of capabilities necessary to timely respond to environmental threats and opportunities. To achieve high levels of strategic agility, firms have to internally promote cohesion and shared vision among individuals to increase flexibility and accelerate renewal and transformation (Weber and Tarba, 2014). In this preliminary study we focus our attention on the strategic goal alignment between managers and employees. Strategic alignment is a paramount aspect of strategic agility (Felin and Foss, 2005, Felin et al 2015). In particular, strategic goals play a crucial role for value creation and firm performance, influencing the governance of a firm and the cognition and the motivation of both managers and employees (Foss and Lindenberg, 2013).*

According to the goal-framing theory (Lindenberg and Foss, 2011) there are three distinct overarching goals that individual pursue in organizations: hedonic, gain and normative. A goal frame represents an overarching goal that is predominant. In our study we focus our attention on the "normative" goal that is related to reaching an organizational goal and in aspiring to act properly to allow the organization to reach such goal. The remaining overarching goals (hedonic and gain) are more oriented towards reaching an individual goal, would it be personal and professional growth (gain) or well-being (hedonic) (Lindenberg and Foss, 2011). A strategic goal alignment between managers and employees - and consequently with the organization's strategic goal - is of considerable importance, and it reflects the level of alignment of the organization's staff with the organization's strategy (e.g., Biggs et al., 2014; Boswell, 2006; Boudreau and Ramstad, 2003). Both managers and employees can have a role in facilitating the attainment of a firm's strategic goals. According to the strategic alignment theory, employees and managers must be aware of the strategic priorities of the organization, consider them as important, and understand how their job contribute to the achievement of organizational priorities, report higher levels of work engagement and consequently contribute to higher value creation (Biggs et al, 2014). Namely, the alignment to an organization's strategic objective might be prone to encourage a feeling of 'fit' with the organization as not only top managers, but also employees have a better sense of awareness of the organization's direction and goals (Boswell, 2006).

In our study we assume that in order to increase their strategic agility, firms should reach a high level of alignment in their normative overarching goals between managers and employees. This could be feasible to achieve in the short term. However, past literature has observed that in the medium and long terms, individuals tend to move more and more towards hedonic goal frames, at the expense of the achievement of the organization's strategic objectives and at the level of the alignment between the C-level and the rest of the company (Lindenberg and Foss 2011) that becomes more and more precarious (Lindenberg and Foss, 2011).

Hence the importance to find ways to support in individuals the willingness to achieve strategic normative goals in the long term, or better, over time. Extant empirical evidence shows that increasing tenure in a work position might diminish the individual's strategic alignment with the organization's strategic objectives (Boswell, 2006). Besides, according to the hierarchical erosion effects (Gibson et al., 2019), the perceptions about strategic goals tend to decrease in the lower levels of the hierarchy, and this is likely to affect the strategic goal alignment due to the instability of employee's normative and strategic goals.

Purpose of the paper. *This paper revolves around the aim to improve our knowledge about the microfoundations of strategy, with a focus on the strategic goal alignment between managers and employees. More specifically, with this contribution, we strive to shedding light on how the strategic alignment of normative goals between managers and employees changes over the time. Therefore, the aim of the research twofold: firstly, investigate if the time spent in a company is negatively associated with the strategic alignment of normative goals between managers and employees;*

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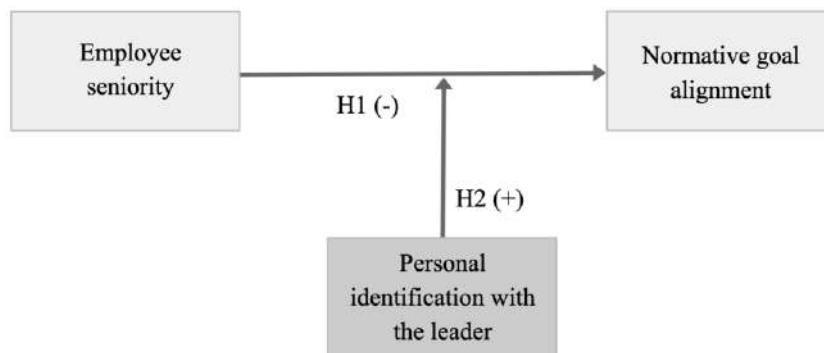
secondly, examine if the relationship between the time spent in a company and the strategic alignment of normative goals is positively moderated by the identification with the leader.

The identification with the leader is a term used in the literature to indicate the extent to which the leader is included in the subordinate's relational self (Wang and Rode, 2010).

Grounding on the goal-frame theory, and more specifically on the precariousness of the normative goal frame, we aim to understand how the strategic alignment of normative goals change over time, and whether it could be influenced by different levels of identification between employees and their leaders.

We assume that the identification with the leader is an element that could positively impact the strategic alignment over time, because according to the goal-framing perspective, the stability of the normative goal frame might be strongly influenced by the "contagion effects", both in positive and negative directions (Lindenberg and Foss, 2011). This happened because as stated by Lindenberg and Foss, "signals that top managers are not in a normative goal frame will weaken this goal frame in subordinates" (2011, 507). Therefore, an identification between employees and their leader might strongly enforce the strategic alignment over the years (e.g., Kark et al., 2003; Wang and Rode, 2010). Figure 1 summarizes our research framework.

Fig. 1: The research framework



Methodology.

Sample and setting

Our data comes from white collars and managers employed in manufacturing firms that operate in North-Eastern Italy. Data collection lasted about one year and was carried out up to December, 2021. In Table 1 we report a description of sample characteristics.

Measures

Dependent variable. To measure normative goal alignment, our dependent variable, we carried out a two-step approach. First, we proposed a list of goals based on the goal framing theory (Felin et al., 2015). Thus, goals were divided into normative, gain, and hedonic. Sample normative goals' items were based on the achievement of the strategic objectives set by the company or the team. Sample gain goals' items were focused on personal career opportunities and advancement. Hedonic goals were based on having a good work-life balance. Respondents (both managers and employees) were asked to order such goals in a descending rank based on personal priorities. The second step consisted in associating employees' rankings with the ones of their supervisors. If both an employee and their supervisor indicated a normative goal in the first position, our normative goal alignment variable was assigned with a value of 1, 0 otherwise.

Independent variables. We asked to each employee how many years they are working inside their current company. This measure constitutes our main independent variable.

To measure personal identification with the leader we adopted the scale proposed by Kark et al. (2003). A sample item is "When someone criticizes my leader, it feels like a personal insult". Standardized Cronbach's Alpha (α)=0.83, Average Variance Extracted (AVE)=0.45, and Composite Reliability (CR)=0.82.

Control variables. We included a number of socio-demographic variables, namely age, sex, education, as they might be associated with performance. Also, we collected data on the time an employee is working with their current supervisor, and inserted such variable as control, in order to examine whether such variable could have weakened the effect of our independent variable.

Tab. 1: Sample characteristics

Characteristic	n	%
<i>Gender</i>		
Male	458	63.70%
Female	261	36.30%
<i>Age</i>		
Under 25	11	1.53%
25-34	136	18.92%
35-44	210	29.21%
45-54	269	37.41%
Over 54	74	10.29%
Unspecified	19	2.64%
<i>Education level</i>		
Less than high school diploma	39	5.42%
High school diploma	314	43.67%
Bachelor's degree	67	9.32%
Master's degree or more	272	37.83%
Unspecified	26	3.62%
<i>Business Unit Category</i>		
Administration & Control	81	11.27%
Supply Chain	99	13.77%
R&D	80	11.13%
Production/Engineering	220	30.60%
HR	37	5.15%
Sales	176	24.48%

n = 719. Source: our elaboration

Results. In Table 2 below, we report the correlation among variables. As shown, among the independent variables, employee seniority (main independent variable) is correlated with time with supervisor ($\rho=0.37$, $p<0.01$); age ($\rho=0.49$, $p<0.01$), and education ($\rho=0.25$, $p<0.01$). Hence, to check for multicollinearity issues we computed Variance Inflation Factors (VIFs). None of VIFs exceed 1.59, which is well-below the recommended threshold (Chatterjee and Hadi, 2006).

Tab. 2: Correlation matrix

Variable	1	2	3	4	5	6	7
1. Normative goal alignment	-						
2. Empl. Seniority	-0.07**	-					
3. Id. with the leader	0.15***	-0.02	-				
4. Time with supervisor	-0.06*	0.37***	-0.04	-			
5. Age	0.14***	0.49***	0.07*	0.25***	-		
6. Sex	-0.08**	0.01	-0.06	0.09*	-0.09*	-	
7. Education	-0.08**	-0.25***	-0.00	-0.04	-0.02	0.06*	-

n = 719. Source: our elaboration

In Table 3, we report the results from regression analysis. In particular, Model 1 concerns the effects of control variables on the dependent variable. In Model 2 we added the main independent (employee seniority) which corresponds to our hypothesis 1, in Model 3 we assessed all the direct effects (included the one by identification with the leader), and in Model 4 we added the interaction effect, corresponding to our hypothesis 2.

With respect to the effect of the time spent in the company on the normative goal alignment (hypothesis 1), as shown in Models 2-4, we found negative and significant relationship (in Model 2, $\beta=-0.07$, $p<0.01$). Thus, hypothesis 1 receives strong empirical support. Turning to the interaction effect, we found a positive and significant moderation of the personal identification with the leader, consistently with our hypothesis 2. Thus, both hypotheses 1 and 2 are supported.

Tab. 3: Results of regression models

	Hypothesis	Model 1	Model 2	Model 3	Model 4
<i>Constant</i>		0.09 (0.07)	0.00 (0.08)	0.01 (0.08)	0.01 (0.08)
<i>Independent variables</i>					
Employee seniority	1		-0.07*** (0.02)	-0.06*** (0.01)	-0.07*** (0.02)
Identification with the leader				0.04*** (0.01)	0.04 (0.01)***
<i>Interaction effect</i>					
Employee seniority X Identification with the leader	2				0.03*** (0.01)
<i>Control variables</i>					
Sex		-0.03 (0.03)	-0.03(0.03)	-0.03 (0.03)	-0.02 (0.03)
Age		0.05*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)
Education		-0.02** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.04*** (0.01)
Time with supervisor		-0.01*** (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
n		719	719	719	719

Both dependent and independent variables are standardized (i.e., $\bar{x}=0$; $s^2=1$). The dependent variable is Normative goal alignment. ***p < .01; **p < .05; *p<0.1. (standard errors in parentheses). Source: our elaboration.

Originality. *The study builds on the goal-framing theory and crosses it with the hierarchical erosion theory to check whether time affects the alignment towards normative goals between managers and employees. Moving from previous theory but scarce empirical evidence in the field we conclude that over time the level of alignment on normative goals between employees and managers tends to decrease, especially because of the progressive misalignment of employees towards the achievement of the firm's objectives. We found also that such progressive misalignment could be delayed or avoided by achieving higher identification of employees with their leaders. Such result is new to the literature and pushes us to look in a more granular way at the process of strategic (mis)alignment of managers and employees by considering also leadership-related aspects.*

Research limitations. *The research is limited to the Italian context and results could be culturally-biased or specific for a cultural context only.*

Managerial implications. *The research has direct implications for companies. First, it informs managers about the risk of potential misalignment of employees progressing with time and the need to manage it an effective way by keeping them informed and engaged towards the reach of the company's goals. The second, it informs especially HR managers about the importance to transmit to the companies' managers a leadership style aimed at mitigating the risk of disengagement also by the adoption of ad-hoc leadership-development programs and staff-training programs.*

Keywords: *microfoundations of strategy; strategic agility; strategic alignment; normative goals; goal-framing theory*

References

- BIGGS A., BROUGH P., BARBOUR J.P. (2014), "Strategic alignment with organizational priorities and work engagement: A multi-wave analysis", *Journal of Organizational Behavior*, vol. 35, n. 3, pp. 301-317.
- BOSWELL W. (2006), "Aligning employees with the organization's strategic objectives: Out of 'line of sight', out of mind", *The International Journal of Human Resource Management*, vol. 17, n. 9, pp. 1489-1511.
- BOUDREAU J.W., RAMSTAD P.M. (2003), "Strategic I/O Psychology and the Role of Utility Analysis Models", In Borman W., Ilgen D., Klimoski R. (eds) *Handbook of Psychology*, vol. 12, Industrial and Organizational Psychology, Chapter 9: 193–221, Wiley, New York, NY.
- CHATTERJEE, S., HADI A.S. (2006), *Regression analysis by example*, Wiley, New York, NY.
- FELIN T., FOSS N. J. (2005), "Strategic organization: A field in search of micro-foundations", *Strategic Organization*, vol. 3, n. 4, pp. 441-455.
- FELIN T., FOSS N.J., PLOYHART R.E. (2015) "The microfoundations movement in strategy and organization theory", *Academy of Management Annals*, vol. 9, n. 1, pp. 575-632.
- FOSS N.J., LINDENBERG S. (2013), "Microfoundations for strategy: A goal-framing perspective on the drivers of value creation", *Academy of Management Perspectives*, vol. 27, n. 2, pp. 85-102.
- GIBSON C.B., BIRKINSHAW J., MCDANIEL SUMPTER D., AMBOS T. (2019), "The hierarchical erosion effect: A new perspective on perceptual differences and business performance", *Journal of Management Studies*, vol. 56, n. 8, pp. 1713-1747.
- KARK R., SHAMIR B., CHEN G. (2003), "The two faces of transformational leadership: empowerment and dependency", *Journal of Applied Psychology*, vol. 8, n. 2, pp. 246-255.

- LINDENBERG S., FOSS N.J. (2011), "Managing joint production motivation: The role of goal framing and governance mechanisms", *Academy of Management Review*, vol. 36, n. 3, pp. 500-525.
- VOLBERDA H.W. (1997), "Building flexible organizations for fast-moving markets", *Long Range Planning*, vol. 30, n. 2, pp. 169-148.
- WANG P., RODE J.C. (2010), "Transformational leadership and follower creativity: The moderating effects of identification with leader and organizational climate", *Human relations*, vol. 63, n. 8, pp. 1105-1128.
- WEBER Y., TARBA S.Y. (2014), "Strategic agility: A state of the art introduction to the special section on strategic agility", *California Management Review*, vol. 56 n. 3, pp. 5-12.

Sustainability and Digital Transformation as key drivers in pharma and healthcare M&A deals during covid-19 pandemic

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Framing of the research. *The covid-19 pandemic, also known as the coronavirus pandemic, has certainly upset the international financial and economic balance, with considerable repercussions on the work of many industrial sectors (Kchia et al., 2020). The sudden spread of the new coronavirus has taken the entire planet by surprise, changing the habits and the priorities of the world population and determining an industrial “mindset shift” (McKinsey, 2021) based on concepts such as:*

- innovation;
- digitalization;
- sustainability.

For companies, is therefore essential a new spirit of adaption that leads, quickly, to innovative entrepreneurial solutions: a priority element becomes the so-called “speed over elegance” (Mendy et al., 2020), that is the speed of execution which, supported by strong and stable leadership, will make it possible to expand the vision of companies, facilitating the exit from a lockdown phase and the adaption to the new normal characterized by coexistence with the virus. Accordingly, pandemic upheavals have drawn managers’ attention on new methods of doing business based on digital paradigms and integrated sustainable ecosystems in which new technologies create winning effects and allow hyperflexible management of non-core assets (Nwankpa and Roumani, 2016). So, in such a context permeated by the uncertainty of results and by the uncertainty for the future, businesses’ survival finds an opportunity in the digitalization process, which modifies the processes of value creation, encouraging actions (like acquisition agreements with high-tech companies) aimed at preserving the competitive advantage acquired over time (Hughes, 2004; Martens et al., 2008). The process also represents a fundamental pivot for the “post-pandemic company”, which, by exploiting the digital transformation of its procedures, can implement a pervasive and radical change in the business based on innovative skills and new organizational models (Westerman, 2014). The covid-19 pandemic has certainly amplified these processes in companies operating in highly dynamic sectors such as tech, healthcare and pharma and it has also encouraged a “sustainable digital change” based on “enabling elements” like cloud, data analysis through big data and mobile (Nwankpa and Roumani, 2016; Kraus et al., 2020). In this perspective, although the business continuity of numerous entrepreneurial realities has been severely tested in the last two years, some sectors (healthcare and pharma in the first place) have shown great resilience (Robke et al., 2020; MicKinsey, 2021) and, indeed, have exploited the opportunity of the pandemic to improve their financial performance and to rethink their strategic approach.

In view of these considerations, the work-in-progress research focuses on the covid-19 impact on industrial sectors that are now at the center of global attention, and in particular on healthcare services and pharma. Although services relating to health and pharmaceuticals have had a sudden development in the last decade, before the outbreak of the pandemic, there was an operational slowness in the adoption of new technologies and in the digital transformation process (Agarwal et al., 2010; Cucciniello et al., 2016; Bellinger and Krieger, 2018). The great turmoils that have always characterized the healthcare sector, and the potential inherent in its defensive nature¹, in fact, have always had to clash with: bureaucratic procedures and intellectual property conflicts; regulatory and data protection issues; balancing needs and objectives of the various stakeholders, which slow down access to the innovation market and highlight sector’s structural inefficiencies (Elton and O’Riordan, 2016; Tuzii, 2017). The research, therefore, explores the expansion of tech-enablement, namely the technological enabling that was once an exclusive prerogative of individual healthcare and pharmaceutical companies, while today, thanks to the opportunities of the new normal, it has

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¹ The *healthcare services* sector is considered an example of “defensive” business as it has demonstrated over the years a great ability to cushion losses during market downturns.

become mission-critical of the entire sector (Grumiller and Grohs, 2021)². Factors that play a decisive role in this tech-growth are: the aging of the population; the progressive worsening of syndromes and diseases related to unhealthy lifestyles and habits; the now prevailing attention to sustainability (Iasevoli and Massi, 2012). The final issue, which is no less important, is the technological development, which, thanks to the innovations of artificial intelligence (AI), will make it possible to implement more complex and efficient procedures in hospitals, as well as increasingly precise diagnostic tools (Leonard, 2004; Kohl et al., 2019).

In such tech-growth, a phenomenon that is now constantly growing is that of mergers & acquisitions (M&A) between companies linked to traditional pharma and healthcare and new entrepreneurial realities operating in innovative fields such as biotech and medtech (Lougui and Brostrom, 2021; Cairns, 2021)³. In this regard, some examples are:

- the acquisition of Amblyotech by the Swiss multinational Novartis International AG in 2020. Amblyotech is a US software startup, which, in collaboration with Ubisoft and McGill University, is involved in the development of technologies for the treatment of amblyopia, a vision disorder affecting approximately 3% of the world population⁴;
- AstraZeneca's acquisition of the American biopharmaceutical company Alexion Pharmaceuticals. Alexion is particularly active in the development and marketing of therapeutic products such as Soliris (eculizumab), Strensiq (asfotase alfa) and Kanuma (sebelipase alfa), and in the development and distribution of innovative therapies capable of transforming the lives of patients with rare diseases and disabling disorders and that of their families. On the other hand, AZ has an ESG Relevance Score of "4" for "Exposure to Social Impacts" due to social pressure to contain healthcare costs, which has a negative impact on the credit profile, and is relevant to the ratings in conjunction with other factors.

Both buyers and sellers in these deals are placing greater emphasis on Environmental, Social, and Governance (ESG) credentials, which are considered a set of standards for a company's operations that socially conscious investors use to screen potential investments. Sellers can leverage ESG metrics to determine the value of their business, while buyers can use these same metrics to evaluate targets and reduce reporting burden. So, the impact of the growth in ESG disclosures on M&A cannot be underestimated and ESG criteria, are, today, no longer sources of risk mitigation but rather of value creation (Brownstein, Silk & Niles, 2020).

Purpose of the paper. The paper aims to systematize data relating to innovations and changes in healthcare and pharma made in order to easily overcome the obstacles caused by the pandemic. It will focus on the role of sustainability in the healthcare industry and in particular on the use of ESG criteria in the evaluation process of M&A transactions between traditional healthcare and pharma companies and the tech world ones. So, the main purpose of this study is to investigate the relationship between ESG performance and digitalization process in the context of mergers and acquisitions before and during the coronavirus pandemic: the spread of the new coronavirus has, in fact, acted as a catalyst, accelerating the digital transition of healthcare and pharma and allowing companies to act and think "out of the box", i. e. implementing IT processes to facilitate the post-pandemic recovery phase. Speaking about the advancement of technology in the healthcare world, industry experts usually refer to the "clash" between two worlds, Big Pharma and Big Tech: this clash is to be understood in a positive sense, since it represents the "fulcrum of the transition" of "traditional" healthcare towards the most recent technological paradigms (Vrontis et al., 2018). The sector, in fact, today relies more:

- on analytics, to set up sell-in studies by product and geographical area;
- on the blockchain, especially in the process of storing medical records (Fekih and Lahami, 2020);
- on the DTx (or digital therapeutics), useful for reinforcing therapeutic protocols by exploiting AI technology applied to digital media (Kelly and Jost, 2016; Torres et al., 2017).

In the last decade, following the example of sectors such as the automotive and the energy one, in addition to an increase in M&A operations, the pharmaceutical and healthcare sectors seem to have also undergone a real change of pace in the field of sustainability. The environmental impact of innovative pharmaceutical products, therapies and medical devices, has therefore been subjecting of numerous attentions from the regulatory world: United Nations identified pharmaceutical pollution as an emerging global priority, and, in the EU, the European Commission has published the "Strategic Approach to Pharmaceuticals in the Environment", which is a European strategic approach aimed at limiting the environmental impact of pharmaceuticals⁵. In the introduction of the "Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee", it is stated

² By mission-critical of a system we mean an essential factor for the organization and for its survival in the market. Any malfunctions or inefficiencies of this element will inevitably lead to serious consequences for the business and for the entire system of external/internal relations of the company.

³ Covid-19 has given a new impetus to mergers operations, innovating an area that is already at the forefront. In particular, the expansion of company boundaries was dictated by:

- 1) the opening up to new frontiers of health, such as the so-called "hot areas to watch", that are mRNA technology, antibody-drug conjugates or ADCs (high potent biotech drugs used as target drugs in cancer therapy) and cell and gene therapies;
- 2) the search for new organizational solutions to make production more efficient, to rebuild pipelines, to carry out R&D activities at negligible costs and, particularly, to reduce emissions and energy consumption.

⁴ Amblyotech uses active gaming and passive video technology with 3D glasses for the treatment of lazy eye disease.

⁵ The Strategic Approach to Pharmaceuticals in the Environment, adopted by the European Commission on March 11th, 2019, complies with the legal obligation regarding the adoption of a strategic approach aimed at limiting water pollution caused by pharmaceutical substances envisaged by Directive 2008/105 / EC, amended by Directive 2013/39 / EU.

that, with this provision, not only is the legal obligation regarding water pollution caused by drugs complied with (Directive 2008/105/EC), but fundamental support is guaranteed to the objectives for a sustainable Europe by 2030. The European approach considers the international dimension of the problem and the implementation of a circular economy in the health sector: pandemic has given a new impetus to a dynamic industry with already a strong innovative capacity (Donzè, 2021), and the implementation of a sustainable pharma ecosystem will contribute to the achievement of the Commission's first political priority to promote jobs, growth and investments.

Not surprisingly, large pharma companies have already been looking for solutions to make their production more efficient and to reduce emissions and energy consumption thanks to digital innovation: according to the Dow Jones Sustainability Indices (DJSI)⁶, Roche has been the most sustainable company of 2020, while other pharmaceutical companies are promoting pilot projects on pharma sustainability. Some important studies have already highlighted the importance of the concept of sustainability in pharma M&A (Schneider et al., 2010): the evaluation of company performance is no longer based exclusively on financial indicators, but rather integrates the three pillars of sustainability (Paolone et al., 2021). In evaluating an investment, the so-called ESG criteria are increasingly taken into consideration: ESG is an acronym that stands for Environmental, Social, Governance, used to measure the impact of companies increasingly committed to highlighting the sustainability of their business⁷. Companies, therefore, no longer evaluate themselves by observing exclusively their ability to produce money, but also their ability to produce customer satisfaction (Gasbarro and Bonera, 2021) or ethical results, such as social inclusion or environmental protection, also by implementing innovative solutions based on AI and on integrated digital ecosystems (Van Der Vorst, 2010). The use of ESG criteria, which became famous thanks to the 2004 conference report entitled "Who cares wins" (UN Global Compact, 2004), makes it possible to evaluate the future performance of a company using a score (from 10 to 100) or a rating (from D- to A+). Both buyers and sellers benefit from creating value from ESG metrics rather than perceiving ESG as solely risk-based.

However, there are still challenges in this area today. One of the main problems is certainly the distrust of investors towards these issues: the focus on environmental, social and ethical issues is seen by the shareholders as a threat that could limit the achievement of their objective, namely the maximization of the return on their investment. That said, for this work we intend to analyze the advancement of tech and digital in the healthcare and pharmaceutical industries and the implementation of sustainable operational solutions that will become the fundamental driver for the future maturity of these sectors. In addition, it will be interesting to analyze the prospects for a "post-pandemic future of work" considering the impact of psychological ownership on HR retention during an M&A deal (Degbey et al., 2021)⁸. Based on these considerations and taking into account the latest innovations in sustainability at both national and European level, the research will then focus on the prospects of the healthcare and pharma M&A deals in the light of socio-economic and managerial upheavals caused by the pandemic. Specifically, the research questions are:

- given the digitalization process accelerated by the covid-19 pandemic, what are the prospects for the pharmaceutical and healthcare sectors in the next years?
- will the implementation of digital solutions in the healthcare world through M&A transactions allow a more sustainable approach of the entire sector? If yes, will the use of ESG criteria for evaluating merger & acquisition deals become a status quo in the pharma/healthcare industry or will it be exploited, leading to the occurrence of greenwashing phenomena?

Methodology. By virtue of the scientific literature on the subject being formed, the research aims to proactively contribute to the analysis of the impact of the new coronavirus on the logic that leads pharma and healthcare services companies to undertake M&A operations in which key drivers are sustainability and digitalization. Although the methodology is still being defined, we can assume two different methodological steps. Regarding the first research question, we will proceed with a survey of the state of the art in literature focused both on the contents and on the definition of a suitable research methodology for the chosen theme. The research, therefore, will explore theoretical studies on the evolution of healthcare and pharma, with particular attention to the tools and measures adopted by European states to support the industry. The review process will be divided into three main phases:

- 1) articles/data collection, whereas the identification of specific and appropriate keywords represents the first step necessary for a systematic review process (Tranfield et al., 2003). For this phase, we will use two research engines: Scopus and Web of Science;
- 2) selection, taking into account the purpose of the work;
- 3) in-depth analysis and interpretation of the final database.

In this regard, two temporal references are identified:

⁶ The DJSI is based on an analysis of corporate economic, environmental and social performance, rating issues such as corporate governance, risk management, climate change mitigation and supply chain standards.

⁷ The E for *environmental* includes the effect that companies' activities have on the environment - directly or indirectly.

The S for *social* includes the impact that a certain company has on its social environment in the community.

The G for *governance* alludes to the company's corporate governance - for example, the composition and diversity of its Board of Directors, transparency policies for its public information, or its codes of conduct.

⁸ The research has demonstrated that turnover rates among employees in the acquired firm are higher during an M&A deal. Recent review articles on M&A affirm that employee retention/turnover can be considered in conjunction with the "psychological side" of M&A deals, thus drawing significant attention to the psychological and 'human' side voids to theoretically exploit and enhance understanding of people-related problems in M&A endeavors.

- 2010 - 2019: for this period, we will consider data related to: the development of M&A in the sectors under analysis; the progressive implementation of digital solutions in organizational structures; the importance of socio-cultural factors in M&A deals (Sarala et al., 2016);
- 2019 - 2022: previously collected data will be compared with recently established databases to analyze the impact and the influence of pandemic on the healthcare industry.

The relevance of the subject matter and the research's objectives suggests implementing qualitative research with an inductive approach. Therefore, regarding the second research question, the project will identify several case studies (Yin, 1994; Stake, 1995) in order to systematize the results of the previous phases and make a comparison between them. For each case, both strategic and strictly operational variables will be analyzed, and there will be a comparison between businesses' performance in terms of sustainability and adoption of digital processes. We will combine primary data, such as interviews and corporate archival sources, with secondary sources such as informations retrieved from mass media articles or advertising campaigns, in order to paint a finer grained picture of the covered topics. However, as anticipated, the complete set up of the study is in the planning phase, but the collection of complementary material has been started from websites of companies such as Deloitte, PwC, McKinsey, from sectoral reports (Informa's Pharmaintelligence, Biomedtracker, Farindustria) and from databases such as S&P Capital and Deal Pipeline, as well as through interviews with operators in the field of digitalization and sustainability and policymakers.

Results. The literature review phase and data collection are still ongoing. Therefore, in this context, it is possible to outline the expected results of the research. The inductive approach will allow to analyze a series of case studies and compare their performance regarding the innovative use of digital technologies and the implementation of sustainable processes. The first data collected show a sudden growth in the digitalization process in healthcare services and in the diagnostics industry in the last decade (Semenic, 2015). The concept of sustainability, on the other hand, seems to have spread only in the last five years, mainly due to the activity of supervisory and regulatory authorities in this area: however, some studies showed that both M&A deals and sustainability (measured through the ESG score) had a direct and favorable impact on pharma companies all over the world during 2011-2020 (Mihaiu et al., 2021). Proceeding with the analysis of a larger sample of companies, it will be possible to outline the perspectives of the sector regarding the use of ESG criteria for the evaluation of merger and acquisition deals, but above all, it will be possible to take stock of the first results deriving from the application of European directives on sustainability in the pharmaceutical and healthcare industry. The pandemic has emphasized the "human element" inherent in every acquisition deal (Hayes, 1979) and the ethical side of the companies: therefore, it is estimated that in the future each agreement will be analyzed on the basis of ESG parameters. This transition will be supported, and indeed encouraged, by:

- changes in consumers and stakeholders awareness;
- changes in national and international regulatory frameworks;
- structural modification of production processes, increasingly based on technological innovations.

However, in order to deploy this sustainable paradigm, companies will have to face difficult challenges: the failure in evaluating conclusion speed of the agreements and the lack of alignment of strategic ESG priorities or the lack of motivation of the management, could hinder the creation of value by compromising the position of the firm on the market. Therefore, the results of the study could also confirm a significant negative value effect of ESG performance for the shareholders of acquiring firms during the covid-19 pandemic. In fact, during the pandemic-driven economic turmoil, the costs of sustainability activities could outweigh any possible gains, supporting the overinvestment hypothesis.

Research limitations. The main limitation of the research concerns the comparability of selected case studies. Although considered companies operate in the same sector, there could be many organizational and operational differences due to the multitude of sectoral sub-categories characterizing healthcare and pharma. However, a subsequent extension of the cases and a subdivision of companies into specific clusters, will reduce the possibility of errors in the evaluation and wrong interpretation of the results. But even if ESG metrics are not identically, the disclosure of quantifiable information could permit buyers to find commonalities and compare targets within and across industries (Brownstein et al., 2020). A further limitation concerns the lack of systematization of ESG criteria internationally: the main criticality concerns the different corporate interpretations of the concept of sustainability and, consequently, the different application of ESG criteria both at an operational and an evaluation level. The study could be also adversely affected by the limited data availability regarding businesses' ESG performance: the sustainability disclosure framework is, in most cases, voluntary, allowing firms to report ESG-related material without any obligation. Finally, another critical element concerns the sudden development of new technology which could, in a short timeframe, make collected data in the preliminary stages obsolete.

Managerial implications. The organizations' orientation towards sustainable development is today considered a fundamental strategic approach to compete on the target market: the research, therefore, represents a first contribution aimed at developing the full awareness of management regarding these issues. Strategies adopted in the new normal, centered on tech innovation and ESG criteria, will allow players on the market to create real sustainable organizational ecosystems and to implement a change of mentality (mindset shift) in healthcare and pharma deals.

Originality of the paper. The work represents the first step towards a much broader study of issues that are more current than ever, such as the digital transformation process of companies and the application of ESG criteria in the evaluation phase of M&A operations. The comparison between companies operating in the healthcare world, in the light of the covid-19 pandemic, contributes to the formation of a body of studies on ESG and digitalization in the industry which, to date, appears to be rather small. So, the research contributes to the advancement of knowledge both

theoretically and managerial on the theme, with particular reference to the future of healthcare/pharma deals from a “human” perspective. Despite the scientific literature on M&A is substantial, still little has been achieved to explain the success and limitations of sustainability in healthcare and pharma. Therefore, the results of the study, will allow to partially fill the aforementioned gap, enriching the literature and providing food for thought for management.

Keywords: *sustainability; mergers & acquisitions; digital transformation; healthcare; pharma; covid-19.*

References

- AGARWAL R., GUODONG G., DESROCHES C., JHA A.K. (2010), “The digital transformation of healthcare: current status and the road ahead”, *Information Systems Research*, vol. 21, n. 4, pp. 796-809.
- AGNIHOTRI S.R., CUI L., DELASAY M., RAJAN B. (2020), “The value of mHealth for managing chronic conditions”, *Health Care Management Science*, vol. 23, n. 2, pp. 185-201.
- ALTMAN E.I., MCGOUGH T.P. (1974), “Evaluation of a company as a going concern”, *The Journal of Accountancy*, n. 138, pp. 50-57.
- BELLIGER A., KRIEGER D.J. (2018), “The digital transformation of healthcare, in K. NORTH, R. MAIER, O. HAAS”, *Knowledge Management in digital change*. Progress in IS, Springer.
- BROWNSTEIN A.R., SILK D.M., NILES S.V. (2020), “The Coming Impact of ESG on M&A, Harvard Law School Forum on Corporate Governance.
- CAIRNS E. (2021), *Medtech deal-making stands firm in difficult times in Evaluate Vantage*, Evaluate Vantage, Londra.
- CAMPISI S., TROTMAN K.T. (1985), *Auditor consensus in going concern judgments in Accounting and Business Research Journal*, Lakewood Ranch, FL, p. 58.
- CHRISTOFI M., VRONTIS D., THRASSOU A., RIAD SHAMS S.M. (2019), “Triggering technological innovation through cross-border mergers and acquisitions: A micro-foundational perspective”, *Technological Forecasting and Social Change*, vol. 146, pp. 140- 161.
- COPELAND T., KOLLER T., MURRIN J. (1990), “Valuation. Measuring and managing the value of company, Wiley, New York, pp. 9-15.
- CRAVEN M., FONG A., LAURICELLA T., TAN T. (2020), *The long haul: How leaders can shift mindsets and behaviors to reopen safely*, mckinsey.com.
- CUCCINIELLO M., LAPSLEY I., NASI G. (2016), “Managing healthcare in the digital world: a comparative analysis”, *Health Services Management Research*, vol. 29, n. 4, pp. 130-140.
- DEGBEY W.Y., RODGERS P., KROMAH M.D., WEBER Y. (2021), “The impact of psychological ownership on employee retention in mergers and acquisitions”, *Human Resource Management Review*, vol. 31, n. 3.
- DONZE’ PY. (2021), “The Postwar Medtech Industry in Japan: A Business History Perspective”, in Brucksch S., Sasaki K. (2021), *Humans and Devices in Medical Contexts. Health, Technology and Society*, Palgrave Macmillan, Singapore.
- ELTON J., O’RIORDAN A. (2016), *Healthcare disrupted: next-generation business models and strategies*, John Wiley & Sons.
- FARMINDUSTRIA (2021), *Indicatori farmaceutici*, pp. 2-10.
- FTI CONSULTING (2020), COVID-19: Impact on Global Pharmaceutical and Medical Product Supply Chain Constraints U.S. Production, p. 3.
- GASBARRO F., BONERA M. (2021), “The influence of green practices and green image on customer satisfaction and word-of-mouth in the hospitality industry”, *Sinergie Italian Journal of Management*, vol. 39, n. 3, pp. 232-242.
- GAUGHAN P.A. (2012), *Mergers, Acquisitions, and Corporate Restructurings*, 5 Ed, John Wiley & Sons, New York, p. 299.
- HASPESLAGH P.C., JEMISON D.B. (1991), *Managing Acquisitions: creating value through corporate renewal*, The Free Press.
- HAUSMAN A., JONSTON W.J. (2013), “The role of innovation in driving the economy: Lessons from the global financial crisis”, *Journal of business research*, vol. 67, Issue 1, pp. 2720-2726.
- HAYES R.H. (1979), “The Human Side of acquisitions”, *Management Review*, vol. 68, n. 11, pp. 41-46.
- HUGHES L.M. (2004), *Why digitize? The costs and benefits of digitization in Digitizing Collections: Strategic Issues for the Information Manager*, Facet Publishing, Londra, 2004, p. 13.
- IASEVOLI G., MASSI M. (2012), “The relationship between sustainable business management and competitiveness: research trends and challenges”, *International Journal of Technology Management*, vol. 58, n. 1/2, pp. 32-48.
- IQVIA (2019), *The Global Use of Medicine in 2019 and Outlook to 2023*, p. 7.
- KCHIA A., CANDELON F., DE VILLIERS P., REICHERT T., LANG N., CHARME DI CARLO R. (2020), *How scenarios can help companies win the COVID-19 battle*, Boston Consulting Group.
- KOHL S., SCHOENFELDER J., FUGENER A., BRUNNER J.O. (2019), “The use of Data Envelopment Analysis (DEA) in healthcare with a focus on hospitals”, *Health Care Management Science*, n. 22, pp. 230-249.
- KRAUS S., SCHIAVONE F., PLUZHNIKOVA A., INVERNIZZI A. C. (2021), “Digital transformation in healthcare: Analyzing the current state-of-research”, *Journal of Business Research*, vol. 123 ©, pp. 557-567.

- KURPJUWEIT S., WAGNER S.M., CHOI T.Y. (2020), "Selecting Startups as Suppliers: A Typology of Supplier Selection Archetypes", *Journal of Supply Chain Management*, vol. 57, n. 3, pp. 25-49.
- LABERGE L., O'TOOLE C., SCHNEIDER J., SMAJE K. (2020), *How COVID-19 has pushed companies over the technology tipping point-and transformed business forever*, McKinsey&Company, New York.
- LAURENZA E., QUINTANO M., SCHIAVONE F., VRONTIS D. (2018), "The Effect of Digital Technologies Adoption in Healthcare Industry: A Case-Based Analysis, Business", *Process Management Journal*, vol. 24, No. 5, pp. 1124-1144.
- LEONARD K.K. (2004), "The role of patients in designing health information systems: the case of applying simulation techniques to design an Electronic Patient Record (EPR) interface", *Health Care Management Science*, vol. 7, n. 4, pp. 270-280.
- LIU A. (2020), *BIO: Is COVID-19 changing how biopharmas think of M&A? Not really*, say J&J and Takeda execs in Fierce Pharma, Jun 9.
- LOUGUI M., BROSTROM A. (2021), "New firm formation in the wake of mergers and acquisitions: An exploration of push and pull factors", *Journal of Evolutionary Economics*, vol. 31, pp. 65-89.
- MARTENS D., BRUYNSEELS L., BAESENS B., WILLEKENS M., VANTHIENEN J. (2008), "Predicting going concern opinion with data mining", *Decision Support Systems*, vol. 45.
- MENDY A., STEWART M.L., VANAKIN K. (2020), *A leader's guide: Communicating with teams, stakeholders and communities during COVID-19*, McKinsey&Company, p. 3.
- MERGERMARKET (2021), *Lightning bolt-ons and partnerships drive 2021 life sciences M&A*, Feb 26th, p. 5.
- MIHAIU D., SERBAN R.A., OPREANA A., TICHINDELEAN M., BRATIAN V., BARBU L. (2021), "The Impact of Mergers and Acquisitions and Sustainability on Company Performance in the Pharmaceutical Sector", *Sustainability*, vol. 13, n. 12, p. 6526.
- NWANKPA J.K., ROUMANI Y. (2016), "IT capability and digital transformation: A firm performance perspective", *ICIS 2016 Proceedings*, p. 3.
- PAOLONE F., CUCARI N., WUJ., TISCINI R. (2021), "How do ESG pillars impact firms' marketing performance? A configurational analysis in the pharmaceutical sector", *Journal of Business & Industrial Marketing*, vol. ahead-of-print, no. ahead-of-print.
- PHARMAINTELLIGENCE (2020), *A decade of biopharma M&A and outlook for 2020*, p. 10.
- ROBKE L., PONT L.B., BONGARD J., WURZER S., SMIETANA K., MOSS R. (2020), *Impact of COVID-19 on pharmaceutical external innovation sourcing*, nature.com.
- ROMERO TORRES S., MOYNE J., KIDAMBI M. (2017), "Towards pharma 4.0; Leveraging lessons and innovation from Silicon Valley", *American Pharmaceutical Review*, vol. 20 (1), pp. 980-987.
- SARALA R.M., JUNNI P., COOPER & TARBA S. (2016), "A Sociocultural Perspective on Knowledge Transfer in Mergers and Acquisitions", *Journal of Management*, vol. 42, n. 5, pp. 1230-1249.
- SCHIAVONE F., FERRETTI M. (2021), "The FutureS of healthcare", *Futures*, pp. 1-5.
- SCHWEIZER L. (2005), "Organizational Integration of Acquired Biotechnology Companies into Pharmaceutical Companies: The Need for a Hybrid Approach", *Academy of Management Journal*, vol. 48, no. 6, pp. 650-661.
- SILVESTRELLI S. (2014), "Innovazioni gestionali e nuove relazioni sistemiche per la competitività d'impresa", *Sinergie, rivista di studi e ricerche*, Anno XXXII - N. 94.
- STAKE R.E. (1995), *The Art of Case Study Research: Perspective in Practice*, Sage, London.
- TRANFIELD D., DENYER D., SMART P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, vol. 14, n. 3, pp. 207-222.
- TUZII J. (2017), "Healthcare information technology in Italy, critiques and suggestions for European digitalization", *Pharmaceuticals Policy & Law*, vol. 19, n. 3/4, pp. 160-165.
- UN GLOBAL COMPACT (2004), *Who cares wins, Connecting Financial Markets to a Changing World*, pp. 1-20.
- WESTERMAN G., BONNET D., MCAFEE A. (2014), *Leading Digital: Turning Technology into Business Transformation*, Harvard Business School.
- YIN R. (1994), *Case study research: Design and methods* (2nd ed.), Sage Publishing, Beverly Hills, CA.

Websites

<http://www.americanpharmaceuticalreview.com>

<http://www.farmindustria.it>

<http://www.journals.sagepub.com>

<http://www.mckinsey.com>

<http://www.pharmaintelligence.informa.com>

<http://www.sinergiejournal.it>

Exploring the links between CRM and Sustainability: a systematic bibliometric analysis

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Framing of the research. *Digital transformation and digital technologies paved the way for a more sustainable approach. However, firms are still looking for viable ways to enhance their business relationships by adopting sustainable principles as guidance for their development. Therefore, as the sustainability trend are significantly influencing business behaviour (Muller, 2014), the role of Customer Relationship Management (from now on, CRM) emerges under a new shape to support the development of sustainable business relationships.*

Firms' efforts are now more than ever in developing long-lasting business relationships. Moreover, these relationships are now devoted to cooperation toward a sustainable world (Wahab, 2010). The reasons behind the intersection between customer relationship management and sustainability principles literature are manifold. Among the others, the present study highlights the link between the development of long-lasting customer relationships and increasing attention toward sustainable practices. Here, sustainability emerges as a new users' need. Therefore, firms are called to discover and develop into new products and services and, finally, as the threshold to access certain relationships (van Berg and Stamer, 2012).

Customer Relationship Management is both a strategic approach to business relationships management and a technological tool devoted to the former aim (Vesal, 2021; Buttle, 2004). According to Buttle (2004, p. 34), it is possible to consider CRM as "the core business strategy that integrates internal processes and functions, and external networks, to create and deliver value to targeted customers at a profit". Thus, the CRM ecosystem entails the interplay of several actors (vendors, developers, consultants, customers, users) (Buttle, 2004).

CRM is primarily deployed to support the firm in developing and improving business relationships over time. However, the extant literature recognises four approaches to CRM: strategic, operational, collaborative and analytical. Below these different approaches are briefly presented:

- *Strategic: concerned with how the organisation can increase shareholder value by developing superior customer relationships (Iriana et al., 2013). Implementing a strategic CRM demands investments in technology, processes, and people (Buttle, 2004).*
- *Operational: enhanced by the determination to automate and increase the efficiency of the CRM processes, customer service and support systems, sales force automation and marketing automation belong to this category (Cruz-Jesus et al., 2019; Iriana and Buttle, 2007).*
- *Collaborative: used to manage and integrate communication channels and customer interaction touchpoints, an institutional website. E-mails and Facebook pages are examples of collaborative systems (Cruz-Jesus et al., 2019; Iriana and Buttle, 2007).*
- *Analytical: used to provide better knowledge about actors' behaviour as a perceived need of individuals, containing several business intelligence applications such as data mining (Cruz-Jesus et al., 2019; Iriana and Buttle, 2007).*

In terms of sustainability, this study considers its main dimensions. In fact, literature shows several conceptualisations. However, according to Brundtland et al. (1987), the manuscript refers to sustainability triple bottom line. Hence, a balance between social, environmental, and economic pillars. So far, sustainability has increasingly become the driver for innovation and change, thus for entrepreneurship the development of new products and the innovation of production processes (McDowall et al., 2017; Gast et al., 2017; Parrish, 2010; Jones et al., 2008), as well as the need to look for new business relationships and networks (Sabatini et al., 2021). Nonetheless, sustainability also plays a central role

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in the development of business relationships (Sabatini et al., 2021; Lacoste, 2016; Mariadoss et al., 2011). Particularly in business relationships, sustainability can become:

- a threshold for accessing certain relationships or a key feature to enter into certain business networks (Sabatini et al., 2021).
- an “empty” buzzword, risking misleads customer behaviour and purchasing decisions with so-called “greenwashing” (Delmas and Burbano, 2011).
- a strong different perspective for actors of a network (Tura et al., 2019), thus, the firm is called to develop strategies and interfaces to engage with those actors’ keener on sustainability and its practices adoption (Lacoste, 2016; Mariadoss et al., 2011), by improving sustainability communication through green marketing (Fraj et al., 2013; Collins et al., 2007).
- an element not only related to natural and environmental issues, but it is increasingly connected to customer care and societal protection, for instance, in terms of privacy and cybersecurity about personal data management (Nguyen et al., 2020) related to the social dimension.

As above mentioned, there are conditions to identify a relationship between CRM and sustainability, allowing the study to draw potential future research agenda. Extant studies attempted to contribute to such linkage, as these suggest that CRM might enhance sustainability by supporting a more responsible customers’ purchasing choice towards sustainable products (Wahab, 2012) and services. Also, CRM can enhance sustainability by supporting the firm in a thorough understanding of customers’ new needs and desires; developing sustainable products and services (for example, carbon neutrality, footprint reduction, circular economy) (Guerola-Navarro et al., 2021). Moreover, adopting a sustainable approach in CRM usage means deploying efforts towards avoiding - or reducing - typical CRM drawbacks related to data or business relationship management. Some of these drawbacks have been identified by Nguyen et al. (2020). They highlighted inequality, in terms of customers relationships and how these are treated from firms; distrust, in terms of information asymmetries between buyers and sellers; opportunistic behaviour, when dealing with firms having a power imbalance; opportunism when actors cheat and leak information and knowledge at detriments of other, or any deliberate behaviour that might cause damages to other firms; lack of transparency, when customers are not aware of the real information about the products or about specific processes (e.g., Volkswagen “Dieselgate”, or Snowden’s “Datagate”). Thus, CRM misuse (or abuse) risks creating an imbalance between the actors and avoiding win-win relationships (Nguyen et al., 2020).

Purpose of the paper. The present study develops its background from extant literature on business relationships, CRM and sustainability. The purpose of the paper is twofold. Firstly, the study aims to shed light on the role of CRM tools related to sustainable principles. The purpose is matched through a bibliometric analysis literature review to understand the linkage between these two phenomena, specifically understanding which are related topics, if there are authors from countries where the matters are more prevalent, when it has been developed the aggregation of the topics, the most-cited journals and the most used keywords by scholars.

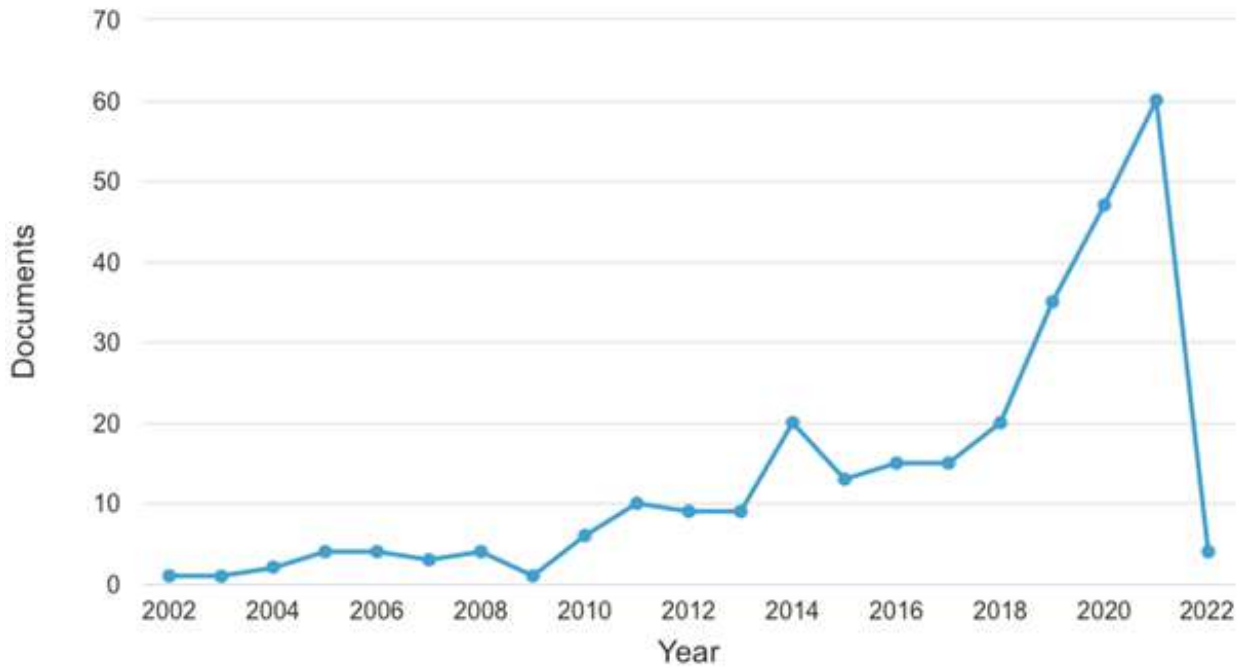
Methodology. In order to investigate the possible linkage between CRM and sustainability, we decided to conduct a systematic bibliometric analysis, which is a rigorous method for exploring and analysing large volumes of scientific data (Donthu et al., 2021). As a matter of fact, a bibliometric approach consists of applying statistical methods to determine qualitative and quantitative changes in a given scientific topic (De Bakker et al., 2005). Data mining was conducted in January 2022 using Scopus, a premier worldwide scientific database of papers, whilst the data analysis was carried out using VOS viewer version 1.6.17 (released on July 22, 2021). In order to find the studies on CRM and sustainability, we used the following query: (TITLE-ABS-KEY (“customer relationship management”)) AND ((CRM)) AND (sustainability OR “sustainable development”). The search’s results led to 283 documents, with a reference period from 2002 to 2022. From this standpoint, we have identified the adequate keywords analysing papers available in the literature, and then we checked the selected keywords thanks to a brainstorming between all authors of the paper. The main contribution of the bibliometric analysis is that it acts as a guide to the status of research (Rey-Martí et al., 2016) providing useful information and emerging trends for the selected topics in a particular field (Alsharif et al., 2020). In this research we used the following bibliometric indicators: year of publication, research area, country of publication, most frequently cited journals, top all keywords, all keywords, and keywords-clusters.

Results. The study results unfold in the description of the systematic bibliometric analysis on the subjects of customer relationships management and sustainability. The systematic bibliometric analysis structure develops according to the following relevant dimensions: year of publication, research area, country of publication, most cited journals, top all keywords, all keywords, clustering. For each dimension, the manuscript presents data and discusses related implications.

Year of publication

Firstly, as shown in fig.1 (Below), we used the “year of publication” as a unit of analysis. This indicator revealed that the topic is growing year by year, and it has had the first increase from 2010. After that, it has had an exponential growth from 2018. Hence, findings show that the interest in this area of knowledge has increased year by year. However, this analysis was made in early 2022, for this reason, the scant number of papers published this year cannot be considered.

Fig. 1: year of publication



Source: authors' elaboration on Scopus, Jan. 2022

Research area

In order to reach useful information about the CRM and sustainability topics, table 1 reports the number of articles published in different knowledge fields. As it can be noted, there are 152 papers written in the "Business, management and accounting" area, probably because CRM is foremost a management subject. Contrarily, sustainability is an interdisciplinary discipline, where research concerns different fields. Probably, this aspect could explain the other research areas present in table 1, namely "environmental sciences", "energy", "social sciences", "engineering". Thus, findings reveal an important difference between the number of studies published in "business, economic and management" and the number in other research areas. This evidence demonstrates that these two topics are relevant in the field of business economics. As already mentioned in the paragraphs above, CRM means approaching business relationships and software development. That explains why there are 87 papers published in the "Computer science" area and why there are many research areas close to the software world.

Tab. 1: Research area

RESEARCH AREA	DOCUMENTS
<i>Business, Management and Accounting</i>	152
<i>Computer Science</i>	87
<i>Social Sciences</i>	49
<i>Decision Sciences</i>	45
<i>Engineering</i>	45
<i>Economics, Econometrics and Finance</i>	38
<i>Environmental Science</i>	24
<i>Energy</i>	22
<i>Mathematics</i>	11

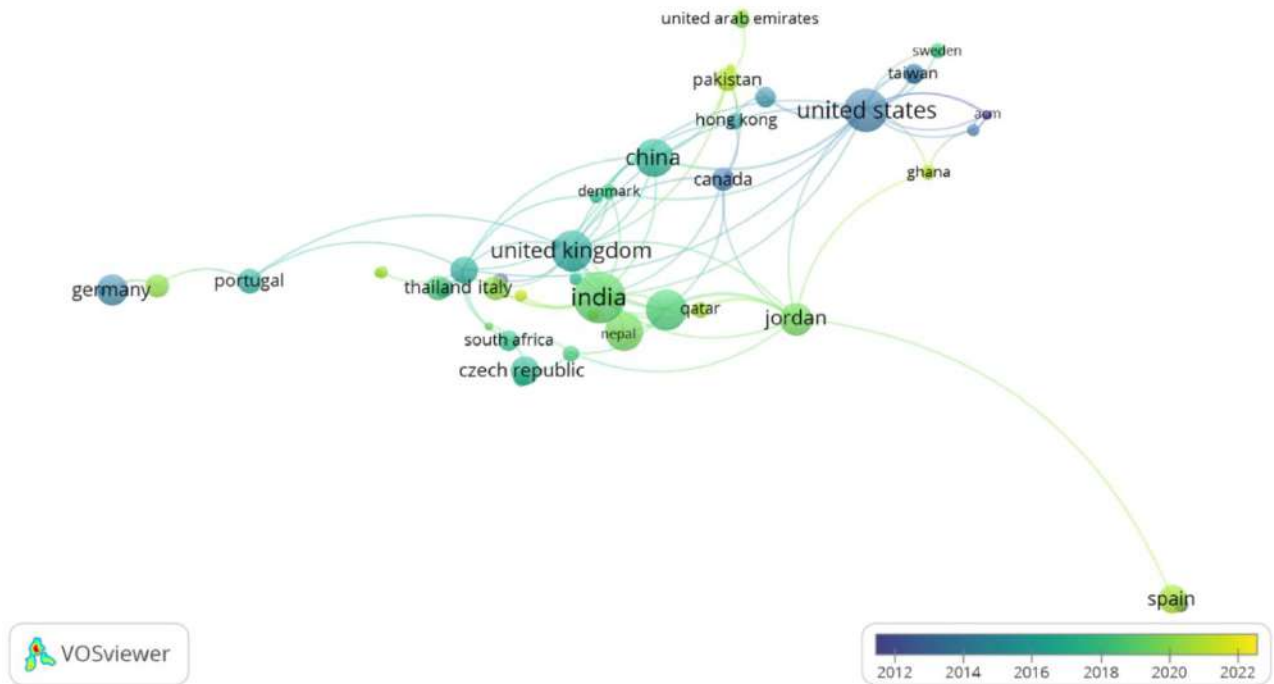
Source: authors' elaboration on Scopus, Jan. 2022

Country of publication

Another interesting aspect concerns the geographic division of the published documents. From this standpoint, India is in the first position with 36 publications, followed by the United States with a total of 26 published papers, Malaysia (23 papers) and the United Kingdom (22 papers). By contrast, Italy is in 13th place with a number of 8 published articles. It is interesting to notice that fig. 2 (below) shows the articles' publication from a temporal perspective. In particular, the United States has a blue colour, which means that it has begun publishing articles since 2012. Instead, the United Kingdom have lighter blue because it has commenced between 2015/2016. In addition, it is really interesting to note that India is extremely productive because it has a large number of publications, but it has started to produce research only between 2018/2020. Furthermore, by the greener colour of Italy's circle, it can be deduced that this country has only eight articles maybe because it has started only in the last three years to realise the analysis on these topics.

Lastly, Spain is another country that has started to publish in recent years. For this reason, in the following fig. 2, it has a yellow colour.

Fig. 2: Countries in and overlay visualisation



Source: authors’ elaboration on VOS viewer, Jan., 2022

Most relevant sources

This study shows the most frequently cited journals for the two analysed topics. This unit of analysis allows understanding the most influential publications in a specific research field (Donthu et al., 2021). In order to reach the aim, table 2 shows that the “International Journal of hospitality management” is at the top of the ranking with only three papers, but an important number of citations. The “Sustainability” journal ranked second position, with fewer citations than “International Journal of hospitality management” but with a larger number of published documents. This indicator is essential in the bibliometric analysis because, nonetheless, there are various methods to establish the relevance of publications in a research area, the most objective and forthright measure of its impact are its citations (Pieters & Baumgartner, 2002; Stremersch et al., 2007).

Tab. 2: most cited journals

SELECTED	SOURCE	DOCUMENTS	CITATIONS
✓	International Journal of hospitality management	3	221
✓	Sustainability	15	119
✓	Ieee transactions on industrial informatics	1	114
✓	Journal of information technology	1	110
✓	Journal of personal selling and sales management	1	84
✓	Technological forecasting and social change	2	79
✓	Decision support systems	1	79
✓	Spanish journal of marketing	1	56
✓	Journal of small business and entrepreneurship	1	47
✓	Marketing theory	1	46

Source: authors’ elaboration on VOS viewer, Jan. 2022

Top all keywords

While the previous findings are based on publications, now the unit of analysis are “words” (Donthu et al., 2021). The top of all keywords summarises the main aims of the study, and perhaps, these could examine the content of papers themselves. As it can be noted in table 3, “customer relationship management” ranks the first position with 137 occurrences and 490 total link strength, followed by “public relation”, “sales”, “information management” and “sustainable development” with 34 occurrences and 198 total link strength. Then, we can find “CRM” with 49 occurrences and

167 total link strength; next, there are “customer satisfaction”, “information systems”, “competition”, and “innovation”.

Tab. 3: Top all keywords

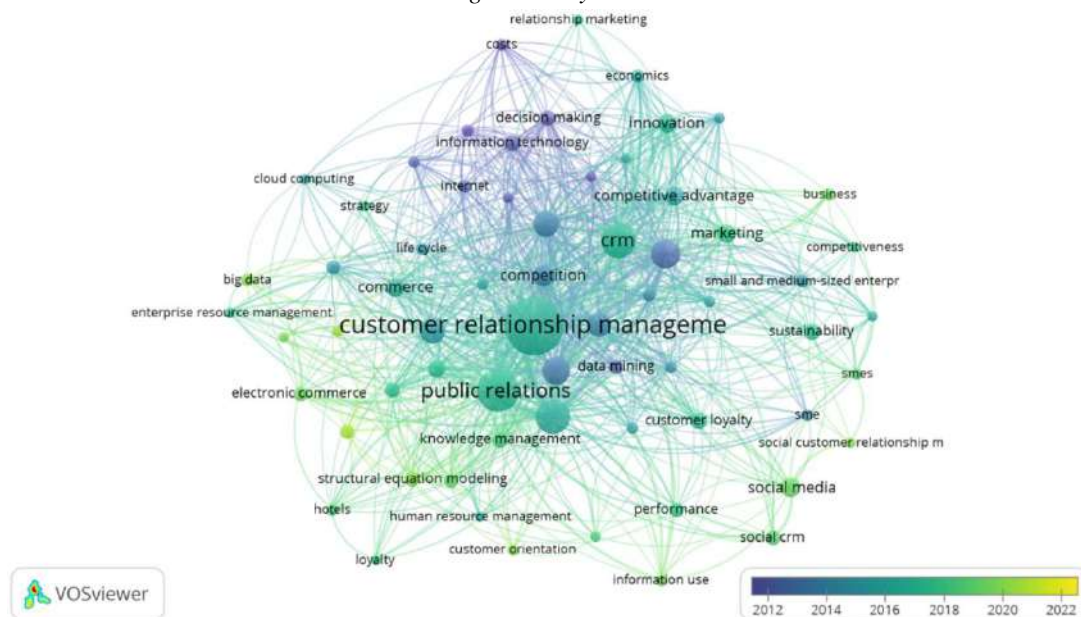
SELECTED	KEYWORD	OCCURRENCES	TOTAL LINK STRENGTH
✓	Customer relationship management	137	490
✓	Public relations	71	399
✓	Sales	49	309
✓	Information management	27	202
✓	Sustainable development	34	198
✓	CRM	49	167
✓	Customer satisfaction	32	163
✓	Information systems	24	147
✓	Competition	19	142
✓	Innovation	15	105

Source: authors' elaboration on VOS viewer, Jan. 2022

All keywords

As shown in fig. 3 (below), the research initially focused on companies, so this approach was foremost “firm-centric”. Consequently, the main analysed topics were “information technology”, “internet”, “data mining”, “costs” and “decision making”. Later, the analysis was centred on “competition”, “sustainable development”, “competitive advantage”, “information management”, and “information systems”. Based on these topics, it is possible to state that there still was a firm-centric approach in those years (2014-2016). Then, between 2017-2019, the main keywords most used were “customer relationship management”, “public relations”, “innovation”, and “SME”. Hence, we can hypothesise that there was a more open attitude based on building a relationship with the consumer in this period. In fact, the customer-centric approaches have started to redefine CRM (Muller, 2014). At a later stage, research has focused on new concepts, represented by the following keywords: customer loyalty, performance, sustainability, loyalty. At this point, sustainability became an evident topic. In addition, there was a new approach, CRM was adopted for a customer loyalty purpose rather than a creation of the relationship. Furthermore, nowadays, the emergent keywords are social media, social customer relationship management, big data, and electronic commerce. This new trend suggests that online marketing is a significant business domain in today's world, and it is opening new research topics. Finally, the approach becomes strongly related to two mega-trends, namely digitalisation and sustainability contextualised in the world of customer relationship management.

Fig.3: All keywords



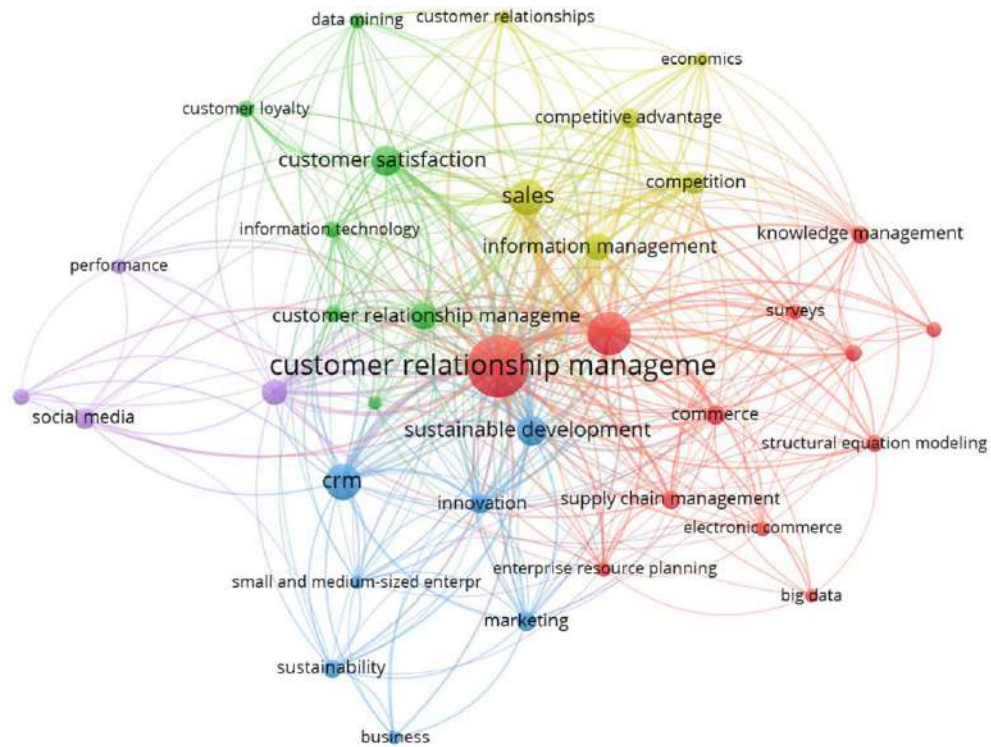
Source: authors' elaboration on VOS viewer, Jan. 2022

Clustering

In order to highlight the connections between different topics, clustering is a crucial unit of analysis for bibliometrics, whose primary purpose is to develop thematic or social clusters. As noted in fig. 4, our analysis reveals five main

clusters. The red one is focused on CRM, and it is the most linked with all the other clusters. CRM covers economic topics such as commerce, organisational performance, supply chain management and big data. The yellow one regards sales, and the related keywords are information management, competition, competitive advantage, and economics. Sales is an important topic, as reported in table 2 too, and it can be considered the completion of commercial activity (Muller, 2014). The green one concerns customer satisfaction area, and it is linked with customer loyalty, data mining and information technology. The purple one is specific to the information system subject, and it is linked to topics such as performance, social media, and social CRM. Lastly, the blue one covers the other main theme of this research: sustainable development. It is connected with innovation, marketing, business, and sustainability.

Fig. 4: Five main clusters.



Source: authors' elaboration through VOS viewer, Jan. 2022

The results of the bibliometric analysis suggest that the intersection between CRM and sustainability is rather new. Therefore, the new avenue of CRM linked with sustainability opens to further avenues both for research and managerial practice. Particularly, firms challenge is to identify new means for developing business relationships and software that improve their performance according to the triple bottom line approach. Thus, it is possible to expect an increasing number of studies on the subject, both toward the empirical understanding and the theoretical development of the phenomenon.

Research limitations. The study is not without limitations. First of all, it is still ongoing, and it represents partially the findings of a larger research project. Then, the relationship between CRM and sustainability is a new and emerging topic, and it may present methodological and theoretical pitfalls not yet known. Thirdly, the present study only relies on bibliometric data, not gathering insights from firms - and key informants such as managers and entrepreneurs - and encompassing their perspectives to develop new theoretical and managerial implications.

Finally, even though Scopus is considered one of the most suitable and reliable publications databases for most researchers, some other relevant papers might be not included - or included in other databases - and/or might have been overlooked.

Managerial implications. The present manuscript suggests that the linkage between CRM and sustainability might emerge with several potential implications for managers and practitioners. However, while the analysis of the extant literature shows the low maturity of the subject, it is possible to say that also within the firm, those concepts are still in infancy. In fact, the intersection between business relationships, digital technologies and sustainability is yet to be managed. Therefore, the present study suggests that managers and entrepreneurs should provide new efforts in integrating customer relationships management, technology, and sustainability under the same strategic approach. Furthermore, firms are now called to adopt the new strategic approach that should be aimed to manage a more sustainable development - according to three dimensions of the triple bottom line - of the firm and its business network.

Originality of the paper. The paper gives an overview of the linkage between CRM and sustainability, aiming to shed new light on the intersection between digital technologies and sustainability. To the best of our knowledge, the

present study is the first to position its attention in the intersection of more literature streams and attempts to uncover new research avenues linking sustainability and digital technologies adoption, specifically CRM tools. The novelty of the topic entails the study making several assumptions that call for further explorations and validation. The same group of researchers established a roadmap of studies and data collection concerning the topics, aiming to begin new theoretical and managerial contributions.

Keywords: CRM; sustainability; customer relationship management; sustainability management; business relationships

References

- ALSHARIF A.H., MD SALLEH N.Z., BAHARUN R. (2020), "Research Trends of Neuromarketing: A Bibliometric Analysis", *Journal of Theoretical and Applied Information Technology*, vol. 98 n. 15, pp. 2948-2962.
- BRUNDTLAND G.H., KHALID M., AGNELLI S., AL-ATHEL S., CHIDZERO B., (1987), *Our common future*, World Commission on Environment and Development (WCED), Oxford University Press Oxford.
- BUTTLE F. (2004), *Customer Relationship Management: concepts and tools*, Elsevier, Oxford.
- COLLINS E., LAWRENCE S., PAVLOVICH K., RYAN C. (2007), "Business networks and the uptake of sustainability practices: the case of New Zealand", *Journal of Cleaner Production*, vol. 15, n. 8/9, pp. 729-740.
- CRUZ-JESUS F., PINHEIRO A., OLIVEIRA T. (2019), "Understanding CRM adoption stages: empirical analysis building on the TOE framework", *Computers in Industry*, n. 109, pp. 1-13.
- DE BAKKER F.G., GROENEWEGEN P., DEN HOND F. (2005), "A bibliometric analysis of 30 years of research and theory on corporate social responsibility and corporate social performance", *Business & Society*, vol. 44, n. 3, pp. 283-317.
- DELMAS M.A., BURBANO V.C. (2011), "The drivers of greenwashing", *California management review*, vol. 54, n. 1, pp. 64-87.
- DONTHU N., KUMAR S., MUKHERJEE D., PANDEY N., LIM W.M., (2021), "How to conduct a bibliometric analysis: An overview and guidelines", *Journal of Business Research*, 133, 285-296.
- FRAJ E., MARTÍNEZ E., MATUTE J. (2013), "Green marketing in B2B organisations: an empirical analysis from the natural resource-based view of the firm", *Journal of Business & Industrial Marketing*, vol. 28, n. 5, pp. 396-410.
- GAST J., GUNDOLF K., CESINGER B. (2017), "Doing business in a green way: a systematic review of the ecological sustainability entrepreneurship literature and future research directions", *Journal of Cleaner Production*, vol. 147, pp. 44-56.
- GUEROLA-NAVARRO V., GIL-GOMEZ H., OLTRA-BADENES R., SENDRA-GARCÍA J. (2021), "Customer relationship management and its impact on innovation: A literature review", *Journal of Business Research*, n. 129, pp. 83-87.
- IRIANA R., BUTTLE F. (2007), "Strategic, Operational, and Analytical Customer Relationship Management", *Journal of Relationship Marketing*, vol. 5, n. 4, 23-42.
- IRIANA R., BUTTLE F., ANG L. (2013), "Does organisational culture influence CRM's financial outcomes?", *Journal of Marketing Management*, vol. 29, n. 3-4, pp. 467-493.
- JONES P., CLARKE-HILL C., COMFORT D., HILLIER D. (2008), "Marketing and sustainability", *Marketing Intelligence & Planning*, vol. 26, n. 2, pp. 123-130.
- LACOSTE S. (2016), "Sustainable value co-creation in business networks. *Industrial Marketing Management*, vol. 52, pp. 151-162.
- MARIADOSS B.J., TANSUHAJ P.S., MOURI N. (2011), "Marketing capabilities and innovation-based strategies for environmental sustainability: an exploratory investigation of B2B firms", *Industrial Marketing Management*, vol. 40, n. 8, pp. 1305-1318.
- MCDOWALL W., GENG Y., HUANG B., BARTEKOVÀ E., BLEISCHWITZ R., TÜRKELY S., KEMP R., DOMÉNECH T. (2017), "Circular economy policies in China and Europe", *Journal of Industrial Ecology*, vol. 21, n. 3, pp. 651-661.
- MULLER A.L. (2014), "Sustainability-Oriented Customer Relationship Management - Current State of Research and Future Research Opportunities", *Management Review Quarterly*, vol. 64, n. 4, pp. 201-224.
- NGUYEN B., JABER F., SIMKIN L. (2020), "A systematic review of the dark side of CRM: the need for a new research agenda", *Journal of Strategic Marketing*.
- PARRISH B.D. (2010), "Sustainability-driven entrepreneurship: principles of organisation design", *Journal of Business Venturing*, vol. 25, n. 5, pp. 510-523.
- PIETERS R., BAUMGARTNER H. (2002), "Who talks to whom? Intra-and interdisciplinary communication of economics journals", *Journal of Economic Literature*, vol. 40, n. 2, pp. 483-509.
- REY-MARTÍ A., RIBEIRO-SORIANO D., PALACIOS-MARQUÉS D. (2016), "A bibliometric analysis of social entrepreneurship", *Journal of Business Research*, n. 69, pp.1651-1655.
- SABATINI A., O'TOOLE T., GREGORI G.L. (2021), "Integrating sustainability in business network initiation: the case of an Italian pasta maker", *Journal of Business & Industrial Marketing*, vol. 36, n. 10, pp. 1894-1908.

- STREMERSCHE S., VERNIERS I., VERHOEF P.C. (2007), "The quest for citations: Drivers of article impact", *Journal of Marketing*, vol. 71, n. 3, pp. 171-193.
- TURA N., KERÄNEN J., PATALA S. (2019), "The darker side of sustainability: tensions from sustainable business practices in business networks", *Industrial Marketing Management*, vol. 77, pp. 221-231.
- VESAL M., SIAHTIRI V., O'CASS A., (2021), "Strengthening B2B brands by signalling environmental sustainability and managing customer relationships", *Industrial Marketing Management*, n. 92, pp. 321-331.
- WAGNER VOM BERG B., STAMER D. (2012), "Sustainability CRM. A case study in the mobility sector", In *Proceedings of the European, Mediterranean & Middle Eastern Conference on Information Systems 2012 (EM-CIS2012)* (pp. 07-08), "
- WAHAB S. (2010), "The Evolution of relationship marketing (RM) towards customer relationship management (CRM): A step towards company sustainability", *Information Management and Business Review*, vol. 1, n. 2, pp. 88-96.

Websites

<https://www.vosviewer.com/>, accessed January 2022.

https://www.ilsole24ore.com/art/dieselgate-class-action-italiani-anche-germania-AEbqNXEB?refresh_ce=1, accessed February 2022.

<https://st.ilsole24ore.com/art/2013/2013-10-23/tutto-quello-che-avreste-voluto-sapere-datagate--chi-e-edward-snowden-230045.shtml?uuid=ABGvNuY>; accessed February 2022.

Environmental SDGs and innovation: a goal setting theory perspective at company level

DOMENICO MECCA * DUCCIO TOSI • GIOVANNI TOLIN [♠]

Framing of the research.

The Goal Setting Theory

In business science, researchers have always investigated the impact of goal setting in firms' strategies, activities, and performances (Locke and Latham, 2006). According to Locke and Latham (1990; 2002), the Goal Setting Theory (GST) arises from the belief that life is a process of actions oriented towards achieving a goal. The first milestone of this theory investigates the relationship between goals and individual performance was investigated (Locke, 1968). Since then, there has been a growing development about goal setting. In 1990 Locke and Latham formulated the GST, which has been implemented over time, refined, and used as a theoretical framework for various studies in different scientific disciplines (Locke and Latham, 2006; Locke and Latham, 2013). In organizations, individuals focus on achieving goals and are motivated by this. Goals can take on an internal (desired ends of achievement) or external (an object or a condition being sought) character for the individual (Locke, 1996; Locke and Latham, 2006). Usually, the more difficult and specific the goals are, the higher the levels of performance achieved (Locke and Latham, 2006). Therefore, the performance levels depend on the goals, through which the direction of action, the degree of effort exerted, and the persistence of action overtime is defined. High levels of performance are related to high goals, a strong dedication to achieving the goal by people, and the competence, in terms of skill and knowledge, necessary to achieve that goal (Locke, 1968; Locke et al., 1988; Locke and Latham, 2006). The level of commitment increases the more an individual believes that the achievement of the goal is important and attainable. To achieve high performance, individuals should receive continuous feedback on the goodness of their actions and the progress made towards achieving the goal. Another central theme related to goal setting is the complexity of the task, which is directly proportional to the level of competence needed to complete it (Earley, 1985; Wood et al., 1987).

As already stated above, GST has been used in various scientific disciplines in business studies. The managerial branches that have benefited most from it are "Human resources management" (Greenhouse et al., 1995; Ashraf et al., 2012; Khushk et al., 2021) and "Performance management" (Terpstra and Rozell, 1994; Lunenburg, 2011; Kleingeld et al. 2011). The "Healthcare management" area also made use, albeit to a lesser extent, of the Goal Setting Theory (Vainieri et al., 2016; Lehmann et al., 2019; Chak et al., 2021). However, in recent times particular interest has been shown for the application of the theory in "Sustainability management" (Biermann et al., 2017) and "Innovation management" (Vikkelsø et al., 2021), as emerges in the following paragraphs.

Given the lack of integration between managerial branches, the purpose of this study is to provide a research framework between sustainability and innovation under the GST perspective. Starting from the literature review provided in the next paragraphs, we carried on an explorative analysis of secondary data from 30 Italian companies in the industrial sector to investigate how setting sustainable goals generates innovation practices.

GST and Sustainability

There are many branches in the sustainability field to which the GST is applied. A lot of research approaches GST to study pro-environmental and sustainable behaviour from an individual level. Staples et al. (2020) and Mc Donald et al. (2012) agree that the frequency of sustainable behaviour increases when goal setting is applied. Instead, at a company level Zonienè and Valiulè (2019) analyze how to justify the sustainable investment by GST. They highlight how sustainable goal settings help organizations to position themselves successfully on the market, moving from the short-term strategies culture to long-term sustainable business strategy. Dynamic structure benchmarking model able to map and fix appropriate and achievable sustainable goal settings in the supply chain has been developed by Zhou et al. (2021) as an instrument for investigating the existing issue and identifying possible improvement goals.

Most studies involving GST and sustainability focus on the application, dissemination, and monitoring of the Sustainable Development Goals (SDGs). According to Biermann et al. (2017), the characteristics of goal setting are key

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strategies for a novel kind of governance, where the 2030 Agenda represents the reference framework. Institution and regional organizations play different roles in the 2030 Agenda implementation that can be summarised in translation, support, coordination, and monitoring roles in managing the new governance through SDGs (Marx et al., 2021). Governance strategies based on the concept of goal settings can improve the TBL sustainability of counties and companies. However, implementation of policy based on unrealistic goal setting is not able to address the effort to produce positive effects on the SDGs program (Ajuorl, 2018).

To present, the evaluation of GST concerning the 2030 Agenda is studied only at a macro level (Biermann et al., 2017). In literature there are still no studies focused on the role of GST in the logic of SDGs at the company level, despite many efforts are currently being made by companies.

GST and Innovation

Considering the impact of the GST in the innovation field, there are three main areas to underline. First, GST plays a key role in innovative behaviour both at the individual and the team level (Bledow et al., 2021). At the individual level, researchers investigated the relationship between GST and innovative behaviours in different work contexts and its determinants. It emerged that this relationship may be enhanced through employees' commitment or through extensive support of employers or supervisors (Montani et al., 2017). Authors claimed that it can be negatively impacted by goals' characteristics (e.g., difficulty, clarity, performance pressure) (Stetler and Magnusson, 2015; Nguyen et al., 2019) and by low job satisfaction (Abukhait and Pillai, 2017). At the team level, there are several aspects related to GST and its challenges (Vikkelsø et al., 2021). Innovative behaviours are positively impacted by shared goals' orientation (Alexander and Van Knippenberg, 2014), inclusive leadership (Ye et al., 2019), low levels of bureaucracy (Hirst et al., 2011), and social skills (Garud and Prabhu, 2021).

In addition, GST has a major role also in product innovation (Lindman, 2002) and process innovation (Zhang et al., 2018; Chang et al., 2019; Vikkelsø et al., 2021). In particular, in the development of a new product, it emerged the need to align goals between the different participants in the design process (Ablas et al., 2014). Hereby, we observed that product innovation under the GST is influenced by several elements such as budgetary participation, asymmetric information, trust, job satisfaction, and performance (Cheng et al., 2014; Pe-Than et al., 2020).

However, given the focus on possible innovation typologies determined in a GST framework, it emerged a general lack of analysis on the elements that determine these three different innovative outcomes in an integrated way (Hirst et al., 2011; Alexander and Van Knippenberg, 2014; Vikkelsø et al., 2021).

Purpose of the paper. Despite the close relationship between the SDGs program and GST, the integration of GST in studies concerning the contribution of companies to achieving the SDGs has not yet been investigated. Most of the research examines the role of GST at the macro-level like policies, strategies, governance (Biermann et al., 2017, Pochukaeva et al., 2019). Yet, at the micro-level, the strategies of companies in support of the 2030 Agenda are increasingly widespread (Van der Waal and Thijssens, 2020).

Many strategies are adopted by companies to readapt and innovate their activities towards the environmental dimension of SDGs (e.g., reduction of CO2 emissions, minimization of water and energy consumption, reduction of waste production, efficient use of raw materials) (Khaled et al., 2021). However, there is a general lack of integration between sustainability and innovation under a GST perspective (Ablas et al., 2014; Manninen and Huiskonen, 2019). From our analysis, at a micro-level, it is not always clear if the setting of SDGs always led a company to innovate and what kind of innovation this particular goal setting can generate at a behavioural, product, and process-level (Cordova and Celone, 2019; Van der Waal and Thijssens, 2020).

In this regard, this work aims to bridge these gaps in the literature by integrating the application of the GST in the sustainability and innovation field to assess if the SDGs setting generates innovation and what are its characteristics. Our study addresses the following research questions: does the environmental SDGs setting stimulate innovation practices for a company? If any, what kind of innovation does it stimulate?

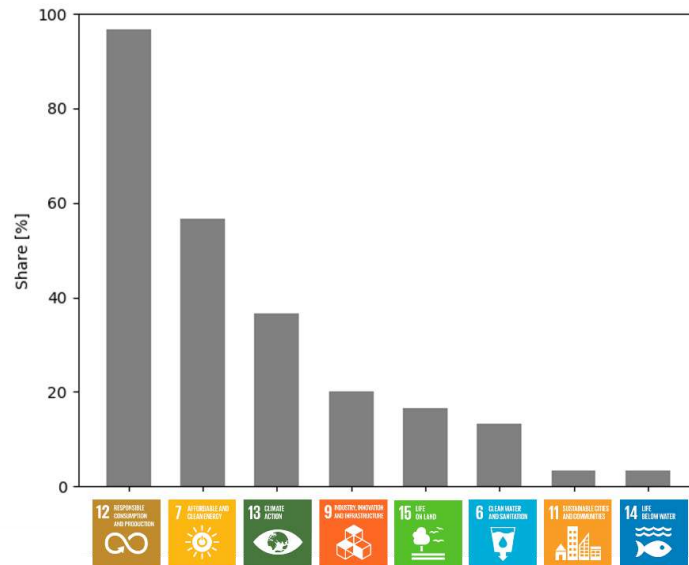
Methodology. To answer our research question, we used a qualitative method, conducting an exploratory analysis on secondary data, which underlies an inductive approach (Stebbins, 2008). On the basic principles of theoretical sampling (Eisenhardt, 1989), we searched for the units for research based on characteristics or attributes that are important for the evaluation (Yin, 2018): large Italian companies that belong to the industrial sector and openly pursue Environmental Sustainable Development Goals (SDGs). To select the companies that are part of our sample, therefore, we used the "BBS Biblioteca Bilancio Sociale" database, containing the names of many companies that have the Social Report (or Sustainability Report or Non-Financial Disclosure or CSR Report) and the relative link that refers to the document. To carry out the search we used the "Economic sector" filter, limiting it to "Industrial sector". We considered it appropriate to focus on the industrial sector because it is the one that most of all has an environmental impact and that is most stimulated and oriented to provide innovative thrusts as a response to the problems inherent to sustainability (Kneipp et al., 2019). This is especially true for large companies. On the other hand, the decision to select only Italian companies contained in the database lies not only in reasons for ease of reachability of the companies, but also in the desire to limit the phenomenon analysed to a specific geographical area. Indeed, the approaches to environmental problems and innovative processes can change a lot depending on the country of origin, as there are different organisational and industrial cultures (Ardichvili et al., 2010; Glinkowska-Krauze et al., 2020).

Within the database, the companies belonging to the industrial sector that submitted a Social Report (or similar documents) were found to be 88. Among these, 28 were non-Italian companies and, therefore, were excluded. Then, we analysed the Social Reports, Sustainability Reports, Non-Financial Disclosures, and CSR Reports of all 60 selected companies. This step served to identify which companies openly pursue Environmental SDGs. Specifically, we

considered the SDGs 6, 7, 9, 11, 12, 13, 14, 15 as some are explicitly related to environmental issues. From this analysis, it emerged that 30 companies pursue Environmental SDGs. These companies, therefore, represent the sample of our study. At this point, we analysed for the second time and in more depth the Social Reports, Sustainability Reports, Non-Financial Disclosure, and CSR Reports of the companies in our sample to investigate whether the pursuit of Environmental SDGs generates practices of innovation and, if so, what kind of innovation. In particular, we focused on product innovation, process innovation, and behavioural innovation.

Results. To test the hypothesis that, from a GST perspective, the adoption of the SDGs at the company level generates innovation practices, we made an exploratory analysis of the secondary data of the sampled companies. The sustainability reports and non-financial statements have been carefully investigated to find relationships between the generation of innovation driven by the achievement of one or more SDGs. Only one company does not adopt any innovative practice while considering the SDGs within its report. The remaining companies adopt innovations linked to achieving from one to six objectives among those selected.

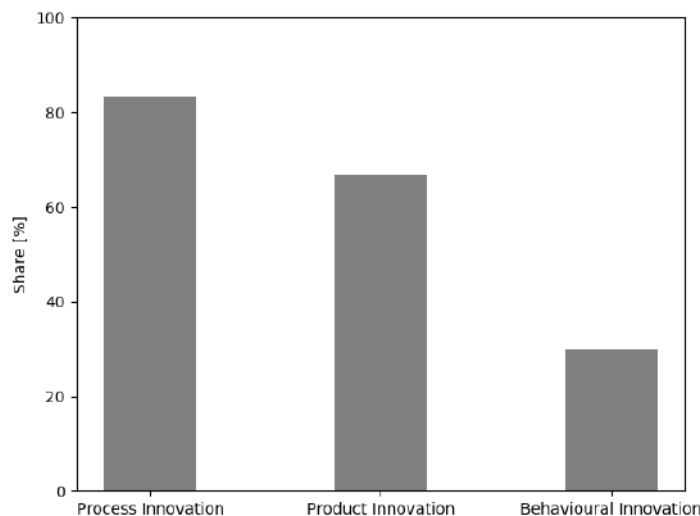
Fig. 1: Widespread of SDGs underlying the adoption of innovative practices in the sampled companies.



Source: Own elaboration

SDG 12 has the greatest thrust on innovative practices adoption. SDG 7 and 13 are also of considerable importance as an engine for the diffusion of innovation. To a lesser extent, innovative practices related to Goals 9, 15, and 6 have been identified in several reports. Finally, goals 11 and 14 were observed respectively only in one company. Figure 1 illustrates the dissemination of innovative practices relating to each SDG within companies.

Fig. 2: Widespread of the three innovation dimensions within the sampled companies.



Source: Own elaboration.

The innovative practices found have been differentiated into three dimensions: product innovation, process innovation, and behavioral innovations in employee habits. As shown in figure 2, process innovations are the most

widespread, with a share of over 80%. Also, product innovation practices with sustainable purposes are diffused in many companies, but less so than process innovations. On the other hand, innovative behaviours are the least adopted in the companies sampled at present. Among those three investigated dimensions, we observed that the processes stimulated are linked not only to innovation but mainly to eco-innovation (Hellestrom, 2007). The main innovation elements adopted in the three dimensions are illustrated below.

Product innovation

Product innovation includes several practices adopted transversally by companies. Although the products are different from each other in the companies analyzed, the same logic underlying the design and implementation practices has been found. Eco-design plays the principal role in the innovative push of the product. In particular, thanks to an intelligent design, the product is modified to reduce its environmental impact. Replacement or modification of material has been identified as principal practices able to increase the lifetime of the product and its components. Furthermore, toxic or potentially toxic substances are often reduced or fully eliminated. The product is also modified to favour the reuse of waste or by-products as secondary raw material. Packaging is also considered in improving sustainability practices. In several companies, new biodegradable materials, bioplastics, or recycled plastics have been used to realize sustainable packaging. Furthermore, from the analysis emerges the adoption of new techniques able to optimize the material used and reduce its quantity in the product design.

Process innovation

Process innovation concerns the biggest slice of the innovation dimensions considered in this study. The bases of these innovations are new technologies, energy sources, logistical and organisational practices aimed at making the process more efficient by reducing the quality of water, material, and energy used, as well as reducing the emission of greenhouse gases and air pollutants.

The optimization of water use is expressed with the recovery of heat from outgoing water flows, condensation water, and evaporation flows. In addition, many companies build an internal wastewater treatment plant to reuse the water leaving the process. With a view to reducing consumption, a common practice is the replacement of water-intensive machines with new, lower-consumption technologies. From an energetic point of view, companies tend to reduce the supply from non-renewable sources by building photovoltaic systems, tri-generators, cogeneration systems, heat pumps, and connections to the district heating network. Attention is paid to the emission of dust and gases into the atmosphere, reducing the quantity thanks to new air purification technologies. To reduce CO₂ emissions, new systems are adopted for handling materials using compressed air or internal railway lines. Finally, new technologies capable of reducing waste thanks to the optimization of the use of machinery and the distribution of materials are adopted. The logic of the circular supply chain is favoured to integrate secondary raw materials into the process. New technologies with a view to industry 4.0 (such as the use of sensors, actuators, and signal tools) to improve the overall sustainability of the process are emerging.

Behavioural innovation

Behavioural innovations in employee habits are the least widespread in the three dimensions. However, some virtuous cases have been identified. The two main applications are sustainable mobility and rational use of resources and energy. In the first case, various incentive programs for electric mobility, car-sharing, or public transport are adopted through implementing infrastructures (eg. Electric charging points) or rewarding systems. In the second case, training and awareness programs are carried out to improve employee habits, providing them alternative solutions to single-use material use (eg. Water dispenser or metal bottle). As a less implemented dimension, it could be the subject of investigation in future research to identify the main barriers, possible strategies, and practical implications that sustainable goal settings may lead to the innovation of employee attitudes.

Research limitations. As in any research, also this work has limitations. First, is based only on secondary data which may provide only a preliminary framework to answer the research question. But this represents just the first version of the research that will be enriched with more data. Second, only the Italian context has been investigated, limiting the results to a specific geographical area. As discussed in the methodology paragraph, this level of analysis may represent a good starting point, but more international cases may be required to set a more generalizable framework. Finally, even if several insights related to process and product innovation emerged, this preliminary research framework did not fully succeed in investigating the impact of SDGs setting on behavioural innovation.

Addressing those limitations, further research may contribute to investigating the relationship between SDGs setting and innovation under a qualitative perspective by integrating secondary data with primary ones, like interviews. From this point of view, the units of analysis may be inside the companies, considering managers that have to strategically orient the company's activities and employees that have to run day-by-day operations. On one hand, this approach should better deal with the identification of the internal dynamics that lead to process and product innovation. On the other, it should help to better assess underlying patterns that may lead to the emergence of innovative behaviours that do not easily emerge from firms' reports. A more in-depth analysis of this sort may better contribute to the integration of sustainability and innovation under a GST perspective.

Managerial implications. The work offers several practical implications for managers and entrepreneurs. The close link between the results derived from the literature review and the preliminary findings from the secondary data analysis, allows us to shorten distances between GST and practice.

A first practical implication is that the paper provides a framework to orientate efforts to generate innovation from the setting of sustainability-oriented goals. From the cases considered, several generalizable elements may support strategic and operational decisions of this sort within a company. In addition, the work may help business actors that

still have not set SDGs as strategic for their companies to understand the potential benefits and the innovative purpose of this sort of sustainability-oriented goals on their internal processes and products' development.

Originality of the paper. The paper contributes to the debate on GST by integrating for the first time the innovation and sustainability level of analysis. We attempt to provide an integrated framework between the setting of sustainability-oriented goals at the company level (i.e., the SDGs) (Zhou et al., 2021; Marx et al., 2021) and their ability to generate different innovations in terms of products, processes, and behaviours (Hirst et al., 2011; Vikkelsø et al., 2021). To the best of our knowledge, this is the first time that these two different perspectives are combined under the GST scheme.

More concretely, to set up a framework of investigation based on real case studies, we considered secondary data produced by 30 Italian companies of the industrial sectors (e.g., Social Reports, Sustainability Reports, Non-Financial Disclosure, and CSR Reports).

The cases addressed in this study are proof that companies' innovation practices may be generated through the strategic goal-setting of SDGs and that those practices are mainly related to product and process innovation. In particular, innovation is mainly linked to product improvement to reduce the quantity of material (SDG 12) and increase its durability, to efficient the production process, to reduce energy consumption (SDG 7), greenhouse gas emissions (SDG 13), water consumption and increase its quality (SDG 6, SDG 14), as much as pro-environmental behaviour to reduce waste and establish sustainable habits.

Keywords: goal setting theory, SDGs, innovation, sustainability

References

- ABUKHAIT R., PILLAI R. (2017), "Discussion paper on the key motivational factors impacting innovative climate", *International Journal of Business Innovation and Research*, vol. 13, n. 1, pp. 92-111.
- AJULOR O.V. (2018), "The challenges of policy implementation in Africa and sustainable development goals", *People: International Journal of Social Sciences*, vol. 3, n. 3, pp.1497-1518.
- ALBLAS A.A., PETERS K.K., WORTMANN J.H. (2014), "Fuzzy sustainability incentives in new product development: An empirical exploration of sustainability challenges in manufacturing companies", *International Journal of Operations & Production Management*.
- ALEXANDER L., VAN KNIPPENBERG D. (2014), "Teams in pursuit of radical innovation: A goal orientation perspective", *Academy of Management Review*, vol. 39, n. 4, pp. 423-438.
- ALI KHUSHK A., ZENGTIAN Z., AMOAH M., GRACE (2021), "Impact of Training and Goal Setting on Employee Engagement and Commitment in Banking Sector of Pakistan", *Journal of Advanced Research in Economics and Administrative Sciences*, vol. 2, n. 3, 89-100.
- ARDICHVILI A., JONDLE D., KOWSKA B. (2010), "Dimensions of ethical business cultures: Comparing data from 13 countries of Europe, Asia, and the Americas", *Human Resource Development International*, vol. 13, n. 3, 299-315.
- ASHRAF Z., JAFFRI A.M., SHARIF M.T., KHAN M.A. (2012), "Increasing Employee Organizational Commitment by Correlating Goal Setting, Employee Engagement and Optimism at Workplace", *European Journal of Business and Management*, vol. 4, n. 2, pp. 71-77.
- BIERMANN F., KANIE N., KIM R.E. (2017), "Global governance by goal-setting: the novel approach of the UN Sustainable Development Goals", *Current Opinion in Environmental Sustainability*, 26-27, 26-31.
- BLEDOW R., KÜHNEL J., JIN M., KUHL J. (2021), "Breaking the Chains: The Inverted-U-Shaped Relationship Between Action-State Orientation and Creativity Under Low Job Autonomy", *Journal of Management*.
- CARSON P.P., CARSON K.D., HEADY R.B., "Cecil alec mace: The man who discovered goal-setting", *International Journal of Public Administration*, vol. 17, n. 9, 1679-1708.
- CHAK C.M., CARMINATI L., WILDEROM C.P.M. (2021), "Interplay of clear, demanding, and important goals on project performance in community-academic health partnerships", *Health Care Management Review*.
- CHANG J.Y., JIANG J.J., KLEIN G., WANG E.T. (2019), "Enterprise system programs: Goal setting and cooperation in the integration team", *Information & Management*, vol. 56, n. 6, pp. 103-137.
- CHENG K.C., CHEN T.C., SHIH N.S. (2014), "The Influence of Budgetary Participation by R&D Managers on Product Innovation Performances: The Effect of Trust, Job Satisfaction and Information Asymmetry", *Asia Pacific Management Review*, vol. 19, n. 2.
- CORDOVA M.F., CELONE A. (2019), "SDGs and innovation in the business context literature review", *Sustainability*, vol. 11, n. 24, pp. 7043.
- EARLEY P.C. (1985), "Influence of information, choice and task complexity upon goal acceptance, performance, and personal goals", *Journal of Applied Psychology*, vol. 70, n. 3, 481-491.
- EISENHARDT K.M. (1989), "Building Theories from Case Study Research", *Academy of Management Review*, vol. 14, n. 4, 532-550.
- GARUD N., PRABHU G.N. (2020), "Linking R&D inventors' social skills and bricolage to R&D performance in resource constrained environments in emerging markets", *IEEE Transactions on Engineering Management*, vol. 68, n. 3, pp. 713-724.

- GLINKOWSKA-KRAUZE B., CHEBOTAROV I., CHEBOTAROV V. (2020), "Comparative Studies of National Business Cultures in the Countries of Central and Eastern Europe: the Basics for Improving International Entrepreneurship in Poland and Ukraine", *Comparative Economic Research*, *Central and Eastern Europe*, vol. 23, n. 1, 7-18.
- GREENHOUSE J., CALLANAN G.A., KAPLAN E. (1995), "The role of goal setting in career management", *International Journal of Career Management*, vol. 7, n. 5, 3-12.
- HELLSTRÖM T. (2007), "Dimensions of environmentally sustainable innovation: the structure of eco-innovation concepts", *Sustainable development*, vol. 15, n. 3, pp.148-159.
- HIRST G., VAN KNIPPENBERG D., CHEN C.H., SACRAMENTO C.A. (2011), "How does bureaucracy impact individual creativity? A cross-level investigation of team contextual influences on goal orientation-creativity relationships", *Academy of management journal*, vol. 54, n. 3, pp. 624-641.
- KHALED R., ALI H., MOHAMED E.K.A. (2021), "The Sustainable Development Goals and corporate sustainability performance: Mapping, extent and determinants", *Journal of Cleaner Production*, vol. 311, pp. 127599.
- KLEINGLED A., VAN MIERLO H., ARENDS L. (2011), "The effect of goal setting on group performance: A meta-analysis", *Journal of Applied Psychology*, vol. 96, n. 6, 1289-1304.
- KNEIPP J.M., GOMES C.M., BICHUETI R.S., FRIZZO K., PERLIN A.P. (2019), "Sustainable innovation practices and their relationship with the performance of industrial companies", *Revista de Gestão*, vol. 26, n. 2, pp. 94-111.
- LEHMANN A., BRAUCHLI R., BAUER G.F. (2019), "Goal Pursuit in Organizational Health Interventions: The Role of Team Climate, Outcome Expectancy, and Implementation Intentions", *Frontiers in Psychology*, vol. 10, n. 154, 1-13.
- LINDMAN M.T. (2002), "Open or closed strategy in developing new products? A case study of industrial NPD in SMEs", *European Journal of Innovation Management*.
- LOCKE E.A. (1968), "Toward a theory of task motivation and incentives", *Organizational Behavior and Human Performance*, vol. 3, n. 2, 157-189.
- LOCKE E.A. (1996), "Motivation through conscious goal setting", *Applied & Preventive Psychology*, vol. 5, n. 2, 117-124.
- LOCKE E.A., LATHAM G.P. (1990), *A theory of goal setting & task performance*, Prentice-Hall, Inc.
- LOCKE E.A., LATHAM G.P. (2002), "Building a practically useful theory of goal setting and task motivation: a 35-year odyssey", *American Psychologist*, vol. 57, pp. 705-717.
- LOCKE E.A., LATHAM G.P. (2006), "New Directions in Goal-Setting Theory", *Current Directions in Psychological Science*, vol. 15, n. 5, 265-268.
- LOCKE E.A., LATHAM G.P. (2013), *New developments in goal setting and task performance*, Routledge/Taylor & Francis Group.
- LOCKE E.A., LATHAM G.P., EREZ M. (1988), "The determinants of goal commitment", *The Academy of Management Review*, vol. 13, n. 1, pp. 23-39.
- LUNENBURG F.C. (2011), "Goal-Setting Theory of Motivation", *International Journal of Management, Business and Administration*, vol. 11, n. 1, 1-6.
- MANNINEN K., HUISKONEN J. (2019), "Sustainability goal setting with a value-focused thinking approach", In *Sustainable Business Models*, pp. 89-118. Palgrave Macmillan, Cham.
- MARX A., PERTIWI S.B., DEPOORTER C., HOORNICK M., MURSITAMA T.N., OTTEBURN K., ARNAKIM L. Y. (2021), "What role for regional organizations in goal-setting global governance? An analysis of the role of the European Union and ASEAN in the Sustainable Development Goals", *Global Public Policy and Governance*, vol. 1, n. 4, pp. 421-445.
- MCDONALD T., SIEGALL M. (2012), "The Effects of Participative Goal Setting on Future Sustainability-Related Behaviors and Attitudes", *Journal of Sustainability Education*, vol. 2.
- MONTANI F., BATTISTELLI A., ODOARDI C. (2017), "Proactive goal generation and innovative work behavior: The moderating role of affective commitment, production ownership and leader support for innovation", *The Journal of Creative Behavior*, vol. 51, n. 2, pp. 107-127.
- NGUYEN T.H., LE A.N.H. (2019), "Promoting creativity and innovation: expected and unexpected consequences", *Asia Pacific Journal of Innovation and Entrepreneurship*.
- ORZES G., MORETTO A.M., MORO M., ROSSI M., SARTOR M., CANIATO F., NASSIMBENI G. (2020), "The impact of the United Nations global compact on firm performance: A longitudinal analysis", *International Journal of Production Economics*, vol. 227, pp. 107664.
- PE-THAN E.P.P., NOLTE A., FILIPPOVA A., BIRD C., SCALLEN S., HERBSLEB J. (2020), "Corporate hackathons, how and why? A multiple case study of motivation, projects proposal and selection, goal setting, coordination, and outcomes", *Human-Computer Interaction*, pp. 1-33.
- STAPLES S., WEBSTER J., LV S. (2020), "Comparing Goal Setting Approaches to Boosting Pro-Environmental Behaviors. *Journal of Sustainability Research*, vol. 2, n. 4.
- STEBBINS R. (2001), *Exploratory Research in the Social Sciences*, Sage.
- STETLER K.L., MAGNUSSON M. (2015), "Exploring the tension between clarity and ambiguity in goal setting for innovation. *Creativity and Innovation Management*, vol. 24, n. 2, pp. 231-246.

- TERPSTRA D.E., ROZELL E.J. (1994), "The Relationship of Goal Setting to Organizational Profitability", *Group & Organization Management*, vol. 19, n. 3, 285-294.
- TSALIS T.A., MALAMATENIOU K.E., KOULOURIOTIS D., NIKOLAOU I.E. (2020), "New challenges for corporate sustainability reporting: United Nations' 2030 Agenda for sustainable development and the sustainable development goals", *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 4.
- VAINIERI M., VOLA F., SORIANO G.G., NUTI S. (2016), "How to set challenging goals and conduct fair evaluation in regional public health systems. Insights from Valencia and Tuscany Regions", *Health Policy*, vol. 120, n. 11, 1270-1278.
- VAN DER WAAL J.W.H., THIJSSSENS T. (2020), "Corporate involvement in Sustainable Development Goals: Exploring the territory", *Journal of Cleaner Production*, vol. 252, pp. 119625.
- VIKKELSØ S., SKAARUP M.S., SOMMERLUND J. (2021), "Organizational hybridity and mission drift in innovation partnerships", *European Journal of Innovation Management*.
- WOOD R.E., MENTO A.J., LOCKE E.A. (1987), "Task complexity as a moderator of goal effects: A meta-analysis", *Journal of Applied Psychology*, vol. 72, n. 3, 416-425.
- YE Q., WANG D., GUO W. (2019), "Inclusive leadership and team innovation: The role of team voice and performance pressure", *European Management Journal*, vol. 37, n. 4, pp. 468-480.
- YIN R.K. (2018), *Case study research and applications*, 6th edition, SAGE Publications Inc.
- ZHANG Y., ZHENG J., DARKO A. (2018), "How does transformational leadership promote innovation in construction? The mediating role of innovation climate and the multilevel moderation role of project requirements", *Sustainability*, vol. 10, n. 5, pp. 1506.
- ZHOU X., LI L., WEN H., TIAN X., WANG S., LEV B. (2021), "Supplier's goal setting considering sustainability: An uncertain dynamic Data Envelopment Analysis based benchmarking model", *Information Sciences*, vol. 545, pp. 44-64.
- ZONIENĖ A., VALIULĖ V. (2019), "Justification of Sustainable Investment by the Management Theories of Sustainable Goal Setting and Stakeholder", *Socialiniai Tyrimai*, pp. 42, n. 2, pp. 52-58.

Accountability perspective and Sustainable Tourism Development in UNESCO Sites': The mediating role of Information Technology

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Objectives. *The process that the pandemic has caused to interconnected social, economic and environmental developments that have created dependencies, vulnerabilities and risks is important to highlight (Gössling, 2021). The tourism business has been particularly impacted by Covid-19, as mobility restrictions in all areas of the world have presented the tourism sector with “a significant and evolving challenge” (UNWTO, 2020). Cvelbar and Ogorevc (2020) wrote that if the pandemic crisis were to persist for up to six months, we would likely be able to return to the pre-virus tourism development scenario. However, if the situation is protracted, then we will never return to tourism as we knew it before today. There the role of technology can be crucial in assisting this process of change. Moreover, tourism has increased to the point of being over-tourism in many places in the world by 2019. At the same time, this has a negative impact on various aspects of Sustainability, mainly on the environment, residents’ perceptions and their quality of life (Novotná and Kunc, 2019). In this research we focus on sustainable tourism as it has been defined by McMinn (1997) who talks about it highlighting how tourism developments should have economic benefits, create social benefits for the local community and not harm the natural environment. That definition combines the views of most interested parties: locals (residents), business owners and tourists and aims to convey the fundamental importance of protecting the environment for the next generation. In this study, we focus on sites listed on the UNESCO Heritage List, the number of which has increased in recent years especially in Central and Eastern Europe. However, some places have not been capable of managing their new position resulting from the global attraction, in 2017 almost half of the UNESCO sites did not have a plan to managing tourist flows (Garrett-Peltier, 2017). Some researches have confirmed UNESCO listing as an impetus to increase visitor flows (Su and Lin, 2014; Yang et al., 2010), while there has been research finding that in consolidated destinations UNESCO listing does not result in significant changes (Ribaud and Figini, 2017). As this article focuses on challenges, Hall and Piggin’s (2001) research is highly relevant as it pointed out that the main management problems are lack of funding, (over)crowding, site degradation due to visitors and seasonal fluctuations. Although international tourism is now crippled by the winter of 2020, this situation can be taken as an opportunity to develop a new management approach to tourism destinations with Sustainable Visions, through the use of technology, to appraise recent progress and Strategies, and to prepare for the future challenges that the recovery of tourism in the post-Covid era will present. Accordingly, we want to investigate how the tourism destinations’ performance and accountability efforts can be improved through the use of technology and what the role of tourism businesses and their reporting thus becoming. The aim of the research will therefore be to investigate the relationship between these factors and how digital technologies can help in the achievement of Sustainability. In our analysis, we firstly explore the importance of digital technologies in the tourism industry and destination development, including the importance of such technologies in stakeholder communication, and the definition of responsible tourism engagement through the determinants of tourism engagement, reviewing the state of the art in the relevant academic literature, providing a critique of current research, including its theoretical limitations. After presenting our research hypotheses, below we provide the theories supporting our proposed conceptual framework and a graphical representation of it. We will discuss, then, the managerial implications of this and, subsequently, the limitations and possibility of future research.*

Literature Review. *Communication of sustainable projects and sustainability itself is mentioned as a challenge. Visitors often do not comprehend the idea of sustainable tourism (Miller et al., 2010) and sustainability reporting is inefficient (Tölkes, 2020). Morsing and Schultz (2006) discovered that communication is more successful if it is conducted as a two-way process. For this, technology-assisted communication is an appropriate vehicle. As a result, we can see the implication of technology in many fields to obtain different goals. In this study, among the multitude of existing technologies, we discuss the strategic uptake of Information and Communication Technologies (ICT) in new tourism (Buhalis, 1998). Indeed, ICTs have emerged as key drivers at all operational, structural, strategic and*

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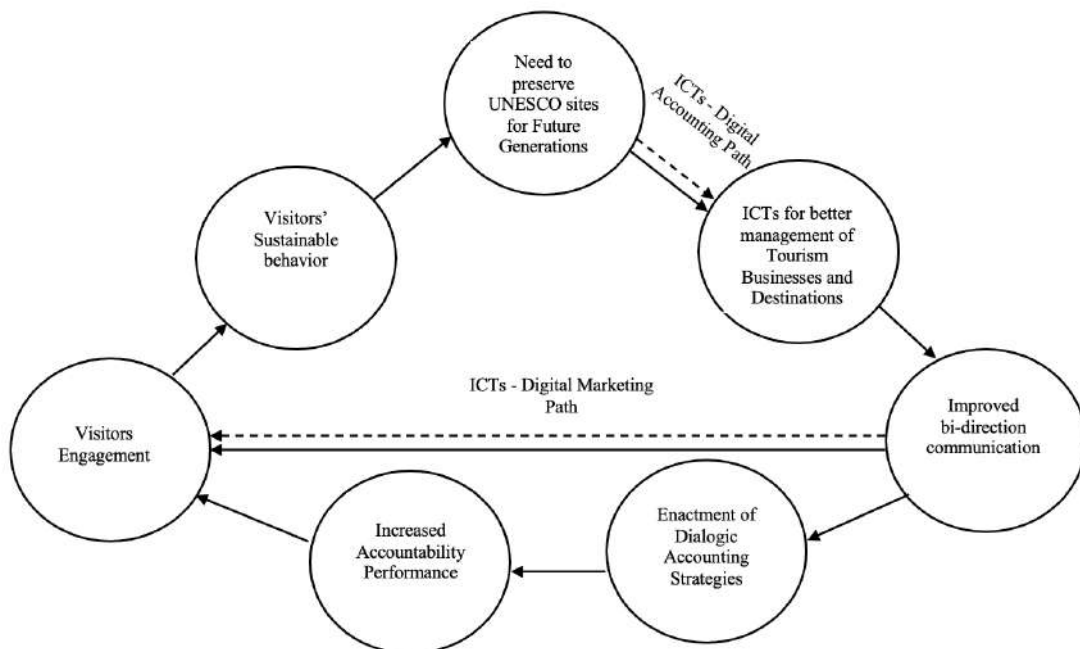
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marketing levels to enable the interactions between suppliers, intermediaries and tourists on a global basis (Buhalis and Law, 2008; Egger and Buhalis, 2008). According to Stamboulis and Skayannis (2003) ICTs have had enormous impacts on the manner in which the tourism experience is created. In addition, there are authors in the literature, such as Fennell and Bowyer (2020), who investigate how technologies can contribute to a more sustainable future in tourism. For instance, a conceptual approach has been proposed to understand how ICT capabilities can be employed in sustainable city-based tourism through developing sustainable tourism indicators (Shafie et al. 2013). Otherwise, a knowledge-based destination management information system was suggested that can support in sustainable destinations development (Fuchs et al. 2013). In this context, Leal et al. (2020) discuss that technologies collect data from ratings, reviews or bookings to identify business trends, to monitor businesses and tourists, and to predict tourist behaviour. Thus, they enable improvements or support new insights (reviews, virtual tours, foodstagramming), but Leal et al. (2020) note that technologies do not embrace the sustainable tourism design principles of accountability, responsibility and transparency (ATR). According to the review conducted by Rather, Hollebeek and Islam (2019) on the main articles in the field of governance and specifically tourism governance (e.g. Borrini and Feyerabend, 2003; de Bruyn and Alonso, 2012; Eagles, 2008; Graham et al., 2003; Ruhanen et al., 2010), accountability and transparency is one of the governance principles that have an impact on tourist decision-making and through which results can be communicated to stakeholders. In relation to that, the relevance of accountability in different aspects of the tourism industry has recently been emphasised (Dwyer, 2005) as essential tourism stakeholders are expected to be responsible for their influences on society (Komppula and Reijonen, 2006; Schianetz and Kavanagh, 2008). To this end, as they later note (Sauder and Espeland, 2009, p. 64), "Accountability has become an expansive and elastic term for transparency, improved decision-making, reduced bias, and improved productivity". Consequently, technology can be a tool that helps in communication, however there is a lack of evidence on how the use of technology in tourism can be a tool used in terms of tourism accountability for the goal of engagement and reporting to stakeholders to achieve more responsible tourism. The definition of responsible tourism needs to be investigated in order to understand tourists' commitment to responsible behaviour (Stanford, 2008). In this regard, there are several terms for tourists and these alternative terms include ecotourist, green tourist, new moral tourist, ethical tourist and responsible tourist. However, Stanford (2008) advocates the literal use of the term 'responsible tourist' and believes that the use and adaptation of other terms is limiting and misleading. In this context they say that the term 'responsible' could imply the tourist as both a cause and a solution to the negative impacts of tourism. The existing literature focuses on the negative aspects of tourists in terms of responsibility, without dwelling on the positive contributions they can make. According to Swarbrooke (1999) who believes that there is a possibility that tourists, despite taking sustainable development seriously in their daily lives, think of holidays as the only time they can behave without the need to be responsible. France (1997) similarly suggests that a tourist can behave differently on holiday by taking a break from normal life. Even if such criticism exists, tourists may still be ready for the idea of taking responsibility. Indeed, research indicates that tourists are already demanding more responsibility from the businesses they use (Chryssides and Kaler, 1993; Cleverdon and Kalisch, 2000) and in turn are demonstrating responsible intentions (Goodwin and Francis, 2003; Tearfund, 2001). Although the responsible tourist has been defined, it has become increasingly evident that behavioural patterns are not only consistent with attitudes (Vermeir and Verbeke, 2006). The first step towards responsible tourism is to identify the right type of tourist for the context and to support and guide them with information once they arrive at their destination. Moreover, an important limiting factor for tourists' choices is the availability of financial resources (Budeanu, 2007). For the purposes of our study, it is also important to focus on tourism engagement, which has been the focus of extensive research (Cordina, Gannon and Croall, 2019; Loureiro and Sarmiento, 2019), refers to the levels of involvement and engagement of tourists in their experience at a tourist destination (Brodie et al., 2011). The researchers considered tourist involvement as a second-order composite construct. One example of a second-order composite construct is the tourist engagement scale, which contains the five dimensions of enthusiasm, attention, absorption, interaction and identification. This scale was developed by Rasoolimanesh et al. (2019) with reference to So, King, and Sparks (2014). Enthusiasm is defined in our case as attraction (including excitement and interest) to a UNESCO tourist site. Attention is defined as a state in which the tourist thinks about the site, consciously or unconsciously. Absorption is defined as paying close attention and giving fixation towards a UNESCO site when interacting with it. Interaction is defined as the engagement of the customer in his/her activities during the visit to the UNESCO site, both offline and online, involving his/her thoughts, ideas, feelings and experiences. Identification refers to how much a tourist identifies with the UNESCO site (Rasoolimanesh et al., 2019). Thus, Rasoolimanesh et al. (2019) indicated that tourism engagement increases tourist satisfaction and loyalty to tourist destinations. Consequently, tourism engagement contributes crucially to perceptions and attitudes towards tourism experiences concerning UNESCO sites. And in particular, Witkowski and Reddy (2010) found that social engagement has a significant influence on responsible behaviour and, although they did not focus on tourism behaviour, Leroux and Pupion (2018) obtained results that go in the same direction, revealing a link between responsible tourism businesses' offerings and visitors' satisfaction levels. Furthermore, a study by Bagri et al. (2009) showed that tourists engaged in sustainability efforts develop more responsible forms of behavior. Thus, these authors support an earlier study by Havitz and Dimanche (1990), which highlighted the fact that engagement in tourism has a positive influence on tourists' behaviour in terms of the frequency with which they seek information, and their evaluation of and participation in tourism activities.

Conceptual Framework. Accountability is not a new construct in various strands of literature such as CSR and ESG research (Cooper et al., 2007). The theory behind the concept is that enterprises should be Accountable for their

behaviour towards the environment and society (Dwyer, 2005). Thus, companies should monitor the impact of their actions on other people and the environment in order to form a better overall society. Moreover, accountability strategies supply the requirement for enterprises to seek the engagement of consumers, as they could lead to greater social and environmental value creation through their own individual efforts (Green and Hunton-Clarke, 2003). Other than pure accounting theories, two managerial theories have also traditionally been used to explain reactions to accountability. First of all, role theory predicts that firms are senders of the sustainability information that is perceived by consumers. Thus, the role of enterprises is to be engaged in sustainable actions that can affect consumers' lifestyles. Instead, the consumers assume the role of recipients. As a result of receiving sustainability-related messages, consumers may develop their own individual perceptions about the specific issue (Frink and Klimoski, 2004). Those perceptions, however, may also shape consumer behaviour, as consumers may be more deeply committed to engaging in sustainable practices on their behalf. Accountability reporting may therefore act as an amplifier in fostering consumer behaviour with regard to sustainability. An additional theory that has found widespread use in accountability research is Vance et al.'s (2015) Accountability Theory. According to this theory, ICT and Internet-mediated communication could play a relevant role in increasing the perception of corporate accountability practices in consumers' perceptions and later behavioural intentions. That effect is amplified by the features of ICT as perceived by consumers (Wang et al., 2017). Indeed, if ICT is bi-directional and capable of surveying consumers' responses, they will be more motivated to be engaged in sustainable behaviour and to prevent the breach of corporate rules. The efficacy of consumers' felt accountability, therefore, is strengthened the more they receive information from companies and the more they are made accountable. That is, in the case of dialogic accounting initiatives, if consumers perceive high empowerment and that their responses are relevant and able to impact future corporate initiatives, they will be more engaged in terms of their sustainable behaviours (Cordina et al., 2019). Tourism and destination, like any enterprise, are managed entities by professionals. In that sense, both should also meet the logic of the market and seek to increase visitor appeal. As a consequence, it is also possible to extend these two theoretical frameworks to the tourism business. Tourism businesses and destinations should concentrate on choosing the right ICTs to report sustainability-related activities (Brewer et al., 2017). When the selection is proper, two-way interaction with visitors can occur. Therefore, tourism businesses and destinations could implement dialogic accounting practices that can trigger a good cycle in which managers communicate sustainable tasks, how to behave sustainably, while visitors can convey suggestions on potential enhancements. Through that mechanism, corporate and destination accountability performance could improve. For their part, visitors could be encouraged to follow sustainable behaviour as they are more engaged and involved with the destination (Brodie et al., 2011). This kind of result could then be useful in conserving UNESCO sites and preserving them for future generations (Della Corte et al., 2017).

Fig. 1: Hypothesised conceptual framework



Source: Authors' elaboration

Discussion. The results show the relevance of ICTs for the interaction with tourists in UNESCO sites. More specifically, it turned out that through ICTs in total it is possible to collect data from visitors, send them feedbacks, and influence their behaviour (Gosling, 2021). Although the goal of ICT implementation is linked to sustainability, a crucial role is however played by the opportunity to foster accountability actions through these tools. Indeed, ICTs can be used to communicate to users the importance of site conservation (Miller et al., 2010). UNESCO sites, in fact, are inclined to be quickly damaged by over-tourism and misbehaviour. Most are archaeological sites, artistic sites or natural

destinations, which should be maintained for future generations. In this regard, the accountability strategies employed by UNESCO destination managers have a relevant role to take as their ordinary aim is to communicate information about the measures taken to manage the destination with sustainability, thus reducing the visitors' and management's footprint (Buhalis and Law, 2008). They can increase visitor engagement, as visitors can make them feel part of the site and identify with it. Similarly, through bi-directional ICT, visitors can communicate to destination managers about what they consider relevant to improving the sustainable performance of a destination (Dwyer, 2005). Therefore, such a scenario, could foster a continuous improvement cycle among destination managers and visitors, to promote destination sustainability and future remedial measures that can be implemented by management (Ribaldo and Figini, 2017). However, what is crucial is to choose the proper technology and find the appropriate target. Specifically, first of all, destination managers should select the main objective of the ICTs implementation in accountability terms (e.g. convey the correct message, supervise the access, control the conservation state). Then, they would select the most relevant characteristics of ICTs to achieve this aim (i.e. bi-directionality, space recognition, data collection). Next, set up processes to assess the performance of ICTs. Similarly, it is necessary to assess what kind of information on accountability and sustainability is most significant for tourists. After all, only if the proper message is conveyed, they can get engaged and try to take on the right behaviour (Wand and Fassenmaier, 2007). Therefore, this study contributes to the emerging literature on accountability in the tourism industry and destination management. In particular, on the one hand it observes the relevance of accountability theory in tourism (Guix et al., 2018). Indeed, it could be analysed how initiatives on the technology side could strengthen the perception of accountability measures. Technology helps communication, which could in turn enhance the incentives on sustainability received by visitors (Fuchs et al., 2013). Tourists, consistently, could also influence accountability strategies by informing businesses and destination managers how sustainability promotion initiatives could be enhanced. In the end, then, a cycle of reciprocal influence by tourists on business and destination strategies and vice versa exists, which is coherent with the basis of dialogical accounting practices. Moreover, implications for the use of technology in tourism could be deduced. The main implication of the decision to use the ICTs for fostering achievement of sustainable goals is a change in the required skills of the managers and employees and a mindset change. As Brewer et al. (2017) mentions, choosing the right ICT is crucial. This requires at least a general orientation in ICTs, even if the implementation is supported by consultancy. Actually, the decision and choice must be well communicated to employees because the importance of internal communication, motivation, and shared values grows. Moreover, ICT implementation also has implications for marketing and overall strategy, however ICT itself can only engage tourists up to a certain level (Leclercq et al., 2017). Therefore, marketing strategies are also affected, e.g., product creation (co-creation, gamification) to increase tourists' engagement with the destination or company, and interaction. The bi-directional communication should be applied in other areas as well, not only accountability and sustainability reporting. Moreover, it is necessary to enable the sustainable behaviour as the real behaviour is significantly dependent on the behavioural difficulties (as contextual influences e.g., time, opportunity), and situational constrains (Kaiser and Gutscher, 2003). To fully benefit from potential of this conceptual framework implies changes in most of the managerial roles and approaches. In fact, while existing research has investigated the importance of technologies for tourist engagement (Buhalis and Law, 2008), limited attention has been given to the later relationship between engagement and sustainable tourist behaviour (Cordina et al., 2009). Here, how ICTs might be relevant with regard to sustainable tourist behaviour and the conservation of UNESCO sites has been seminally investigated.

Limitations and Suggestions for Future Research. In this study, it was observed how ICTs in tourism could have potential as an opportunity to engage visitors to UNESCO sites and make them more focused on sustainable behaviour through engagement. Effectively, the authors have theoretically explored how ICTs could implement dialogic accounting, increase accountability performance, foster engagement and ultimately drive visitors towards a higher interest in preserving an endangered place (Bagri et al., 2009). That event is also consistent with the patterns postulated by Vance et al. (2015) in Accountability Theory in organizational and macro environments. Although these findings are significant, however, the present research still has several limitations. Specifically, first the analysis is only based on theory-based evidence. Indeed, neither qualitative nor quantitative explorations have been conducted to deduce the conceptual framework suggested. Secondly, the study focuses on UNESCO sites, thus neglecting other destinations of potential interest that may nevertheless be threatened by over-tourism or inappropriate visitor behaviour. Third, the visitor perspective has only been considered as a result of ICT and destination managers' behaviour, while other drivers may play a part (Buhalis and Law, 2008). Finally, which accountability strategies and information may be most significant for visitors were not evaluated, in line with the exploring nature of the research. In this respect, future research should concentrate on the empirical validation of our framework. In particular, through the structural equation model of fsQCA it could be possible to measure the paths from perceived importance of ICT to performance of perceived accountability and engagement. Similarly, through case study research it may be possible to gain insight into the main technology valued by visitors. Lastly, the authors suggest that future research should also focus on other tourist destinations besides UNESCO sites.

Key words: sustainable tourism; dialogic accounting; information communication technology; accountability; performance; destination management strategies.

References

- BAGRI S., GUPTA B., GEORGE B. (2009), "Environmental orientation and ecotourism awareness among pilgrims, adventure tourists, and leisure tourists", *Tourism: An International Interdisciplinary Journal*, vol. 57, n. 1, pp. 55-68.
- BORRINI-FEYERABEND G. (2003), "Governance of protected areas-innovation in the air", *Section I: The complexities of governing protected areas*, vol. 92.
- BREWER J.F., MOLTON K., ALDEN R., GUENTHER C. (2017), "Accountability, transformative learning, and alternate futures for New England groundfish catch shares", *Marine Policy*, n. 80, pp. 113-122.
- BRODIE R.J., HOLLEBEEK L.D., JURIC B., ILIC A. (2011), "Customer engagement: Conceptual domain, fundamental propositions, and implications for research", *Journal of service research*, vol. 14, n. 3, pp. 252-271.
- BUDEANU A. (2007), "Sustainable tourist behaviour-a discussion of opportunities for change", *International Journal of Consumer Studies*, 31, n. 5, pp. 499-508.
- BUHALIS D. (1998), "Strategic use of information technologies in the tourism industry", *Tourism management*, vol. 19, n. 5, pp. 409-421.
- BUHALIS D., LAW R. (2008), "Progress in information technology and tourism management: 20 years on and 10 years after the Internet-The state of eTourism research", *Tourism management*, vol. 29, n. 4, pp. 609-623.
- CHRISTODOULAKIS S., KAZASIS F., ANESTIS G., MOUMOUTZIS N. (2006), "Intelligent information interactions for cultural tourism destinations", *In International Cultural Tourism* (pp. 221-235).
- CHRYSSIDES G.D., KALER J.H. (1993), *An introduction to business ethics* (pp. 125), Boston: Cengage Learning EMEA.
- CLEVERDON R., KALISCH A. (2000), "Fair trade in tourism", *International journal of tourism research*, vol. 2, n. 3, pp. 171-187.
- COOPER S.M., OWEN D.L. (2007), "Corporate social reporting and stakeholder accountability: The missing link", *Accounting, Organizations and Society*, vol. 32, n. 7-8, pp. 649-667.
- CORDINA R., GANNON M.J., CROALL R. (2019), "Over and over: local fans and spectator sport tourist engagement", *The Service Industries Journal*, vol. 39, n. 7-8, pp. 590-608
- DELLA CORTE V., D'ANDREA C., SAVASTANO I., ZAMPARELLI P. (2017), "Smart cities and destination management: Impacts and opportunities for tourism competitiveness", *European Journal of Tourism Research*, vol. 17, pp. 7-27.
- DWYER L. (2005), "Relevance of triple bottom line reporting to achievement of sustainable tourism: A scoping study", *Tourism Review International*, vol. 9, n. 1, pp. 79-938.
- EAGLES P.F. (2008), "Investigating governance within the management models used in park tourism", *In Tourism and Travel Research Association Canada Conference October* (Vol. 15, pp. 1-11).
- EGGER R., BUHALIS D. (2008), "E-tourism case studies: management and marketing issues.
- FENNELL D.A., BOWYER E. (2020), "Tourism and sustainable transformation: A discussion and application to tourism food consumption", *Tourism Recreation Research*, 45, n. 1, pp. 119-131.
- FRINK D.D., KLIMOSKI R.J. (2004), "Advancing accountability theory and practice: Introduction to the human resource management review special edition", *Human resource management review*, vol. 14, n. 1, pp. 1-17.
- FRANCE L.A. (1997), *The Earthscan reader in sustainable tourism*, Earthscan Publications Ltd.
- FUCHS M., ABADZHIEV A., SVENSSON B., HÖPKEN W., LEXHAGEN M. (2013), "A knowledge destination framework for tourism sustainability: A business intelligence application from Sweden", *Tourism: An International Interdisciplinary Journal*, vol. 61, n. 2, pp. 121-148.
- GARRETT-PELTIER H. (2017), "Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model", *Economic Modelling*, vol. 61, pp. 439-447.
- GOODWIN H., FRANCIS J. (2003), "Ethical and responsible tourism: Consumer trends in the UK", *Journal of Vacation Marketing*, vol. 9, n. 3, pp. 271-284.
- GÖSSLING S. (2020), "Technology, ICT and tourism: from big data to the big picture", *Journal of Sustainable Tourism*, vol. 29, n. 5, pp. 849-858.
- GÖSSLING S. (2021), "Tourism, technology and ICT: a critical review of affordances and concessions", *Journal of Sustainable Tourism*, vol. 29, n. 5, pp. 733-750.
- GRAHAM J., PLUMPTRE T.W., AMOS B. (2003), Principles for good governance in the 21st century.
- GREEN A.O., HUNTON-CLARKE L. (2003), "A typology of stakeholder participation for company environmental decision-making", *Business strategy and the environment*, vol. 12, n. 5, pp. 292-299.
- GUIX M., BONILLA-PRIEGO M.J., FONT X. (2018), "The process of sustainability reporting in international hotel groups: An analysis of stakeholder inclusiveness, materiality and responsiveness", *Journal of Sustainable Tourism*, vol. 26, n. 7, pp. 1063-1084.
- HALL C.M., PIGGIN R. (2001), "Tourism and World Heritage in OECD countries", *Tourism Recreation Research*, vol. 26, n. 1, pp. 103-105.
- HAVITZ M.E., DIMANCHE F. (1990), "Propositions for testing the involvement construct in recreational and tourism contexts", *Leisure Sciences*, vol. 12, n. 2, pp. 179-195.
- KAISER F.G., GUTSCHER H. (2003), "The proposition of a general version of the theory of planned behavior: Predicting ecological behavior 1", *Journal of applied social psychology*, vol. 33, n. 3, pp. 586-603.

- KNEŽEVIĆ CVELBAR L., OGOREVC M. (2020), "Saving the tourism industry with staycation vouchers", *Emerald Open Research*, n. 2, p. 65.
- KOMPPULA R., REIJONEN H. (2006), "Performance determinants in small and micro tourism business", *Tourism review*.
- LEAL F., MALHEIRO B., VELOSO B., BURGUILLO J. C. (2020), "Responsible processing of crowdsourced tourism data", *Journal of Sustainable Tourism*, vol. 29, n. 5, pp. 774-794.
- LECLERCQ T., PONCIN I., HAMMEDI W. (2017), "The engagement process during value co-creation: gamification in new product-development platforms", *International Journal of Electronic Commerce*, vol. 21, n. 4, pp. 454-488.
- LEROUX E., PUPION P.C. (2018), "Factors of adoption of eco-labelling in hotel industry", *Technological Forecasting and Social Change*, n. 129, pp. 194-209.
- LOUREIRO S.M.C., SARMENTO E.M. (2019), "Place attachment and tourist engagement of major visitor attractions in Lisbon", *Tourism and Hospitality Research*, vol. 19, n. 3, pp. 368-381.
- MCMINN S. (1997), "The challenge of sustainable tourism", *Environmentalist*, vol. 17, n. 2, pp. 135-141.
- MILLER G., RATHOUSE K., SCARLES C., HOLMES K., TRIBE J. (2010), "Public understanding of sustainable tourism", *Annals of tourism research*, vol. 37, n. 3, pp. 627-645.
- NOVOTNÁ M., KUNC J. (2019), "Luxury tourists and their preferences: Perspectives in the Czech Republic", *Tourism: An International Interdisciplinary Journal*, vol. 67, n. 1, pp. 90-95.
- RASOOLIMANESH S.M., MD NOOR S., SCHUBERTH F., JAAFAR M. (2019), "Investigating the effects of tourist engagement on satisfaction and loyalty", *The Service Industries Journal*, vol. 39, n. 7-8, pp. 559-574.
- RIBAUDO G., FIGINI P. (2017), "The puzzle of tourism demand at destinations hosting UNESCO World Heritage Sites: An analysis of tourism flows for Italy", *Journal of Travel Research*, vol. 56, n. 4, pp. 521-542.
- RUHANEN L., SCOTT N., RITCHIE B., TKACZYNSKI A. (2010), "Governance: a review and synthesis of the literature", *Tourism Review*.
- SAUDER M., ESPELAND W.N. (2009), "The discipline of rankings: Tight coupling and organizational change", *American sociological review*, vol. 74, n. 1, pp. 63-82.
- SCHIANETZ K., KAVANAGH L. (2008), "Sustainability indicators for tourism destinations: A complex adaptive systems approach using systemic indicator systems", *Journal of sustainable tourism*, vol. 16, n. 6, pp. 601-628.
- SHAFIE F.A., OMAR D., KARUPANNAN S., GABARRELL X. (2013), "Urban metabolism using economic input output analysis for the city of Barcelona", *The Sustainable City VIII (2 Volume Set): Urban Regeneration and Sustainability*, vol. 179, p. 127.
- SO K.K.F., KING C., SPARKS B. (2014), "Customer engagement with tourism brands: Scale development and validation", *Journal of Hospitality & Tourism Research*, vol. 38, n. 3, pp. 304-329.
- STAMBOULIS Y., SKAYANNIS P. (2003), "Innovation strategies and technology for experience-based tourism", *Tourism management*, vol. 24, n. 1, pp. 35-43.
- STANFORD D. (2008), "“Exceptional visitors”: Dimensions of tourist responsibility in the context of New Zealand", *Journal of Sustainable Tourism*, vol. 16, n. 3, pp. 258-275.
- SU Y.W., LIN H.L. (2014), "Analysis of international tourist arrivals worldwide: The role of world heritage sites", *Tourism management*, n. 40, pp. 46-58.
- SWARBROOKE J. (1999), "Towards a new approach to sustainable tourism management", *Sustainable tourism management*, pp. 41-44.
- UNWTO. (2020), Impact assessment of the COVID-19 outbreak on international tourism.
- VANCE A., LOWRY P.B., EGGETT D. (2013), "Using accountability to reduce access policy violations in information systems", *Journal of Management Information Systems*, vol. 29, n. 4, pp. 263-290.
- VERMEIR I., VERBEKE W. (2006), "Sustainable food consumption: Exploring the consumer "attitude-behavioral intention" gap", *Journal of Agricultural and Environmental ethics*, vol. 19, n. 2, pp. 169-194.
- WANG Y., FESENMAIER D.R. (2007), *Collaborative destination marketing: A case study of Elkhart county*, Indiana.
- WITKOWSKI T.H., REDDY S. (2010), "Antecedents of ethical consumption activities in Germany and the United States", *Australasian Marketing Journal*, vol. 18, n. 1, pp. 8-14.
- YANG C.H., LIN H.L., HAN C.C. (2010), "Analysis of international tourist arrivals in China: The role of World Heritage Sites", *Tourism management*, vol. 31, n. 6, pp. 827-837.

The business model transition toward sustainability

A case of an Italian firm operating in the energy industry

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Framing of the research. *New Business Models (BMs) are commonly proposed as one of the key solutions but are mostly investigated in general terms, without elaborating on or systematically analyzing how these new BMs are linked to specific mitigation measures or transition strategies. Business Model Innovation (BMI) is increasingly necessary for the transition to a sustainable energy system. As government officials, policymakers, and the general public increasingly express their concern about global warming caused by greenhouse gas emissions, scientists search for alternative sources of energy. The further growth in the Renewable Energy Sources (RES) sector is in line with the European Union's choice to make the decarbonization of the economy the distinctive development model in the global competition in this century. The president of the Italian Council of Ministers, Mario Draghi, in his recent speech underlined the importance of renewable sources and the limits they find to adoption in the bureaucratic machine. Faced with the gas crisis that Italy and all of Europe are experiencing, the premier said, "the most valid answer in the long term is to proceed quickly, as we are doing, in the direction of greater development of renewable sources, also and above all with a greater simplification of the procedures for installing systems". Because this is of one of the historical problems of our country: the red tape. There is a global goal to reduce carbon emissions and create a more sustainable world. Over the past decades, a growing share of renewable energy resources has been developed to reach this goal. Therefore, the obstacles to speed are not merely technical or technological but above all bureaucratic. Therefore, new management skills should be created, and new business models developed that exploit innovative technologies and a simplified bureaucracy. In recent years, the studies of BMI impacts on Sustainability and Circular Economy (CE) have been issues much debated in the literature (Basile and Vona, 2021; Daou et al., 2020, Pieroni et al., 2019). Moreover, the sustainable development enhanced by the Green Economy (GE), and Blue Growth (BG) in the broader framework of smart and disruptive technologies represents a huge opportunity for creating value with the reconfiguration of own business model. The academic and practitioner interest in Sustainable Business Models (SBMs) has grown rapidly. SBMs incorporate sustainability as an integral part of the firm's value proposition and value creation logic. Business Models (BMs) for Sustainability provide value to the customer and the natural environment and society (Abdelkafi and Tauscher, 2016). SBM aim to provide products or services that directly or indirectly reduce the pressure on society and the environment while still generating profits equal to or greater than traditional business (Bocken and Short, 2016, Bohnsack et al., 2014, Chun and Lee, 2013). SBM represent a mediating device for implementing a strategy aiming at the business case for sustainability and creating a fit between different areas of a firm and its business environment as well as social actors (Schaltegger et al., 2012; Lüdeke-Freund, 2020). Schaltegger et al. (2012) identified three typologies of business model innovations: defensive, accommodative, and proactive. Defensive strategies consist of business model adjustment to safeguard the existing business model through risk and cost reduction measures according to a compliance perspective. Accommodative strategies require the implementation of some improvements and integrations of the current business model by considering environmental and social issues. Proactive strategies pursue the redesign of the business model according to sustainability principles. Highly polluting industries are under increasing pressure from authorities as the cost of CO2 emissions rises, incentivizing the shift to low-carbon solutions. The energy industry is one of the protagonists of the transition phenomenon, involving players both in the "pure" energy industry and in the utility one. The energy transition is a pathway toward the transformation of the global energy industry from fossil-based to zero-carbon by the second half of this century. At its heart is the need to reduce energy-related CO2 emissions to limit climate change. Decarbonization of the energy industry requires urgent action on a global scale, and while a global energy transition is underway, further action is needed to reduce carbon emissions and mitigate the effects of climate change. In this context, companies need to rethink their business models (BMs) in terms of sustainability. As BM corresponds to the ways companies adopt to improve market performance based on new ideas and technologies (Chesbrough, 2010; Teece, 2010). To understand the policy implications of Business Model Innovation (BMI) in energy markets, system-specific accounts are needed, which link the Sustainable Business Model Innovation (SBMI) literature (Geissdoerfer et al., 2018), to empirical cases and reduce the*

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consequences of uncaptured value (Yang et al., 2017). Table 1 below summarizes the main existing contributions in literature on the Sustainable and Circular Business Model (CBM) in the energy industry. BMI research in the energy field has focused on the deployment of specific technologies in the energy value chain such as storage, solar generation and electric vehicle charging. According to Hall and Roelich (2016) policymakers to pay close attention to latent and/or emerging business models in the supply market as they have significant potential to lead to substantive benefits, both in terms of system efficiency and socio-economic gains. The identification and classification of value propositions, value capture, and business model archetypes can guide supply market policy. Instead, Bolton and Hannon (2016) drawing from the BM, applied a socio-technical approach to the empirical case study of Energy Services Company (ESC) in the UK. Richter (2013) started from the business model innovation concept to investigate how German utilities position themselves to the challenges of the energy transition. Hamelink et al. (2019) studied how BMI affects firm performance in the energy storage market in four cases, two on large-scale energy storage applications and two on small-scale energy storage applications. Brown et al. (2019) stated that business model innovation may be a core component of energy system innovations, such as whole-house retrofits. The traditional atomized market business model, whilst suitable for the delivery of single measures is poorly suited to whole house retrofit and is a weak driver of demand. Facchinetti et al. (2016) introduce local energy management (LEM) concepts defined as the management of energy supply, demand, and storage within a given geographical area. The favourable business conditions include supportive policy scenarios, a growing economy, new development projects involving multiple energy carriers in areas characterized by a high building density, and target customers with a high willingness to pay. For Wadin et al. (2017) due to a dysfunctional alliance dilemma, a joint BMI process easily falls into a race-to-learn mode. In such a mode, it is of course tempting for large firms to copy the business model of small firms. Even if the race-to-learn process may have beneficial learning effects, the payoff is limited for large firms, and the main learning outcomes are related to codified knowledge, like visible ICT tools. Karlsson et al. (2017) develop a conceptual BMI model for farm-produced biogas in networks that farmers and their stakeholders can use as they modify their current business models or develop new business models. Zhang et al. (2017) analyzed the expansion of photovoltaic (PV) and pilot trial of PV water pumping (PVWP) technologies in renewable energy in China integrated with BMI. The business model of the distributed PV system needs improvement to increase revenue and reduce risk. This PVWP business model innovation creates new sources of revenue with an extensive product line and benefits from incremental values in the integrated system with Alfalfa and dairy products. In a recent study Hall et al. (2020) employed four domestic and international decision theatres with existing utilities, technology firms, investors, regulators and policymakers from the United Kingdom, European Union, and the United States. The decision theatres aimed to prioritize the most important changes needed to the UK energy system to allow low-carbon business models to thrive. The outcomes imply a diversification of the energy market away from traditional volume sale utility models to myriad retail offers, flexibility arrangements, and new trading platforms. The effective accomplishment of the energy turnaround relies on a deep reorganization of the energy market. Business model innovation is recognized as a key driver of this process. Besides, Axelson et al. (2021) presented the first systematic analysis of the business model implications of steel industry decarbonization strategies. This was done against a baseline business model for a blast furnace and basic oxygen furnace (BF-BOF) production route in the EU. Steel-making firms may be able to pursue some level of decarbonization without having to radically transform their core business model. Interestingly, decarbonization strategies that enhance materials efficiency, arguably an important strategy for industrial decarbonization, appear to imply more, and more radical, BMIs than those aiming mainly at emissions efficiency. Tolkamp et al. (2018) offer user-centered approaches to business model design, which focus on different types of involvement in multiple phases, and can be used to find out what values to create and ensure that non-financial values are better identified and considered in the decision-making process of a firm and its users. User involvement can thus benefit both the firm and its users as not only trust is generated but also because the various needs and wishes are better incorporated into the firm's offer. User involvement should be facilitated broadly in the business model; building blocks need to change to facilitate involvement or ensure the business model is consistent, taking either a more user-centered or product-oriented approach. Piispanen et al. (2020) provide an answer to the question of how a company converts its resources and capabilities into economic value by creating value from waste. The circular business model (CBM) is very much based on services, and its development and implementation are organizational tasks involving investments in education and commitment. Moreover, the CBM is a network of actors in both value and supply chains and biological and technical nutrients can be utilized with reverse logistics. The CE business requires certain value propositions, efficient distribution channels (and overall logistical efficiency due to a large number of materials involved), key resources and key activities. Pavan et al. (2021) explore the potential of CBMs for power generation in the Brazilian sugar-energy industry. The participation of different sectors in an industrial symbiosis can offer additional improvements to the source development process, bringing technological innovation and promoting various exchanges. The CBM identified for production can increase renewable energy supply, provide new opportunities to the sugar-energy industry, and promote innovation- and technology-oriented regional development by focusing on physical, upcycling, and institutional anchor tenant roles. The challenges of the energy transition can be tackled with an SBM that creates synergy with the outside world and can integrate all the factors in play (environmental, social, economic, and financial) to create shared value for a long time. In recent years, big players in the energy sector such invested heavily in renewables and lead the transition. The transition process of the energy system asks all operators in the sector to rethink their activities. In recent years, more SBM has been developed but was not widely investigated how makes these models work, where innovation is happening and how companies with traditional models can transform to become more sustainable and more profitable. In the face of a major

transformation in the energy sector brought about by decarbonization and the introduction of clean, renewable, and sustainable sources, the energy companies adopt different strategies to implement sustainability elements. This study presents the findings of a case study of a large energy corporation to adopt a proactive strategy to transition to SBM.

Tab. 1: The main existing literature on Sustainable and Circular Business Models in the energy industry

Authors	Focus	Main empirical evidence
Richter (2013)	Business model innovation for sustainable energy: German utilities and renewable energy	“This study investigates utilities’ business models for renewable energies by analysing two generic business models based on a series of in-depth interviews with German utility managers. (...) utilities have developed viable business models for large-scale utility-side renewable energy generation. At the same time, utilities lack adequate business models to commercialize small-scale customer-side renewable energy technologies. By combining the business model concept with innovation and organization theory practical recommendations for utility managers and policymakers are derived.”
Hall and Roelich (2016)	Business model innovation in electricity supply markets: The role of complex value in the United Kingdom	“This paper uses the UK electricity supply market to investigate new business models which rely on more complex value propositions than the incumbent utility model. Nine archetypal local supply business models are identified and their value propositions, value capture methods, and barriers to market entry are analysed. This analysis defines ‘complex value’ as a key concept in understanding business model innovation in the energy sector. The process of complex value identification poses a challenge to energy researchers, commercial firms and policymakers in liberalised markets; to investigate the opportunities for system efficiency and diverse outcomes that new supplier business models can offer to the electricity system.”
Bolton and Hannon (2016)	Governing sustainability transitions through a business model innovation: Towards a system understanding	“Focusing on decentralised energy technologies, we explore business model innovation in the context of a transition towards a more sustainable energy system. We conduct an empirical study of two Energy Services Company (ESCO) models for the deployment of combined heat and power with district heating (CHP/DH) infrastructure in the UK. (...) We propose that a systems-based approach to the analysis of business models as embedded in their socio-technical contexts can offer new insights into the dynamics and governance of sustainability transitions.”
Facchinetti et al. (2016)	Business model innovation for local energy management: A perspective from Swiss utilities.	“This work contributes to this topic by providing potential local energy management (LEM) stakeholders and policymakers a conceptual framework guiding the LEM business model innovation. The main determinants characterizing LEM concepts and impacting its business model innovation are identified through literature reviews on distributed generation typologies and customer/investor preferences related to new business opportunities emerging with the energy transition.”
Zhang et al. (2017)	Economic performance of photovoltaic water pumping systems with business model innovation in China	“Expansion by photovoltaic (PV) technologies in the renewable energy market requires exploring added value integrated with business model innovation. In recent years, a pilot trial of PV water pumping (PVWP) technologies for the conservation of grassland and farmland has been conducted in China. In this paper, we studied the added value of the PVWP technologies with an emphasis on the integration of the value proposition with the operating system and customer segmentation. Using the widely used existing PV business models (PV-roof) as a reference, we evaluated discounted cash flow (DCF) and net present value (NPV) under the scenarios of traditional PV roof, PVWP pilot, PVWP scale-up, and PVWP social network, where further added value via social network was included in the business model.”
Wadin et al. (2017)	Joint business model innovation for sustainable transformation of industries. A large multinational utility in alliance with a small solar energy company	“Whereas existing business models for sustainability research have mainly focused on business model activities and sustainability outcomes for separate firms, we observe that alliances between small and large firms can influence a large firm’s learning and dissemination of sustainable technologies, thereby contributing to the sustainable transformation of mass markets. (...) large firms appear to choose a race-to-learn mode of appropriating most of the learning in the alliance, leaving small firms with limited learning outcomes.”
Karlsson et al. (2017)	Success factors for agricultural biogas production in Sweden: A case study of business model innovation	“This qualitative study identifies and examines the success factors in an agricultural network in which biogas is produced at four farms in Sweden with distribution by pipeline to a refinery for purification and conversion to vehicle fuel.” (...) Our main conclusion is that business model innovation (BMI) can be used to create public-private networks that invest in farm-based biogas production. Such investments can stimulate rural development and provide new business possibilities for SMEs in the agricultural sector. This study also shows that BMI that takes a long-term perspective can result in high-value environmental and social benefits as well as the financial profitability.”
Tolkamp et al. (2018)	User-centred sustainable business model design: The case of energy efficiency services in the Netherlands	“However, many firms struggle to involve the user in their business model design process. (...) Therefore we have investigated what user-centred approaches to more sustainable business model design exist in practice and how they impact the market uptake of energy efficiency measures. We found that firms interact with the user in three phases: during the design, the marketing and the use phase. For these different phases, we identified an involvement loop consisting of four stages: design of involvement, facilitation of involvement, extraction of lessons learned and finally business model adaptation. Additionally, different types of user involvement were found ranging from sending and receiving information to co-producing and co-innovating the business model. Involving the user requires the facilitation of opportunities for interaction in multiple components of the business model and can lead to both incremental and radical business model innovation ex-post.”
Hamelink and Opdenakker (2019)	How business model innovation affects firm performance in the energy storage market	“This study investigated how business model innovation affects firm performance in the energy storage market, by measuring firm performance on firms acting in the energy storage market. Four cases were investigated: two large-scale applications using grid-level solutions and two small-scale applications on the consumer level. Results show that business model innovation affects firm performance in the energy storage market.”

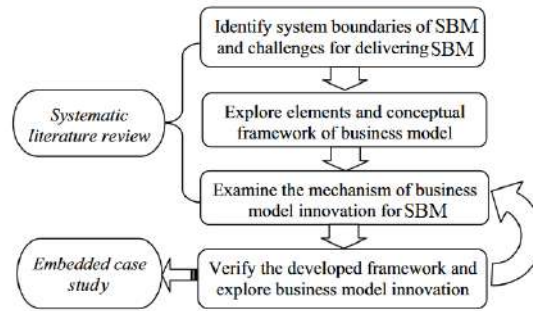
Brown et al. (2019)	An energy leap? Business model innovation and intermediation in the 'Energiesprong' retrofit initiative	"In this paper, we outline how whole-house energy 'retrofits' are likely to require business model innovation to gain widespread adoption. (...) ...we develop a novel framework, combining the components of business models with the functions of intermediaries. We suggest that for radical energy business model innovations to be adopted, intermediaries may need to facilitate, configure and broker system innovation in multiple system elements."
Hall et al. (2020)	Prioritising business model innovation: What needs to change in the United Kingdom energy system to grow low carbon entrepreneurship?	"To capture new value, electricity utility business models need to evolve. This research used an elite 'decision theatre' method, in the UK, USA, and Europe, to decide on the most important changes required to the energy system to enable new [low carbon] utility business models to thrive. The results show that there is substantial agreement on the five requirements for change, these are: (1) Clear national heat and electric transport strategies; (2) Commitment to sufficient carbon prices; (3) Simpler, principles-based regulation across the energy value chain; (4) Accessible markets for flexibility and other energy services; and (5) Managing consumers' exposure to risk. This work suggests focusing on business model innovation as opposed to technological innovation could accelerate decarbonisation and extends the use of the Decision Theatre method in social science energy research."
Piispanen et al. (2020)	Applying the circular economy to a business model: an illustrative case study of a pioneering energy company	"This study focuses on one sustainable business model archetype: creating value from waste. It supports sustainable development by material circulation. We aim to provide an answer to the question of how a company converts its resources and capabilities into economic value by creating value from waste. (...) The analysis more specifically illustrates the nine main elements of a business model: customer value proposition, segments, customer relationships, channels, key resources, key activities, partners, costs and revenues. Furthermore, we illustrate the internal and external adoption factors required to transform a business model canvas (BMC) to a CBM framework."
Axelson et al. (2021)	Emission reduction strategies in the EU steel industry: Implications for business model innovation	"In this paper, we assess when and to what extent different emission reduction strategies in the EU steel industry have implications for business model innovation. Through a review of 42 recent publications on industrial decarbonization, we identify 9 types of decarbonization strategies for steelmaking and their emission reduction potential. The strategies achieve emission reductions through material efficiency, emission efficiency, or a combination of both. For each strategy, we analyse the need for incremental or radical changes in business models based on a thorough reading of the business model literature."
Pavan et al. (2021)	Circular business models for bioelectricity: A value perspective for sugar-energy sector in Brazil	"This study investigates circular business models for converting waste to energy based on the anchoring dynamics between the sugar and alcohol plants and other biomass suppliers in the agro-industrial symbiosis network. (...) The results show different feedstocks potential, going towards using multiple organic wastes involving different sectors. The quantitative result indicates that the State of Sao Paulo can generate 1694.7 MW using regional waste streams."

Source: Author's elaborations.

Purpose of the paper. This paper aims to investigate how the transition toward Sustainable Business Models (SBMs) could be actionable and profitable. In addition, we give more attention to the reconfiguration of the business model and reinventing it (Johnson et al., 2008) considering the new energy scenario. Lastly, in the broad framework of strategic innovation (Markides, 1997) explore the success factors or the current or potential threats. The business model transition is a current theme, and research on SBM has grown. However, empirical research in the energy sector is still scarce. Was not widely investigated in academic literature, what is the impact of the Sustainable Business Model (SBM) in terms of competitive advantage for the firms, operating in the Italian energy industry. The main research question was: "There's a sustainable or circular business model in the literature that can be used in the energy industry?" Moreover: "How the emerged managerial model can be applied to the case of an Italian firm?"

Methodology. The research design is based on the following phases. Firstly, give a literature review of significant and emerging studies on SBM and the Circular Business Model (CBM) in the energy industry. In a second step, access to a conceptual and managerial model, compare it in the scientific community and expand the scientific debate on sustainable development from the managerial perspective (see figure 1 below). The literature research process adopted to classify, underline, and review SBM characteristics, definitions, drivers, outcomes, and benefits, is based on a systematic approach. More specifically, by considering the relative novelty of the theme and its rapid growth, it was selected two of the leading academic databases, Web of Science and Scopus, has the best broad vision. Afterwards, the proposed conceptual model will be tested on the leading Italian firms operating in the energy industry in terms of market share. In the embedded phase, the case study could be ERG Spa company, an innovative firm operating in the energy industry that first in Italy adopt a total reconfiguration of its business model moving from fossil sources (e.g., oil and gas decommissioning) toward totally renewable ones (Richter, 2013; Capobianco et al., 2021; Bürer et al., 2022). The case study represents a strategy for doing research, which involves an empirical investigation of a particular contemporary phenomenon within its real-life context (Yin, 2009). Later, by in-depth interviews and focus groups with a firm's key informants (starting first from the ERGs top management and eventually with other companies) and experts and practitioners deriving from the academic and managerial community including the energy industry. Lastly, the desk research on the case study was enriched by the recurs to primary and secondary sources on the topic of renewable sources in the energy industry.

Fig.1: Research design to examine business model innovation for SBM



Source: adapted from Zhao et al. (2016) framework.

Findings. Although still a work in progress, the current research provides the opportunity to derive some interesting preliminary findings and allows to outline what could be the further expected findings. The case selected is ERG, a firm that operated in the energy industry for over 80 years. Listed on the Milan Stock Exchange, it is active in the production of wind energy, solar energy, and high-yield thermoelectric cogeneration energy with low environmental impact. The company is the leading wind power operator in Italy and one of the leaders in the European market and has chosen to adopt a business model focused on sustainable development and decarbonization, by the transition process that the energy system is undergoing at the global level. Specifically, ERG entered the renewable energy market when it was in an initial phase of development while the oil sector in which operated was still a safe and solid market. From the results of the empirical analysis, it could be useful to identify how Sustainable Business Models in the energy industry are combined and simultaneously linked to the SBM archetypes highlighted in the literature (Bocken et al., 2014; Pieroni et al., 2020). The most relevant archetypes for the energy industry are summarized in figure 2 below. The SBM archetypes in the renewable energy scenario can describe mechanisms and solutions that may contribute to building up the BM for sustainability. Or rather, the archetypes could develop a common language that can be used to accelerate the development of SBMs in the energy production and storage industry. According to the proposed model, the archetypes are: 1) Maximize material and energy efficiency; 2) Create energy from waste; 3) Substitute with renewables and natural processes; 4) Deliver functionality rather than ownership; Adopt a stewardship role; 5) Encourage sufficiency; 6) Re-purpose the business for society/environment, and 7) Develop energy scale-up solutions. Thus, the archetypes aim to classify and explain the BMI for sustainability and deliver mechanisms to assist the innovation process for embedding sustainability in BMs (e.g., through comparative case studies).

Fig. 2: The sustainable business model archetypes

	Technological			Social			Organisational	
PERSPECTIVES	What is the technological mix that mainly impacts the energy production and storage industry?			What are the social aspects that more influence the energy industry?			Which organizational innovations can foster new models of energy creation?	
ARCHETYPES	Maximise material and energy efficiency	Create value from waste	Substitute with renewables and natural processes	Deliver functionality rather than ownership	Adopt a stewardship role	Encourage sufficiency	Repurpose for society/environment	Develop scale up solutions
APPLICATIONS	Low carbon manufacturing/solutions Lean manufacturing Additive manufacturing De-materialisation (of products/packaging) Increased functionality (to reduce total number of products required) Extended producer responsibility	Circular economy, closed loop Cradle-2-Cradle Industrial symbiosis Reuse, recycle, re-manufacture Take back management Use excess capacity Sharing assets (shared ownership and collaborative consumption)	Move from non-renewable to renewable energy sources Solar and wind-power based energy innovations Zero emissions initiative Blue Economy Biomimicry The Natural Step Slow manufacturing Green chemistry	Product-oriented PSS- maintenance, extended warranty Use oriented PSS- Rental, lease, shared Result-oriented PSS- Pay per use Private Finance Initiative (PFI) Design, Build, Finance, Operate (DBFO) Chemical Management Services (CMS)	Biodiversity protection Consumer care - promote consumer health and well-being Ethical trade (fair trade) Choice editing by retailers Radical transparency about environmental/ societal impacts Resource stewardship	Consumer Education (models); communication and awareness Demand management (including cap & trade) Slow fashion Product longevity Premium branding/ limited availability Frugal business Responsible product distribution/promotion	Not for profit Hybrid businesses, Social enterprise (for profit) Alternative ownership: cooperative, mutual, (farmers) collectives Social and biodiversity regeneration initiatives ('net positive') Base of pyramid solutions Localisation Home based, flexible working	Collaborative approaches (sourcing, production, lobbying) Incubators and Entrepreneur support models Licensing, Franchising Open Innovation (platforms) Crowd sourcing/ funding "Patient / slow capital" collaborations

Source: adapted from Bocken et al., 2014.

In the next step, thanks to the Trapp and Kanbach (2021) framework, we investigate the positioning of the ERG SBM within the Greentech business model archetypes. Greentech BM archetypes are distinguished by the two dimensions of maximizing energy efficiency and material efficiency. Moreover, the abovementioned authors identify twelve Greentech business model archetypes that are: Archetype I: Energy Efficinnovator; Archetype II: Efficiency Energizer; Archetype III: Energy Efficreator; archetype IV: Material Efficinnovator; Archetype V: Efficiency Materialenhancer; Archetype VI: Material Efficreator; Archetype VII: Recyclinnovator; Archetype VIII: Recyclenhancer; Archetype IX: Green Technolooper; Archetype X: Greenew Substituter; Archetype XI: Greenhanced Substituter and Archetype XII: Greentech Substituter. Greentech business model archetypes could be functional for energy companies' managers (e.g., ERG Spa) to employ two or more Greentech business model archetypes and hybridize their own SBMs. Or rather, the subsections of Greentech business model archetypes (that's the twelve strategic positionings) can hybridize with the green value proposition, value creation and delivery, as well as the value capture based on Bocken et al. (2014) framework. Furthermore, considering the SBMs in terms of innovation could emerge new knowledge and competence in the energy industry derived from the archetypes overlap. Finally, it could help to better evaluate the corporate decisions to be implemented and the role of internal and external stakeholders in the innovation process of the business model towards sustainability.

Research limitations and future research. *The current study is only a work in progress and further investigation is required. Future studies might analyze and compare the transition of business models to sustainability. The major limitations of this paper are related to the theoretical nature of the study and the qualitative enquire. Moreover, it is associated with a case study approach (Eisenhardt and Graebner, 1989; Feagin et al., 2001; Yin 2009) and qualitative methods during the first explorative step. The other limitation is the exploratory nature of this research. Exploring a relatively new research field on strengths and limitations based on theoretical and practical investigation leads to a broad view of the topic. The wide aim of the research gives a lot of information but statements about relationships and causalities cannot be made. To investigate the topic in higher detail, empirical research should be conducted to find the effects of the SBM in other industries. Due to the limited generalizability of this single case study, the research on the energy industry could incorporate a more representative framework for the cross-sectional research design of the industry at large. Next research could also explore these processes in other sectors such as electricity, transport, or industrial energy systems; using the theoretical links we make in this paper. Future research on business models for SBM in the energy industry could also incorporate quantitative methods for project performance or customer satisfaction to add validity to the claims made here. Furthermore, it could be useful to define a clearer research agenda for business models for sustainability and provide examples for energy companies to de-risk the SBM innovation process. The SBM archetypes are considered a starting point to broaden and unify the future research agenda for SBMs in the RES industry.*

Managerial implications. *In recent years, discussions concerning climate change, environmental issues and sustainable economics have transformed the view of energy in practice as well as in research. After months of the Covid-19 emergency upending the priorities of the political agenda, the topic of the energy transition has again become current. As sustainability gain, greater attention from governments, industry and academia, business model innovation for sustainability is becoming fundamental to sustaining companies' competitive advantage. Results enable policymakers and management to understand better the functioning of SBM and the critical elements needed for effective implementation. The study helps enterprises to identify and implement a strategy for the transition of their BM. The final aim is to suggest a managerial tool, namely the SBM, in the reference framework of the sustainable and circular economy, to support the energy manager to figure out an appropriate course of action. The latter can promote renewable sources for economic, environmental, and social sustainability of the business model and fight climate change (Rossignoli and Lionzo, 2018; Nosratabadi et al., 2019). In a managerial way, this could provide better services in terms of value for money to the customers, considering the increase in energy bills and the dependence on abroad sources for the supply chain.*

Originality of the paper. *The capability to anticipate user needs and incorporate them into a firm's value proposition is crucial for more effective and sustainable business models. The study focuses on a large company in the Italian energy industry that has undertaken a substantial shift towards a sustainable development model. The successful deployment of the energy transition relies on a deep reorganization of the energy market. Business model innovation is recognized as a key driver of this process. This could be an interesting empirical context, as this is an economically significant, dynamic sector, and under pressure to environmental challenges. The study contributes to the empirical analysis of the components of sustainable business models and their interplay with sustainable innovations. Furthermore, the SBM tool in energy industries can foster the Italian firms to capture value by evaluating the potential of renewable sources and producing more economically and responsibly. In a holistic vision, that would involve its customers, suppliers, employees, communities, and shareholders.*

Keywords: *business model innovation; sustainable business models; Renewable Energy Sources (RES); energy transition*

References

- ABDELKAFI N., TÄUSCHER K. (2016), "Business models for sustainability from a system dynamics perspective", *Organization & Environment*, vol. 29, n. 1, pp. 74-96.
- AXELSON M., OBERTHÜR S., NILSSON L.J. (2021), "Emission reduction strategies in the EU steel industry: Implications for business model innovation", *Journal of Industrial Ecology*, vol. 25, n. 2, pp. 390-402.
- BASILE V. (2021), "The triple layered business model canvas in smart agriculture: the case of Evja startup", *Piccola Impresa/Small Business*, n. 2.
- BASILE V., VONA R. (2021), "Sustainable and Circular Business Model for Oil & Gas Offshore Platform Decommissioning", *International Journal of Business and Management*, vol. 16, n. 10.
- BOCKEN N.M., SHORT S.W. (2016), "Towards a sufficiency-driven business model: Experiences and opportunities", *Environmental innovation and societal transitions*, vol. 18, pp. 41-61.
- BOCKEN N.M., SHORT S.W., RANA P., EVANS S. (2014), "A literature and practise review to develop sustainable business model archetypes", *Journal of cleaner production*, n. 65, pp. 42-56.
- BOHNSACK R., PINKSE J., KOLK A. (2014), "Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles", *Research Policy*, vol.43, n. 2, pp. 284-300.
- BOLTON R., HANNON M. (2016), "Governing sustainability transitions through business model innovation: Towards a system understanding", *Research Policy*, vol. 45, n. 9, pp. 1731-1742.
- BOONS F., LÜDEKE-FREUND F. (2013), "Business models for sustainable innovation: state-of-the-art and steps towards a research agenda", *Journal of Cleaner Production*, vol. 45, pp. 9-19.
- BROWN D., KIVIMAA P., SORRELL S. (2019), "An energy leap? Business model innovation and intermediation in the 'Energiesprong' retrofit initiative", *Energy Research & Social Science*, vol. 58, pp. 101253.
- BÜRER M.J., LAPPARENT M.D., CAPEZZALI M., CARPITA M. (2022), "Governance Drivers and Barriers for Business Model Transformation in the Energy Sector", *In Swiss Energy Governance* (pp. 195-243), Springer, Cham.
- CAPOBIANCO N., BASILE V., LOIA F., VONA R. (2021), "Toward a Sustainable Decommissioning of Offshore Platforms in the Oil and Gas Industry: A PESTLE Analysis", *Sustainability*, vol. 13, n. 11, pp. 6266
- CHESBROUGH H. (2010), "Business model innovation: opportunities and barriers", *Long-range planning*, vol. 43, n. 2-3, pp. 354-363.
- CHUN Y.Y., EE K.M. (2013), "Life cycle-based generic business strategies for sustainable business models", *Journal of sustainable development*, vol. 6, n. 8, pp. 1.
- DAOU A., MALLAT C., CHAMMAS G., CERANTOLA N., KAYED S., SALIBA N.A. (2020), "The Ecocanvas as a business model canvas for a circular economy", *Journal of Cleaner Production*, n. 258, p. 120938.
- EISENHARDT K.M., GRAEBNER M.E. (1989), "Theory building from case study research", *Academy of Management Review*, vol. 14, n. 4, pp. 532-550.
- FACCHINETTI E., EID C., BOLLINGER A., SULZER S. (2016), "Business model innovation for local energy management: A perspective from Swiss utilities", *Frontiers in Energy Research*, vol. 4, pp. 31.
- FEAGIN J.R., ORUM A.M., SJOBERG G. (EDS.), (1991), *A case for the case study*. UNC Press Books.
- GEISSDOERFER M., VLADIMIROVA D., EVANS S. (2018), "Sustainable business model innovation: A review", *Journal of cleaner production*, n. 198, pp. 401-416.
- HALL S., ROELICH K. (2016), "Business model innovation in electricity supply markets: The role of complex value in the United Kingdom", *Energy Policy*, vol. 92, pp. 286-298.
- HALL S., MAZUR C., HARDY J., WORKMAN M., POWELL M. (2020), "Prioritising business model innovation: What needs to change in the United Kingdom energy system to grow low carbon entrepreneurship?", *Energy Research & Social Science*, vol. 60, pp. 101317.
- HAMELINK M., OPDENAKKER R. (2019), "How business model innovation affects firm performance in the energy storage market", *Renewable energy*, vol. 131, pp. 120-127.
- YANG M., EVANS S., VLADIMIROVA D., RANA P. (2017), "Value uncaptured perspective for sustainable business model innovation", *Journal of Cleaner Production*, n. 140, pp. 1794-1804.
- JOHNSON M.W., CHRISTENSEN C.M., KAGERMANN H. (2008), "Reinventing your business model", *Harvard business review*, vol. 86, n. 12, pp. 57-68.
- KARLSSON N.P., HALILA F., MATTSSON M., HOVESKOG M. (2017), "Success factors for agricultural biogas production in Sweden: A case study of business model innovation", *Journal of Cleaner Production*, vol. 142, pp. 2925-2934.
- LÜDEKE-FREUND F. (2020), "Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research", *Business Strategy and the Environment*, vol. 29, n. 2, pp. 665-681.
- MARKIDES C. (1997), Strategic innovation. *Sloan management review*, vol. 38, n. 3.
- NOSRATABADI S., MOSAVI A., SHAMSHIRBAND S., KAZIMIERAS ZAVADSKAS E., RAKOTONIRAINY A., CHAU K.W. (2019), "Sustainable business models: A review", *Sustainability*, vol. 11, n. 6, pp. 1663.
- PAVAN M.D.C.O., RAMOS D.S., SOARES M.Y., CARVALHO M.M. (2021), "Circular business models for bioelectricity: A value perspective for sugar-energy sector in Brazil", *Journal of Cleaner Production*, n. 311, p. 127615.

- PIERONI M.P., MCALOONE T.C., PIGOSSO D.C. (2020), "From theory to practice: systematising and testing business model archetypes for the circular economy", *Resources, conservation and recycling*, n. 162, p. 105029.
- PIERONI M.P., MCALOONE T.C., PIGOSSO D.C. (2019), "Business model innovation for circular economy and sustainability: A review of approaches", *Journal of cleaner production*, n. 215, pp. 198-216.
- PIISPANEN V.V., HENTTONEN K., AROMAA E. (2020), "Applying the circular economy to a business model: an illustrative case study of a pioneering energy company", *International Journal of Entrepreneurship and Innovation Management*, vol. 24, n. 4-5, pp. 236-248.
- RICHTER M. (2013), "Business model innovation for sustainable energy: German utilities and renewable energy", *Energy Policy*, vol. 62, pp. 1226-1237.
- ROSSIGNOLI F., LIONZO A. (2018), Network impact on business models for sustainability: Case study in the energy sector. *Journal of cleaner production*, n. 182, pp. 694-704.
- SCHALTEGGER S., LÜDEKE-FREUND F., HANSEN E.G. (2012), "Business cases for sustainability: the role of business model innovation for corporate sustainability", *International journal of innovation and sustainable development*, vol. 6, n. 2, pp. 95-119.
- TOLKAMP J.C.C.M., HUIJBEN J.C.C.M., MOURIK R.M., VERBONG G.P.J., BOUWKNEGT R. (2018), "User-centred sustainable business model design: The case of energy efficiency services in the Netherlands", *Journal of Cleaner Production*, n. 182, pp. 755-764.
- TRAPP C.T., KANBACH D.K. (2021), "Green entrepreneurship and business models: Deriving green technology business model archetypes", *Journal of Cleaner Production*, n. 297, pp. 126694.
- WADIN J.L., AHLGREN K., BENGTSSON L. (2017), "Joint business model innovation for sustainable transformation of industries—A large multinational utility in alliance with a small solar energy company", *Journal of Cleaner Production*, vol. 160, pp. 139-150.
- YIN R.K. (2009), *Case study research: Design and methods* (Vol. 5), Sage.
- ZHANG Y., WEN J. (2017), "The IoT electric business model: Using blockchain technology for the internet of things", *Peer-to-Peer Networking and Applications*, vol. 10, n. 4, pp. 983-994.
- ZHANG C., CAMPANA P.E., YANG J., YAN J. (2017), "Economic performance of photovoltaic water pumping systems with business model innovation in China", *Energy Conversion and Management*, n. 133, pp. 498-510.
- ZHAO X., PAN W., LU W. (2016), "Business model innovation for delivering zero carbon buildings", *Sustainable cities and society*, vol. 27, pp. 253-262.

Tourism and the new sustainable mobility: are charging station sources of sustainable competitive advantage?

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Framing of the research. *Travelling has always been a crucial aspect of human life since ancient times. In 2019, according to UNWTO estimates, about 1.4 billion people travelled (UNWTO, 2019). Due to the Covid-19 pandemic, the number of travellers has drastically decreased due to the insecurity and restrictions implemented. However, in Italy, according to data provided by ISTAT, there is a gradual recovery for bookings, and travelling is again increasing (ISTAT, 2021). The concepts of mobility and tourism are interconnected as tourism necessarily implies the movement of people (UNWTO, 2020). Due to the increased tourists' attention and their awareness of tourism impact on the environment and, more in general, on climate change means that the destination accessibility and the range of tourist services offered in the local area can make the difference between an attractive destination and another one not to much attractive (Lumsdon and Page, 2004; Campa et al., 2018; Gunhemann et al., 2021). The development of the tourism sector cannot ignore the implementation of sustainable business models. Hotels and accommodation facilities must ensure a meaningful experience for customers and disseminate sustainable tourism practices among them (Streimikiene et al., 2020).*

In this regard, technological innovations and the variety of the proposed offer would allow accommodation facilities to exploit their unique resources through advanced and effective organizational forms capable of creating a sustainable competitive advantage (Agyeiwaah et al., 2017). Consequently, a broad set of sustainable tourism mobility options becomes an important driver of competitive advantage for accommodation facilities able to offer them. Finally, awareness-raising efforts based on tourism to increase awareness and use of electric vehicles also play a critical role, as shown by car rental and car-sharing fleets in several tourist destinations (Jin and Slowik, 2017).

Electric vehicles (both full electric vehicles and plug-in hybrids) are more and more seen as meaningful factors as they are associated with a lower environmental impact with a limited contribution of greenhouse gas emissions (Un-Noor et al., 2017). Furthermore, the new European regulations require internal combustion cars to stop by 2035. This highlights an opportunity for those accommodation facilities (in terms of accessibility) that will be able to take advantage of the competition by setting up parking slots with their charging stations or by signing agreements with third parties to meet the need for electric charging of their clients. Another relevant aspect regarding the service offered is the charging stations' technological characteristics, which can be of different types and with different levels of efficiency (Cui et al., 2018).

Many studies have addressed the interconnection of mobility and tourism, such as those focusing mainly on the impact of climate change on tourist travel (Guhnemann et al., 2021), or on electric mobility to increase tourism in remote areas (Scuttari and Isetti, 2019), or looking at the travel modes and their policy implications (LaMondia et al., 2010; Chen et al., 2017; Tang et al., 2020). Other studies have analyzed the main hindrances to the adoption of e-mobility in tourism (Holden, 2007; Dosch, 2012; Hibbert et al., 2017; Gosling, 2017), or, with a more general perspective, the factors that encourage sustainable tourism (Nakamura and Abe, 2016, Hoppe and Thimm, 2018). In the literature, to the best of our knowledge, scholars still have to address the interconnection between mobility and tourism, adopting the consumer's perspective (in particular, owners or renters of electric cars) on getting access to charging services (the electric vehicle charging station) as a resource owned by the hotel or in possession of the receptive structures partners, and on the degree of technology ensured by the service offered.

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This research aims to analyze how the charging stations can be perceived as a distinctive resource of accommodation facilities by potential customers, in terms of availability and technological level of the service offered.

To determine the value of the charging columns as a resource able to create a competitive advantage for the receptive structures, we will use the theoretical framework of the Resource-Based View and, in particular, the theoretical model of the VRIO analysis. Resource-Based Theory (RBT) is a business theory (Foss, 1996) inspired (Wernerfelt, 1984) by the work of Penrose (1959) on the relationship between the company's endowment of resources and its performance in the market. The theory starts from the assumption that the resources should be used as a competitive lever to reach and protect a more favourable position in the market with the consequent creation of an over-profit and letting the companies enhance their differentiation strategies (Rumelt, 1984).

The RBT argues, at the basis of its interpretation of the positions of sustainable competitive advantage (SCA), the heterogeneity of the endowment of resources in the firms (Barney, 1991) which, in addition to deriving from a different initial endowment of the individual firms, is also the result of different generation processes that their management has decided to follow over time (Dierickx and Cool, 1989).

In evaluating the effectiveness of the resources, according to the RBT, the characteristics of the external environment (Wernerfelt, 1984, 1989; Barney, 1986a, 1986b, 1991, 1995, 1996, 2007; Dierickx and Cool, 1989; Prahalad and Hamel, 1990; Mahoney and Pandian, 1992; Amit and Schoemaker, 1993; Peteraf, 1993) and the effects they can have on the competitiveness of the firm's resource portfolio must be considered, both due to sectoral dynamics that due to both innovations and obsolescence.

These criticalities require the company to continuously re-new its resources in one of three ways:

- *finding resources on the market.*
- *development of the necessary resources internally.*
- *obtaining the resources from the subjects with whom the company has a relationship.*

The growing market instability requires companies to quickly seize windows of opportunity, which can appear suddenly without developing the necessary resources internally. It thus becomes interesting for the company to use the relationships with other companies with the necessary resources by creating a strategic alliance to obtain access to the resource without obtaining ownership (Ireland et al., 2002).

Access to external resources through agreements involves various risks for the company, mainly linked to the loss of control over the evolution of the strategy by the management and to the increase in the costs necessary to develop resources and skills dedicated to the management of cooperation to reduce the potential conflict inherent in agreements (Das and Teng, 2000).

According to the RBT, the management has to create a strategy for using the enterprise resources to create value for the customer and, therefore, get a competitive advantage (Barney, 1991: 102).

According to Peteraf (1993), resource heterogeneity results from limited availability of the resources of greater value and, therefore, competitors have to replace with other less effective resources or have to bear higher costs. The availability of resources alone does not automatically lead to a competitive advantage on the part of the company that owns them, and this condition is instrumental to the presence of three basic requirements. The first requirement concerns the presence of limit ex-post to the competition to sustain the competitive advantage over time. Barney (1991) divides them into imitation barriers and substitution barriers.

The second requirement concerns the mobility of the resource, which is proportional to its specificity with respect to the enterprise.

Finally, the third requirement concerns ex-ante limits to competition, without which the undertaking would not have been able to create its own competitive advantage position since the cost of acquiring the resources would have passed on the economic advantage from the undertaking to its suppliers.

The strategy defined by the company must leverage on resources that allow the company to achieve and maintain a position of sustainable competitive advantage (Barney, 1996). A suitable tool for this purpose is the VRIO model developed by Barney (Barney, 1997: 163).

The purpose of Barney's VRIO framework is to evaluate the distinctive resources that are a source of a company's competitive advantage. In particular, to complete the assessment of internal strengths and weaknesses in the SWOT analysis, resources must be evaluated based on four fundamental aspects: Value, Rarity, Imitability and Organization.

- *Value: Do resources or capabilities allow companies to respond to environmental threats or opportunities? This demand allows companies to differentiate the resources considered valuable and, therefore, create a sustainable competitive advantage from those that are not. According to Barney (1991: 106), resources can only be considered valuable when they allow the company to develop and implement strategic paths that help it achieve higher efficiency and/or effectiveness.*
- *Rarity: how many competing enterprises already possess those specific resources and capacities of value? This aspect makes it possible to assess how common the resource is since as its diffusion grows, it becomes more challenging to use it as a basis for achieving a competitive advantage, as its diffusion in the market reduces the heterogeneity of the allocation of resources.*
- *Imitation: Do companies without such resources, and capabilities face a cost disadvantage to obtain it, compared to companies that already own them? This aspect makes it possible to assess whether the resource can be easily obtained by competitors who decide to use it or succeed in replacing it with other resources capable of performing the same function.*

- *Organization: Is the enterprise organized in such a way as to exploit the full potential of its resources and capabilities? This last aspect concerns the modalities of use of the resources and the competences from part of the enterprise. On the other hand, this last question serves for determining if the enterprise can fully exploit the competitive potential of the resource, which may require the presence of additional resources.*

The result of this analysis must be assessed according to the VRIO model, which makes it possible to link the answers found to the questions of the previous analyses to the competitive situation of the company and the subsequent economic development.

The firm's resource endowment can be expanded by turning to the outside by building a network of relationships, which allow it to reach and manage other resources necessary to achieve an SCA (Wernerfelt, 1984).

Accordingly, Dyer and Singh (1998: 662) identify strategic alliances as a possible source of competitive advantage when they allow the firm to obtain relationship rents based on creating a heterogeneous combination of resources.

According to Dyer and Singh (1998), relationship rents can be achieved by leveraging:

- *Specific investments in the relationship.*
- *Sharing of knowledge flows.*
- *Combination of scarce and complementary resources.*
- *Governance mechanisms.*

In this paper, we will focus on the third element. The combination of scarce and complementary resources becomes the basis for the construction of barriers to imitation based on social complexity; these barriers can only be adequately exploited in the presence of relationship governance mechanisms that prove to be more efficient than those available to competing companies or that facilitate the creation of rents deriving from idiosyncrasy of the combination of resources used.

This branch of RBT, called Relational View, allows us to deepen the discussion on the accessibility of tourists to accommodation facilities to the offer of certain services such as, for example, charging stations for electric vehicles. The aim is to verify how customers' different degrees of accessibility to this type of service may or may not prove to be a distinctive resource for the accommodation facilities that have it.

Purpose of the paper. *From the perspective of consumers, this research aims to study whether the presence of services related to the recharging of electric vehicles is a distinctive resource capable of creating a competitive advantage for the accommodation facilities that equip themselves with them. In particular, we want to analyze whether the attractiveness of accommodation facilities is influenced by the availability and technological level of electric vehicle recharging services. The research is based on the use of the theoretical framework of the Resource-Based Theory and, in particular, we will test the central tenet of the relational vision trying to understand whether charging stations for electric cars can be a distinctive resource and capable of creating a competitive advantage for those accommodation facilities capable of having access to them. Through the VRIO analysis tool and the administration of a questionnaire based on the Kano Model, potential customers of the accommodation facilities will be asked to evaluate the importance and value deriving from the availability and technological level of the recharging services provided by the aforementioned structures.*

Methodology. *We have decided to leverage the Kano Model to understand what tourists expect from the structures in which they stay in a context of sustainable tourism (Kano et al., 1984). This model is primarily a qualitative, nonlinear, interpretative, grounded method (Rashid, 2010).*

This model is structured based on customer satisfaction according to the attributes of the products and services offered by the companies (Dominici and Palumbo, 2013); in particular, the Kano Model allows companies to realize which products and services are capable of increasing the satisfaction of their customers (Kano et al., 1984).

The model defines the following categories of product attributes:

- *Must-be or basic requirements (M): these are the basic requirements, those without which the customer will not be interested in the product or service offered.*
- *Satisfier or one-dimensional requirements (O): the presence of requirements can increase customer satisfaction proportionally. Customer satisfaction increases with increasing awareness of these characteristics.*
- *Attractive requirements (A): these are requirements that make it possible to increase customer satisfaction more than proportional. Businesses leverage these characteristics to implement their differentiation strategies.*
- *Indifferent requirements (I): the presence or absence of these requirements does not change the level of customer satisfaction in the least.*
- *Reverse (R): the customer does not want these characteristics of the product or service offered.*
- *Questionable (Q): the presence or absence of these attributes leaves the customer baffled.*

The Kano model identifies the attributes and characteristics that can increase or decrease customer satisfaction. Knowing what the fundamental requirements are for customers would allow managers' accommodation facilities to identify which services customers deem necessary and which can differentiate their offer from those which, on the other hand, are not and which, in some cases, can prove harmful to them.

Results. *This research contributes to the debate on sustainable mobility and its interconnection with tourism and the offer proposed by accommodation facilities to its potential customers. In particular, the possible results concern the importance for customers of the presence of some services related to the recharging of electric vehicles as a distinctive resource for choosing one structure over another. The results should demonstrate a correlation between the importance given by customers to the offer of electric charging services based on technology and the availability/accessibility of electric columns, and the use of electric vehicles. Finally, it could also demonstrate a connection between those who*

consider these services essential and, therefore, probably electric car users and the upper-middle-income class (electric vehicles being, for the most part, still costly for the average consumer).

Research limitations. Two main concerns limit this research. The first is related to the research focus on only the Italian context; in Italy, sustainable mobility and, in particular, electric mobility are not yet a widespread phenomenon among the population. Although the rate of use significantly increases year after year, overall, it is still constrained compared to the total number of cars circulating in Italy. On the other hand, due to this limited diffusion, even the accommodation facilities may not yet provide a fair offer to the user of electric vehicles.

Managerial implications. The practical implications of this research mainly concern the possibility for hospitality facility managers to identify and adequately assess how the electric vehicle charging services offered to customers can be considered distinctive resources capable of creating a sustainable competitive advantage. Thanks to the VRIO analysis and the Kano Model, this research supports managers to offer customers a range of services as close as possible to their expectations and needs. In particular, the Kano Model should allow accommodation facilities to understand if it is important to own the charging service or whether it is preferable to exploit the territorial resource near the structure to increase its attractiveness in the eyes of potential customers.

Originality of the paper. The originality of this work derives from the fact that no studies have investigated the degree of attractiveness for potential customers of an accommodation facility based on the accessibility and degree of the technological level of the various charging services for electric vehicles in the literature. The Resource-Based View and Relational View framework with the integration of the Kano Model will allow us to have a broader vision on how important it is for a potential customer that the structure owns the charging services for electric vehicles offered or it is sufficient that it can exploit them as a territorial service available to all accommodation facilities.

Keywords: *Electric Mobility; Tourism; Hospitality; Resource-Based View; VRIO Analysis; Kano Model.*

References

- AGYEJWAAH E., MCKERCHER B., SUNTIKUL W. (2017), "Identifying core indicators of sustainable tourism: A path forward?", *Tourism Management Perspectives*, vol. 24, pp. 26-33.
- AMIT R., SCHOEMAKER P.J.H. (1993), "Strategic assets and organizational rent", *Strategic Management Journal*, vol. 14, pp. 33-46.
- BARNEY J.B. (1986a), "Organizational culture: Can it be a source of sustained competitive advantage?", *Academy of Management Review*, vol. 11, n. 3, pp. 656-665.
- BARNEY J.B. (1986b), "Strategic Factor Markets: Expectations, Luck, and Business Strategy", *Management Science*, vol. 32, n. 10, pp. 1231-1241.
- BARNEY J.B. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, vol. 17, pp. 99-120.
- BARNEY J.B. (1995), "Looking inside for competitive advantage", *Academy of Management Executive*, vol. 9, n. 4, pp. 48-61.
- BARNEY J.B. (1996), *Gaining And Sustaining Competitive Advantage*, Addison Wesley Publishing Company, Reading.
- BARNEY J.B. (2007), *Gaining And Sustaining Competitive Advantage*, 3rd Ed., Prentice-Hall, Upper Saddle River.
- CAMPA J.L., ARCE R., LOPEZ LAMBAS M.E., GUIRAO B. (2018), "Can HSR improve the mobility of international tourists visiting Spain? Territorial evidence derived from the Spanish experience", *Journal of Transport Geography*, vol. 73, 94-107.
- CHEN M., WANG D., SUN Y., LIU C., BAI Z. (2017), "Service evaluation of public bicycle scheme from a user perspective: a case study in Hangzhou, China", *Transportation research record*, vol. 2634, n. 1, pp. 28-34.
- CUI S., ZHAO H., WEN H., ZHANG C. (2018), "Locating multiple size and multiple type of charging station for battery electricity vehicles", *Sustainability*, vol. 10, n. 9, 3267.
- DAS T.K., TENG B.S. (2000), "A Resource-Based Theory of Strategic Alliances", *Journal of Management*, vol. 26, n. 1, pp. 31-61.
- DIERICKX I., COOL K. (1989), "Asset stock accumulation and sustainability of competitive advantage", *Management Science*, vol. 35, n. 12, pp. 1504-1551.
- DOMINICI G., PALUMBO F., BASILE G. (2015), "The drivers of customer satisfaction for academic library services: managerial hints from an empirical study on two Italian university libraries using the Kano model", *International Journal of Management in Education*, vol. 9, n. 3, pp. 276-289.
- DOSCH B. (2012), Eco-Mobility: Will New Choices of Electric Drive Vehicles Change the Way We Travel?, In *Trends and Issues in Global Tourism 2012*, edited by Roland Conrady and M. Marin Buck, pp. 261-70. Heidelberg: Springer.
- DYER J.H., SINGH H. (1998), "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive", *The Academy of Management Review*, vol. 23, n. 4, pp. 660-679.
- FOSS N.J. (1996), "Knowledge-Based Approaches to the Theory of the Firm: Some Critical Comments", *Organization Science*, vol.7, n. 5, pp. 470- 476.

- GOSSLING S. (2017), *The psychology of the car: automobile admiration, attachment, and addiction*, Elsevier.
- GUHNEMANN A., KURZWEIL A., MAILER M. (2021), "Tourism mobility and climate change-A review of the situation in Austria", *Journal of Outdoor Recreation and Tourism*, vol. 34, 100382.
- HAMEL G., PRAHALAD C.K. (1994), *Competing for the Future*. Harvard Business School Press, Boston
- HIBBERT J.F., DICKINSON J.E., GOSSLING S., CURTIN S. (2013), "Identity and tourism mobility: an exploration of the attitude-behaviour gap", *Journal of Sustainable Tourism*, vol. 21, n. 7, pp. 999-1016.
- HOLDEN E., (2007), *Achieving Sustainable Mobility: Everyday and Leisure-time Travel in the EU*, Aldershot: Ashgate.
- HOPPE M., THIMM T. (2018), "E-mobility in Tourism: Why New Mobility Solutions Have to Overcome Borders", *Spaces & Flows: An International Journal of Urban & Extra Urban Studies*, vol. 9, n. 4.
- IRELAND R.D., HITT M.A., VAIDYANATH D. (2002), "Alliance Management as a Source of Competitive Advantage," *Journal of Management*, vol. 28, n. 3, pp. 413-446.
- JIN L., SLOWIK P. (2017), "Literature review of electric vehicle consumer awareness and outreach activities", *International Council on Clean Transportation*.
- KANO N., SERAKU N., TAKABASHI F., TSUJI S. (1984), "Attractive quality and must-be quality", *Hinshitsu: The Journal of the Japanese Society for Quality Control*, vol. 14, n. 2, pp. 39-48.
- LAMONDIA J., SNELL T., BHAT C.R. (2010), "Traveler behavior and values analysis in the context of vacation destination and travel mode choices: European Union case study", *Transportation research record*, vol. 2156, n. 1, pp. 140-149.
- LUMSDON L., PAGE S.J. (2007), "Progress in transport and tourism research: reformulating the transport-tourism interface and future research agendas", *Tourism and transport*, pp. 16-43, Routledge.
- MAHONEY J.T., PANDIAN J.R. (1992), "The resource-based view within the conversation of strategic management", *Strategic Management Journal*, vol. 13, n. 6, pp. 363-380.
- MATZLER K., HINTERHUBER H.H. (1998), "How to make product development projects more successful by integrating Kano's model of customer satisfaction into quality function deployment", *Technovation*, vol. 18, n. 1, pp. 25-38.
- MORAN P., GHOSHAL S. (1999), "Markets, firms, and the process of economic development", *Academy of Management Review*, vol. 24, n. 3, pp. 390-412.
- NAKAMURA H., ABE N. (2016), "Tourist decisions in renting various personal travel modes: A case study in Kitakyushu City, Japan", *Tourism Management*, vol. 55, pp. 85-93.
- NONAKA I., TAKEUCHI H. (1997), *The knowledge-creating company. Creare le dinamiche dell'innovazione*. Guerini e Associati, Milano.
- PENROSE E.T. (1959), *The Theory of the Growth of the Firm*, John Wiley, New York.
- PETERAF M.A. (1993), "The Cornerstones of Competitive Advantage:A Resource-Based View", *Strategic Management Journal*, vol. 14, n. 3, pp. 179-191.
- PORTER M.E. (1980), *Competitive advantage. Techniques for analyzing industries and competitors*, The Free Press, New York.
- PRAHALAD C.K., HAMEL G. (1990) "The Core Competence of the Corporation", *Harvard Business Review*, (May-June), pp. 79-91.
- RASHID M.M. (2010), "A review of state-of-art on Kano model for research direction", *International Journal of Engineering Science and Technology*, vol. 2, n. 12, pp. 7481-7490.
- RUMELT R.P. (1984), "Towards a Strategic Theory of the Firm", in Lamb R.B. (a cura di), *Competitive Strategic Management*, Prentice-Hall, Englewood Cliffs, pp. 556-570.
- SCUTTARI A., ISETTI G. (2019), "E-mobility and sustainable tourism transport in remote areas", *Zeitschrift fuer Tourismuswissenschaft*, vol. 11, n. 2, pp. 237-256.
- STREIMIKIENE D., SVAGZDIENE B., JANISKAS E., SIMANAVICIUS A. (2021), "Sustainable tourism development and competitiveness: The systematic literature review", *Sustainable development*, vol. 29, n. 1, pp. 259-271.
- TANG X., WANG D., SUN Y., CHEN M., WAYGOOD E.O.D. (2020), "Choice behavior of tourism destination and travel mode: A case study of local residents in Hangzhou, China", *Journal of Transport Geography*, vol. 89, 102895.
- UN-NOOR F., PADMANABAN S., MIHET-POPA L., MOLLAH M.N., HOSSAIN E. (2017), "A comprehensive study of key electric vehicle (EV) components, technologies, challenges, impacts, and future direction of development", *Energies*, vol. 10, n. 8, 1217.
- WERNERFELT B. (1984), "A resource-based view of the firm", *Strategic Management Journal*, vol. 5, n. 2, pp. 171-180.
- WERNERFELT B. (1989), "From critical resources to corporate strategy", *Journal of General Management*, vol. 14, pp. 4-12.

Digital transformation and Open Innovation: Italian SMEs' collaboration strategies

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Framing of the research. *Digital transformation (DT) redefines entrepreneurial strategies' boundaries and business processes (Urbinati et al., 2018), and can be considered “a blueprint that supports companies in governing the transformations that arise owing to the integration of digital technologies, as well as in their operations after a transformation” (Matt et al., 2015, p.340). DT implies the development of proper business practices and the adoption of novel business models that help firms effectively compete in a digital world (Kane, 2017) by redefining the processes of value creation and appropriation (Verhoef et al., 2019). To meet this goal, DT may affect several or all segments within a firm, as it concerns, for example, changes of products, organizational structures, or the automation of processes (Hess et al., 2016). In fact, DT can be beneficial for facilitating the hiring process of the best-trained employees (Zupic, 2014), increasing worker productivity (Bowersox et al., 2005), generating economies of scale (Deichmann et al., 2016), accelerating time to market and improving the innovation process.*

However, understanding how DT works and should be managed is a challenging issue for firms, in general (Mahraz et al., 2019; Morakanyane et al., 2017), and SMEs, in particular (Matt et al., 2020). In fact, SMEs struggle in accessing such new technologies compared to large companies due to their limited organizational and financial resources (Bogers, 2011), which limit and condition a complete DT (Ulas, 2019). Despite these constraints, SMEs have entrepreneurial spirit, flexibility, and innovation capabilities (Matt et al., 2016) that can be useful for the effective implementation of DT (Sommer, 2015). For example, in the context of Industry 4.0 (Lasi et al., 2014), by considering that SMEs can develop new information technology structures from scratch more easily than larger counterparts, they are supposed to be able to implement the DT more quickly than larger firms, as suggested by Deloitte (Finance, 2015). The key point for SMEs is not the decision of whether to adopt digital technologies or not, but, instead, to find a suitable way to internally implement them as fast as possible to survive in the competitive landscape and reach a sustainable competitive advantage (Matt et al., 2020). In recent years there has been an increasing interest in how DT processes take place in SMEs (Li et al., 2018). Several authors argued that, notwithstanding SMEs may use digital technologies to enhance their value propositions (Cenamor et al., 2019), they may struggle to face different and complex challenges of DT (Brunswick et al., 2013; Kesting and Günzel-Jensen, 2015). Among these challenges, particularly important is the identification of what to digitize, what technologies to adopt, and what organizational choices to make (Heberle et al., 2017). In addressing such decisions, SMEs often experience the need to collaborate with external actors, which represent a valuable source of knowledge, competence and capabilities in this respect (Lee et al., 2010). In particular, by adopting an Open Innovation perspective (Chesbrough, 2003), interactions and collaborations with external knowledge entities can play a pivotal role in facilitating and supporting the DT (Nambisan et al., 2019; Crupi et al., 2020), as by opening up their organizational boundaries, SMEs have the possibility to acquire external complementary knowledge and resources, compensate for weak internal competencies, accelerate internal transformation processes, and reduce costs and efforts related to innovation processes (Chesbrough, 2012).

Purpose of the paper. *Although prior literature has clearly identified a need for SMEs to pursue the collaboration with external agents to promote a complete DT, several questions still remain unanswered. On the one side, which partners are more effective in this respect is unclear. Particularly, the question is whether a strict linkage with a limited number of providers of key resources and competences should be preferred over a wide net of relationships with a variety of partners. On the other hand, also as a consequence of the previous aspect, which mechanisms and organizational solutions should be promoted to facilitate knowledge and resource exchange with external partners*

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remains an open question. Accordingly, this study answers the following research questions: who are the primary actors involved in DT processes? And, what are the mechanisms through which SMEs develop collaboration activities to promote their DT processes?

Methodology. To answer these research questions, the study relies on primary data collected through surveys and in-depth interviews with a sample of Italian innovative SMEs. The analysis of data has been conducted by performing a mixed methodology. On the one hand, a qualitative comparative analysis (QCA) has been conducted on survey data to investigate the nature of the actors involved in the DT process. Then, to closely observe the mechanisms behind collaborations, in-depth interviews with SMEs' managers and founders have been conducted.

More specifically, configurational comparative methods are beneficial to complete statistical analysis as shown in previous studies in organizational change management and HRM (Woodside, 2013). Configurational analysis refers to scenarios in which "a system can reach the same final state, from different initial conditions and by a variety of different paths" (Katz and Kahn, 1978, p.30). In this context, qualitative comparative analysis (QCA) assumes complex causality between phenomena and non-linear relationships. By assuming increasingly attention from management (Greckhamer et al., 2008) and innovation scholars (Ordanini and Maglio, 2009), this method adopts a mixed qualitative/quantitative technique and permits to analyze a small number of cases (Ragin, 2008).

To conduct the present study, we use a specific QCA, the fuzzy set qualitative comparative analysis (fsQCA). As explained by Ragin (2006a), fsQCA works through several steps. The first step consists in building a truth table. The second step reduces the number of rows in the truth table, using a consistency threshold of 0.75. Establishing necessary conditions should highlight cases that lead to the outcome.

During February and March 2021, we developed an ad hoc questionnaire for this study, in which we asked questions regarding the direction of the knowledge flow from outside the firm to inside through the identification of four different actors represented by universities, other firms, intermediaries, and users. Before sending the questionnaire, we contacted two SMEs to obtain useful feedbacks and validate the questionnaire. This approach reduced interpretation issues or misunderstanding of some of the questions in the form. Subsequently, we revised the questionnaire and submitted it in April 2021, through SurveyMonkey. The sample was represented by the innovative SMEs registered on the list of the Italian Chamber of Commerce. We received answers from the CEOs of 30 innovative SMEs.

Outcome and conditions correspond to the description and codification reported in Table 1. The outcome (i.e., DT) is a continuous variable reporting the degree of DT through a 5-point Likert scale derived from Galindo-Martín et al. (2019). Conditions comprise the collaboration with different actors represented by universities, other firms (interfirm), intermediaries, and users. All these variables are dichotomous indicating the collaboration with external partners (1 Collaboration, 0 Non-collaboration).

Tab. 1: Outcome and conditions: description and codification

Outcome conditions	Description	Codification
Outcome: Digital Transformation	Continuous variable indicating the degree of DT through a Likert scale ranging from 1 to 5	Fuzzy variable
Universities	Dichotomous variable indicating if the firm collaborates with universities or not	Collaboration yes 1 no 0
Interfirm	Dichotomous variable showing whether a firm collaborate with other firms	
Intermediaries	Dichotomous variable indicating the collaboration with intermediaries (e.g. accelerators, patent brokers)	
Users	Dichotomous variable distinguishing firm collaboration with users	

Source: our elaboration

To deeply investigate the collaborative mechanisms behind external collaborations that SMEs promoted to implement DT, we added another level of analysis. By relying upon the fsQCA results, we isolated the most active firms in establishing collaborations and implemented a qualitative methodology based on individual in-depth interviews (Creswell & Poth, 2018). According to DiCicco-Bloom and Crabtree (2006), the semi-structured in-depth interview is the most used type of interview for qualitative research which allows a deeper understanding of the phenomenon under investigation. Thus, a script was designed according to the emerged insights from the literature and the fsQCA.

FsQCA results identified seven SMEs that reflect the characteristics of the context of analysis, but only two were available to participate in the study. Table 2 shows the details of such firms and managers interviewed. Company A, funded in 2013, is an Italian innovative SME operating in the development, production, and clinical validation of devices based on temperature management. Company B, funded in 2014, is an Italian innovative SME that offers consulting services in terms of innovation development strategies.

Both interviews were conducted online in May 2021 and lasted on average 90 minutes, following Lee's prescriptions (1999) on data collection through personal interviews. To minimize data loss and to favor textual analysis, the interviews were recorded and transcribed. By following Easterby-Smith et al. (2012), we re-read collected data and transcribed them to familiarize ourselves with the information. Then, by using a qualitative data analysis software (i.e., Atlas.ti), we conducted a data reduction phase by selecting and transforming the data for improving its manageability in the interpretation phase. According to Holloway and Wheeler (2002), we made data reduction by using the three-step coding method: i) open coding, ii) axial coding, and iii) selective coding. This approach consists of

a constant comparative analysis technique for analyzing qualitative data (Creswell, 2002). At the end of the coding phase, we chose categories and subcategories that best describe the investigated concepts. Then, outputs were established from interview scripts that offer guidelines to refine definitions of the concepts.

Tab. 2: Informant details

SME	Informant	Position
Company A	Respondent 1	Co-founder and marketing & communication manager
Company B	Respondent 2	Co-founder

Source: our elaboration

Results. The analysis of necessary conditions was performed to determine whether any causal condition can be considered a necessary condition for the outcome. Specifically, whether the presence of a variable is necessary to ensure the output (DT) was tested. According to Schneider et al. (2010), a condition to be necessary is its consistency, which is the degree to which a relation of necessity or sufficiency between a causal condition and an outcome is met (Ragin, 2006b). Consistency value must be greater than 0.9. Table 3 shows the analysis of necessary conditions considering both the presence or the absence (~) of the variable. Given that the consistency value for each condition is below the threshold of 0.9, our analysis shows that none of the conditions alone is necessary for the output "digital transformation".

Tab. 3: Informant details

Necessary conditions

Outcome: Digital Transformation		
	Consistency	Coverage
Universities	0.42	0.81
~ Universities	0.57	0.72
Interfirm	0.41	0.79
~ Interfirm	0.58	0.73
Intermediaries	0.25	0.82
~ Intermediaries	0.74	0.73
Users	0.47	0.76
~ Users	0.52	0.75

Source: our elaboration

Then, the analysis of sufficient conditions was developed to identify all the conditions that are sufficient for the outcome to occur. We consider a frequency threshold of 1.0 and a consistency threshold of 0.75, which are consistent with the thresholds used by Mas-Verdú et al. (2015), whose study we are drawing upon. By using this frequency threshold, we consider as relevant cases only configurations that occur in more than one case. The model used for the analysis contains four conditions:

$$\text{Digital Transformation} = f(\text{Universities, Interfirm, Intermediaries, Users})$$

The fsQCA method allows the analysis of combinations of conditions that lead to the outcome of interest. These combinations are called "configurations". As shown in Table 4, intermediate solution generates only one configuration, pointing out that the DT of SMEs is boosted by the collaboration with users, other firms, and universities, at the same time. Consistent with prior literature, the analysis of sufficient conditions highlights that collaborations with external partners increase DT in SMEs, and that collaborations with multiple partners have a synergistic effect on the likelihood of promoting DT. This outcome suggests that, to increase their degree of DT, SMEs not only need to collaborate with external actors but that DT is boosted by collaboration with multiple partners simultaneously.

Tab. 4: Results of the sufficient conditions' analysis

Intermediate solution

Frequency cutoff: 2

Consistency cutoff: 0.833333

	Raw coverage	Unique coverage	Consistency
Users*Interfirm*Universities	0.19	0.19	0.85
Solution coverage: 0.18			
Solution consistency: 0.85			

Source: our elaboration

The analysis of the in-depth interviews permitted the identification of the OI activities adopted by Italian SMEs to develop and implement their DT processes. The results highlight that DT has certainly opened up unexplored innovation opportunities for firms, by requiring new mindsets (Jacobides, 2019). In fact, the process of DT calls for an innovative mindset able to stimulate and sustain the radical change of the organizational contexts along the complex path towards the digital configuration in the present as well as in the future.

Following prior literature (e.g., Soltanifar et al., 2021; Cutolo and Kenney, 2020), this study highlighted that SMEs have to “think digitally” to face the challenges and difficulties related to DT and grasp the opportunities offered by the adoption of new digital technologies for pursuing long-term success and maintaining a significant competitive advantage. Managers and workers have to remove their internal barriers (i.e., internal skill gaps) that obstacle the identification of digital solutions they need and the consequent adaptation of business models and processes. As underlined by a respondent, this outcome requires: “a strong predisposition and mindset able to see everything with the eyes of those who understand the effective potential of the digital technologies. Having a solid digital approach can help and facilitate innovation processes and activities within the organization, by contributing to being very responsive and innovative!” (Respondent 2 - Company B)

However, interviewees also reported that the concept of DT has become abstract, broad, and it can seem confusing. What remains unclear is that DT involves changes, at different levels, in the configuration of business processes, in the adaptation of flexible business models, and the training of people. In turn, the transition towards a digital perspective becomes very complex in the context of SMEs, where the adoption of innovative technologies (i.e., blockchain, IoT, big data) has inevitable implications for the design, implementation, and achievement of strategic and organizational models inspired to the digitalization.

In this respect, findings of the study underline the significant role of collaborations with external actors. These collaborations contribute to the implementation of DT because they allow to acquire and absorb external knowledge for enabling technological innovation within the organization, thus improving innovation performance. Although SMEs are traditionally used to manage main activities internally, our interviewees pointed out that collaborations can represent an interesting opportunity to effectively implement and accelerate the complex processes related to the DT; in particular, the collaboration with research centers and other technologically advanced companies permits to face the difficulties related to the identification of digital practices and to use sophisticated technologies (i.e., data analytics), by leveraging on external support systems and advice. As noted by a respondent: “Our collaborations can be seen as a 50-50 job. We are oriented to continuous collaboration. For example, our device is made internally, but with the collaboration of various specialized companies. We collaborate with companies that follow us for the electronic part, the software elements, and other types of devices. We tried to bring all the research and prototyping development parts of our device inside. Finally, with the collaboration with the research center, all study aspects are defined together (how the device must be positioned, which patients can participate in the study, etc.)”. (Respondent 1 - Company A).

In detail, collaborating with technologically advanced firms and/or specialized teams of research under a “work for equity agreement” permits filling the firm’s technological gaps, ensuring that SMEs can access core digital tools and platforms characterizing their business. However, the autonomous selection of the right external partner (i.e., skilled figure) is very problematic and requires moving from the identification of the firm’s internal gap to the analysis of the different types of collaboration. In this respect, a respondent revealed that: “In our company, some figures are not strictly employees, but we have included them within the organization using “work for equity”. They are accruing company shares. We have formalized collaboration agreements with them in the form of contracts that lead to the accrual of company shares following the achievement of the objectives. [...] The lack of resources led us to focus on those collaborations with figures that allow us to fill our technological gap, and with companies that would help us reach the market in the future.” (Respondent 1 - Company A).

Regarding the collaboration, findings of the study underline that a particular role is played by intermediaries. In fact, these third organizations - through their wider range of services -facilitate the linkages between firms and external partners with different competencies and capabilities. The brokerage activity is based on a deep understanding of the external environment regarding specialized actors (i.e., experts, specialist companies, R&D centers, etc.) and advanced technologies and on the consolidated ability to identify the right partner with the adequate technical solution to foster the encounter between supply and demand. In this respect, the intermediaries can perform tasks ranging from linking a large variety of entities for collaboration to setting up and mediating relationships and bridging a wide array of knowledge, competency, and capability gaps. In effect, a respondent notes that: “Our company ‘creates collaborations’. We carry out scouting and startup acceleration activities. If a company manifests a specific need, we try to satisfy it by planning technological solutions or scouting figures who can fill their gap. The goal is to intercept the various needs and connect the dots by contacting the different actors to establish collaborations to implement innovations and digital transformation processes (...)”. (Respondent 2 - Company B).

Another element of interest, emerging from the results of this research, concerns the importance to combine effectively the different knowledge and competencies of the actors participating in the collaborations. In this perspective, it assumes a significant role in the continuous digital training program for decision-makers and managers to explore the potential of human and technological resources and to address the synergies resulting from the interactions and relationships among internal and external capabilities within an open collaborative context, by activating learning mechanisms for experimenting and developing pilot projects of digitalization.

Finally, as stated by Heberle et al. (2017), identifying what to digitize, what technologies to adopt, and what organizational choices to make are crucial. While DT has its positive aspects (e.g., Urbinati et al., 2018), it would

appear that for SMEs the digitization of some activities is not beneficial. In fact, a respondent underlines that: "Unfortunately, the digitization of meetings forced by the pandemic situation due to Covid-19 did not help us. Calls on digital platforms are not at all useful to be able to concluding some negotiations. Some comparisons need to be done face to face, and if there is no face-to-face exchange, everything is slower". (Respondent 1 - Company A)

Research limitations. The present study is based on an explorative qualitative analysis based on survey data and interviews with a limited number of Italian innovative SMEs. In this respect, both qualitative and quantitative analyses may be carried out for understanding the effect of the DT with different external partners in SME contexts, the characteristics of the potential partners with complementary resources, and the typologies of collaborations that may better support the digital implementation and contribute to overcome the complex challenges related to the strategic reconfiguration of processes, business models, and activities. Additionally, by considering that SMEs can explore and select partners and collaborations using specific services of third organizations (e.g., innovation intermediaries, virtual platforms, etc.), future research may be explored all the partners who are part of an emerging ecosystem dedicated to the DT, by examining interaction mechanisms, trusting relationships and efficiency/effectiveness of the collaborations.

Managerial implications. The results of this study show that collaborations can foster and support DT processes. For defining and implementing a DT, SMEs need to collaborate with other external actors characterized by specific competencies. Furthermore, results show that the activation of these collaborations can mainly take place in two ways: i) spontaneously (i.e., autonomously searching for figures and partners with whom to collaborate and activate DT processes); ii) through an intermediary (i.e., a broker, whose function is to facilitate the meeting between providers and users of knowledge, competences, and know-how related to DT processes).

In this sense, the study provides several practical contributions, especially to SMEs that are orienting their effort to DT or that are willing to face it. Specifically, the paper emphasizes that SMEs can overcome the problems and obstacles characterizing an effective implementation of DT and its related activities by adopting an approach based on diverse collaborations with external entities. These collaborations assume relevance not only to using innovative technological solutions but also to supporting complex processes of digitalization by leveraging external capabilities and reducing risks and costs related to the digital transition. However, the study also reveals that no single partner (or category of partners - i.e., universities, users, other firms or intermediaries) individually can facilitate DT. By contrast, it is the joint contribution that arises from the collaboration with a diversified plethora of actors that enhances the likelihood of promoting DT. Each partner provides unique knowledge, skills and abilities that are then combined together by the recipient to successfully exploit the opportunities offered by digital technologies.

In this perspective, SMEs have to operate for the creation of an internal environment that favors the culture of collaborations with a wider range of external partners and contributes to the expansion of the partners' portfolio with a heterogeneous pool of resources and capabilities by defining and using different collaboration forms oriented to a successful digital implementation process.

Originality of the paper. The paper contributes to the existing literature by examining how SMEs can overcome the lack of human, financial, and managerial resources for the adoption of complex digital transformation processes characterized not simply by the use of emerging digital technologies, but also by the organizational changes concerning products, processes, business models and activities. As underlined above, this represents a complex challenge for SMEs' growth and competitiveness, considering that SMEs are "the cement of inclusive and sustainable societies" (OECD, 2021).

The study reveals the importance of the collaborations with external partners in order to access complementary resources and competencies necessary to support SMEs in dealing with the complexity and uncertainty related to DT and to obtain the benefits deriving from such a transformation. By overcoming the size-related limitations they face in doing business, SMEs can therefore improve performance. In this respect, while the existing literature stresses that traditional SMEs generally collaborate with customers and suppliers (Hervás-Oliver, et al., 2021), the study emphasizes the opportunities to activate different types of collaboration and cooperation activities with a plethora of actors that SMEs can rely upon for compensating the scarcity of internal resources and competences. The possibility for them to acquire and absorb external knowledge becomes the enabling condition that allows SMEs to accelerate the processes of DT and become able to manage and implement radical technological solutions in changing environments. Additionally, the study suggests that, in order to promote DT, SMEs can proceed to search for external potential partners actors either independently or through innovation intermediaries, which may provide services and activities oriented to facilitate and sustain the match between different agents.

Keywords: digital transformation; open innovation; SME; collaboration; Italy.

References

- BOGERS M. (2011), "The open innovation paradox: knowledge sharing and protection in R&D collaborations", *European Journal of Innovation Management*, vol. 14, n. 1, pp. 93-117
- BOWERSOX D.J., CLOSS D.J., DRAYER R.W. (2005), "The digital transformation: technology and beyond", *Supply Chain Management Review*, vol. 9, n. 1, pp. 22-29.

- BRUNSWICKER S., EHRENMANN F. (2013), "Managing open innovation in SMEs: A good practice example of a German software firm", *International Journal of Industrial Engineering and Management*, vol. 4, n. 1, pp. 33-41.
- CENAMOR J., PARIDA V., WINCENT J. (2019), "How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity", *Journal of Business Research*, vol. 100, pp. 196-206.
- CHESBROUGH H. (2012), "Open innovation: Where we've been and where we're going", *Research-Technology Management*, vol. 55, n. 4, pp. 20-27.
- CHESBROUGH H.W. (2003), *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.
- CRESWELL J.W. (2002), *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Upper Saddle River, Nj: Merrill Prentice Hall.
- CRESWELL J.W., POTCH C. (2018), *Qualitative Inquiry and Research Design*, 4th edition. Los Angeles: Sage.
- CRUPI A., DEL SARTO N., DI MININ A., GREGORI G.L., LEPORE D., MARINELLI L., SPIGARELLI F. (2020), "The digital transformation of SMEs-a new knowledge broker called the digital innovation hub", *Journal of Knowledge Management*, vol. 24, n. 6, pp. 1263-1288.
- CUTOLO D., KENNEY M. (2020), "Platform-dependent entrepreneurs: Power asymmetries, risks, and strategies in the platform economy", *Academy of Management Perspectives*, vol. 35, n. 4, pp. 584-605
- DEICHMANN U., GOYAL A., MISHRA D. (2016), "Will digital technologies transform agriculture in developing countries?", *Agricultural Economics*, n. 1, pp. 21-33.
- DICICCO-BLOOM B., CRABTREE B.F. (2006), "The qualitative research interview", *Medical Education*, vol. 40, n. 4, pp. 314-321.
- EASTERBY-SMITH M., THORPE R., JACKSON P.R. (2012), *Management Research*. London: Sage.
- FINANCE A.T.C.C. (2015), *Industry 4.0 Challenges and solutions for the digital transformation and use of exponential technologies*. Finance, Audit Tax Consulting Corporate: Zurich, Swiss, 1-12.
- GALINDO-MARTÍN M.Á., CASTAÑO-MARTÍNEZ M.S., MÉNDEZ-PICAZO M.T. (2019), "Digital transformation, digital dividends and entrepreneurship: A quantitative analysis", *Journal of Business Research*, vol. 101, pp. 522-527.
- GRECKHAMER T., MISANGYI V.F., ELMS H., LACEY R. (2008), "Using qualitative comparative analysis in strategic management research: An examination of combinations of industry, corporate, and business-unit effects", *Organizational research methods*, vol. 11, n. 4, pp. 695-726.
- HEBERLE A., LÖWE W., GUSTAFSSON A., VORREI Ö. (2017), "Digitalization Canvas-Towards Identifying Digitalization Use Cases and Projects", *J. Univers. Comput. Sci.*, vol. 23, n. 11, pp. 1070-1097.
- HERVÁS-OLIVER J.L., PARRILLI M.D., RODRÍGUEZ-POSE A., SEMPERE-RIPOLL F. (2021), "The drivers of SME innovation in the regions of the EU", *Research Policy*, vol. 50, n. 9, p. 104316.
- HESS T., MATT C., BENLIAN A., WIESBÖCK F. (2016), "Options for formulating a digital transformation strategy", *MIS Quarterly Executive*, vol. 15, n. 2.
- HOLLOWAY I., WHEELER S. (2002), *Qualitative Research in Nursing*. Hoboken: Wiley-Blackwell
- JACOBIDES M.G. (2019), "In the ecosystem economy, what's your strategy?", *Harvard Business Review*, vol. 97, n. 5, pp. 128-137.
- KANE G.C., PALMER D., PHILLIPS A.N. (2017), "Achieving digital maturity", *MIT Sloan Management Review*.
- KATZ D., KAHN R.L. (1978), "Organizations and the system concept". *Classics of organization theory*, vol. 80, p. 480.
- KESTING P., GÜNZEL-JENSEN F. (2015), "SMEs and new ventures need business model sophistication". *Business horizons*, vol. 58, n. 3, pp. 285-293.
- LASI H., FETTKE P., KEMPER H.G., FELD T., HOFFMANN M. (2014), "Industry 4.0", *Business & information systems engineering*, vol. 6, n. 4, pp. 239-242.
- LEE S., PARK G., YOON B., PARK J. (2010), "Open innovation in SMEs-An intermediated network model", *Research policy*, vol. 39, n. 2, pp. 290-300.
- LEE T.W. (1999), *Using Qualitative Methods in Organizational Research*. Thousand Oaks, Ca: Sage.
- LI L., SU F., ZHANG W., MAO J.Y. (2018), "Digital transformation by SME entrepreneurs: A capability perspective", *Information Systems Journal*, vol. 28, n. 6, pp. 1129-1157.
- MAHRAZ M.I., BENABBOU L., BERRADO A. (2019), "A Systematic literature review of Digital Transformation", In *Proceedings of the international conference on industrial engineering and operations management*. Toronto, Canada.
- MAS-VERDÚ F., RIBEIRO-SORIANO D., ROIG-TIERNO N. (2015), "Firm survival: The role of incubators and business characteristics", *Journal of Business Research*, vol. 68, n. 4, pp. 793-796.
- MATT C., HESS T., BENLIAN A. (2015), "Digital transformation strategies", *Business & information systems engineering*, vol. 57, n.5, pp. 339-343.
- MATT D.T., MODRÁK V., ZSIFKOVITS H. (2020), *Industry 4.0 for SMEs: Challenges, opportunities and requirements*. Springer Nature.

- MATT D.T., RAUCH E., FRACCAROLI D. (2016), "Smart Factory for SMEs: Designing a Holistic Production System by Industry 4.0 Vision in Small and Medium Enterprises (SMEs)", *ZWF Zeitschrift für wirtschaftlichen Fabrikbetrieb*, vol. 111, pp. 2-5.
- MORAKANYANE R., GRACE A.A., O'REILLY P. (2017), "Conceptualizing Digital Transformation in Business Organizations: A Systematic Review of Literature", Bled eConference.
- NAMBISAN S., WRIGHT M., FELDMAN M. (2019), "The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes", *Research Policy*, vol. 48, n. 8, pp. 103773.
- OECD (2021), "The Digital Transformation of SME, OECD Studies on SME and Entrepreneurship", *Organization for Economic Cooperation and Development (OECD) Publishing*, Paris.
- ORDANINI A., MAGLIO P.P. (2009), "Market orientation, internal process, and external network: A qualitative comparative analysis of key decisional alternatives in the new service development", *Decision Sciences*, vol. 40, n. 3, pp. 601-625.
- RAGIN C.C. (2006a), "Set relations in social research: Evaluating their consistency and coverage", *Political analysis*, vol. 14, n. 3, pp. 291-310.
- RAGIN C.C. (2006b), *The limitations of net-effects thinking*", In *Innovative comparative methods for policy analysis* (pp. 13-41), Springer, Boston, MA.
- RAGIN C.C. (2008), "Measurement versus calibration: A set-theoretic approach", In *The Oxford handbook of political methodology*, vol. 10, pp. 174-198, Oxford University Press, Oxford (UK).
- SCHNEIDER F., BUEHN A., MONTENEGRO C.E. (2010), "New estimates for the shadow economies all over the world", *International Economic Journal*, vol. 24, n. 4, pp. 443-461.
- SOLTANIFAR M., HUGHES M., GÖCKE L. (2021), *Digital Entrepreneurship: Impact on Business and Society*, (p. 327), Springer Nature.
- SOMMER L. (2015), "Industrial revolution-industry 4.0: Are German manufacturing SMEs the first victims of this revolution?", *Journal of Industrial Engineering and Management*, vol. 8, n. 5, pp. 1512-1532.
- ULAS D. (2019), "Digital transformation process and SMEs", *Procedia Computer Science*, vol. 158, pp. 662-671.
- URBINATI A., CHIARONI D., CHIARONI V. CHIESA, FRATTINI, F. (2018), "The Role of Digital Technologies in Open Innovation Processes: An exploratory multiple case study analysis", *R&D Management*, vol. 50, n. 1, pp. 136-160.
- VERHOEF P.C., BIJMOLT T.H. (2019), "Marketing perspectives on digital business models: A framework and overview of the special issue", *International Journal of Research in Marketing*, vol. 36, n. 3, pp. 341-349.
- WOODSIDE A.G. (2013), "Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory", *Journal of Business Research*, vol. 66, n. 4, pp. 463-472.
- ZUPIC I. (2014), "The knowledge base of technology entrepreneurship", In *Handbook of Research on Techno-Entrepreneurship*, Second Edition. Edward Elgar Publishing.

External Changes and R&I Inter-Organizational Network Dynamics: The Case of EU R&I Policy Change

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Framing of the research. *In extant innovation research, it is widely recognized that innovation processes can be increasingly seen as a “social phenomenon” (Fagerberg, 2018), in which an array of different scientific, technological, and market knowledge, owned or controlled by a variety of actors, interact and are combined (Ahuja, 2000; Schilling and Phelps, 2007). As the interaction between internal and external sources of knowledge becomes critical for firms’ innovation performance, firms are pushed to participate in inter-organizational networks. Indeed, being a part of an inter-organizational network is beneficial for several reasons: a) network participation ensures easy and fast access to explicit knowledge, smoothes the transfer of complex and tacit knowledge, as well as the processes of knowledge co-creation (Hansen, 2002; Dyer and Hatch, 2006; Gargiulo and Benassi, 2000; Mariotti and Delbridge, 2012, McEvily and Marcus, 2005; Tiwana, 2008; Zahra and George, 2002); b) network participation supports risk-sharing and recombination of responsibilities that, in turn, strengthening innovation activities based on knowledge exchange and co-creation (Dhanaraj and Parkhe, 2006; Ahuja et al., 2012; Wu et al., 2019).*

Established management and organizational literature recognizes that network structure affects innovative and economic network performance (Rowley et al., 2000; Rosenkop and Padula, 2008; Schilling and Phelps, 2007) and more recently focuses on the dynamics of network structure to understand how inter-organizational networks emerge and evolve over time, as well as which are the (positive and negative) outcomes of network dynamics (Ahuja et al., 2012; Clegg et al., 2016). Researchers identify two sources of network dynamics (Gulati and Gargiulo, 1999; Rivera et al., 2010): a) endogenous sources, that come from internal network processes and network actors’ behaviors (Mariotti and Delbridge, 2012; Gulati et al. 2012; Paquin and Howard-Greenville, 2013; Sytch et al. 2012); and b) exogenous sources that originate from events that are external to the innovative network (Berends et.al., 2011; Corbo et al. 2016; Vissa, 2012). As a result, network structure and its evolution are partly emergent and partly deliberate (Dagnino et al., 2016; Provan and Kenis, 2008). In this respect, extant research calls for a better understanding of the interplay between these two sources of network evolution (Dagnino et al., 2018; Koka et al. 2006, Koza and Lewin, 1999; Madhavan et al., 1998; Müller-Seitz 2012).

In this research, we focus on inter-organizational networks that originate or evolve as a consequence of the European Union (EU) R&I policy (Almendral et al. 2007; Arnold et. al., 2005; Lyneis et al., 2001; Manning 2017; Martinuzzi et al., 2016; Töpfer et al., 2017). They, therefore, are the result of both agentic R&I inter-organizational level strategies and the incentive system that derives from external policymakers.

Starting from the early ‘80s, in order to promote research and innovation (R&I) activities in the European countries, the EU implements a series of Framework Programs that aim to coordinate the EU Member States’ research policies and pools research funding for diverse areas. The EU framework programs are focused on creating R&I excellence clusters, fostering public-private partnerships, and knowledge exchange between formal¹ and informal² knowledge actors. Cooperation among the different actors is based on shared project activities between heterogeneous private and public actors, that create R&I inter-organizational networks. The Framework Programs provide monetary subsidies for collaboration activities that are usually operationally supported through the establishment of international consortiums. The project actors join efforts for a limited period and a specific research purpose, manage organizational capacities, and implement processes of knowledge spread/diffusion, mobilization, and co-creation

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¹ Formal knowledge actors are organizations or institutions that have an explicit legal authority, such as policymakers, research organizations, private and public companies, and so on.

² Informal knowledge actors are organizations or institutions that do not have an explicit legal authority, such as citizens, media, civil society organizations, non-governmental organizations, and so on.

(Breukers et al., 2014; Graf and Broekel, 2020). This situation tends to lead to an increase in the innovative performance of both the participating actors and the innovative collaborative networks.

In one of the latest framework programs, the EU 8th Framework Program, named Horizon 2020 (H2020), the EU changes its R&I policy to create a more competitive and inclusive European Research Area (ERA) capable of promoting innovation and sustainability attracting in the EU R&I collaborative inter-organizational network not only traditionally involved institutions (such as research organizations, higher education establishments, and well-known private for-profit companies), but also actors that were less present in the past (such as Small and Medium-sized Enterprises or SMEs, Non-Governmental Organizations or NGOs, and Civil Society Organizations or CSOs). Passing from the EU 7th Framework Program (FP7) to H2020, the main EU R&I policy changes consisted in (i) rethinking the funding scheme opening a possibility for new knowledge flows from partners that are not particularly financially stable, (ii) reduction of the time to grant agreement to support a faster implementation on the proposed innovation, (iii) sustainability, open innovation, and responsible research and innovation are promoted as a cross-cutting pillar for R&I.

Purpose of the paper. The paper seeks to identify how the abovementioned changes in EU innovation policy incentives have affected the composition and network structure in the passage from FP7 to H2020 and unearth the reasons underlying different evolutionary patterns observed. More in detail, we scrutinize the way significant changes in the EU R&I policy have led to different evolutionary patterns of overall inter-organizational networks and the communities (or clusters) within them (Dagnino et al., 2008, 2018). In addition, we aim to enlighten whether the emergence of these different evolutionary patterns is connected to the type of knowledge base that is critical to innovate in the diverse (scientific and technological) domains in which these communities operate.

More in detail, the study's empirical settings are the two innovative inter-organizational networks that connect actors and institutions financed through two EU Framework Programs: FP7 (life span 2007-2013) and H2020 (life span 2014-2020). We focus on both the whole network level of analysis (the so-called macro-level of analysis) and the level of analysis of the different clusters or communities emerging in the collaboration networks (the so-called meso-level of analysis). For each level, we analyze the effects exerted by the changes that occur in the EU R&I policy when passing from the FP7 to the H2020.

Methodology. Using a dataset of 22,228 unique projects in FP7 and 22,153 in H2020, we constructed two innovation inter-organizational networks. The two networks are affiliation networks (Breschi and Cusimano 2004; Easley and Kleinberg, 2010; Newman, 2010). In other words, they have a bipartite nature as they are constructed by a set of actors/institutions and a set of events (the collaboration projects) that are related by affiliation (i.e., participation) of the former in the latter. The bipartite network has been projected onto the set of institutions, providing a weighted network of institutions. A link is set between two institutions if they participated in at least one project together. The weight of the link corresponds to the overall number of projects in which both institutions were involved.

Such a network has been filtered by applying Statistically Validated Networks (SVN) (Tumminello et al., 2011) to test the statistical significance of link weights (the so-called co-occurrence) against a null hypothesis of random co-occurrence. Statistically validated networks (SVN) for both Framework Programs were developed.

Then, we apply network analysis as a research instrument to identify and measure the fundamental structural properties (Sozen et al., 2009; Van Der Valk and Gijssbers, 2010; Wasserman and Faust, 1994) and evolutionary dynamics (Barabasi and Albert, 1999; Kim and Park, 2009; Qiao et al. 2019; Watts and Strogatz, 1998) of both the two real-world networks and the two extracted SVNs.

In addition, community recognition has been performed on both networks through modularity optimization (Newman & Girvan, 2004). The resulting communities (Cherifi et al., 2019) for the two programs have been compared by constructing a confusion matrix. Such a matrix can help to identify the types of patterns of institutions' aggregation across the two different programs and accordingly to clarify the specific local evolutionary dynamics of the collaborative networks.

Results. Preliminary results show that, under the analyzed policy changes, the R&I inter-organizational network that originated from H2020 becomes more assortative than the one stimulated by FP7. The H2020 collaborative network exhibits a preferential attachment (reach-club phenomenon) between leading knowledge actors and institutions. New knowledge actors/institutions enter the inter-organizational network increasing network openness to diversity, though strong and classical actors in the past continue to maintain dominant positions and roles.

In addition, at the single community level of analysis, the study's preliminary outcomes demonstrate the existence of three different types of patterns of inter-organizational connections passing from FP7 to H2020. More in detail, we identify the following local specific network dynamics: (i) persistent stability; (ii) expansion of communities (or clusters); and (iii) merging effect among communities. The subsequent analysis of the significant characteristics that distinguish the scientific and technological domain in which each community operates, suggests that the evolutionary patterns observed may be correlated to the knowledge paradigm(s) and the key micro-mechanisms underlying knowledge development in each field (for example, knowledge concentration, knowledge spread, and knowledge aggregation).

Research limitations. The research has several limitations. First, although the CORDIS database is one of the most complete sources regarding the projects and actors funded by the EU Framework Programs, it should be stated that some information may have been missed during the development of the database. In addition, only winning projects and actors/institutions are included in the network as the EU does not provide any information about unfunded projects and the corresponding partnerships. Second, the research applies only a quantitative research method. This calls for the use

of qualitative methods to enhance the present study results. Third, the analysis focuses on two specific R&I policy frameworks. Accordingly, forthcoming studies are required to validate the present results when considering different frameworks.

Managerial implications. The research has implications for both practitioners and policymakers. Innovation is recognized as a critical activity to effectively, efficiently, and promptly compete in highly competitive contexts. Furthermore, it is widely established that the performances of innovative processes (in terms of reducing time-to-market, and ability to meet consumers' needs) increasingly depend on the interaction of a variety of different knowledge and capabilities that are possessed or controlled by heterogeneous actors. Accordingly, an in-depth and comprehensive understanding of the R&I network's dynamics may support managers in the governance and management of innovative activities. This support may be especially relevant for taking decisions connected with collaborative project submission and participation, as well as the identification and evaluation of potential partners. In addition, an extensive and multilevel comprehension of the policy consequences and processes through which the EU supports research and innovation collaborative activities (using the EU R&I Framework Programs) may help policymakers in more accurately assessing the potential impact of new practices and policy mixes (Lindberg et al., 2019) that aims to foster more sustainable, open and inclusive innovation processes.

Originality of the paper. To the best of our knowledge, previous studies that aim to understand the dynamics of R&I inter-organizational networks and to evaluate the policy impact on these networks (Almendral et al. 2007; Arnold, 2012; Arnold et al., 2005; Balland et al., 2019; Lyneis et al. 2001; Martinuzzi et al., 2016) concentrate their analysis mainly on the whole R&I inter-organizational network level. The present study considers both the overall network and the communities of the innovative collaboration within it. Accordingly, we enlighten the characteristics displayed by the structures of the two analyzed networks and the evolutionary dynamics emerging at the whole aggregate level of the network as a result of the EU R&I policy changes, on the one hand.

On the other hand, we identify the communities resulting from both the FP7 and H2020 collaborative networks and compare them looking for changes in collaboration patterns. In so doing, we provide a fine-grained assessment of the impact of policy changes, illustrating both local community evolutionary dynamics and the network structural change that emerges overall. The antecedent of the different types of patterns of actor aggregation may be traced back to the different ways in which specific communities' actors react to the external changes based on the idiosyncratic knowledge and capability required to (efficiently, efficacy and timing) perform innovative activities in the diverse scientific and technological domains they operate.

Keywords: R&I inter-organizational networks; network structure; evolutionary network dynamics; external changes; EU Framework Programs; network clusters or communities

References

- AHUJA G. (2000), "Collaboration Networks, Structural Holes, and Innovation: A Longitudinal Study", *Administrative Science Quarterly*, vol. 45, n. 3, pp. 425-455.
- AHUJA G., SODA G., ZAHEER A. (2012), "The Genesis and Dynamics of Organizational Networks", *Organization Science*, vol. 23, n. 2, pp. 434-448.
- ALMENDRAL J.A., OLIVEIRA J.G., LÓPEZ L., MENDES J.F.F., SANJUÁN M.A. (2007), "The Network of scientific collaborations within the European framework programme", *Physica A: Statistical Mechanics and its Applications*, vol. 384, n. 2, pp. 675-683.
- ARNOLD E. (2012), "Understanding long-term impacts of R&D funding: The EU framework programme", *Research Evaluation*, vol. 21, n. 5, pp. 332-343.
- ARNOLD E., CLARK J., MUSCIO A. (2005), "What the evaluation record tells us about European Union Framework Programme performance", *Science and Public Policy*, vol. 32, n. 5, pp. 385-397.
- BALLAND P.A., BOSCHMA R., RAVET J. (2019), "Network dynamics in collaborative research in the EU, 2003-2017", *Papers in Evolutionary Economic Geography* (PEEG) 1911, Utrecht University, Department of Human Geography and Spatial Planning, Group Economic Geography, revised Apr 2019.
- BARABÁSI A.L., ALBERT R. (1999), "Emergence of scaling in random networks", *Science*, vol. 286, n. 5439, pp. 509-512.
- BERENDS H., VAN BURG E., VAN RAAIJ E.M. (2011), "Contacts and contracts: Cross-level network dynamics in the development of an aircraft material", *Organization Science*, vol. 22, n. 4, pp. 940-960.
- BRESCHI S., CUSMANO L. (2004), "Unveiling the texture of a European Research Area: emergence of oligarchic networks under EU Framework Programmes", *International Journal of Technology Management*, vol. 27, n. 8, pp. 747-772.
- BREUKERS S., HISSCHEMÖLLER M., CUPPEN E., SUURS R. (2014), "Analysing the past and exploring the future of sustainable biomass. Participatory stakeholder dialogue and technological innovation systems research", *Technological Forecasting and Social Change*, vol. 81, January, pp. 227-235.
- CHERIFI H., PALLA G., SZYMANSKI B.K., LU X. (2019), "On community structure in complex networks: challenges and opportunities", *Applied Network Science*, vol. 4, n. 1, pp. 1-35.

- CLEGG S., JOSSEERAND E., MEHRA A., PITSIS T.S. (2016), "The transformative power of network dynamics: A research agenda", *Organization Studies*, vol. 37, n. 3, pp. 277-291.
- CORBO L., CORRADO R., FERRIANI S. (2016), "A new order of things: Network mechanisms of field evolution in the aftermath of an exogenous shock", *Organization Studies*, vol. 37, n. 3, pp. 323-348.
- DAGNINO G.B., LEVANTI G., MOCCIARO LI DESTRI A. (2008), "Evolutionary dynamics of inter-firm networks: a complex systems perspective", *Advance in Strategic Management: Network Strategy*, vol. 25, n. 1, pp. 67-129.
- DAGNINO G.B., LEVANTI G., MOCCIARO LI DESTRI A. (2016), "Structural dynamics and intentional governance in strategic interorganizational network evolution: A multilevel approach", *Organization Studies*, vol. 37, n. 3, pp. 349-373.
- DAGNINO G.B., LEVANTI G., MOCCIARO LI DESTRI A. (2018), *Networks, Knowledge and Complexity: An Inquiry into the Architectural Dynamics of Strategic Networks*, G. Giappichelli Editore, Torino.
- DHANARAJ C., PARKHE A. (2006), "Orchestrating innovation networks", *Academy of Management Review*, vol. 31, n. 3, pp. 659-669.
- DYER J.H., HATCH N.W. (2006), "Relation-specific capabilities and barriers to knowledge transfers: creating advantage through network relationships", *Strategic Management Journal*, vol. 27, n. 8, pp. 701-719.
- EASLEY D., KLEINBERG J. (2010), *Networks, Crowds, and Markets* (Vol. 8). Cambridge University Press, Cambridge.
- FAGERBERG J. (2018), "Mobilizing innovation for sustainability transitions: A comment on transformative innovation policy", *Research Policy*, vol. 47, n. 9, pp. 1568-1576.
- GARGIULO M., BENASSI M. (2000), "Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital", *Organization Science*, vol. 11, n. 2, pp. 183-196.
- GRAF H., BROEKEL T. (2020), "A shot in the dark? Policy influence on cluster networks", *Research Policy*, vol. 49, n. 3, 103920.
- GULATI R., GARGIULO M. (1999), "Where do interorganizational networks come from?", *American Journal of Sociology*, vol. 104, n. 5, pp. 1439-1493.
- HANSEN M.T. (2002), "Knowledge networks: Explaining effective knowledge sharing in multiunit companies", *Organization Science*, vol. 13, n. 3, pp. 232-248.
- KIM H., PARK Y. (2009), "Structural effects of R&D collaboration network on knowledge diffusion performance", *Expert Systems with Applications*, vol. 36, n. 5, pp. 8986-8992.
- KOKA B.R., MADHAVAN R., PRESCOTT J.E. (2006), "The evolution of interfirm networks: Environmental effects on patterns of network change", *Academy of Management Review*, vol. 31, n. 3, pp. 721-737.
- KOZA M.P., LEWIN A.Y. (1999), "The coevolution of network alliances: A longitudinal analysis of an international professional service network", *Organization Science*, vol. 10, n. 5, pp. 638-653.
- LINDBERG M.B., MARKARD J., ANDERSEN A.D. (2019), "Policies, actors and sustainability transition pathways: A study of the EU's energy policy mix", *Research Policy*, vol. 48, n. 10, 103668.
- LYNEIS J.M., COOPER K.G., ELS S.A. (2001), "Strategic management of complex projects: A case study using system dynamics", *System Dynamics Review: The Journal of the System Dynamics Society*, vol. 17, n. 3, pp. 237-260.
- MADHAVAN R., KOKA B.R., PRESCOTT J.E. (1998), "Networks in transition: How industry events (re) shape interfirm relationships", *Strategic Management Journal*, vol. 19, n. 5, pp. 439-459.
- MANNING S. (2017), "The rise of project network organizations: Building core teams and flexible partner pools for interorganizational projects", *Research Policy*, vol. 46, n. 8, pp. 1399-1415.
- MARIOTTI F., DELBRIDGE R. (2012), "Overcoming network overload and redundancy in interorganizational networks: The roles of potential and latent ties", *Organization Science*, vol. 23, n. 2, pp. 511-528.
- MARTINUZZI A., HAMETNER M., KATZMAIR H., STAHL B., DIMITROVA A., LORENZ W., MOREHOLLERWEGER E., WURZER G., CHUNG C., GULAS C., SCHROLL G., WERDENIGG A., RAINEY S., WAKUNUMA K. (2016), *Network Analysis of Civil Society Organisations' participation in EU Framework Programmes*, Vienna & Leicester, Vienna.
- MCEVILY B., MARCUS A. (2005), "Embedded ties and the acquisition of competitive capabilities", *Strategic Management Journal*, vol. 26, n. 11, pp. 1033-1055.
- MÜLLER-SEITZ G. (2012), "Leadership in interorganizational networks: a literature review and suggestions for future research", *International Journal of Management Reviews*, vol. 14, n. 4, pp. 428-443.
- NEWMAN M.E.J. (2010), *Networks. An Introduction*, Oxford University Press, Oxford.
- NEWMAN M.E., GIRVAN M. (2004), "Finding and evaluating community structure in networks", *Physical Review E*, vol. 69, n. 2, 026113.
- QIAO T., SHAN W., ZHANG M., LIU C. (2019), "How to facilitate knowledge diffusion in complex networks: The roles of network structure, knowledge role distribution and selection rule", *International Journal of Information Management*, vol. 47, pp. 152-167.
- PAQUIN R.L., HOWARD-GRENVILLE J. (2013), "Blind dates and arranged marriages: Longitudinal processes of network orchestration", *Organization Studies*, vol. 34, n. 11, pp. 1623-1653.
- PROVAN K.G., KENIS P. (2008), "Modes of network governance: Structure, management, and effectiveness", *Journal of Public Administration Research and Theory*, vol. 18, n. 2, pp. 229-252.

- RIVERA M.T., SODERSTROM S.B., UZZI B. (2010), "Dynamics of dyads in social networks: Assortative, relational, and proximity mechanisms", *Annual Review of Sociology*, vol. 36, pp. 91-115.
- ROSENKOPF L., PADULA G. (2008), "Investigating the microstructure of network evolution: Alliance formation in the mobile communications industry", *Organization Science*, vol. 19, n. 5, pp. 669-687.
- ROWLEY T., BEHRENS D., KRACKHARDT D. (2000), "Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries", *Strategic Management Journal*, vol. 21, n. 3, pp. 369-386.
- SCHILLING M.A., PHELPS C.C. (2007), "Interfirm collaboration networks: The impact of large-scale network structure on firm innovation", *Management Science*, vol. 53, pp. 7, pp. 1113-1126.
- SOZEN C., BASIM N., HAZIR K. (2009), "Social network analysis in organizational studies", *International Journal of Business and Management Studies*, vol. 1, n. 1, pp. 21-35.
- GULATI R., SYTCH M., TATARYNOWICZ A. (2012), "The rise and fall of small worlds: Exploring the dynamics of social structure", *Organization Science*, vol. 23, n. 2, pp. 449-471.
- GULATI R., SYTCH M., TATARYNOWICZ A. (2012), "The rise and fall of small worlds: Exploring the dynamics of social structure", *Organization Science*, vol. 23, n. 2, pp. 449-471.
- TÖPFER S., CANTNER U., GRAF H. (2019), "Structural dynamics of innovation networks in German Leading-Edge Clusters", *The Journal of Technology Transfer*, vol. 44, n. 6, pp. 1816-1839.
- TIWANA A. (2008), "Do bridging ties complement strong ties? An empirical examination of alliance ambidexterity", *Strategic Management Journal*, vol. 29, n. 3, pp. 251-272.
- TUMMINELLO M., MICCICHE S., LILLO F., PILO J., MANTEGNA R.N. (2011), "Statistically validated networks in bipartite complex systems", *PloS One*, vol. 6, n. 3, e17994.
- VAN DER VALK T., GIJSBERS G. (2010), "The use of social network analysis in innovation studies: Mapping actors and technologies", *Innovation*, vol. 12, n. 1, pp. 5-17.
- VISSA B. (2012), "Agency in action: Entrepreneurs' networking style and initiation of economic exchange", *Organization Science*, vol. 23, n. 2, pp. 492-510.
- WASSERMAN S., FAUST K. (1994), *Social Network Analysis: Methods and Applications*, Cambridge University Press, New York, NY.
- WATTS D.J., STROGATZ S.H. (1998), "Collective dynamics of 'small-world' networks", *Nature*, vol. 393, n. 6684, pp. 440-442.
- WU Z., SHAO Y., FENG L. (2019), "Dynamic Evolution Model of a Collaborative Innovation Network from the Resource Perspective and an Application Considering Different Government Behaviors", *Information*, vol. 10, n. 4, 138.
- ZAHRA S.A., GEORGE G. (2002), "Absorptive capacity: A review, reconceptualization, and extension", *Academy of Management Review*, vol. 27, n. 2, pp. 185-203.

Investigating how systemic and heuristic factors affect consumers' acceptance towards the use of social robots during Covid-19. Evidence from the hospitality industry

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Framing of the research. Artificial intelligence (AI), conceived as a series of technologies that enable a system to perceive, understand, react, and learn (Bowen and Morosan, 2018), is playing an increasingly important role in the tourism and hospitality industry (Nam et al., 2020). It not only allows automation but also empowers machines to demonstrate mechanical, analytical, intuitive, and empathetic intelligence (Huang and Rust, 2018).

In a hedonic and high-human touch context, such as the hospitality industry, enhancing customers' service experiences will increasingly entail technology infusion, which is defined as the incorporation by service organizations of technological elements into the customer's frontline experience (van Doorn et al., 2017). In particular, customer service and, in general, the global experience, is a focal aspect in the hospitality industry, with hotels often living and dying according to their capacity of interacting with and satisfying their customers. With AI, there are different possibilities to improve this aspect, ranging from increased personalisation to tailored recommendations. In this optic, social robots, defined as systems that function as programmable tools that can sense, think and act can enhance human productivity and/or engage in social interactions (Bartneck and Forlizzi, 2004). To neutralize customers' need for high-human touch and the industry trend of being high-tech, AI social robots, capable to follow human's behavioral norms and directly interact with humans, have become the most competitive candidate to deliver high-human touch services in a rapidly changing service delivery environment (Chi et al., 2020). AI social robots, as service employees, can provide high-quality personalized and customized services by directly interacting with customers (West, 2018). For example, Connie, the robotic concierge adopted by Hilton Worldwide Hotel, can provide customers with personalized care and support, such as giving real-time recommendations and answering customer queries (Bellini and Convert, 2016); Pepper is a 1.2-m-tall wheeled humanoid robot capable of exhibiting body language, perceiving and interacting with its surroundings and moving around (Henkel et al., 2020).

Despite the advantages of AI social robot technology in service delivery, previous studies have suggested that not all customers are likely to interact with AI robots and accept the services provided by these devices (Chi et al., 2020; Gursoy et al., 2019). More precisely, some scholars have argued that the AI robotic technology used by hospitality firms can alter customers' evaluation and acceptance of hospitality services (Gursoy et al, 2019; Lu et al., 2019). Previous studies have suggested that AI devices' perceived intelligence may impact hospitality customers' intention to use these technologies (Tussyadiah and Park, 2018). Furthermore, Lu et al. (2019) argued that customers' willingness to use AI social robots depends on customers' perception of social robots' performance efficacy, customers' intrinsic motivations, anthropomorphism, social influences, customers' emotions and facilitating conditions. Specifically, if on the one hand, the adoption of AI social robots may improve customers' perception of service quality and performance (Zalama et al., 2014), resulting in higher willingness to use these technologies in hospitality services, on the other hand, the lack of social interaction caused by using AI social robots may lead customers to feel isolated, determining some difficulties in accepting the use of these AI technologies (Murphy et al., 2017).

Considering the co-existence of both acceptance and objection towards the use of AI social robots, Lin et al. (2019) suggested the framework of Artificially Intelligent Device Use Acceptance (AIDUA). They have proved that the customers' willingness to accept or reject the use of AI devices is determined by six factors that are: social influence, hedonic motivation, anthropomorphism, performance expectancy, effort expectancy, and emotion.

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The AIDUA model was tested in a general service setting and provided theoretical and conceptual implications. Then, it was also developed in the hospitality service setting, where customers seem to have higher hedonic benefit expectations (Lin et al., 2019).

Purpose of the paper. Based on the framing of the research and considering that the growing implementation of social robots in the hospitality industry requires broader research into customers' experience with social robots, this study aims to validate and extend the applicability of AIDUA model in explaining customers' AI social robots acceptance in the hospitality industry. In such a context, the Covid-19 crisis offers a futuristic perspective on the changing role of service since it acts as a major disruptive factor for service consumers. While many services are provided remotely, some are suspended entirely (Hall et al., 2020). For those services that consumers and providers are can co-create physically (such as those ones related to the hospitality setting), social distance is the first priority (Bove & Benoit, 2020). Thus, a rapid adoption of AI social devices may be a direct consequence. Before the Coronavirus, hospitality companies were skeptical about the use of social robots since human touch is considered a core competency in the hotel industry (Choi et al., 2020). For example, interviews conducted by Ivanov et al. (2020) with Bulgarian hotel managers revealed their wariness of deterioration in service quality as a result of robot deployment. In their study, Choi et al. (2020) performed an experiment in a hotel context to compare guest perceptions of the service provided by human staff, service robots, and a combination of both. Their study revealed that human staff was preferred by the customers with respect to interaction quality and physical service environment. Due to the rapid development of AI technologies, these robots are expected to emulate humans with much greater fidelity and will be able to exhibit hospitality skills such as being courteous and helpful. During the pandemic, Kim et al. (2021) observed that customers were highly concerned about the risk of infection when staying in human-serviced hotels due to high levels of interpersonal contact. Therefore, many were willing to explore safer options, such as robot-staffed hotels.

On this basis, some research questions have been formulated:

1. What are the antecedents of customers' acceptance or rejection towards the use of social robots during service provision in the hospitality industry?
2. How do both heuristic and systemic factors affect the customers' willingness to use social robots in the hospitality industry?
3. What is the effect of Covid-19 on customers' attitudes towards social robots and have these attitudes reversed in the new "robotics society"?

To address these research questions, this study develops a modified AIDUA model to explain and predict customers' intention to use AI social robots, also considering the effects generated by the pandemic on travel experience expectations (Gursoy and Chi, 2020).

The model first considers heuristic factors, such as social influence and hedonic motivation.

Adapted from the AIDUA model, social influence, hedonic motivation (Chi et al., 2022; Gursoy et al. 2019; Venkatesh et al., 2012) and trust in AI (Lippert and Davis, 2006) are proposed as important determinants of the outcome of the primary evaluation of the use of AI devices.

Social influence

According to Venkatesh et al. (2012), the social influence is the extent to which the social context can influence the consumer's perception of the value in use of a specific technology. As for AI social robots, social influence refers to the degree to which an individual's social groups (e.g., friends, co-workers, family, social networks, and opinionated leaders) believe that using AI social robots is relevant and congruent to their group norms. As a result, customers may create their attitudes toward the usage of AI social robots based on the attitudes of their social groups (Maruping et al., 2017). Social influence has an invaluable role in determining the level of trust towards a particular service (Baabdullah, 2018). When people find that their peers and the entire society prefer and have a positive attitude toward the use of technology such as AI social robots, they simultaneously tend to trust that the use of such technology might also yield them similar benefit and value like the others.

H1: Social influence significantly influences customers' trust in AI social robots.

Hedonic motivation

Based on the AIDUA model, hedonic motivation reflects customers' perception of fun, entertainment, and enjoyment they are likely to gain by using AI devices (Gursoy et al., 2019). As suggested by previous studies, if a customer perceives that using an AI social robot is likely to be entertaining, his/her level of trust to use this technology is likely to be positive.

H2: Hedonic motivation increases customers' trust in AI social robots.

Trust in AI

Trust has been identified as a catalyst that influences human-robot interaction (Xu and Howard 2018). It is intended as "the attitude that an agent will help achieve an individual's goals in a situation characterized by uncertainty and vulnerability" (Lee and See, 2004, p. 54). When it comes to a trust-oriented perspective for an emerging technology such as AI social robots, where uncertainty is present (Kim et al., 2020), the role of initial trust in AI social robots is an important component of primary assessment and a critical determinant of customers' intention or objection toward the use of AI social robots in the hospitality context. Thus, the level of trust is a critical predictor of performance expectancy and perceived risk (Ghazizadeh et al., 2011). Despite its critical importance, trust was not initially considered in the AIDUA model (Gursoy et al. 2019). However, some recent studies (Ghazizadeh et al., 2011; Hengstler et al., 2016) argue that incorporating trust as a critical determinant of performance expectancy within

technology acceptance models is of fundamental importance, particularly in examining technologies that might be viewed as high-risk.

Moreover, a high level of trust is positively related to the effort customers are likely to sustain to interact with AI social robots (Lee and Song, 2013).

H3: Trust has a direct positive impact on performance expectancy of AI social robots

H4: Trust has a direct positive effect on effort expectancy of AI social robots

Performance expectancy, effort expectancy and positive emotion

Performance expectancy refers to customers' evaluations of AI social robots' performance in terms of service accuracy and consistency; effort expectancy, conceptually similar to perceived ease of use, is consistent with the customers' perception of the amount of psychological and mental effort needed to interact with AI social robots. While a higher level of performance expectancy results in a higher level of overall positive emotions toward the usage of AI robotic devices, a higher level of effort expectancy negatively impacts customers' evaluation of these technologies.

H5: Performance expectancy increases positive emotions toward the use of AI social robots.

H6: Effort expectancy decreases positive emotions toward the use of AI social robots.

Based on the Cognitive Appraisal Theory (CAT), according to which elicitations of emotions are due to individuals' evaluations of a stimulus, which further determines behavioral responses (Lazarus, 1991), the AIDUA model considers the effect of the overall emotions toward the use of AI robotic devices on customers' behavioral intentions: willingness to accept and objection to the use of AI devices (Gursoy et al., 2019). Willingness to accept the use refers to customers' overall tendency to use AI social robots, while the objection to the use refers to the likelihood of rejection of using AI robots since these ones cannot provide social interactions with customers.

H7: Positive emotion increases the willingness to accept the use of AI social robots.

H8: Positive emotion decreases the objection to the use of AI social robots.

Mysophobia (Covid-19)

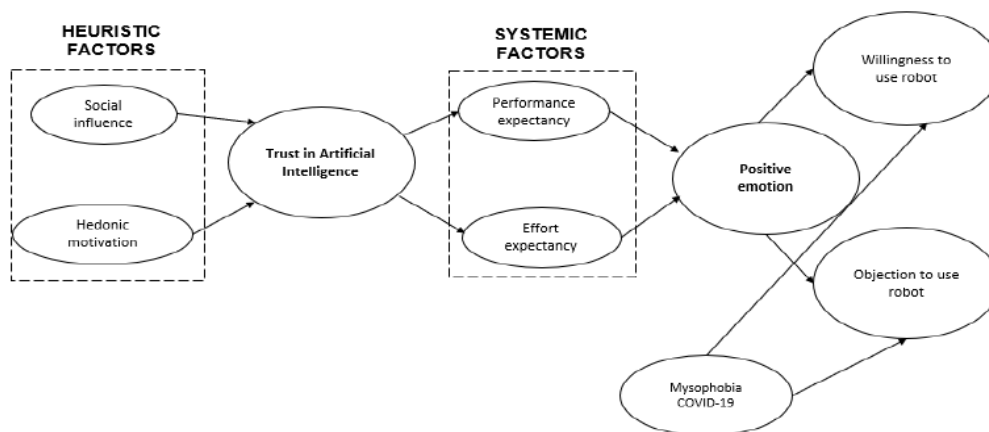
Since the beginning of the Covid-19 pandemic, individuals travel behaviors and how they view social interactions with others have been going through a significant transformation (Higgins-Desbiolles, 2020) because of social distancing rules and the fear of getting infected with the coronavirus (Gössling et al., 2020).

The Covid-19 pandemic may usher in a wave of mysophobia as people are constantly reminded to wash their hands frequently and to disinfect high-touch surfaces. Mysophobia, also known as germaphobia, is an irrational fear of contamination or germs (Chuah et al., 2022). By reducing human contact, many hospitality companies have elevated their safety and cleaning protocols also ensuring high levels of safety and hygiene, thus alleviating customers' fear of infection or contamination (Davis, 2020). In this circumstance, individuals that are particularly fearful of contamination are likely to use AI social robots:

H9: Mysophobia (Covid-19) has a positive effect on the willingness to accept the use of AI social robots.

H10: Mysophobia (Covid-19) has a negative effect on the willingness to accept the use of AI social robots.

The modified AIDUA model



Source: our elaboration

Methodology. The data have been collected using a survey questionnaire designed from previously validated scales adopted in literature. We collected the data over a single two-week period during January, sharing the survey on social networks, such as Facebook, Instagram. In particular, for the AIDUA model, we have measured Social influence with 5 items and Hedonic motivation with 4 items adapted by Lin et al. (2020). Moreover we measure Performance expectancy with 3 items and Effort expectancy with 3 items adapted by Chi et al. (2020). Finally, we have measured Willingness to use with 3 items adapted by Shi et al. (2021) and Objection to use with 3 items adapted by Lin et al. (2020). Regarding the extension we measured Covid-19 with 3 items adapted by Chuah et al., (2022), Trust with six items adapted by Lippert & Davis (2006). Positive Emotion with 5 items adapted by Chi et al. (2020). The survey was administered in Italian using the translation and back-translations procedures (Saunders et al., 2009). All the items are measured using a seven-point Likert scale (1 = "strongly disagree" and 7 = "strongly agree"). Finally, we have asked for some

demographic information about (Age, Gender, Income, Istruction, Occupation). In order to reduce retrieval bias (Kline et al., 2000; Podsakoff et al., 2003), we have intermixed the items from different constructs in the various scale grids, while to reduce social desirability bias, we have added guidelines to the survey to explain the scope of the survey, and to provide contacts for further information (Saunders et al., 2009). The data collected have been studied adopting the Partial Least Squares approach to Structural Equation Models (PLS-SEM) (Hair et al., 2011), using SmartPLS (Ringle et al., 2015) for model evaluation. This approach is used when the type of relationships is complex (direct, indirect, and moderation) containing first-order and second-order constructs, as in our case. PLS-SEM is appropriate for both small and large samples, as well as for non-normal data (Hair et al., 2019).

Preliminary results. This is a working paper on a research that is going to be completed. Up to date, we have only had 250 respondents, which confirm our hypotheses, but it is our intention to enlarge our sample so to better generalize the results. Our goal is indeed to collect more observations and test the complete model. In general, we expect all hypotheses will be confirmed. In particular, we expect that both Social influence and Hedonic motivation significantly influences customers' trust in AI social robots. Then, we expect that Trust positively influences both Performance expectancy and effort expectancy and that these constructs positively affect positive emotions toward the use of AI social robots. Moreover, we expect that Positive emotion positively influences the willingness to accept the use of AI social robots and negatively affect the objection to the use of AI social robots. Finally, we expect that Mysophobia (Covid-19) has a positive effect on the willingness to accept the use of AI social robots and a negative effect on the willingness to accept the use of AI social robots.

Research limitations. First of all, we have focused only on one country in the context of analysis. Furthermore, we have considered only facilitators who may influence the willingness to use robots, not considering potential inhibitors that may influence the willingness to use robots in the hospitality industry. Finally, we adopted the scenario approach, because the use of social robots in the hospitality industry is still at stress, hence some answers could be influenced by the fact of not having well understood the characteristics of the social robots and its functionalities.

Managerial implications. The identification of the main managerial contribution is subjected to data collection and its analysis, only after testing the model is it possible to identify the significant variables and define more precisely the managerial implications. In general we can say that the research can reveal the propensity of consumers to use this service and therefore give hints and suggestions to hotel firms for its implementation. Moreover, understanding the determinants of consumers' acceptance of robots in the hospitality industry suggests managers at which levers to act to improve hospitality experience.

Originality of the paper. Most of the studies that can be found on robotics deal with engineering theory (robot design, navigation, face/object/speech recognition, autonomy) followed by field or laboratory experiments. Recent contributions call for a more significant effort to be made to explore customers' human-robot interaction experiences (Tung & Law, 2017). Furthermore, this study advances the AI social robots' adoption literature by extending the theoretical AIDUA framework (Gursoy et al. 2019) to predict customers' intentions to use AI social robots during their hospitality experiences by incorporating trust in AI and mysophobia (Covid-19).

Keywords: artificial intelligence; technology acceptance; hospitality; AI social robots; Covid-19

References

- BAABDULLAH A.M. (2018), "Consumer adoption of Mobile Social Network Games (M-SNGs) in Saudi Arabia: The role of social influence, hedonic motivation and trust", *Technology in Society*, vol. 53, pp. 91-102.
- BARTNECK C., FORLIZZI J. (2004, September), A design-centred framework for social human-robot interaction. In ROMAN 2004. *13th IEEE international workshop on robot and human interactive communication (IEEE Catalog, n. 04TH8759)* (pp. 591-594), IEEE.
- BELLINI N., CONVERT L. (2016), "The concierge. Tradition, obsolescence and innovation in tourism. *Symphonya*, vol. 2, pp. 17.
- BOVE L.L., BENOIT S. (2020), "Restrict, clean and protect: signaling consumer safety during the pandemic and beyond", *Journal of Service Management*, vol. 31, n. 6, pp. 1185-1202.
- BOWEN J., MOROSAN C. (2018), *Beware hospitality industry: the robots are coming*. Worldwide Hospitality and Tourism Themes.
- CHI O.H., DENTON G., GURSOY D. (2020), "Artificially intelligent device use in service delivery: a systematic review, synthesis, and research agenda", *Journal of Hospitality Marketing & Management*, vol. 29, n. 7, pp. 757-786.
- CHI O.H., GURSOY D., CHI C.G. (2022), "Tourists' attitudes toward the use of artificially intelligent (AI) devices in tourism service delivery: Moderating role of service value seeking", *Journal of Travel Research*, vol. 61, n. 1, pp. 170-185.
- CHOI Y., CHOI M., OH M., KIM S. (2020), "Service robots in hotels: Understanding the service quality perceptions of human-robot interaction", *Journal of Hospitality Marketing & Management*, vol. 29, n. 6, pp. 613-635.
- CHUAH S.H.W., AW E.C.X., CHENG C.F. (2022), "A silver lining in the COVID-19 cloud: Examining customers' value perceptions, willingness to use and pay more for robotic restaurants", *Journal of Hospitality Marketing & Management*, vol. 31, n. 1, pp. 49-76.

- DAVIS K. (2020), Welcome to China's latest 'robot restaurant'. World Economic Forum. <https://www.weforum.org/agenda/2020/07/china-robots-ai-restaurant-hospitality/>
- GHAZIZADEH M., LEE J.D., BOYLE L.N. (2012), "Extending the Technology Acceptance Model to assess automation", *Cognition, Technology & Work*, vol. 14, n. 1, pp. 39-49.
- GÖSSLING S., SCOTT D., HALL C.M. (2020), "Pandemics, tourism and global change: a rapid assessment of COVID-19", *Journal of Sustainable Tourism*, vol. 29, n. 1, pp. 1-20.
- GURSOY D., CHI O.H., LU L., NUNKOO R. (2019), "Consumers acceptance of artificially intelligent (AI) device use in service delivery", *International Journal of Information Management*, vol. 49, pp. 157-169.
- GURSOY D., CHI C.G. (2020), "Effects of COVID-19 pandemic on hospitality industry: review of the current situations and a research agenda", *Journal of Hospitality Marketing & Management*, vol. 29, n. 5, pp. 527-529.
- HAIR J.F., RINGLE C.M., GUDERGAN S.P., FISCHER A., NITZL C., MENICTAS C. (2019), "Partial least squares structural equation modeling-based discrete choice modeling: an illustration in modeling retailer choice", *Business Research*, vol. 12, n. 1, pp. 115-142.
- HAIR J.F., RINGLE C.M., SARSTEDT M. (2013), "Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance", *Long Range Planning*, vol. 46, n. 1-2, pp. 1-12.
- HALL M.C., PRAYAG G., FIEGER P., DYASON D. (2020), "Beyond panic buying: consumption displacement and COVID-19", *Journal of Service Management*, vol. 32, n. 1, pp. 113-128.
- HENGSTLER M., ENKEL E., DUELLI S. (2016), "Applied artificial intelligence and trust-The case of autonomous vehicles and medical assistance devices." *Technological Forecasting and Social Change*, vol. 105, pp. 105-120.
- HENKEL A.P., ČAIĆ M., BLAUROCK M., OKAN M. (2020), "Robotic transformative service research: deploying social robots for consumer well-being during COVID-19 and beyond", *Journal of Service Management*, vol. 31, n. 6, pp. 1131-1148.
- HIGGINS-DESBIOLLES F. (2020), "Socialising tourism for social and ecological justice after COVID-19", *Tourism Geographies*, vol. 22, n. 3, pp. 610-623.
- HUANG M.H., RUST R.T. (2018), "Artificial intelligence in service", *Journal of Service Research*, vol. 21, n. 2, pp. 155-172.
- IVANOV S., SEYITOĞLU F., MARKOVA M. (2020), "Hotel managers' perceptions towards the use of robots: A mixed-methods approach", *Information Technology & Tourism*, vol. 22, n. 4, pp. 505-535.
- KIM S.S., KIM J., BADU-BAIDEN F., GIROUX M., CHOI Y. (2021), "Preference for robot service or human service in hotels? Impacts of the COVID-19 pandemic", *International Journal of Hospitality Management*, vol. 93, pp. 102795.
- KIM M.J., LEE C.K., JUNG T. (2020), "Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model", *Journal of Travel Research*, vol. 59, n. 1, pp. 69-89.
- KLINE T.J., SULSKY L.M., REVER-MORIYAMA S.D. (2000), "Common method variance and specification errors: A practical approach to detection", *The Journal of Psychology*, vol. 134, n. 4, pp. 401-421.
- LAZARUS R.S. (1991), "Progress on a cognitive-motivational-relational theory of emotion", *American Psychologist*, vol. 46, n. 8, p. 819.
- LEE J.D., SEE K.A. (2004), "Trust in automation: Designing for appropriate reliance", *Human Factors: The Journal of the Human Factors and Ergonomics Society*, vol. 46, n. 1, pp. 50-80.
- LEE J.H., SONG C.H. (2013), "Effects of trust and perceived risk on user acceptance of a new technology service", *Social Behavior and Personality: an international journal*, vol. 41, n. 4, pp. 587-597.
- LIN H., CHI O.H., GURSOY D. (2020), "Antecedents of customers' acceptance of artificially intelligent robotic device use in hospitality services", *Journal of Hospitality Marketing & Management*, vol. 29, n. 5, pp. 530-549.
- LIPPERT S.K., DAVIS M. (2006), "A conceptual model integrating trust into planned change activities to enhance technology adoption behavior", *Journal of Information Science*, vol. 32, n. 5, pp. 434-448.
- LU L., CAI R., GURSOY D. (2019), "Developing and validating a service robot integration willingness scale", *International Journal of Hospitality Management*, vol. 80, pp. 36-51.
- MARUPING L.M., BALA H., VENKATESH V., BROWN S.A. (2017), "Going beyond intention: Integrating behavioral expectation into the unified theory of acceptance and use of technology", *Journal of the Association for Information Science and Technology*, vol. 68, n. 3, pp. 623-637.
- MURPHY J., HOFACKER C., GRETZEL U. (2017), "Dawning of the age of robots in hospitality and tourism: Challenges for teaching and research", *European Journal of Tourism Research*, vol. 15(2017), pp. 104-111.
- NAM K., DUTT C.S., CHATHOTH P., DAGHFOUS A., KHAN M.S. (2021), "The adoption of artificial intelligence and robotics in the hotel industry: prospects and challenges", *Electronic Markets*, vol. 31, n. 3, pp. 553-574.
- PODSAKOFF P.M., MACKENZIE S.B., LEE J.Y., PODSAKOFF N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, vol. 88, n. 5, p. 879.
- RINGLE C., DA SILVA D., BIDO D. (2015), "Structural equation modeling with the SmartPLS. Bido D., da Silva D., Ringle C. (2014), Structural Equation Modeling with the Smartpls", *Brazilian Journal of Marketing*, vol. 13, n. 2.
- SAUNDERS M. LEWIS P., THORNILL A. (2009), *Research methods for business students*, Pearsons Education Limited, Harlow

- SHI S., GONG Y., GURSOY D. (2021), “Antecedents of trust and adoption intention toward artificially intelligent recommendation systems in travel planning: a heuristic-systematic model”, *Journal of Travel Research*, vol. 60, n. 8, pp. 1714-1734.
- TUSSYADIAH I.P., PARK S. (2018), “When guests trust hosts for their words: Host description and trust in sharing economy”, *Tourism Management*, vol. 67, pp. 261-272.
- VAN DOORN J., MENDE M., NOBLE S.M., HULLAND J., OSTROM A.L., GREWAL D., PETERSEN J.A. (2017), “Domo arigato Mr. Roboto: Emergence of automated social presence in organizational frontlines and customers’ service experiences”, *Journal of Service Research*, vol. 20, n. 1, pp. 43-58.
- VENKATESH V., THONG J.Y., XU X. (2012), “Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology”, *MIS quarterly*, pp. 157-178.
- WEST D.M. (2018), *The future of work: Robots, AI, and automation*. Brookings Institution Press.
- ZALAMA E., GARCÍA-BERMEJO J.G., MARCOS S., DOMÍNGUEZ S., FELIZ R., PINILLOS R., LÓPEZ J. (2014), *Sacarino, a service robot in a hotel environment*. In *ROBOT2013: First Iberian robotics conference* (pp. 3-14), Springer, Cham.
- TUNG V.W.S., LAW R. (2017), “The potential for tourism and hospitality experience research in human-robot interactions”, *International Journal of Contemporary Hospitality Management*, vol. 29, n. 10, pp. 2498-2513.
- XU J., HOWARD A. (2018, August), The impact of first impressions on human-robot trust during problem-solving scenarios. In *2018 27th IEEE international symposium on robot and human interactive communication (RO-MAN)* (pp. 435-441), IEEE.

Artificial Intelligence and Human Resource Development: a Literature Review and Research Agenda

NICOLA CUCARI* FRANCESCO LAVIOLA• HARRY NOVIC^

Framing of the research. Artificial Intelligence (AI) is a disruptive innovation that is poised to transform business, economies, and society (Loureiro et al., 2021; Burström, et al., 2021; Dirican, 2015; Ransbotham et al., 2017). AI could be viewed as “computing technologies that simulate or imitate intelligent behaviors relevant to the ones of humans” (Vrontis et al., 2021, p. 12). Although definitions and concepts relating to AI vary depending on goals and domain, AI is “generally defined as the property of machines that mimic human intelligence as characterized by behaviors such as cognitive ability, memory, learning, and decision making” (Chen and Wong, 2019, p. 335).

Artificial Intelligence and its related subset of technologies will be opening new pages in economics and business, and many studies have been published on their potential effects (Enholm et al., 2021; Sestino and De Mauro, 2021; Dirican, 2015). An interesting research area is that aimed at understanding the potential of AI in HRM (Strohmeier and Piazza, 2015). Human Resource Management (HRM) strategies are concerned with employment policies and practices, which encompasses recruitment, selection, evaluation, development, and retention of employees as well as recruitment, consultation, and negotiation with individuals (Jatobá et al., 2019).

AI is changing the way human resources are managed in an organization, and it is bringing in new functionalities to HRM (Pillai and Sivathanu, 2020). Based on Strohmeier and Piazza (2015), AI in HRM is explored in six selected scenarios: i) turnover prediction with artificial neural networks, ii) candidate search with knowledge-based search engines, iii) staff rostering with genetic algorithms, iv) HR sentiment analysis with text mining, v) resume data acquisition with information extraction, vi) employee self-service with interactive voice response. Makridakis (2017, p. 54) stated that the AI revolution aims to “substitute, supplement, and amplify practically all tasks currently performed by humans, becoming in effect, for the first time, a serious competitor to them”. Therefore, AI is proving itself ready to support all functions of HRM (Sivathanu and Pillai, 2018), entering all phases of the Employee Life Cycle (Lee et al., 2019; Zel and Kongar, 2019) and laying the foundations for “Smart Human Resources 4.0” (Sivathanu and Pillai, 2018).

More specifically, the actual context prompts “a need to consider new and more effective approaches to human resources development” (Whysall et al., 2019, p. 118). Human Resource Development (HRD) is defined as “the integrated use of training and development, career paths, and organizational development to improve individual and organizational effectiveness” (McLagan and Suhadolnik, 1989, p. 1). Nowadays, more than in the past, due to the Covid crisis, HRD scholars and practitioners are committing to learning and helping people and organizations to improve their performance (Han and Stieha, 2020; Piwowar-Sulej, 2021). The main instrument of HRD is appropriate training (Piwowar-Sulej, 2021), but at the same time, the most difficult task is to determine the effectiveness of training costs. What is evident is that new technologies such as AI and Big Data will automate most of the HR processes, resulting in efficient and leaner HR teams (Sivathanu and Pillai, 2018).

Purpose of the paper. The research scenario on HRM has undergone profound changes as the result of a diversity of issues related to technology, sustainability, economics and financial considerations and the changing nature and organization of work (i.e., smart, hybrid, etc) (Fenech et al., 2019; Scully-Russ and Torracco, 2020; Margherita, 2021; Thite, 2022).

Similarly, the research on AI has been characterized by different fields of knowledge. Therefore, the extant literature is sparse and fragmented and the few existing literature reviews on AI in HRD lack specificity. While these efforts present useful knowledge about the role of AI in HRD, they focus either on specific applications (e.g., virtual environment, Rahimi et al., 2021) or domains (e.g., Smart Framework, Sivathanu and Pillai, 2018).

To address this gap, the current review paper aims at providing a preliminary knowledge map by a Keyword Co-occurrence Analysis on AI in HRD as well as identifying future trends in order to provide useful directions for future research in the field.

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Specifically, this paper uses three different, yet converging, points of view: i) managerial, ii) technological, and iii) organizational. We believe it is necessary and useful to adopt this triple perspective in the analysis of the literature essentially because AI is a general-purpose technology (Bekar et al., 2017) that, although originating in engineering and technical fields, now embraces the most disparate fields of knowledge. Therefore, we deem it appropriate to investigate AI from several points of view without neglecting managerial and organizational aspects. Also, business management scholars can offer a significant contribution to scientific knowledge on the subject (Borges et al., 2021).

In this way, we answer to the call of some authors who have highlighted that despite HRD's orientation to embrace both research and practice, the research-theory gap persists (Short et al., 2009; Fenwick, 2004). For example, virtual coaching (also known as e-coaching) is a particular aspect of managerial coaching identified by Beattie and colleagues (2014) as representative of a significant gap in the literature, as they underline the limitation of empirical research aimed at exploring this coaching approach.

To do so, our paper proposes a topic mapping based on keyword co-occurrence analysis. Keywords play a fundamental role in all research fields because they can be a tool by which the evolution of a specific area of knowledge can be identified (Barki et al., 1993). Topic mapping is “a content analysis technique that uses the words in documents to establish relationships and builds a conceptual structure of the domain” (Zupic and Cater, 2015).

This analysis was carried out by examining, with VOSviewer, the co-occurrences between keywords (author keywords + index keywords) using a full counting method. Given the limited number of papers included in the review, it was decided not to set lower limits to the number of occurrences of a single keyword. Two keywords are said to co-occur if they both occur in the same title/abstract or citation context. The distance between two keywords (two nodes) is approximately inversely proportional to the similarity (relatedness in terms of co-occurrence) of the keywords. Hence, keywords with a higher rate of co-occurrence tend to be found closer to each other. VOSviewer provides a clustering function, which assigns keywords to clusters based on their co-occurrence (Waltman et al. 2010; Bornmann et al., 2018).

Methodology. Although our work should be considered as a mere preliminary effort to a deeper analysis of the state of the art of scientific production linking AI and HRD, a systematic approach (e.g., in relevant publications extraction and selection phases) was deemed the most appropriate because it improves the overall quality of the review by using a transparent and easily reproducible procedure (Crossan and Apaydin, 2010; Tranfield et al., 2003).

The data was analysed using a similarity visualization program (VOSviewer) to see some of the possible results visually. Specifically, we used Keyword Co-occurrence Analysis in order to build a Keyword Co-occurrence Network (KCN) that it is useful in the exploration of research topics and their relationships in many scientific fields (Bornmann et al., 2018). As demonstrated by some authors, KCN-based analysis has shown advantages over traditional literature review approaches, and it provides “a knowledge map and insights prior to undertaking a rigorous traditional systematic review” (Radhakrishnan et al., 2017, p. 1).

We used a rigorous methodology to isolate the most relevant thematic topics and lay solid foundations for future work. Dealing with the criteria for the selection of papers and given the fact that the line of research is very recent and still in development, it was decided not to restrict the research strategy to articles only but also to consider and carefully evaluate conference papers and some book chapters considered particularly relevant. We also decided to review both review, empirical, and conceptual papers. With regard to the timeframe, it seemed appropriate to consider only works published from the year 2000 onwards. We have also decided to exclude papers written in languages other than English.

Specifically, the preliminary search was carried out on SCOPUS and Web of Science, defining two main research fields, Artificial Intelligence (AI) and Human Resource Development (HRD), via the following search query:

TITLE-ABS-KEY

(AI OR “artificial intelligence” OR “intelligent agent*” OR “human-agent interaction*” OR “robot-human interaction*” OR “intelligent automation” OR “machine learning” OR “deep learning” OR “neural network*” OR chatbot*)

AND

TITLE-ABS-KEY

(“human resource* development” OR “human capital development” OR “human resource* improvement” OR “human capital improvement” OR “human resource* training” OR “human resource* coaching” OR HRD OR “virtual coach”)

AND

(PUBYEAR > 1999)

AND

LANGUAGE (English)

The search with the above query on the databases involved the title, abstract, and keyword (authors keywords + index keywords) fields (Crossan and Apaydin, 2010; Pisani et al., 2017) in order to skim the non-relevant works at the source, which for example cited AI as a buzzword, and at the same time avoid analysing papers resulting from linguistic ambiguity.

The results of the preliminary search on SCOPUS and Web of Science were analysed and compared in terms of title, authors, and abstract to discard duplicates and papers for which the full text was not available. At this stage, it was

also necessary to manually discard results that were the result of linguistic and lexical ambiguity. A further skimming effort was carried out towards semantic ambiguity. For example, in medical and environmental science fields the acronym HRD stands for totally different concepts with respect to the HR research field, like Homologous Recombination Deficiency, Hyper Reflective Dots, High-Risk Drinking, High-Resolution Density, and High Recommended Dose. These works were, of course, excluded from the present systematic literature review.

This initial selection process was necessary to discard those deemed irrelevant and limit the following full-text analysis to those that seemed useful for the purposes of our preliminary literature review.

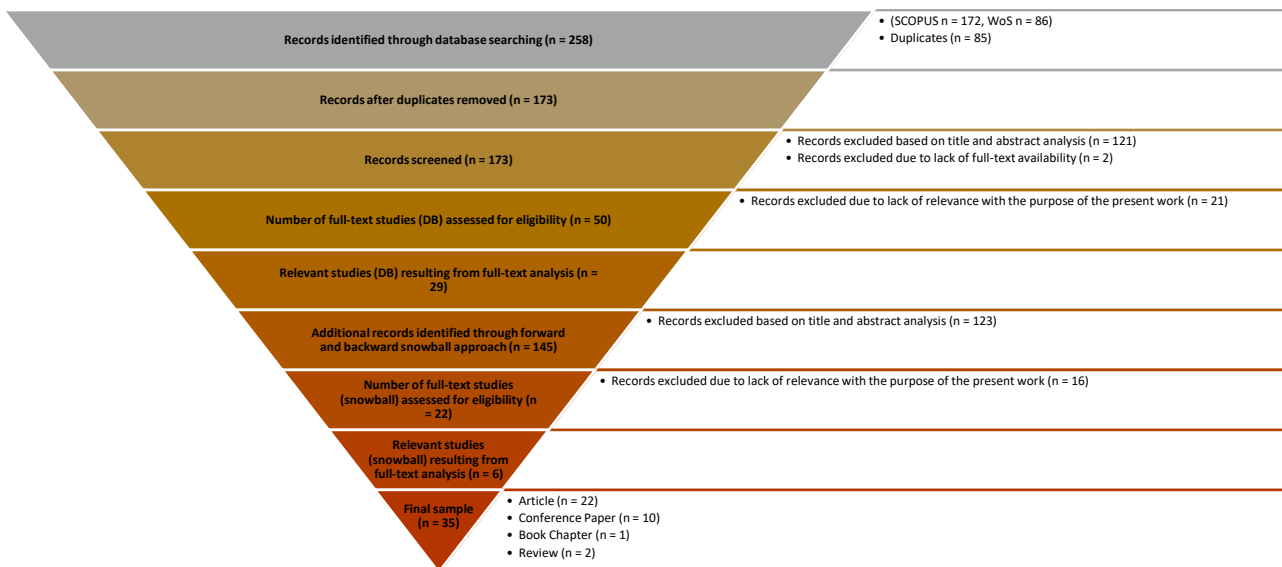
Subsequent analysis of the full text allowed for refinement of the list of findings, discarding works that was apparently syntactically and semantically relevant but did not accurately meet the purposes of this review.

For example, some articles discuss the need for HR education and development initiatives to train employees to use AI systems instead of analysing the role of AI in HRD processes. Other papers were found to be of little relevance because they focus on public educational needs related to Fourth Industrial Revolution technologies (e.g., AI) rather than on companies implementing AI to improve HR development, training, and coaching. A consistent number of papers treat the AI-HRD relationship from the policymaker’s perspective, intending HRD as public interventions executed to prevent technological unemployment and job displacement.

Based on the results of the full-text analysis, it seemed appropriate to broaden the horizons of exploration through snowball methodology, using what Wohlin (2014) suggested as a reference, therefore following both approaches (forward and backward snowball approach). The corpus of scientific production resulting from the snowball approach was then subjected to the same criteria of inclusion and exclusion adopted for the works resulting from the database search, carrying out the first selection based on title and abstract and analysing the full text only of those that were considered relevant.

Results. The sample in this study, resulting from the selection process explained in the methodology and summarized by Fig. 1, consisted of a total of 35 publications by 114 authors affiliated with 71 institutions in 23 countries, which were published in 23 journals and referred to 298 cited references (cfr. Tab. 1). Database interrogation results were updated as of February 23, 2022.

Fig. 1: Relevant publications extraction process.



Source: our own elaboration using a MS Word dynamic object.

Tab. 1: Descriptive statistics of resulting publications.

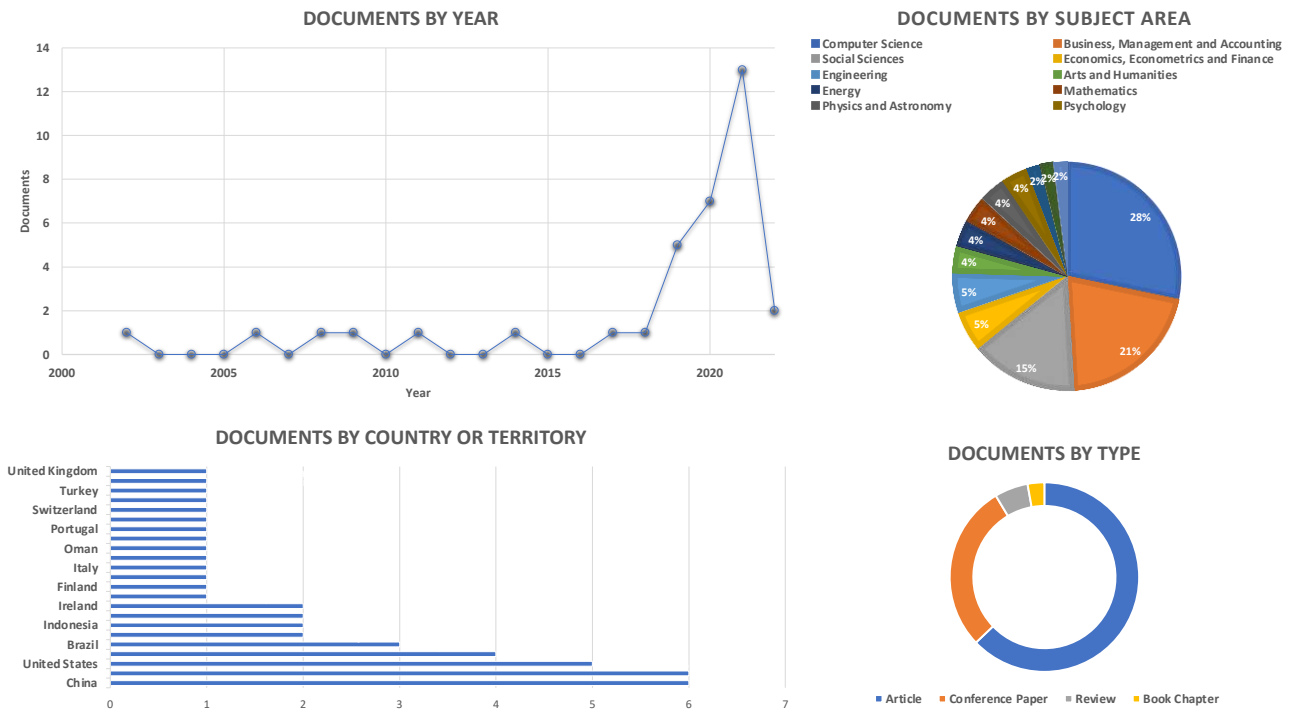
Publications	35
Authors	114
Journals	23
Institutions	71
Countries	23
Cited reference	298

Source: our own elaboration on extraction process data.

Fig. 2 shows the chronological distribution of publications in the research field and their distribution by document type, year, research area, and country. The distribution of papers by year testifies to the extreme novelty of the field of research under investigation in this literature review.

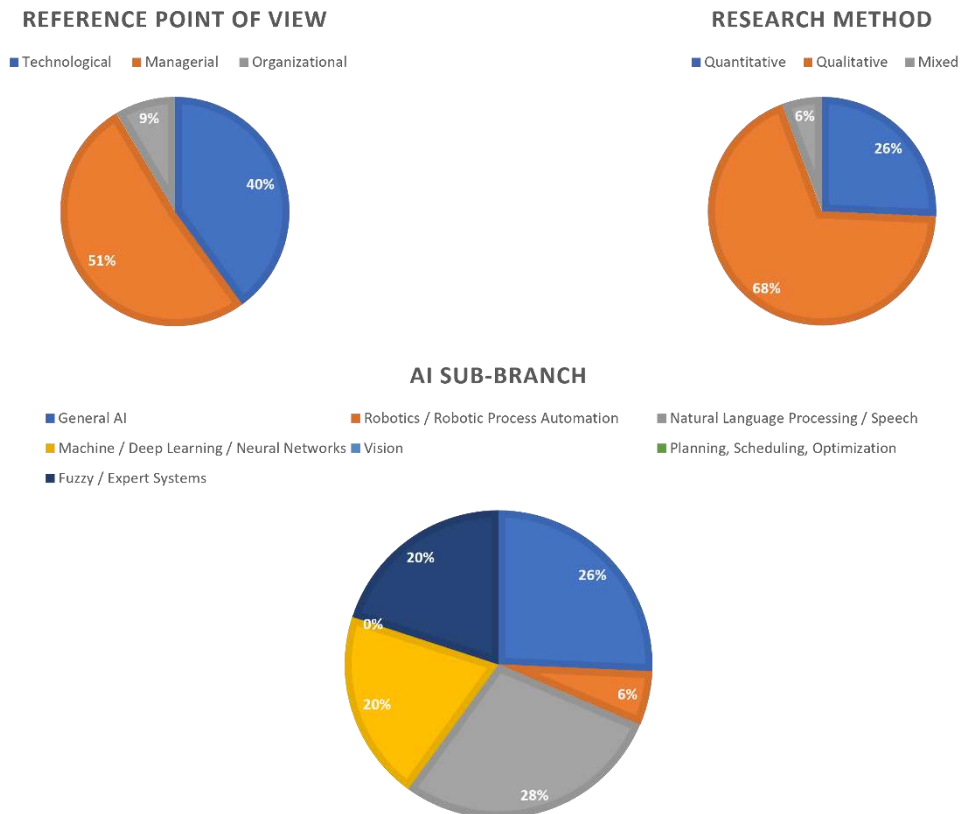
Fig. 3 shows the distribution of publications by reference point of view, research method, and AI sub-branch involved. It is worth specifying that the classification of the reference points of view is unbiased since it was carried out before launching the keyword co-occurrence analysis with VOSviewer. It is interesting to note that the subject areas are quite diverse, demonstrating the extremely interdisciplinary nature of artificial intelligence.

Fig. 2: Distribution of publications by document type, year, research area and country.



Source: our own elaboration on extraction process data.

Fig. 3: Distribution of publications by reference point of view, research method and AI sub-branch involved.

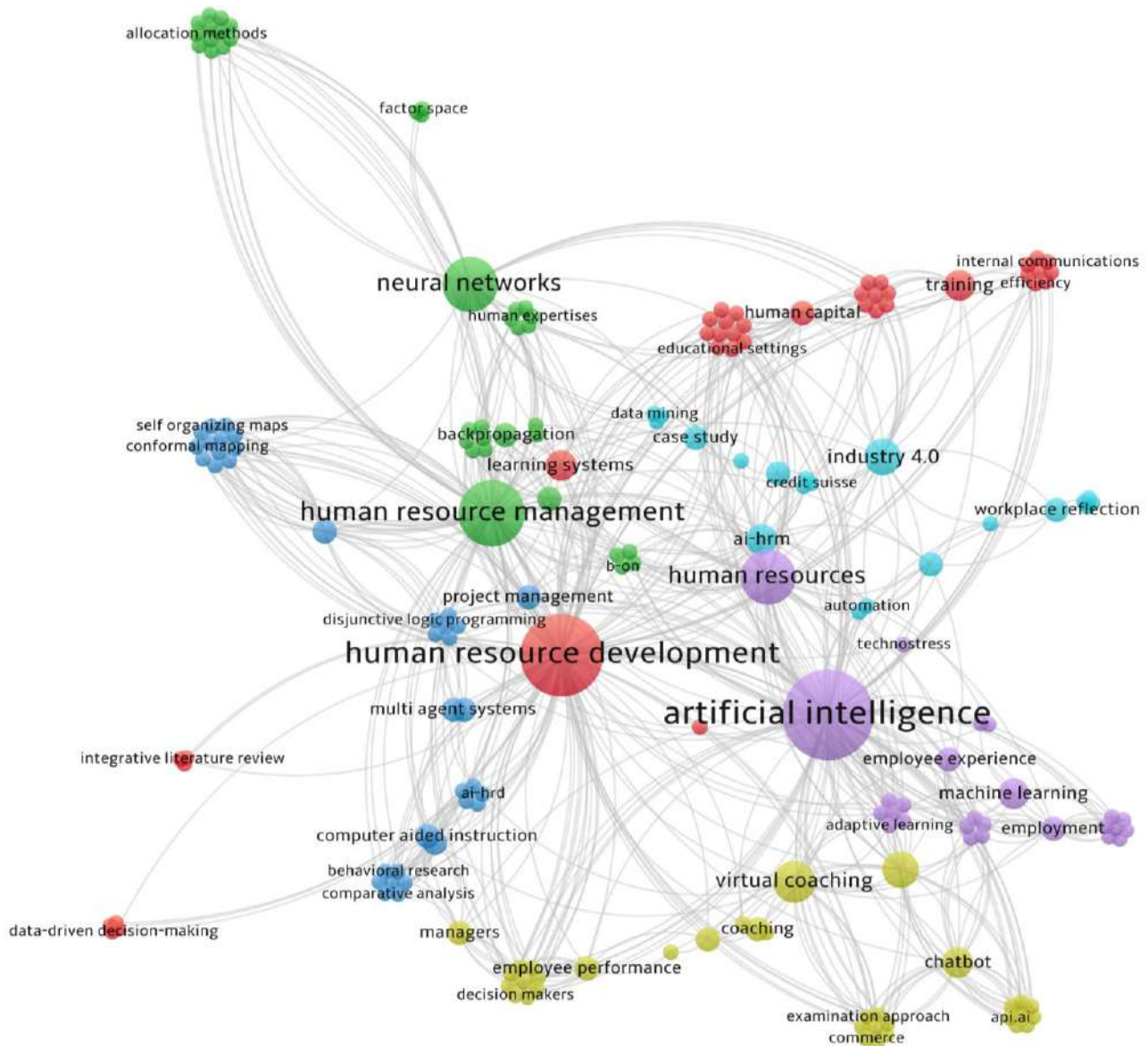


Source: our own elaboration on extraction process data.

After presenting some descriptive statistics on the sample of articles taken as references for the literature review, we move on to examine the results of the analysis carried out with VOSviewer on keyword co-occurrences.

Setting the minimum numerosity of every grouping is equal to 20, the software returned a network composed of 193 items interconnected by 1284 links with 1360 as total link strength. The resulting network, shown in Fig. 4, highlights six thematic clusters which revolve around the three different perspectives in a slightly unbalanced manner.

Fig. 4: Total keyword co-occurrence network.



Source VOSviewer.

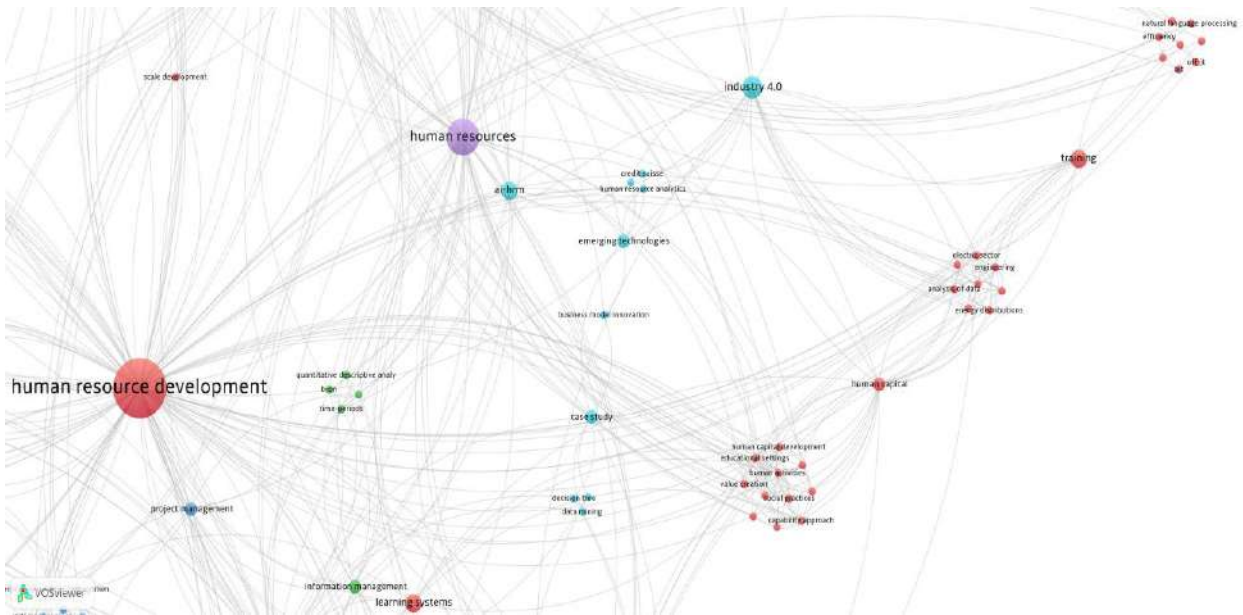
Apparently, the largest number of papers in our literature review pertain to the managerial perspective. The three clusters (red, Fig. 5, lilac, Fig. 6, and light blue, Fig. 7) presented below represent the co-occurrence patterns between keywords included in papers belonging to this perspective.

The analysis of the groupings of keywords aggregated in the red, lilac, and light blue clusters lead us to the inference that the works populating these clusters fall within the managerial perspective because the authors prove to be primarily interested in building new theory on the relationship between AI and HRM/HRD, for example, by proposing a new theoretical framework, as done by Sivathanu and Pillai (2018), that in their work stresses the importance of Smart Human Resources 4.0 (Smart HR 4.0) and its role as a catalyst in the disruption process in the HR domain. The authors briefly conclude that emerging technologies such as the Internet-of-Things, Big Data, and Artificial Intelligence will automate most HR processes, resulting in efficient and leaner HR teams and that an organization would require a successful Smart HR 4.0 strategy to cope with the challenges of Industry 4.0 transformation, to try to steer the ship in the storm of creative destruction (Schumpeter, 1994) triggered by the new dominant technological paradigm.

Another interesting contribution in this regard is offered by Yorks et al., (2020) who, starting from a series of interviews with health professionals that reveal the usefulness of chatbots and AI-enabled virtual assistants in

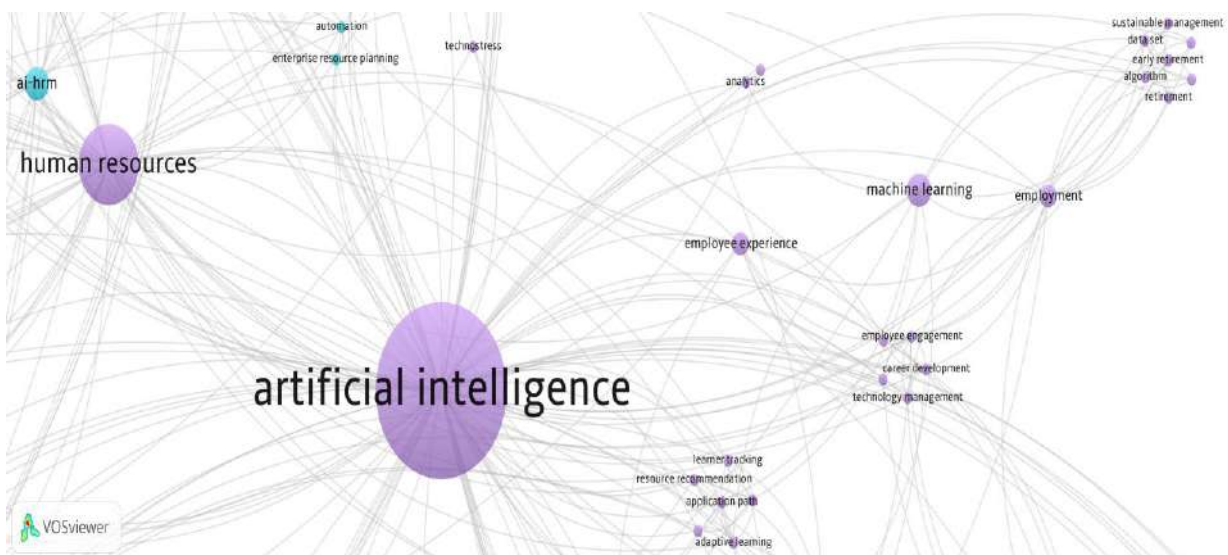
improving practitioner-patient care by stimulating their reflection in the workplace, provided a set of sound recommendations for HRD professionals in every industry. The scholars state that their research “can inform HRD professionals involved in organizational design and role definition to ensure organizations evolve toward new operating models with humans and machines interacting in symbiotic ways through collaboration opportunities that maximize the potential of each” (Yorks et al., 2020, p. 316). They suggest, for example, that HRD professionals can play a key role in managing the inevitable changes brought about by the Fourth Industrial Revolution, with artificial intelligence as its symbol and centre of gravity. Scholars also argue that it is important for firms to create and sustain an organizational culture that supports work practices that are changing and increasingly shifting toward human-machine collaboration dynamics.

Fig. 5: Detail of Managerial cluster 1.



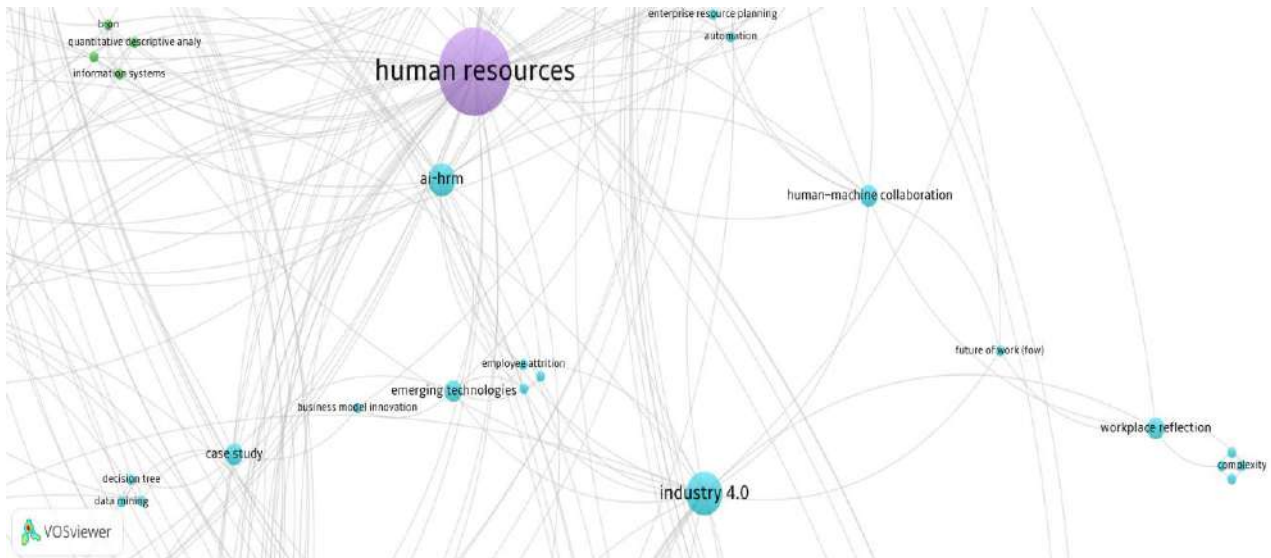
Source VOSviewer.

Fig. 6: Detail of Managerial cluster 2.



Source VOSviewer.

Fig. 7: Detail of Managerial cluster 3.



Source VOSviewer.

Typically, the technological perspective is addressed by scholars in computer science, engineering and other related scientific fields who conceptualize, design, and propose AI models, methods, and systems to support HRM and HRD processes from their technical point of view. Nevertheless, this kind of scientific contribution is useful for business management researchers to have a better idea of the overall degree of readiness of the technology with respect to the needs of companies and markets and to understand what is actually possible to achieve with such systems. This consideration gives us the opportunity to outline the first trajectory of the future research agenda. In the future, it will be even more interesting to base research efforts on these first results in order to point out how, on one hand, technology evolved in the meantime and what it offers and, on the other hand, the needs of companies, verifying if the supply and demand of AI-enabled technology successfully intersected in the markets.

The two clusters (green, Fig. 8, and blue, Fig. 9) presented below represent the co-occurrence patterns between keywords included in papers belonging to the technological perspective. This is easily verifiable by analysing the groupings of keywords which show technical detail that is hardly compatible with the cognitive background of a business management scholar.

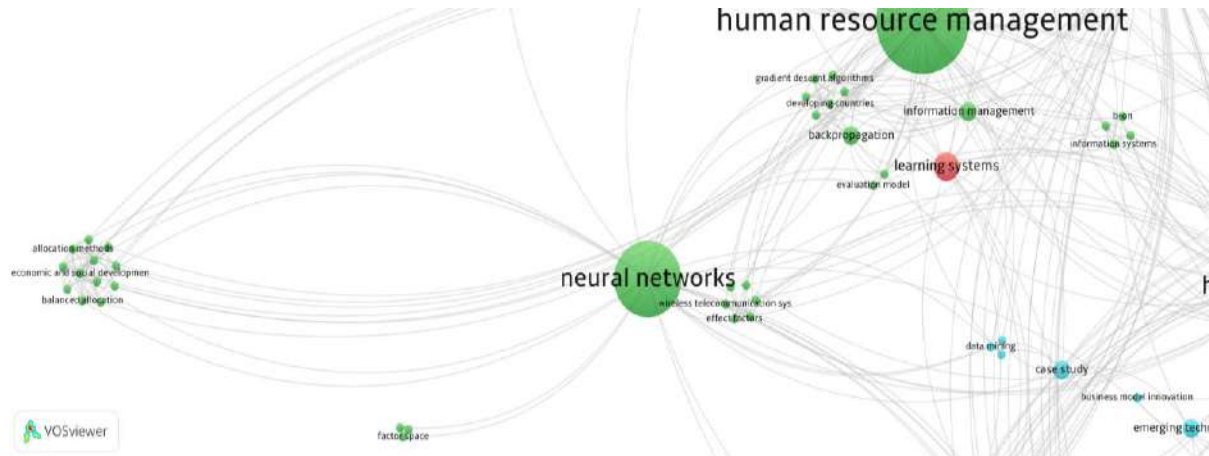
In order to contextualize the technological perspective, we believe it is useful to briefly report the findings of two studies that we could define as seminal in this field. Also, they are among the most cited.

Silveira and Vicari (2002) carried out a study on Human Resource Training/Coaching with intelligent agents in a virtual environment empowered by natural language processing algorithms. The objective of their study was to discuss the feasibility of implementing a system named Distributed Intelligent Learning Environment based on the Multi-Agents Architecture approach, aiming at the achievement of human resources qualification through virtual training. To address this issue, the authors presented an architecture proposal called JADE-Java Agent Framework for Distance Learning Environments, which they developed starting from the belief that systems based on multi-agent architectures enable the development of more interactive and adaptable training systems.

Also, Garro et al., (2006) developed a multi-agent system based on Natural Language Processing for HR Training, but they focused in particular on skill management. Indeed, the proposed system, among other functions, evaluates HR competence gaps, supports employees in filling the competence gaps related to their roles, and creates personalized learning paths according to the feedback that users provide to optimize the acquisition of required competencies.

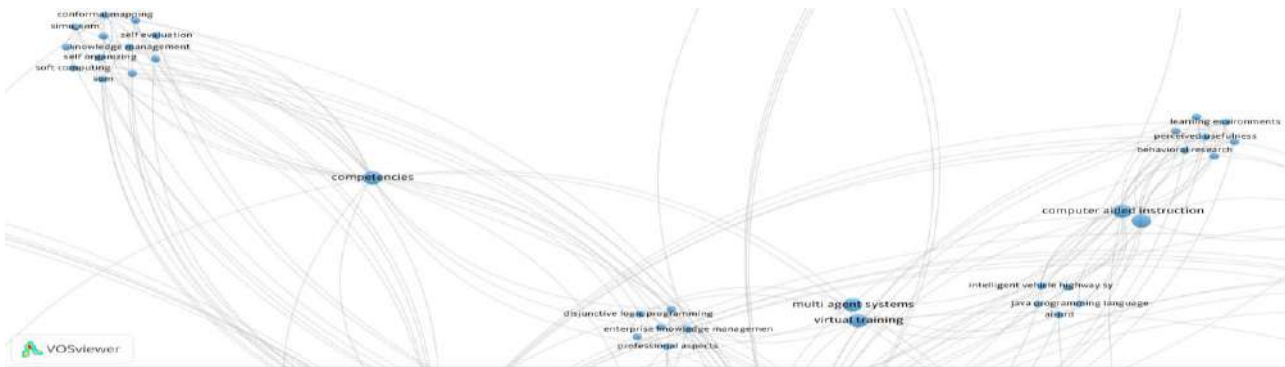
An overall assumption that seems to be shared by the technology-oriented contributions is that it is indeed technologically feasible to develop AI systems that mimic human interaction. How well the technical capability meets the actual needs of companies and whether there are discrepancies in terms of expectations and reality or problems in terms of trust towards AI solutions represent critical issues that need to be addressed by future research efforts.

Fig. 8: Detail of Technological cluster 1.



Source VOSviewer.

Fig. 9: Detail of Technological cluster 2.



Source VOSviewer.

Finally, the organizational perspective is populated by studies more anchored to organizational reality, which perhaps offers ideas and concrete examples in this sense and is closer to the empirical reality of companies that supply or use AI-HRD systems. These studies differ from managerial studies because they are aimed at developing more applied rather than theoretical lines of research.

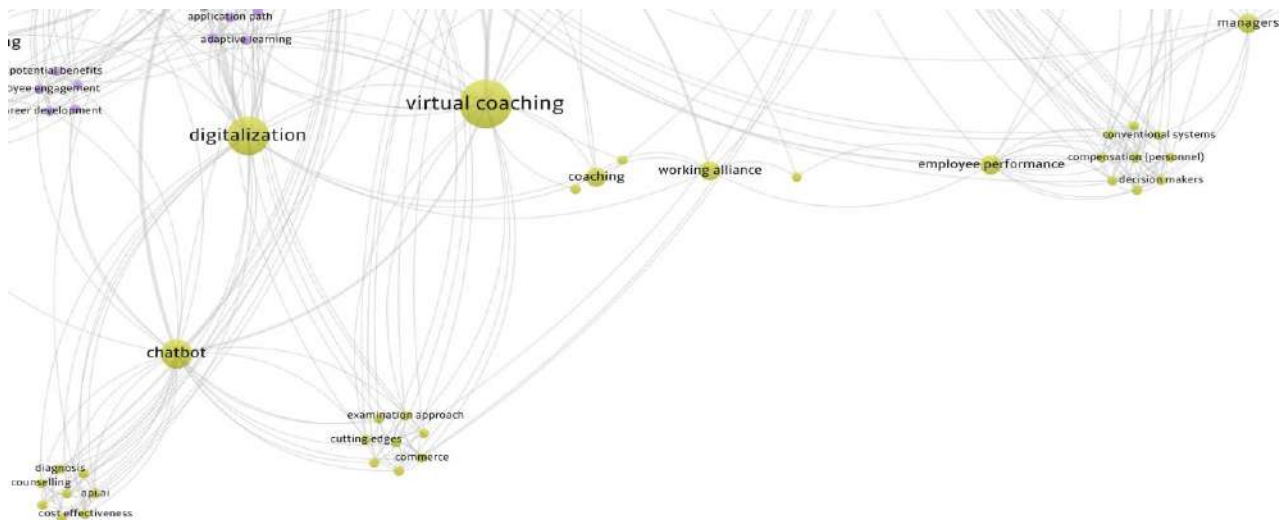
The analysis of the network returned by VOSviewer led to the conclusion that the only cluster that fully reflects the organizational perspective is the yellow one (Fig. 10). Indeed, there are only three works judged to be most representative of the organizational perspective, and this assessment is confirmed by the fact that VOSviewer's clustering algorithm has grouped the most relevant keywords of these works in the yellow cluster, which seems to gravitate around the keyword virtual coaching.

The contribution that seems by far the most relevant and fits within the organizational point of view is that of Graßmann and Schermuly (2021) who offer innovative insights on whether and how AI can be used in coaching and become a key tool for HRD processes (Graßmann and Schermuly, 2021). For example, this paper is the first to offer an initial conceptual systematization regarding AI coaching, defining it as “a machine-assisted, systematic process to help clients set professional goals and construct solutions to efficiently achieve them” (Graßmann and Schermuly, 2021, p. 109). The authors claim that, thanks to the exploitation of the capabilities of AI systems that are based on data and machine learning, AI coaching systems would be able to learn autonomously starting from large databases that collect data on human-to-human coaching processes and to become more efficient in helping customers achieve their goals. Specifically, on one hand, AI coaching systems would be able to learn and improve their performance by drawing on a vast and decidedly broader set of data than that available to the human coach. On the other hand, they are endowed with adaptability to the user they interact with, which offers greater opportunities in terms of continuous performance improvement. In other words, AI coaching systems represent a huge element of differentiation from classic face-to-face coaching, and this could revolutionize the way companies train their managers and employees. We have also included this work in the organizational perspective, above all, because it also provides food for thought aimed directly at companies by stating that, for example, “organizations might wish to consider AI coaching for employees who have not been considered yet for coaching because it was too expensive” (Graßmann and Schermuly, 2021, p. 107).

Furthermore, Graßmann and Schermuly (2021) developed a model to effectively evaluate the actual capabilities of AI coaching systems at each stage of the coaching process. As a synthetic result of this evaluation process, there is the conclusion that many steps of the coaching process can be effectively and efficiently automated by AI systems, but the

scholars point out that this is not a universally valid assumption for the entirety of the coaching process and that in the near future it is unlikely that AI will completely replace human coaches. In other words, in this perspective AI represents an added value that does not totally replace the human operator, human coaches. In fact, it “can hardly be imitated in the beginning of coaching as AI cannot mimic the understanding of what clients are concerned with and challenge clients’ underlying needs and goals” (Graßmann and Schermuly, 2021, p. 119). This study on AI coaching provides us the opportunity to highlight another important point in our research agenda: future research initiatives should be aimed at investigating AI-HRD systems actually developed and adopted by companies/start-ups. This line of applied research would lead business management scholars to a better understanding of the effective use and the relative effectiveness of AI in HRD processes. We also believe it is necessary to place greater emphasis on the effects, positive and negative, desired and unwanted, exerted by these systems on human capital. It might be interesting, for example, to investigate whether and how the concept of perceived privacy risk (Patrizi et al., 2021) applies to AI coaching systems implemented via chatbots and what obstacles they face in gaining the trust of the user interacting with them and to try to understand the main reasons for the mistrust and emotional conflict of many users interacting with AI.

Fig. 10: Detail of Organizational cluster.



Source VOSviewer.

Research limitations. In line with other state-of-the-art literature reviews, we focused on key findings rather than on providing an exhaustive analysis of each article. This could represent a limitation because it exposes the work to potential vices of subjectivity in the evaluation and selection of the most noteworthy contributions and findings.

Given the high degree of novelty and specificity of the topic under investigation in this literature review, it was not possible to skim the sources by considering only articles, excluding for example the conference papers, and above all selecting only the papers published by academic journals considered important and influential by the international scientific community. In hindsight, this could represent a limitation of our research, but it was a choice made necessary by the extreme novelty of this specific line of research.

Another limitation might be the fact that we had to limit ourselves to analysing with VOSviewer only the co-occurrence of keywords. This choice was primarily dictated by the fact that the aim of the present work was to offer a knowledge map and lay the foundation for future research efforts. Also, as we pointed out in the Methodology section, keyword co-occurrence analysis is particularly well suited to this purpose. Secondly, such a small and fragmented body of literature did not allow us to do otherwise.

Managerial implications. This study provides three contributions.

First of all, it reflects and expresses the need for the scientific community of business management researchers to explore, with greater strength and conviction, strands of applied research, also in partnerships with private companies in the view of technology transfer initiatives.

Secondly, this literature review could represent a first incentive for companies to explore AI solutions in the context of employee training and coaching initiatives, prompting them to rethink the logic of the HRD processes (Danvila et al., 2019).

Third, it aims to outline the future research agenda on AI in HRD processes by asking some specific questions:

- What is, from the broader managerial perspective, the most suitable theoretical construct to explain the value creation dynamics driven by the use of AI in HRD processes? Should a new framework be designed?
- What is the readiness of individuals (entrepreneurs, managers, and employees) to open up towards AI-based HRD?
- Are there challenges related to a lack of trust in AI and concerns about the personal and sensitive data that AI-HRD systems collect and process?
- How does the readiness of the technology compare to the expectations of companies using it?

- Is there a mismatch between the expectations of companies leveraging AI-based HRD systems and the performance actually offered?
- What do AI-based HRD systems offer in terms of outcome measurability?

Originality of the paper. The present research paper aimed to use cluster analysis to create a useful, structured portrayal of AI in the HRD domain to achieve deeper insight into the relationships between research disciplines and thematic clusters. Our research is quite in line with the trend traced by European and Italian policymakers towards the development of a human-centric AI. For example, the Italian government, in the Strategic Program on Artificial Intelligence 2022-2024 (MUR, MISE, MITD, 2021), stresses the importance of educating citizens about AI which “can constitute a powerful instrument for a fruitful transformation of the national education system to develop personalized learning plans while ensuring fairness and trustworthiness” (MUR, MISE, MITD, 2021, p. 17). Therefore, it seems clear that the Italian policymaker is hoping that AI coaching/training tools, currently being explored in the private sector, could also be used for public benefit to improve the educational system.

Further originality is given by the fact that, to the best of our knowledge, the study of the role of AI in HRD processes has not yet been addressed by considering together the three different perspectives: managerial, technological and organizational. The only two literature reviews centred on the AI-HRD relationship (Rahimi et al., 2021; Sivathanu and Pillai, 2018) are predominantly focused on the managerial perspective. Our original approach to studying the existing literature allowed us to systematize the key findings by addressing them from a trilateral perspective in order to provide a brief and preliminary overview of the state of the art of AI-HRD systems from the view of theory, technology, and organizational practice.

Keywords: artificial intelligence; human resource management; human resource development; AI coaching; literature review; Keyword Co-occurrence Analysis.

References

- BARKI H., RIVARD S., TALBOT J. (1993), “A keyword classification scheme for IS research literature: An update”, *Mis Q*, vol. 12, pp. 209-226.
- BEATTIE R.S., KIM S., HAGEN M.S., EGAN T.M., ELLINGER A.D., HAMLIN R.G. (2014), “Managerial coaching: A review of the empirical literature and development of a model to guide future practice”, *Advances in Developing Human Resources*, vol. 16, n. 2, pp. 184-201.
- BEKAR C., CARLAW K., LIPSEY R. (2017), “General purpose technologies in theory, application and controversy: a review”, *Journal Of Evolutionary Economics*, vol. 28, n. 5, pp. 1005-1033.
- BORGES A.F., LAURDINDO F.J., SPINOLA M.M., GONCALVES R.F., MATTOS C.A. (2021), “The strategic use of artificial intelligence in the digital era: Systematic literature review and future research directions”, *International Journal of Information Management*, vol. 57, pp. 102225.
- BORNMANN L., HAUNSCHILD R., HUG S.E. (2018), “Visualizing the context of citations referencing papers published by Eugene Garfield: A new type of keyword co-occurrence analysis”, *Scientometrics*, vol. 114, n. 2, pp. 427-437.
- BURSTRÖM T., PARIDA V., LAHTI T., WINCENT J. (2021), “AI-enabled business-model innovation and transformation in industrial ecosystems: A framework, model and outline for further research”, *Journal of Business Research*, vol. 127, pp. 85-95.
- CHEN L., WONG G. (2019), “Transcriptome Informatics”, *Encyclopedia Of Bioinformatics And Computational Biology*, pp. 324-340.
- CHUANG Y., HU S., LIOU J.J., TZENG G. (2020), “A data-driven madm model for personnel selection and improvement” (2020), *Technological and Economic Development of Economy*, vol. 26, n. 4, pp. 751-784.
- CROSSAN M.M., APAYDIN M. (2010), “A multi-dimensional framework of organizational innovation: A systematic review of the literature”, *Journal of Management Studies*, vol. 47, n. 6, pp. 1154-1191.
- DANVILA-DEL-VALLE I., ESTÉVEZ-MENDOZA C., LARA F.J. (2019), “Human resources training: A bibliometric analysis”, *Journal of Business Research*, vol. 101, pp. 627-636.
- DIRICAN C. (2015), “The impacts of robotics, artificial intelligence on business and economics”, *Procedia-Social and Behavioral Sciences*, vol. 195, pp. 564-573.
- ENHOLM I.M., PAPAGIANNIDIS E., MIKALEF P., KROGSTIE J. (2021), *Artificial intelligence and business value: A literature review*, Information Systems Frontiers.
- FENECH R., BAGUANT P., IVANOV D. (2019), “The Changing Role Of Human Resource Management In An Era Of Digital Transformation”, *Journal of Management Information and Decision Sciences*, vol. 22, n. 2.
- FENWICK T.J. (2004), “Toward a critical HRD in theory and practice”, *Adult Education Quarterly*, vol. 54, n. 3, pp. 193-209.
- GARRO A., PALOPOLI L., RICCA F. (2006), “Exploiting agents in e-learning and skills management context”, *AI Communications*, vol. 19, n. 2, pp. 137-154.
- GRASSMANN C., SCHERMULY C.C. (2021), “Coaching with artificial intelligence: Concepts and capabilities”, *Human Resource Development Review*, vol. 20, n. 1, pp. 106-126.
- HAN S.J., STIEHA V. (2020), “Growth mindset for human resource development: A scoping review of the literature with recommended interventions”, *Human Resource Development Review*, vol. 19, n. 3, pp. 309-331.

- JATOBÁ M., SANTOS J., GUTIERRIZ I., MOSCON D., FERNANDES P.O., TEIXEIRA J.P. (2019), "Evolution of artificial intelligence research in human resources", *Procedia Computer Science*, p. 164 137-142.
- LEE J., SUH T., ROY D., BAUCUS M. (2019), "Emerging technology and business model innovation: The case of artificial intelligence", *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 5, n. 3.
- LOUREIRO S.M.C., GUERREIRO J., TUSSYADIAH I. (2021), "Artificial intelligence in business: State of the art and future research agenda", *Journal of Business Research*, vol. 129, pp. 911-926.
- LU Y. (2019), "Artificial intelligence: A survey on evolution, models, applications and future trends", *Journal of Management Analytics*, vol. 6, n. 1, pp. 1-29.
- MAKRIDAKIS S. (2017), "The forthcoming artificial intelligence (AI) revolution: Its impact on society and firms", *Futures*, vol. 90, pp. 46-60.
- MARGHERITA A. (2021), "Human resources analytics: A systematization of research topics and directions for future research", *Human Resource Management Review*, p. 100795.
- PATRIZI M., VERNUCCIO M., PASTORE A. (2021), "Benefici e rischi nell'interazione con gli assistenti vocali. Un'indagine esplorativa in Italia", *Sinergie-SIMA 2021 Conference Proceedings*, p. 585.
- PILLAI R., SIVATHANU B. (2020), "Adoption of artificial intelligence (AI) for talent acquisition in IT/ITeS organizations", *Benchmarking: An International Journal*, vol 27, n.9, pp. 2599-2629
- PISANI N., KOURULA A., KOLK A., MEIJER R. (2017), "How global is international CSR research? Insights and recommendations from a systematic review", *Journal of World Business*, vol. 52, n. 5, pp. 591-614.
- RADHAKRISHNAN S., ERBIS S., ISAACS J.A., KAMARTHI S. (2017), "Novel keyword co-occurrence network-based methods to foster systematic reviews of scientific literature", *PLOS ONE*, vol. 12, n. 3, p. e0172778.
- RAHIMI S., KHORASANI A., REZAEIZADEH M., WATERWORTH J. (2021), "The virtual human resource development (VHRD) approach: An integrative literature review", *European Journal of Training and Development*. Forthcoming.
- RANSBOTHAM S., KIRON D., GERBERT P., REEVES M. (2017), "Reshaping business with artificial intelligence: Closing the gap between ambition and action", *MIT Sloan Management Review*, vol. 59, n. 1.
- SCHUMPETER J.A. (1994), *Capitalism, Socialism and Democracy*, Routledge, London.
- SCULLY-RUSS E., TORRACO R. (2020), "The changing nature and organization of work: An integrative review of the literature", *Human Resource Development Review*, vol. 19, n. 1, pp. 66-93.
- SESTINO A., DE MAURO A. (2021), "Leveraging artificial intelligence in business: Implications, applications and methods", *Technology Analysis and Strategic Management*, pp. 1-14.
- SHI W., LI Q. (2021), "Human resources balanced allocation method based on deep learning algorithm", *Scientific Programming*.
- SHORT D.C., KEEFER J., STONE S.J. (2009), "The link between research and practice: Experiences of HRD and other professions", *Advances in Developing Human Resources*, vol. 11, n. 4, pp. 420-437.
- SILVEIRA R.A., VICARI R.M. (2002), "Developing distributed intelligent learning environment with JADE- java agents for distance education framework", In *International Conference on Intelligent Tutoring Systems* (pp. 105-118). Springer, Berlin, Heidelberg.
- SINGH A., SHAURYA A. (2021), "Impact of artificial intelligence on HR practices in the UAE", *Humanities and Social Sciences Communications*, vol. 8, n. 1.
- SIVATHANU B., PILLAI R. (2018), "Smart HR 4.0 - how industry 4.0 is disrupting HR", *Human Resource Management International Digest*, vol. 26, n. 4, pp. 7-11.
- STROHMEIER S., PIAZZA F. (2015), "Artificial intelligence techniques in human resource management-a conceptual exploration", *Intelligent techniques in engineering management*, pp. 149-172.
- THITE M. (2022), "Digital human resource development: where are we? Where should we go and how do we go there?", *Human Resource Development International*, vol. 25, n. 1, pp. 87-103.
- TRANFIELD D., DENYER D., SMART P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, vol. 14, n. 3, pp. 207-222.
- VAN ECK, N.J., WALTMAN, L. (2010), "Software survey: VOSviewer, a computer program for bibliometric mapping". *Scientometrics*, vol. 84, n.2, pp. 523-538
- VAN ECK N.J., WALTMAN L. (2014), "Visualizing bibliometric networks", in Ding Y., Rousseau R., Wolfram D. (Eds). *Measuring scholarly impact: Methods and practice*, pp. 285-320.
- VRONTIS D., CHRISTOFI M., PEREIRA V., TARBA S., MAKRIDES A., TRICHINA E. (2021), "Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review", *International Journal of Human Resource Management*. Forthcoming
- WALTMAN L., VAN ECK N.J., NOYONS E.C.M. (2010), "A unified approach to mapping and clustering of bibliometric networks", *Journal of Informetrics*, vol. 4, n.4, pp. 629-635.
- YORKS L., ROTATORI D., SUNG S., JUSTICE S. (2020), "Workplace reflection in the age of AI: Materiality, technology, and machines", *Advances in Developing Human Resources*, vol. 22, n. 3, pp. 308-319.
- ZEL S., KONGAR E. (2020), "Transforming digital employee experience with artificial intelligence", *2020 IEEE / ITU International Conference on Artificial Intelligence for Good*. p. 176-179.
- ZUPIC I., CATER T. (2015), "Bibliometric methods in management and organization", *Organizational research methods*, vol. 18, pp. 429-472.

Websites

- European Commission (2019), *Building Trust in Human-Centric Artificial Intelligence*. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019DC0168&from=BG>.
- European Commission (2020), *White Paper on Artificial Intelligence: a European approach to excellence and trust*. https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf.
- MISE (2020), *Proposte per una Strategia italiana per l'intelligenza artificiale*. https://www.mise.gov.it/images/stories/documenti/Proposte_per_una_Strategia_italiana_AI.pdf.
- MUR, MISE, MITD (2021), *Programma Strategico Intelligenza Artificiale 2022-2024*. <https://assets.innovazione.gov.it/1637777289-programma-strategico-iaweb.pdf>.
- MUR (2021), *Programma Nazionale per la Ricerca 2021-2027*. <https://www.mur.gov.it/sites/default/files/2021-01/Pnr2021-27.pdf>.

Business Intelligence findings for evaluating Science Parks performances

VALENTINA MALLAMACI* MASSIMILIANO FERRARA*

Framing of the research. *The contemporary business context is significantly influenced by an interdisciplinary approach for which the impact of Business Intelligence, especially with respect to performance evaluation, is decisive for the integration and practical implementation of all the tools and decision-making variables considered. Studying a business context in terms of Business Intelligence allows to accelerate business innovation by supporting decision-making processes by converting raw data sets into optimized information and knowledge.*

The study presented, in fact, aims to identify the most efficient Business Intelligence tools in terms of their impact on the improvement of company performance. In particular, the represented research aims to provide effective criteria for evaluating the financial results of a company inserted in an incentive context such as a Science Park. This allows to test the strength of the connection between the scientific pole, the company and performances and how each element affects the relationship. The variables considered, in addition to Business Intelligence, for the analysis of this relationship are: financial performance, Innovation and Organizational Learning. The Business Intelligence methodology allows to accelerate business innovation by supporting decision-making processes by converting raw data sets into optimized information and knowledge.

Science Parks are indeed complex institutions designed to be applied as policy tools to support the development of innovative startups and regional clusters.

In fact, they facilitate the exchange of knowledge between universities, research and development institutions and companies. For the pursuit of an efficient interaction between the parties involved, companies and Science Parks, it is essential to examine the factors that influence the financial performance of the company, considering the limited availability of resources and information.

In the literature, International Association of Science Parks provided the main definition of Science Park as follows: a Science Park is a business support and technology transfer initiative that encourages and supports the startup and incubation of innovation led, high growth knowledge based businesses; it provides an environment where larger and international businesses can develop specific and close interactions with a particular center of knowledge creation for their mutual benefit; it has formal and operational links with poles of knowledge creation such as universities, higher education institutes and research organizations.

Ferrara and Mavilia (2014), despite constituting a pioneering analysis, has showed a lot of interesting features of TP/SP's effects on both regional economic growth and associated (or incubated) firms' growth in terms of revenues. In particular, they found both that TP/SP impacts are different if analyzed by geographic location and that their effects are still evident even in the aggregate model. The number of TP/SP per region seems to display a positive role in sustaining the economic growth of corresponding regions. In addition, the patenting activity and the creation of research centers foster the growth of affiliated firms, which in turns affects regional economy's parameters. To the contrary, the distance between the TP/SP and affiliated firms reduces the growing potential of the latter. In addition, firms within a TP/SP turn out outperforms (largely) the regional average and more recent structures tend to be more prone to both patenting activity and high-level growth. Younger structures are also characterized by higher dispersion rates.

Purpose of the paper. *The key to business success for many companies is the correct use of data to make better, faster and flawless decisions. Companies need to use robust and efficient tools such as business intelligence (BI) as positive catalysts to achieve this goal, which can assist them in mechanizing the tasks of analysis, decision making, strategy formulation and forecasting. In other words, the purpose of using BI in these institutions is to collect, process, and analyze large volumes of data and convert them into effective business value in decision making through the creation of analytical intelligent reporting platforms. Therefore, this study aims to answer the question whether operationalization of BI, Organizational Learning (OL) and Innovation and utilization of their applications can provide financial performance enhancement for these companies. As mentioned above, the statistical population of this research*

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is innovation companies located in the Shanghai Zizhu Science-based Industrial Park with 400 staff and according to Morgan table, 196 employees of these companies were picked as statistical case. Info accumulation tool is the questionnaire whose validity and reliability have been measured. Research findings demonstrate that BI and innovation have a critical influence on the companies conduct. But there was no meaningful relationship between OL and financial performance of these companies.

As anticipated, technological innovation is also correlated to the business intelligence mechanisms introduced in the company to be able to make all available data productive. In fact, BI methodologies, through an assortment of coordinated operational just as choice help applications and databases, convert raw data sets into information to support decision-making processes to optimize knowledge and make processes faster and more efficient. Therefore, the development of BI is one of the fundamental elements of innovation within a company and determines the improvement of its overall performance.

The last aspect considered is the organizational learning which is determined by the set of organizational features, practices and issues that enable the learning processes. Thus, the OL translates into the ability to convert new and past ideas into actions that can improve business performance ahead of competitors in order to gain a sustainable competitive advantage. This occurs through the generation, acquisition, dissemination and integration of knowledge and the modification of its behavior. In fact, it is argued that firms better at learning get a better chance of increasing market share thanks to a responsive structure that can quickly react to new challenges.

Methodology. The research is defined as applied research in purpose because it examines theoretical structures in scientific and real contexts and situations and seeks a solution to increase the financial performance of startups. Also, in terms of how to obtain scientific data, it is among the survey research, because a questionnaire tool has been used to examine each of the criteria and variables. Due to measuring the relationships between variables, the research is descriptive-correlational. Statistical population of the research is considered start-up companies located in the Science Park (Shanghai Zizhu Science-based Industrial Park, located in the southeast of Minhang District, Shanghai). The sampling of this research is simple random. Morgan table was employed to demonstrate the sample size. It was found that the number of executives of start-up companies located in the Science Park is 400 people; therefore, the number of samples requested is 196 people and 280 questionnaires were distributed to compensate for any statistical bias due to the choice of sample.

A critical phase in research is data collection and demands the use of convenient tools. Reliable results cannot be expected from inaccurate data. Instrument design has requirements that failure to comply with, the accuracy of the data collected and ultimately distorts the research, so to design or select the instrument, it is very important to pay attention to its psychometric quality.

The present research questionnaire includes demographic information (age, gender, education, and level of work experience) and 47 questions of research variables (financial performance - 12 questions; business intelligence - 12 questions; innovation - 12 questions; organizational learning - 11 questions). The questionnaire was distributed online in person (according to the Corona pandemic). Attempts were made to collect information carefully and then, by analyzing them, the research hypotheses were tested.

Validity and reliability of the online questionnaire have been appropriately verified. In particular, Cronbach's alpha approach has been applied to compute the internal consistency of the measuring instrument; since the value attributed to all variables is greater than 0.7 (0.913 for the whole questionnaire), the case has agreeable dependability. In the study, the demographic data of the research were described employing descriptive statistics, frequency tables and pie charts and the data were analyzed employing SPSS software.

There are two important issues in measuring variables in the behavioral and cognitive sciences. A. Measurements, and B. Cause and effect relationships between variables. Structural equation models contain two parts, the measurement model (external model) and the structural function model (internal model). Structural Equation Models by integrating the two models of confirmatory factor analysis and structural function analysis, many problems and difficulties of measuring latent variables and inferring causal relationships between these latent variables are solved. One of the strongest and most appropriate methods of analysis is multivariate analysis, which means the analysis of different variables that in a theory-based structure, demonstrates the simultaneous influences of variables on each other. The default partial least squares method does not require the type of distribution of the measurement variables. Therefore, it is suitable and practical for data with abnormal distribution or unknown distribution.

Results. Employing the internal model, hypotheses could be inspected. Based on the analysis, out of 6 hypotheses, 5 hypotheses were confirmed and 1 hypothesis was rejected in the study population; by inspecting and confirming the original model, the hypotheses of the research pattern have been confirmed and if certain rate of the t-statistic is fewer than 1.96, the hypothesis-zero is settled, and if the certain t-statistic value is larger than 1.96 assumption zero is rejected.

By correlating the value of "t" computed for the coefficient of every path, we could confirm or reject the research hypothesis. Therefore, if certain rate of the "t" statistic is larger than 1.96, it is meaningful at the 95% trust level. In analysis, "t" statistics value for all paths except the path of OL to financial performance, is larger than 1.96 and as a result are meaningful at the 95% confidence level.

The coefficient of perception for the financial performance variable is estimated to be 0.62 and shows that the variables of OL, BI and Innovation, together, could explain 62% of the changes in financial performance. According to the value of standard coefficient and "t" statistics, variables of Innovation (0.568) and BI (0.233) had the top-most impact on the financial performance variable, respectively, and the OL variable did not have a significant effect.

Similarly, the variables of OL and BI explain a total of 0.66 of the changes in Innovation. According to the value of standard coefficient and “t” statistics, OL variable has a greater impact on the innovation variable than the BI variable. According to the number of coefficients of determination, it can be said that the BI variable explains 27% of the changes in the OL variable.

So, in conclusion: Business intelligence has a positive and critical influence on organizational learning. Particularly, improving business intelligence can improve organizational learning.

Organizational learning has a positive and critical influence on innovation. Particularly, organizational learning can increase innovation.

Business intelligence has a positive and critical influence on innovation. Particularly, business intelligence can increase innovation.

Following the existence of a relationship between organizational learning on the financial performance of innovative companies, the results showed a lack of relationship between these two variables in the statistical population of the study and this hypothesis was rejected. One of the reasons is the discrepancy between organizational maturity formed in start-up companies versus large companies.

Business intelligence has a positive and critical influence on financial efficacy. Particularly, BI can improve financial performance. This path coefficient is significant at the error level of 0.05.

Innovation has a positive and critical influence on financial efficacy. Particularly, innovation can improve financial performance.

Research limitations. This is an experimental and pioneering work which, therefore, involves significant results compared to the management of startups but at the same time has limits due to the absence of other contributions in the literature to compare these results. Furthermore, such research should be extended to other Science Parks with the same internal characteristics but belonging to other territorial contexts and therefore subjected to different regulations, policies, training, management and decision-making processes. Moreover, the difficulty of this research lies in the unions of scientific intersections that characterize it: business intelligence, artificial intelligence, machine learning, data science, business analytics, innovation management, corporate finance.

Another limitation is related to Science Parks which are one of the elements that characterize this research. Despite the growing diffusion of these Parks around the world, the experiments and tests of their impacts on the effective support to the business performance of companies within the Science Park are still limited and characterized by conflicting opinions. The same problem also concerns the measurement of the overall positive impact on the surrounding region.

Furthermore, regarding relations between Science Parks and member companies, the positive implications in terms of support for innovative performance and research and development functions are demonstrable, but the implications in terms of sales growth and increased profits are not yet clearly demonstrable.

Another variable not yet considered in the existing studies is time: the time necessary for the Science Park to generate positive consequences for the member companies has not been assessed and whether this time, therefore, is sufficient to guarantee their survival and adequate profitability.

This limitation is also due to the heterogeneous framework currently existing in Science Parks and the relative approaches of the member companies. This is typical of a phenomenon caught in its pioneering phase. The use of these tools to aggregate innovative forces and to catalyze innovative activity took place in these first years not in a univocal and centrally planned way, but following different choices and paths, through a model that we could define empirical: that is, in a continuous succession of trial and error.

It is therefore necessary to identify shared and ratified performance measures and indicators, which form the basis of a truthful assessment of the effective activity of Science Parks, as well as the efficient and transparent use of the funds intended for them. A correct evaluation of the performance of these knowledge intermediaries is a useful tool in the hands of all the protagonists but also of possible external stakeholders. The former, in fact, self-assessing themselves within what have been commonly recognized as the crucial dimensions for success, will be able to recognize any shortcomings in the internal management during construction, avoiding those correctable problems create an unsustainability of the project in the long period. The latter, on the other hand, will have an objective tool on which to base their evaluations and choices of proactive interactions and collaborations.

Managerial implications. The Italian economic companies have stood out for their binomial character: large private or public enterprises, on the other a myriad of small and medium-sized enterprises. The latter, when locally close to each other and belonging to the same sector, have often given rise to forms of collaboration whose evolution can be favored by participation in a Science Park. As anticipated, the Science Park operates as an innovation incubator and a priority vehicle of knowledge distributing added value to the participating start-ups. This is made possible above all thanks to the formal and operational interactions with knowledge creation poles such as universities, higher education institutions and research organizations with which outside the Park it would be more complex to interact. In the future, these innovative systems of cooperation and coordination between the scientific and research apparatus and the company will probably continue to develop more and more, becoming one of the pillars of Italian economic development. In fact, the Scientific-technological Park operates as a geographic aggregator of innovative realities, based precisely on the correlation between physical proximity and exchange of knowledge.

So, the first positive implication for every company and especially for start-ups is determined precisely by the improvement effects obtained by being part of a Science Park. It is a complex institution designed to foster the development of start-ups thanks to the smooth flow of knowledge between universities, research and development

institutes and companies. They have the role of stimulating innovation and attracting greater investments for research to be allocated to participating start-ups, providing for specific selection criteria (for example patent applications) to identify the most virtuous, also considering the expenses incurred by each for research and development.

Moreover, the advantages of this research for management are mainly related to Business Intelligence applications. Through the results that emerged from the survey to which the start-ups included in the Science Park were subjected, it is possible to obtain performance evaluation indicators applicable to public and private companies to measure the quality of management, the potential for improvement and the trend of some distinctive parameters such as financial, innovation and strategic organization. Furthermore, these measurements can allow to measure two other aspects: from the internal point of view of the company, the convenience for a start-up to join a science park, evaluating its impact quantitatively and qualitatively; from the external point of view of the company, the positive effects of a high-profile managerial management and, therefore, the implications of the presence of a Science Park in the area in which they operate.

It should also be added that the push to increase the innovativeness of the Italian entrepreneurial fabric seems to emerge as a direct consequence of the following consideration: where there is “agglomeration”, there is a “force” (centripetal to change) and where there is “sharing of knowledge” everyone benefits, especially in those specific areas characterized by what is called sticky knowledge. Hence the need to organize catching up paths, to enhance human capital and disseminate absorption capacities, to promote endogenous innovation generation skills. This also means seeking a fair and difficult mix between opening up to the global market for the acquisition of codified knowledge and stimulating competition as an incentive for innovation, and public intervention to promote the construction of regional innovation systems based on the various drivers of innovation. The recipe foresees to combine spillover dynamics, in order to favor important induced effects and progressive advancement of local companies in global value chains, in terms of contamination and diffusion of innovation, even more if accompanied by the internationalization of other drivers such as research centers and service centers.

Originality of the paper. As anticipated, the research presented stands out for the innovativeness of the proposed analysis which aims to assess the impact of each variable considered (business intelligence, organizational learning, innovation) on the financial performance of start-ups that adhere to a Science Park, another crucial aspect of the research because experiments in this area are still scarce in the literature.

This paper aims to investigate the impression of business intelligence, organizational learning and innovation on the financial efficacy of start-up companies located in the Science Park. Main objectives are likewise: to explore the influence of business intelligence on financial efficacy of start-ups, to explore influence of organizational learning on financial efficacy of start-ups, and to explore influence of innovation on financial efficacy of start-ups. The sub-objectives of the research include: checking the significance of business intelligence on organizational learning, examining the influence of business intelligence on innovation, and examining the impact of organizational learning on innovation.

Despite other possible effects on “return on investment”, companies with higher innovation rates are more likely to be profitable because there is innovation at work to improve business capacity to create a culture of value-added products. Better quality than competitors is critical to gaining and maintaining superior performance.

Finally, the research makes it possible to evaluate the financial performances of start-ups in an innovative way thanks to the relationships with the above-mentioned variables which previously, in the current literature, had not been considered as a whole. In this way, the added value made by the inclusion in a Science Park is measured as well as how this value is expressed in terms of financial improvements. This provides an original assessment tool for nascent companies with respect to the decision-making process of choosing on joining a Science Park or, having joined, on which particular Business Intelligence, Organizational Learning and Innovation tools to invest to optimize their results avoiding the waste of resources in the sensitive start-up phase.

Keywords: Science Park; Business Intelligence; Financial Performance; Innovation; Start-ups; Organizational Learning

References

- BILAN Y., HUSSAIN H. I., HASEEB M., KOT S. (2020), “Sustainability and economic performance: Role of organizational learning and innovation”, *Engineering Economics*, vol. 31, n. 1, pp. 93-103.
- CHEN Y., LIN Z. (2021), “Business intelligence capabilities and firm performance: A study in China.”, *International Journal of Information Management*, vol. 57, Article 102232.
- COCHRAN P.L., WOOD R.A. (1984), “Corporate social responsibility and financial performance”, *Academy of management Journal*, vol. 27, n. 1, pp. 42-56.
- DE, O’LEARY (2011), “Building and evolving data warehousing and business intelligence artefacts: The case of Sysco”, *Intelligent Systems in Accounting, Finance and Management*, vol. 18, n. 4, pp. 195-213.
- FASHANU O. (2021), “Drivers and performance outcomes of effective use of business intelligence (BI) system for managing customer relationships: A multiple case study in business-to-business sector”.
- FERRARA M., MAVILIA R. (2013), *Dai distretti industriali ai poli di innovazione. L’Italia nel Mediterraneo*, 2nd edn. Egea, Milano.

- FERRARA M., MAVILIA R. (2014), "The effects of technopoles and science parks on regional economies in Italy", *WSEAS Transactions on Business and Economics*, vol. 11, n. 1, pp. 537-49.
- HAILEKIRO G. S., RENYONG H. (2016), "The effect of organizational learning capability on firm performance: Mediated by technological innovation capability", *European Journal of Business Management*, vol. 8, n. 30, pp. 87-95.
- HAMAD F., AL-AAMR R., JABBAR S.A., FAKHURI H. (2021), "Business intelligence in academic libraries in Jordan: Opportunities and challenges", *IFLA Journal*, vol. 47, n. 1, pp. 37-50.
- HASEEB M., HUSSAIN H. I., KOT S., ANDRONICEANU A., JERMSITTIPARSERT K. (2019), "Role of social and technological challenges in achieving a sustainable competitive advantage and sustainable business performance", *Sustainability*, vol. 11, n. 14, p. 3811.
- HAWKING P., SELLITTO C. (2010), "Business Intelligence (BI) critical success factors".
- KATILA R., CHEN, E.L., PIEZUNKA H. (2012), "All the right moves: How entrepreneurial firms compete effectively", *Strategic Entrepreneurship Journal*, vol. 6, n. 2, pp. 116-132.
- KYERE M., AUSLOOS M. (2021), "Corporate governance and firms financial performance in the United Kingdom", *International Journal of Finance & Economics*, vol. 26, n. 2, pp. 1871-1885.
- LAMPERTI F., MAVILIA R., CASTELLINI S. (2017), "The role of Science Parks: a puzzle of growth, innovation and R&D investments", *The Journal of Technology Transfer*, vol. 42, n. 1, pp. 158-183.
- LASI H. (2013), "Industrial intelligence-a business intelligence-based approach to enhance manufacturing engineering in industrial companies", *Procedia CIRP*, vol. 12, pp. 384-389.
- MAN T.W., LAU T., CHAN K.F. (2002), "The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies", *Journal of business venturing*, vol. 17, n. 2, pp. 123-142.
- MOSS L.T., ATRE S. (2003), *Business intelligence roadmap: The complete project lifecycle for decision-support applications*, Addison-Wesley Professional.
- MUNTEAN M., DĂNĂIAȚĂ D., HURBEAN L., JUDE C. (2021), "A business intelligence & analytics framework for clean and affordable energy data analysis", *Sustainability*, vol. 13, n. 2, p. 638.
- NITHYA N., KIRUTHIKA R. (2021), "Impact of Business Intelligence Adoption on performance of banks: A conceptual framework", *Journal of Ambient Intelligence and Humanized Computing*, vol. 12, n. 2, pp. 3139-3150.
- NUSEIR M. T., ALJUMAH A., ALSHURIDEH M.T. (2021), "How the Business Intelligence in the New Startup Performance in UAE During COVID-19: The Mediating Role of Innovativeness", *The Effect of Coronavirus Disease (COVID-19) on Business Intelligence*, vol. 334, pp. 63-79.
- PRUGSAMATZ R. (2010), "Factors that influence organization learning sustainability in non-profit organizations", *The learning organization*.
- RAGHUVANSHI J., AGRAWAL R., GHOSH P.K. (2017), "Analysis of barriers to women entrepreneurship: The Dematel approach", *The Journal of Entrepreneurship*, vol. 26, n. 2, pp. 220-238.
- SJARIF N.N., AZMI N.F., YUHANIZ S.S., WONG D.H. (2021), "A review of market basket analysis on business intelligence and data mining", *International Journal of Business Intelligence and Data Mining*, vol. 18, n. 3, pp. 383-394.
- STROHMEIER L. (2021), "Central Business Intelligence: A Lean Development Process for SMEs", *Management for Professionals*, pp. 685-698.
- VILLAR C., ALEGRE J., PLA-BARBER J. (2014), "Exploring the role of knowledge management practices on exports: A dynamic capabilities view", *International Business Review*, vol. 23, n. 1, pp. 38-44.
- WADDOCK S.A., GRAVES S.B. (1997), "The corporate social performance-financial performance link", *Strategic Management Journal*, vol. 18, n. 4, pp. 303-319.
- WANDA P., STIAN S. (2015), "The Secret of my Success: An exploratory study of Business Intelligence management in the Norwegian Industry", *Procedia Computer Science*, vol. 64, pp. 240-247.
- WIEWIORA A., CHANG A., SMIDT M. (2020), "Individual, project and organizational learning flows within a global project-based organization: Exploring what, how and who", *International Journal of Project Management*, vol. 38, n. 4, pp. 201-214.
- YANG M., SULIEMAN R., YIN Y., MALLAMACI V., ALRABAIH H. (2022), "The effect of business intelligence, organizational learning and innovation on the financial performance of innovative companies located in Science Park", *Information Processing & Management*, vol. 59, issue 2.
- YIU L.D., YEUNG A.C., CHENG T.E. (2021), "The impact of business intelligence systems on profitability and risks of firms", *International Journal of Production Research*, vol. 59, n. 13, pp. 3951-3974.

To Act or Not to Act: the impact of Artificial Intelligence on Perceived Uncertainty and Entrepreneurial Behavior

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Framing of the research. *The digital transformations that we have faced globally in the last years have introduced several new technologies, such as the blockchain, artificial intelligence (AI) and the cloud, which are deeply changing our private life as well as work (Chalmers et al., 2021; Makridakis, 2017). Several entrepreneurs have been involved in this change, embracing digital technologies as the core tools of their businesses, and have received many benefits for their enterprises, such as reduced costs of information and human labor brought by innovations such as cloud and AI (Fossen and Sorgner, 2021), which help their enterprises to remain competitive (Chen and Tian, 2022). Even though these benefits due to digital transformation have improved entrepreneurs' competitiveness, there is a critical issue underlying the widespread adoption of these new tools. There is little information about changes due to new technologies for costumers and industries, as well as on the market where they operate (Chen and Tian, 2022) which, blended with the lack of knowledge caused by these digital innovations' novelty, have become a new and additional source of environmental uncertainty for entrepreneurs (Chen and Tian, 2022; Nambisan, 2017). This point is emblematic of the changes due to AI: the general vantage it offers, the improvement of the data analysis process, should increase the amount of information disposed by entrepreneurs, and decrease consequently the uncertainty felt about the environment where they operate (Chalmers et al., 2021). On the other hand, AI should cause an increase of entrepreneurs' environmental uncertainty, especially about the impact on their market. Because of its nature of new technology, they have little information about the impact on their ventures which should cause an increase of the environmental uncertainty they felt (Chen and Tian, 2022; Milliken, 1987).*

In the frame of ambiguity exposed above, several entrepreneurs have positively valued the benefits offered by AI and have chosen to act, founding new ventures which offer services and solutions based on the exploitation of this new technology (AI-based NV). They have chosen, in front of the ambiguity due to AI, to bear the uncertainty and, subsequently, to engage an entrepreneurial behavior through the action of founding a new venture.

Entrepreneurship literature does not set a clear point of view about the impact of AI on the uncertainty felt and on entrepreneurial intents and actions (Townsend and Hunt, 2019) as founding a new venture, although there is close literature on the bond between entrepreneurial action and the impact of uncertainty (Townsend et al., 2018) and about the link among AI and uncertainty (Obschonka and Audretsch, 2020; Townsend and Hunt, 2019; Upadhyay et al., 2021). Concerning the first bond, despite the different meanings attributed to uncertainty's origin, all authors tend to agree on one thing: increased uncertainty negatively affects entrepreneurial activity (Townsend et al., 2018). On the link between AI and uncertainty, the academic dialogue has become complex. Some authors such as Milliken (1987), Sarasvathy (2001) and McMullen and Shepherd (2006) indicated new technologies as a source of uncertainty. Other authors such as Upadhyay et al. (2021), Obschonka and Audretsch (2020) and Townsend and Hunt (2019) suggested that AI may have a mitigating effect on uncertainty.

From this perspective, we could suppose that entrepreneurs' founding act has not been impacted by the uncertainty they felt and, subsequently, the entrepreneurial intention underlying their behavior was not affected either. Nonetheless, many potential entrepreneurs have negatively evaluated the action of founding an AI-based NV. Following the same logic expressed above, we could also suppose that those who do not act have been overwhelmed by uncertainty they felt about AI and that this should have impacted their entrepreneurial behavior and the underlying entrepreneurial intention. Building on this paradoxical statement, we pose our research questions: a. Does Artificial intelligence impact on a potential entrepreneur's PEU influence entrepreneurial intention and action of founding a new AI-based venture? b. Does an entrepreneur's AI-related PEU be an explanatory variable to distinguish potential entrepreneurs who will be engaged in entrepreneurial behavior from those who will not?

To de-fragment the paradoxical statement expressed above and search for answers to our research question, it should be useful to start from the bond between entrepreneurial action and the uncertainty caused by new technologies. Milliken has proposed a framework for assessing the uncertainty felt by entrepreneurs -the Perceived Environmental

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Uncertainty (PEU)- based on three dimensions: the state where the organization operates, the effect of phenomena on their organization on the response put in place by entrepreneurs to face the context (e.g., Milliken, 1987, Townsend et al., 2018, and McKelvie et al., 2011). Milliken's PEU framework has been reprised by McMullen and Shepherd in their Theory of Entrepreneurial Action under the condition of Uncertainty (TEAUU) (McMullen and Shepherd, 2006), where the authors postulate that entrepreneurs act when their PEU is supported by their willingness to bear the uncertainty felt. Starting from this assumption, the framework of McMullen and Shepherd proposes to explain how subjective uncertainty about a phenomenon's entrepreneurial opportunity, such as the introduction of new technologies, impacts on general entrepreneurial action (Grégoire et al., 2010; Shepherd et al., 2007).

In order to explain the entrepreneurial action as behavior, the work of McMullen and Shepherd reprises Ajzen's Theory of Planned Behavior (TPB) elements, seeing perceived desirability and feasibility as key constructs that transform a phenomenon's opportunity into action behavior (Ajzen, 1991; Grégoire et al., 2010). In this way, Ajzen's theory gets in touch with McMullen-Shepherd's theory and allows us to narrow our attention to the primal core of the new venture foundation process, the formation of the intent to perform the entrepreneurial action (Autio et al., 2001; Kautonen et al., 2015; Schlaegel and Koenig, 2014; Schwarz et al., 2009).

Purpose of the paper. *In order to answer our research questions, the purpose of this paper is dual: first, to verify if the perceived uncertainty about state, effect and response by new venture founders due to the adoption of AI as a core of their business could impact their entrepreneurial intention and, subsequently, the entrepreneurial action of founding this kind of venture. Second, to evaluate if a potential entrepreneur's perceived uncertainty could be a variable that distinguishes potential entrepreneurs who will be engaged in entrepreneurial behavior from those who will not.*

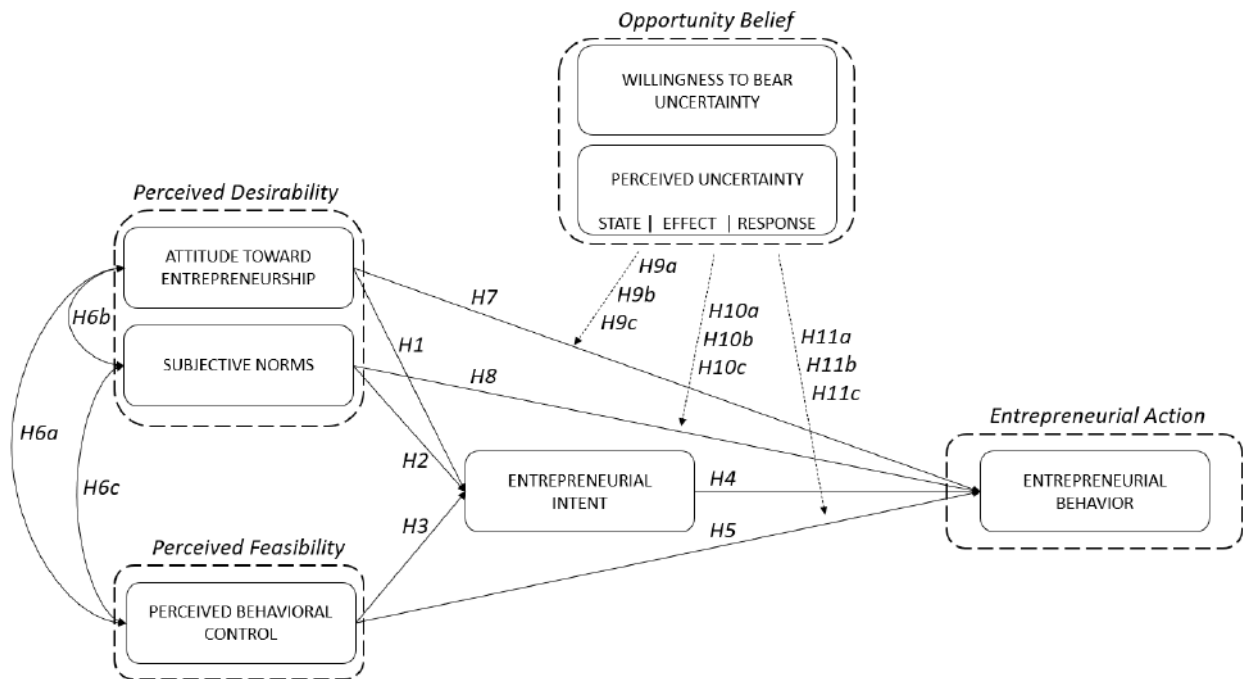
To start to de-fragment our research questions and understand the mechanism underlying the entrepreneurial intention and behavioral action to find a new venture, we propose to adopt Kautonen's adaptation of Ajzen's TPB (Kautonen et al., 2015). The original theory has been widely adopted by entrepreneurship scholars, who have proposed several adaptations to explain the entrepreneurial behavior and the underlying intention (e.g., Autio et al., 2001; Kautonen et al., 2015; Schlaegel and Koenig, 2014). In particular, Kautonen's proposal of Ajzen's TPB application for entrepreneurship reprises previous research (Kautonen et al., 2013) and states that: a. The entrepreneurial behavior is subject to a direct effect caused by entrepreneurial intention (Autio et al., 2001; Kautonen et al., 2015; Schlaegel and Koenig, 2014); b. The entrepreneurial intention is influenced by a direct effect due to three elements, the attitude toward entrepreneurship, the subjective norms and the perceived behavioral control (Autio et al., 2001; Kautonen et al., 2015; Schlaegel and Koenig, 2014); c. The perceived behavioral control exerts a direct effect on entrepreneurial action. Kautonen's TPB adaptation could explain the reason behind the entrepreneurial action of founding an AI-based NV and the underlying entrepreneurial intention. Consequently, we assume the following: H1. The attitude toward entrepreneurship has a direct effect on entrepreneurial intention; H2. The subjective norms have a direct effect on entrepreneurial intention; H3. The perceived behavioral control has a direct effect on entrepreneurial intention; H4. The entrepreneurial intention has a direct effect on entrepreneurial behavior. H5. The perceived behavioral control has a direct effect on entrepreneurial behavior.

As well as Kautonen et al., McMullen-Shepherd's TEAUU also reprises Ajzen's TPB (Grégoire et al., 2010). Grégoire et al. underline how these two authors built their theory from previous studies on entrepreneurship which group Ajzen's causes of intention into two elements, the perceived desirability, containing the attitude and the subjective norms, and the perceived feasibility, embedding the perceived behavioral control (Grégoire et al., 2010). McMullen-Shepherd postulate that an entrepreneurial action -like founding a new venture- is a behavior influenced by these two interrelated elements, the perceived desirability and the perceived feasibility (McMullen and Shepherd, 2006; Grégoire et al., 2010). Consequently, TEAUU states that all Ajzen's attitudes, grouped in perceived desirability and feasibility, are interrelated and directly impact entrepreneurial action. From this postulate, we can attempt to explain the action of founding AI-based NV by proposing the following: H6. Attitude toward entrepreneurship (a), Subjective norms (b) and Perceived behavioral control (c) are related; H7. The attitude toward entrepreneurship has a direct effect on entrepreneurial action behavior; H8. The subjective norms have a direct effect on entrepreneurial action behavior.

The TEAUU has been applied by McMullen and Shepherd in different contexts, such as the introduction of new technologies (McMullen and Shepherd, 2006). This phenomenon influences the personal recognition of opportunity - so-called opportunity-belief - and impacts on perceived feasibility and desirability. The opportunity-belief is composed of two elements, the perceived environmental uncertainty and the willingness to bear it (McMullen and Shepherd, 2006; Shepherd et al., 2007). The authors state that elevated levels of uncertainty, such as that caused by new technologies, could be obstacles to the choice to bear it and hide the recognition of personal opportunities. Consequently, they suppose that opportunity-belief components should affect entrepreneurial action touching the perceived feasibility and desirability (Grégoire et al., 2010; McMullen and Shepherd, 2006; Shepherd et al., 2007). In line with this proposition, we could assume that AI-based NV's founder has chosen to bear a certain level of perceived uncertainty that affects Ajzen's attitudes through each dimension. Subsequently, we could postulate the following: H9. Perceived State (a.), Effect (b.) and Response (c.) uncertainties act as moderators between the attitude toward entrepreneurship and entrepreneurial action; H10. Perceived State (a.), Effect (b.) and Response (c.) uncertainties act as moderators between the subjective norms and entrepreneurial action; H11. Perceived State (a.), Effect (b.) and Response (c.) uncertainties act as moderators between perceived behavioral control and Entrepreneurial Behavior.

The theoretical framework exposed can be synthesized in the figure below (fig.1).

Fig. 1



Methodology. In order to test our hypotheses about the impact of perceived uncertainty due to AI on each element of the theoretical framework and determine its effect on our two dependent variables -the entrepreneurial intent and the entrepreneurial behavior-, we assume to adopt an empirical, quantitative approach.

To measure the variables of our theoretical framework, we followed methodological procedures already tested by several authors on PEU, TPB and TEAUU, adopting a variation of Ashill and Jobber (2010) and Milliken's (1987) Likert scale to assess perceived State, Effect and Response uncertainties and Kautonen et al. (2015)'s Likert scale to measure Ajzen's TPB variables.

This research is a work in progress. We are currently creating a dedicated questionnaire that will be sent to the target sample. The population sample was identified among people who participated in business plan competitions, hackathons and other initiatives dedicated to the realization of AI-based NV. There are two motivations behind the choice of our sample. First, all the participants of these initiatives have a certain measure of entrepreneurial intent. Second, we will distinguish those entrepreneurs who chosen to bear uncertainty and acted from those who have not. The questionnaire, following the progress of this research, will adopt multi-item scales and will contain questions concerning the perception of environmental uncertainty according to the three dimensions of environmental uncertainty identified by Milliken, "state", "effect" and "response" (Ashill and Jobber, 2010; Milliken, 1987) and questions about the variables of Kautonen's TPB adaptation (Kautonen et al., 2015).

The questionnaire's answers will then be split into two macro-groups, those who chose to bear uncertainty and act and those who have not. According to results obtained by our sample in terms of distribution and number of responses, we will determine the best strategy to assess the effect of our independent variables -entrepreneur's perceived state, effect and response uncertainty- on entrepreneurial intent and action behavior.

Results. The expected findings of the research should confirm the impact of AI-related PEU on founders' entrepreneurial intent and entrepreneurial action behavior of founding new ventures that offer services and solutions based on the exploitation of AI.

To begin with entrepreneurial intent, we expect it will be positively affected by attitude toward behavior, subjective norms and perceived behavioral control (H1, H2, H3), in line with previous research on entrepreneurship and TPB focused on entrepreneurial intention in high school and university contexts (e.g., Autio et al., 2001; Schlaegel and Koenig, 2014). The entrepreneurial action behavior, following the results of Kautonen et al.'s study on Austrian and Finland adult population (Kautonen et al., 2015) should be affected by entrepreneurial intent (H4) as well as by perceived behavioral control (H5). The theoretical correlation between perceived desirability and feasibility has also been successfully tested in Schlaegel and Koenig's work on determinants of entrepreneurial intent (Schlaegel and Koenig, 2014) and, subsequently, we expect a confirmation of hypotheses H6a, H6b, H6c.

Looking at the individual components of PEU, the perceived state, effect and response uncertainty, each of these should be influenced by AI into the formation of perceived uncertainty. Following the current literature, we can attempt an attribution of which kind of impact AI should have. First, on the state uncertainty dimension. This one increases as the unpredictability of the components of the organizational environment grows. AI should contribute to make a leaner decision-making environment and, consequently, should have a lenitive effect on this dimension (Nambisan, 2017;

Townsend and Hunt, 2019; Upadhyay et al., 2021). Second, there should be a visible impact on effect uncertainty. It should grow up similarly to the unpredictability of the environmental effects on one's business. Consequently, the variable should have a negative impact on this dimension due to the unpredictability of technological changes' rapidity and consistency caused by AI (McMullen and Shepherd, 2006; Milliken, 1987; Sarasvathy, 2001). Third, there should be an impact on response uncertainty, increasing this as the unpredictability of possible choices and consequences on one's organization increases. AI's improvement of the data analysis process should support decision-making systems in uncertainty and, consequently, have a lenitive impact on this dimension (Chalmers et al., 2021; Obschonka and Audretsch, 2020; Upadhyay et al., 2021).

According to the discussion above, we should always have a certain level of minimal perceived uncertainty and, from the values obtained, a range of possible values where entrepreneurs have decided to bear the PEU and it does not affect their willingness to bear it and act. This is in line with previous studies on entrepreneurship and uncertainty, where the latter is seen as a constant, undeletable element that entrepreneurs should face in their activities (McMullen and Shepherd, 2006; Sarasvathy, 2001; Townsend et al., 2018). Following the TEAUU, new venture founders should choose to bear the PEU and, subsequently, this should impact the founder's perceived feasibility and desirability. These elements, reprising the works of Grégoire et al. (2010) and Kautonen et al. (2015), would have a positive impact on the formation of entrepreneurial action behavior.

Consequently and according to the assumptions above, we expect the following answers to our research questions. First, AI's impact on potential entrepreneur's PEU influences entrepreneurial intention and action of founding a new AI-based NV. The perceived state and response uncertainty related to AI should increase the uncertainty of potential founders, which should act as a negative moderator in the formation of entrepreneurial action behavior (H9a, H9c, H10a, H10c, H11a, H11c). The perceived effect of uncertainty related to AI should decrease the uncertainty of potential founders and has an impact as a positive moderator on the formation of entrepreneurial action behavior (H9b, H10b, H11b).

Second, the impact of PEU dimensions will be different between the two groups analyzed and, subsequently, this variable would be a potential indicator to distinguish potential entrepreneurs who will be engaged in entrepreneurial behavior from those who will not.

Research limitations. The proposed research has some limitations. The first one lies in the choice of the population analyzed. Selecting those who previously participated in entrepreneurship promotion initiatives such as business plan competitions and hackathons will allow us to verify the presence of effective entrepreneurial action and, subsequently, to simplify the willingness to bear the PEU of entrepreneurs in a dichotomic variable. Because of this choice, however, it will not be possible to analyze the role of personal strategies in the development of willingness to bear their uncertainty.

The second limitation of this research is to focus its attention on the generality of multi-item scales adopted in order to measure the TPB variables. They will allow us to investigate the largest variety of population selected for this research but, due to their generalization, they may not be accurate in the measurement of variables in a specific context, for example, those studied by Autio et al. (2001) and Schwarz et al. (2009) on the formation of entrepreneurial intent and action in the educational context.

The third limit of our work is to have narrowed our investigation on entrepreneurs who acted through entrepreneurial promotion initiatives. Future research should enlarge this study to firms and new ventures' founders who have not been involved in events such as business plan competitions and hackathons, where they could have received material support in the engagement of entrepreneurial intent and action.

Managerial implications. Our work should have several managerial implications. The first one is to give decision-makers a practical framework that analyses the impact of a new and little-known technology such as AI on the international market. The original proposition of Milliken's PEU (Milliken, 1987), reprised by several authors such as Ashill-Jobber (2010) and McMullen-Shepherd (2006), takes into account how the international market is felt by entrepreneurs. Different individual perceptions of uncertainty about the market due to AI could identify new potential partners and/or competitors in the international market who are valuating similar entrepreneurial opportunities and, subsequently, new sources of competitive advantage (Porter, 2008).

The second one is to underline the importance of investments in an entrepreneur's personal education in theme of new digital technologies such as AI. The proposed framework highlights, consistent with entrepreneurship literature, the moderate effect of uncertainty on entrepreneurial behavior underlying the action (Knight, 1921; Milliken, 1987; Townsend et al., 2018). Prior knowledge, acquired through personal education as well as from individual life paths, could reduce uncertainty about new opportunities offered by phenomena like AI and, subsequently, stimulate the engagement of new entrepreneurial actions (McMullen and Shepherd, 2006; Shepherd et al., 2007). This point, in line with previous studies on the internationalization of new ventures, global digitalization phenomena and entrepreneurial action, should explain how entrepreneurs and managers could assess the international market and decide to engage in their entrepreneurial behavior (Hashai and Zahra, 2022; Nordman and Melén, 2008)

Originality of the paper. The proposed research is expected to provide new insights into the literature on entrepreneurial action, uncertainty and AI. First, we would propose a new theoretical framework that mixes uncertainty and entrepreneurial behavior into a merged operationalizable model useful for identifying the personal characteristics underlying entrepreneurial intention and action. Second, the proposed framework could be adopted in several studies to assess the impact of uncertainty due to new technologies and, in general, phenomena of entrepreneurial intention and

action. Third, we should offer a new perspective on entrepreneurship and AI, suggesting a new motivation behind the choice of adopting this new technology as a core business resource.

Keywords: *Entrepreneurial action; Perceived uncertainty; Theory of Planned Behavior; Entrepreneurial intent, Artificial Intelligence; Quantitative approach*

References

- AJZEN I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, vol. 50, n. 2, pp. 179-211.
- ASHILL N., JOBBER D. (2010), "Measuring State, Effect, and Response Uncertainty: Theoretical Construct Development and Empirical Validation", *Journal of Management*, vol. 36, pp. 1278-1308.
- AUTIO E.H., KEELEY R., KLOFSTEN M.G.C., PARKER G., HAY M. (2001), "Entrepreneurial Intent among Students in Scandinavia and in the USA", *Enterprise and Innovation Management Studies*, vol. 2, n. 2, pp. 145-160.
- CHALMERS D., MACKENZIE N., CARTER S. (2021), "Artificial Intelligence and Entrepreneurship: Implications for Venture Creation in the Fourth Industrial Revolution", *Entrepreneurship Theory and Practice*, vol. 45, n. 5, pp. 1028-1053.
- CHEN H., TIAN Z. (2022), "Environmental uncertainty, resource orchestration and digital transformation: A fuzzy-set QCA approach", *Journal of Business Research*, vol. 139, pp. 184-193.
- FOSSEN F., SORGNER A. (2021), "Digitalization of work and entry into entrepreneurship", *Journal of Business Research*, vol. 125, pp. 548-563.
- GRÉGOIRE D.A., SHEPHERD D.A., SCHURER LAMBERT L. (2010), "Measuring Opportunity-Recognition Beliefs: Illustrating and Validating an Experimental Approach", *Organizational Research Methods*, vol. 13, n. 1, pp. 114-145.
- HAIR J.F., RISHER J.J., SARSTEDT M., RINGLE C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, vol. 31, n. 1, pp. 2-24.
- HASHAI N., ZAHRA S.A. (2022), "A double-edged sword? Founder Teams' Prior International Experience and INV International Scale-up", *Journal of World Business*, vol. 57, n. 2, p. 101309.
- KAUTONEN T., VAN GELDEREN M., FINK M. (2015), "Robustness of the Theory of Planned Behavior in Predicting Entrepreneurial Intentions and Actions", *Entrepreneurship Theory and Practice*, vol. 39, n. 3, pp. 655-674.
- KAUTONEN T., VAN GELDEREN M., TORNIKOSKI E.T. (2013), "Predicting entrepreneurial behaviour: a test of the theory of planned behaviour", *Applied Economics*, vol. 45, n. 6, pp. 697-707.
- KNIGHT F.H. (1921), *Risk, Uncertainty and Profit*, 1921st ed., Hart, Shaffer and Marx, New York, available at: (accessed 19 November 2021).
- MAKRIDAKIS S. (2017), "The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms", *Futures*, vol. 90, pp. 46-60.
- MCKELVIE A., HAYNIE J.M., GUSTAVSSON V. (2011), "Unpacking the uncertainty construct: Implications for entrepreneurial action", *Journal of Business Venturing*, vol. 26, n. 3, pp. 273-292.
- MCMULLEN J.S., SHEPHERD D.A. (2006), "Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur", *Academy of Management Review*, vol. 31, n. 1, pp. 132-152.
- MILLIKEN F.J. (1987), "Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty", *Academy of Management Review*, vol. 12, n. 1, pp. 133-143.
- NAMBISAN S. (2017), "Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship", *Entrepreneurship Theory and Practice*, vol. 41, n. 6, pp. 1029-1055.
- NORDMAN E.R., MELÉN S. (2008), "The impact of different kinds of knowledge for the internationalization process of Born Globals in the biotech business", *Journal of World Business*, vol. 43, n. 2, pp. 171-185.
- OBSCHONKA M., AUDRETSCH D. (2020), "Artificial intelligence and big data in entrepreneurship: a new era has begun", *Small Business Economics*, vol. 55, n. 3, pp. 529-539.
- PORTER M.E. (2008), "The Five Competitive Forces That Shape Strategy", *Harvard Business Review*, 1 January, available at: <https://hbr.org/2008/01/the-five-competitive-forces-that-shape-strategy> (accessed 20 February 2022).
- SARASVATHY S.D. (2001), "Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency", *Academy of Management Review*, vol. 26, n. 2, pp. 243-263.
- SCHLAEGEL C., KOENIG M. (2014), "Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models", *Entrepreneurship Theory and Practice*, vol. 38, n. 2, pp. 291-332.
- SCHWARZ E.J., WADOWIAK M.A., ALMER-JARZ D.A., BREITENECKER R.J. (2009), "The effects of attitudes and perceived environment conditions on students' entrepreneurial intent: An Austrian perspective", *Education + Training*, vol. 51, n. 4, pp. 272-291.
- SHEPHERD D.A., MCMULLEN J.S., JENNINGS P.D. (2007), "The formation of opportunity beliefs: overcoming ignorance and reducing doubt", *Strategic Entrepreneurship Journal*, vol. 1, n. 1-2, pp. 75-95.

- TOWNSEND D., HUNT R., MCMULLEN J., SARASVATHY S. (2018), "Uncertainty, Knowledge Problems, and Entrepreneurial Action", *Academy of Management Annals*, vol. 12.
- TOWNSEND D.M., HUNT R.A. (2019), "Entrepreneurial action, creativity, & judgment in the age of artificial intelligence", *Journal of Business Venturing Insights*, vol. 11.
- UPADHYAY N., UPADHYAY S., DWIVEDI Y. (2021), "Theorizing artificial intelligence acceptance and digital entrepreneurship model", *International Journal of Entrepreneurial Behavior & Reseach*, vol. ahead-of-print, n. ahead-of-print.

Digital Transformation and Low-Code Development Platforms. New perspectives about technology adoption

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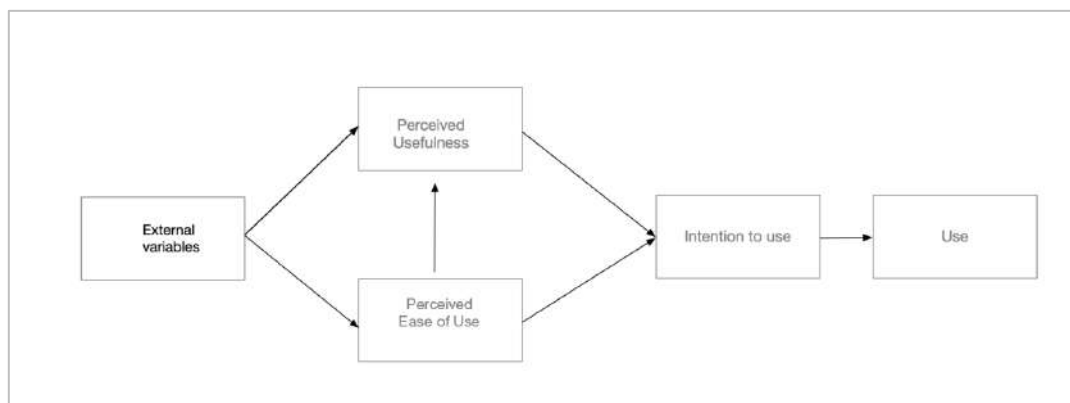
Framing of the research. Digital transformation (DT) is affecting the social and work contexts (Solberg et al., 2020) requiring flexibility and adaptability to keep up with technological innovations. The impact of DT is pushing companies to actively rethink their culture, processes, and structures through the use of digital technologies (i.e., Internet of things, Artificial Intelligence, Cloud Computing, etc.) that can help them to be more efficient. Nevertheless, within such a transformation, companies are currently experiencing bottlenecks, setbacks, and barriers in digital adoption due to different reasons.

In particular, the successful introduction of new technologies is strictly related to the acceptance of employees, their “digital mindset” and the propensity to the change process (Solberg et al., 2020).

One of the most useful frameworks for explaining the technology adoption process is the TAM (Davis 1989; Davis et al., 1989). The TAM has been developed for predicting the adoption and use of new technology, and basically, understanding why people resist using the new technology. According to the TAM, the acceptance of technology could be understood by analysing the people’s intentions to use the technology and, consequently, managing those factors for increasing its acceptance and use (Fig. 1).

The model suggested that technology adoption is directly influenced by one’s attitude toward using the technology that, in turn, depends on the perceived usefulness (the belief that using the particular system would enhance job performance), and perceived ease of use of the technology (the belief that using the particular system would be free of effort) (Marangunić & Granić, 2015). The resulting attitude of a user toward the technology was a major determinant of whether the user will use or reject the system. The perception of usefulness and ease of use of technology is influenced, in turn, by external variables such as individual differences, system characteristics, social influences, and facilitating conditions (Portz et al., 2019).

Fig. 1: Technology acceptance Model (TAM)



Source: Davis et al., (1989)

Despite the TAM has been investigated extensively both in terms of technology types and industries, such as healthcare (Holden and Karsh, 2010), the energy sector (Chin and Lin, 2015), food (Park and Heo, 2018) and many others, there is lack of evidence of TAM application based on new digital technologies such as low-code development

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platforms (LCDPs)¹ where only a few studies have dealt with the topic, (i.e., Ploder et al., (2019) that highlight the use of LCDPs among a population with a similar cultural background based on a modified extension of the TAM model (Opitz et al., 2012).

LCDPs are becoming popular as important tools for accelerating DT contrasting with the obstacles deriving from traditional solutions. These platforms are not new in the market, and they help companies in speeding the apps' development process, lowering its costs (Marinković and Avramović 2021; Beranic et al., 2020). They offer the opportunity to use visual design tools and a drag-and-drop interface for creating web and mobile apps (Gardner 2021; Woo 2020) that can be run on several types of devices (Marinković and Avramović 2021).

LCDPs can be defined as application development environments based on graphical user interfaces instead of traditional hand-coding languages. They support the process of app creation by offering pre-built components, like visual tools (Rymer 2017; Khorram et al., 2020) graphic objects and when necessary, integrating manual coding. The adoption of pre-built templates to create the apps (Schötteler et al., 2021) shorten the development process reducing their costs. Therefore, developers have the opportunity to transform their ideas into concrete apps by using a web browser (Reilly 2021), without asking for professional programmers to conclude the process (Wang and Wang 2021).

Accordingly, they are generally adopted to face obstacles such as the presence of unskilled staff mainly concerning the hard-coded programming techniques, lack of flexibility related to the length and complexity of the app development process, the difficulties in meeting business needs, high costs and the poor consumer experience. Moreover, their implementation is mainly connected with the development of a business automation process through the support of apps creation operating in the cloud or on-premises computers (Sahay et al., 2020), also integrating existing technologies and applications of the company (Metrólho et al., 2020) and have across platforms accessibility (Talesra and Nagaraja 2021).

The main difference between LCDPs and traditional platforms (table 1) is that the former “integrate, in one environment, multiple well known and traditional system design components” (Bock and Franck 2021, p. 739) helping the developers in reducing routine spending less time on repetitive activities that are difficult and time-consuming in order to focus on more critical steps such as installation, configuration and training of apps (Alsaadi et al., 2021; Waszkowski, 2019).

LCDPs enable non-programmers (e.g., business users) - also called “citizen developers” - to participate in the development of applications (Alsaadi et al., 2021) regardless of their background. Therefore, these platforms have the potential to solve the problems related to the misalignment between business and information technology (IT) areas (Farshidi et al., 2021; Missikoff 2020) as they give the opportunity to involve other departments in the apps' development process (Beranic et al., 2020). They empower non-technical individuals for the refining and scaling of entrepreneurial opportunities (Dushnitsky and Stroube 2021) and support the transformation of enterprises (Missikoff 2020).

Moreover, they seem to allow companies in obtaining noteworthy improvement, changing the way of work of employees without upsetting them (Rymer 2017) and decreasing the pressure on IT departments by allowing professional developers “to build fast, efficient, and scalable applications with a minimal need for coding” (Alsaadi et al., 2021, p. 123).

Tab. 1: Main differences between LCDPs and traditional Platforms.

	LCDPs	Traditional Platforms
Main Target Users	Business Users/Professional programmers	Professional programmers
Objective	Ease of use and speed of the development process	Customised applications
Hand-code usage	Minimal/No coding required	100%
Customization	Pre-configured blocks can be customised	Total customization
Time-to-market	Short (2-5 days/weeks)	Long (from 6 months to almost a year)
Compatibility	Multi-device	Developed separately for each platform
App complexity	Generally simple App	Complex Apps
Cost-effectiveness	For companies with lack of IT skills and high requirements or with an existing team of programmers.	For large companies that need complex and customised software.
Maintenance	Modifications are made by the platform's owner.	Modifications and upgrades are made by the team of programmers that developed the application.
Deployment	Rapid	Slow and complex

Sources: Our adaptation from <https://kissflow.com/low-code/low-code-vs-no-code/>; <https://research.aimultiple.com/low-code/>; Marinković and Avramović (2021)

¹ We adopt the “LCDPs” label to indicate those platforms that allow users to simplify the process of app creation by resorting to minimal or no coding, thus also including no-code development platforms. Indeed, the distinction between the two is based on technicalities that are not relevant for the purpose of this paper.

Purpose of the paper. *The objective of this work-in-progress research study is to explore and understand the critical determinants of employees' technology acceptance, particularly by focusing on the Low Code Development Platforms (LCDPs) and adopting the Technology Acceptance Model (TAM) perspective.*

Although LCDPs seem to facilitate companies' digital transformation by overcoming the traditional technology adoption setbacks, the LCDPs implementation research remains an under-investigated and unexplored topic (Khorram et al., 2020; Sanchis et al., 2020). Accordingly, this study aims to understand the impact of LCDPs on organisational dynamics, the importance of these platforms for users' DT process and the main variables of LCDPs adoption by answering the following research question: what are the main antecedents of LCDPs adoption, and particularly, what are the antecedents of LCDPs ease of use (RQ 1) and what are the antecedents of LCDPs perceived usefulness (RQ 2)?

Methodology. *To achieve our goals, we developed a qualitative case study (Yin 2018) with the intent to explore and understand the impact of low-code technologies on the digital transformation process, with a particular interest in the identification of the main variables related to its adoption, both from the employees and final user's point of view (Blaikie, 2000).*

To develop the analysis, we selected a pilot case study by identifying an Italian company that specialised in perceptual computing, augmented reality, and virtual reality platforms. The company was born in 2008 and it was selected according to its experience in the field of digital transformation.

To guarantee the reliability of the case study development process, we explored different interrelated sources of data as primary (semi-structured interviews) and secondary sources (corporate reports, presentation and website, products brochure and overview). Primary data were collected through a semi-structured interview to maintain flexibility and be able to adapt questions according to the flow of the conversation (Saunders et al., 2009). Moreover, in order to increase the possibility of collecting high-quality data, the development of the interview followed a structured protocol (Castillo-Montoya 2016). The interview's questions have been aligned to the research questions through the constant confrontation between the researchers. The interview's questions were adjusted to be easily understandable by the interviewees and an approximate order to follow was established. Accordingly, to start the conversation, narrative questions were defined (e.g., can you tell us more about the company and its expertise? What is your role inside the company?), and to move gradually to the most important themes some transition questions were also formulated (e.g., could you describe your platform and its features?) in order to move the conversation to key questions addressing the purpose of the study (e.g., what are the advantages and criticalities of LCDPs technologies for businesses? Are there any barriers to the adoption of LCDPs technologies in your opinion?). Moreover, while some other questions were excluded, some others were formulated as possible follow-up questions to stimulate the emergence of new details.

The interview lasted sixty minutes and it was recorded and audio-taped in order to facilitate the notetaking. Then, opinions and experiences collected from the interviews were analysed using NVIVO software to conduct a content analysis for themes identification and the detection of the antecedents related to LCDPs adoption (Figure 2). We operated by mixing concept-driven and data-driven (Schreier 2012) approaches in order to be sure that possible new aspects emerging from the interviews were captured.

Finally, a report of the case was edited and sent to the interviewees to assure the validity of the results.

Findings. *Antecedents connected to the perceived usefulness. Perceived usefulness is defined as the degree of actual appreciation in terms of the value that technology can bring to the company's core processes. It is about the belief that job performance can be enabled by technology. We found that perceived usefulness depends mainly on the product features (the main features related to the LCDPs), the technological approach (the external variables that drive the product improvement) and the client's awareness about needs for change.*

Product features are related to the characteristics of the LCDPs. From this point of view, the platform business model represents an important characteristic for perceived usefulness. In particular, the platform flexibility is perceived as important in regard to different businesses (e.g., "we don't simply have a platform that relates to publishing or the world of educational training, it's a platform that adapts to multiple areas"). Indeed, over time it has been made a flexible platform to meet the different needs of final users (e.g., "it can be adapted to any type of project, product or service"). Therefore, as described by the interviewees, the advantage perceived about the technology is related to the direct experiences of creation that the platform enables for the users. Accordingly, users are allowed to create content that can run on multiple devices, having the opportunity to expand their customer base while also increasing customer loyalty.

Concerning the technological approach, it arose as a product improvement process market-driven, in which the technology market leaders are considered important drivers for the product adaptation.

The interviewees explained that the product is considered as useful as it constantly keeps the evolution market rhythm, being driven by the technology evolution: "we also monitor the market for new trends, for example as for the new LiDAR technology", that has been implemented rapidly into the new version of the product.

From the clients' point of view, interviewers explained to us that also the importance of customers awareness about the LCDPs as a trigger for usefulness perceptions, especially once clients recognised the need for adaptation to the new market standards: "company A wanted to improve the issues of sales drop-down over the years and, therefore, use the augmented reality into its product".

Antecedents connected to ease of use. The antecedents connected to the ease of use of LCDPs can be reconducted mainly to the support provided to users and the absence of technical skills as a requirement to use the platform.

The company's platform was described as an easy and intuitive tool that users can adopt to produce their content autonomously due to the fact that it does not ask for specific requirements to be used. Although the users do not need to

have specific technical skills to use the platform, the company is aware of the emergence of possible critical aspects during the process of content development. Generally, these problems are connected with the use of different levels of technology devices (e.g., “for instance, a certain type of phone may not support the software”), and to the inexperience of users that are not familiar with the process of content creation (e.g., “for example, architects, videomakers, photographers, they are able to manage the content themselves”).

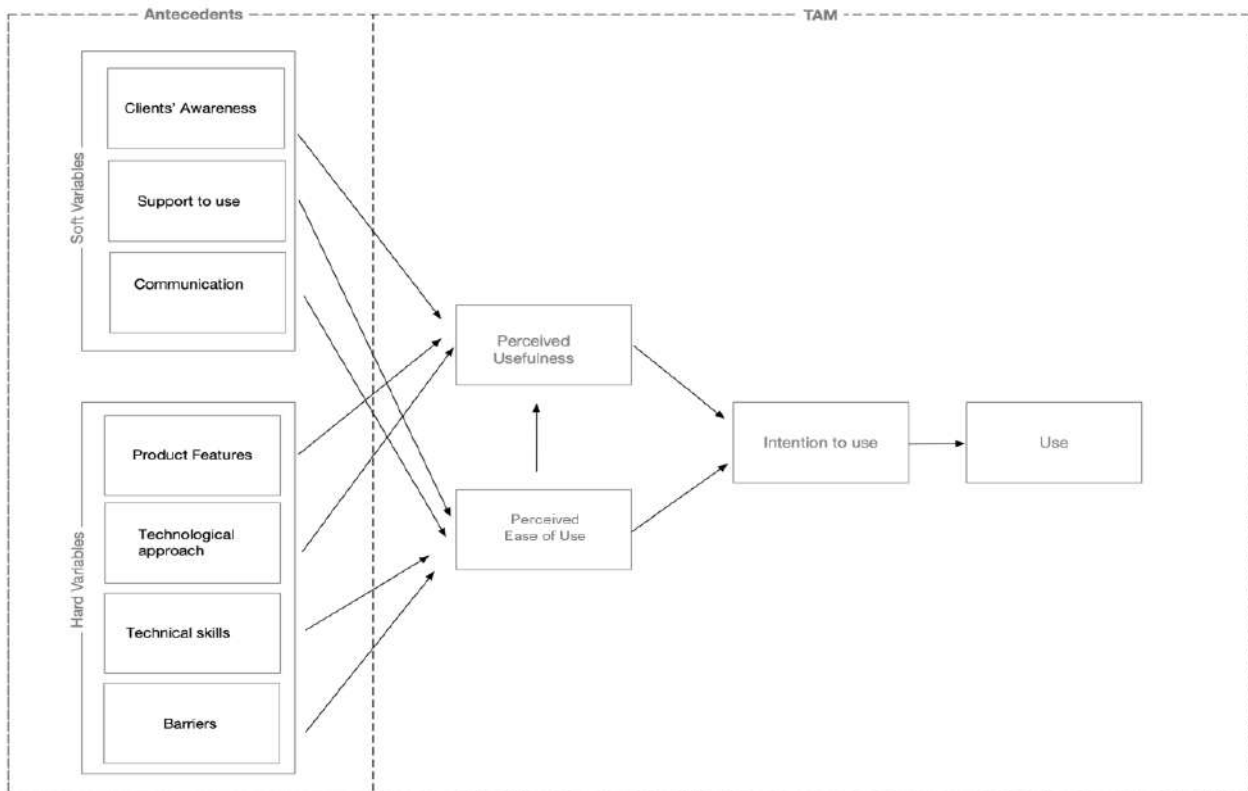
In order to overcome these problems, the company provides support at different levels, according to users’ backgrounds, and establishes constant communication with them. Indeed, when the users are not familiar with the process of content creation, they need to be guided in using the platform to create their final product (e.g., “If they don’t have people who can take care of the content, we are there for them”). Therefore, video tutorials, documentation and remote training are provided in order to shorten the users’ learning curve and promote a greater understanding of the benefits of the platform, thus facilitating users’ approach.

Moreover, several barriers were described as obstacles to the adoption of LCDPs. These barriers can be reconducted to budget availability, lack of dedicated human resources and buyer biases.

We discovered that the allocation of financial resources destined to different areas of DT limit the availability of funds for investing in LCDPs (e.g., “the budget for digitization is often allocated for another type of digitization, as this is not the only type of digitization that can be done”). It emerged that the investments in LCDPs often depend on the stage of DT reached by a company. Therefore, especially for companies that follow a traditional approach and where the DT is still far from being implemented at a high level, the limited budget impedes further important investment as those in LCDPs. However, in these cases, sometimes events such as the change of management or the arrival of a company director with a more innovative view can trigger the introduction of new technologies and in particular investment in low-code technologies (e.g., “there can be jumps forward or backwards, even based on a change in management, or the entrance of a new director. A director retires, a new one comes in with a completely innovative vision”). These events help in dropping the prejudices that users have on LCDPs due to a lack of knowledge about the benefits of these platforms, also lowering the barriers to their use.

Furthermore, the additional costs for the customization of the final product can be a further obstacle. On one side, the prejudices of buyers who believe that these platforms are difficult to integrate, and that the integration requires higher costs can limit their adoption. On the other side, despite the competitive prices of different subscriptions addressed to different users, clients can decide to experiment with the benefits of the platforms by developing a pilot test in order to evaluate the return on investment (ROI) and decide whether or not to invest on it (e.g., “sometimes, for very large projects, they [clients] ask us to run a pilot project where to set a lower budget. You do a test!”). The ROI issue represents a barrier especially regarding the other activities run by the company. Indeed, not all companies decide to change their way of work. In such a situation, where the processes continue to stay the same, the introduction of new technologies such as the LCDPs fails to provide the right benefits.

Fig. 2: Main antecedents of LCDPs



Source: Our adaptation

Research limitations. *The preliminary findings of our research are very promising for the future development of this paper. However, since we aim to explore the impact of LCDPs adoption, our results should be strengthened by enlarging the sample in order to refine the theory-building model (Strauss and Corbin, 1994).*

Indeed, the first limitation of this study is related to the sample size: we need to explore a wider base of data as well as increase the theoretical sampling in order to improve the consistency and robustness of the findings.

Moreover, in this preliminary phase, our theory building approach does not include the client's perspective which is important for the model building and refinement. By including the user's point of view, it is possible to enrich the model by also considering new concepts. Moreover, the client's perspective is important for improving the cross-checking process of the model through data triangulation.

Managerial implications. *According to our findings, we highlight two main managerial implications for LCDPs adoption. First, although LCDPs are user-friendly tools, the providers should consider the importance of the client's IT knowledge and technology alignment. Therefore, they can proactively improve the perceived usefulness of LCDPs, by triggering their adoption.*

Second, despite LCDPs don't require skilled workers for their use, the platforms' providers should consider supporting their clients in terms of the platform's adaptation according to their needs.

Originality of the study. *According to the literature background, this study shows different original insights both about the TAM perspective as well as about the specific technology analysed.*

With regards to the TAM perspective, this study has adopted an original qualitative approach with the intent of understanding the main antecedents related to the adoption of the under-explored domain of LCDPs. Usually, the TAM literature has been used for testing the theory, by confirming or disconfirming the consistency of the model (Ros et al., 2015; Jeffrey, 2016), through the analyses of different technologies with different employee categories as subjects both in Western cultures and others (Schepers and Wetzel, 2006).

The second original insight of this study concerns the adoption of an under-explored technology (i.e., LCDPs) characterised by a high user-friendly approach with no technical skills required for its usage. Indeed, given the lack of evidence related to LCDPs adoption, the qualitative approach allowed us to discover some of the main variables related to the use of such an innovative tool.

According to previous studies, we found some soft and hard variables related to LCDPs that we consider as antecedents both for perceived usefulness and ease of use of LCDPs. Soft variables, such as the client's awareness, are considered important for the perceived usefulness of LCDPs. Being aware of a specific need for technology is considered an important trigger for technology adoption (March and Simon, 1958). We also found other soft variables as support to use and communication, but we associated them with the perception of the technology ease of use. Concerning hard variables related to LCDPs adoption, we classify the product features and the technological approach as antecedents of the perceived usefulness while technical skills and barriers as antecedents of the ease of use of LCDPs.

Keywords: *low-code development platforms; LCDPs; TAM; technology acceptance; digital transformation*

References

- ALSAADI H.A., RADAIN D.T., ALZHRANI M.M., ALSHAMMARI W.F., ALAHMADI D., FAKIEH B. (2021), "Factors that affect the utilisation of low-code development platforms: survey study", *Romanian Journal of Information Technology and Automatic Control*, vol. 31, n. 3, pp. 123-140.
- BERANIC T., REK P., HERIČKO M. (2020), "Adoption and Usability of Low-Code/No-Code Development Tools", In *Central European Conference on Information and Intelligent Systems* (pp. 97-103). Varazdin: Faculty of Organization and Informatics. Available at the website: <https://www.proquest.com/conference-papers-proceedings/adoption-usability-low-code-no-development-tools/docview/2531366275/se-2>
- BLAIKIE N. (2000), *Design social research: the logic of anticipation*, Cambridge: Polity.
- BOCK A.C., FRANK U. (2021), "Low-Code Platform", *Business & Information Systems Engineering*, vol. 63, n. 6, pp. 733-740.
- CHIN J., LIN S.C. (2015), "Investigating users' perspectives in building energy management system with an extension of technology acceptance model: A case study in Indonesian manufacturing companies", *Procedia Computer Science*, vol. 72, pp. 31-39.
- DAVIS F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS quarterly*, vol. 13, n. 3 (Sep. 1989), pp. 319-340.
- DAVIS F.D., BAGOZZI R.P., WARSHAW P.R. (1989), "User acceptance of computer technology: A comparison of two theoretical models", *Management science*, vol. 35, n. 8, pp. 982-1003.
- DUSHNITSKY, GARY, STROUBE, BRYAN K. (2021), "Low-code entrepreneurship: Shopify and the alternative path to growth", *Journal of Business Venturing Insights*, n. 16.
- FARSHIDI S., JANSEN S., FORTUIN S. (2021), "Model-driven development platform selection: four industry case studies", *Software and Systems Modeling*, vol. 20, n. 5, pp. 1525-1551.
- GARDNER M. (2021), "What Is Low-code vs. No-code? Differences, Similarities, and How to Choose", Available at the website: <https://appian.com/blog/2021/low-code-vs-no-code.html>

- HOLDEN R.J., KARSH B.T. (2010), "The technology acceptance model: its past and its future in health care", *Journal of biomedical informatics*, vol. 43, n. 1, pp. 159-172.
- JEFFREY D.A. (2016), *Testing the technology acceptance model 3 (tam 3) with the inclusion of change fatigue and overload, in the context of faculty from seventh-day adventist universities: A revised model*. Dissertation, Andrews University.
- KHORRAM F., MOTTU J.M., SUNYÉ G. (2020), *Challenges & opportunities in low-code testing*, In Guerra E. and Iovino L., Proceedings of the 23rd ACM/IEEE International Conference on Model Driven Engineering Languages and Systems: Companion Proceedings. MODELS '20: ACM/IEEE 23rd International Conference on Model Driven Engineering Languages and Systems. Virtual Event Canada, 16-10-2020/23-10-2020. New York, NY, USA: ACM, pp. 1-10.
- Marangunić N., Granić A. (2015), "Technology acceptance model: a literature review from 1986 to 2013". *Universal access in the information society*, vol. 14, n. 1, pp. 81-95.
- MARINKOVIĆ D., AVRAMOVIĆ Z.Ž. (2021), Software Platforms Based on the Principles of Graphic Design, Automatic Command Generation and Visual Programming. *Jita-Journal of Information Technology And Applications*, vol. 22, n. 2, pp. 110-115.
- METRÔLHO J.C., RIBEIRO F., ARAUJO R. (2020), *A Strategy for Facing New Employability Trends Using a Low-Code Development Platform*, Proceedings of 14th International Technology, Education and Development Conference. Valencia, Spain 2nd-4th March 2020, pp. 8601-8606.
- MISSIKOFF M. (2020), "A Simple Methodology for Model-Driven Business Innovation and Low Code Implementation", *arXiv preprint*, pp. 1-10, available at the website: <https://arxiv.org/abs/2010.11611>
- PARK K., PARK N., HEO W. (2018), "Factors influencing intranet acceptance in restaurant industry: use of technology acceptance model", *International Business Research*, vol. 11, n. 10, pp. 1-10.
- PLODER C., BERNSTEINER R., SCHLÖGL S., GSCHLIESSER C. (2019), *The Future Use of LowCode/NoCode Platforms by Knowledge Workers - An Acceptance Study*, In: Lorna Uden, I-Hsien Ting e Juan Manuel Corchado (edited by), Knowledge Management in Organizations. 14th international conference, Knowledge Management in Organizations 2019, pp. 445-454, Springer, Cham.
- PORTZ J.D., BAYLISS E.A., BULL S., BOXER R.S., BEKELMAN D.B., GLEASON K., CZAJA S. (2019), Using the technology acceptance model to explore user experience, intent to use, and use behavior of a patient portal among older adults with multiple chronic conditions: descriptive qualitative study", *Journal of medical Internet research*, vol. 21, n. 4, pp. 1-12.
- ROS S., HERNÁNDEZ R., CAMINERO A., ROBLES A., BARBERO I., MACIÁ A., HOLGADO F.P. (2015), On the use of extended TAM to assess students' acceptance and intent to use third generation learning management systems. *British Journal of Educational Technology*, vol. 46, n. 6, pp. 1250-1271.
- RYMER J.R. (2017): The Forrester Wave™: Low-Code Development Platforms For AD&D Pros, Q4 2017 n. October 12. Available at the website: <https://go.forrester.com/>
- SAHAY A., INDAMUTSA A., DI RUSCIO D., PIERANTONIO A. (2020), *Supporting the understanding and comparison of low-code development platforms*. In: 2020 46th Euromicro Conference on Software Engineering and Advanced Applications (SEAA), Portoroz, Slovenia, 26/08/2020 - 28/08/2020: IEEE, pp. 171-178.
- SANCHIS R., GARCÍA-PERALES Ó., FRAILE F., POLER R. (2020), "Low-Code as Enabler of Digital Transformation in Manufacturing Industry", *Applied Sciences* vol. 10, n. 1, pp. 1-17.
- SAUNDERS M.N.K., LEWIS P., THORNHILL A. (2009), *Research methods for business students*. 5th ed. New York.
- SCHÖTTELER S., LAUMER S., SCHUHBAUER H., SCHEIDTHAUER N., SEEBERGER P., MIETHSAM B. (2021), "A No-Code Platform for Tie Prediction Analysis in Social Media Networks", *Wirtschaftsinformatik 2021 Proceedings*. Available at the website: <https://aisel.aisnet.org/wi2021/MSocialMedia13/Track13/8>
- SOLBERG E., TRAAVIK L.E., WONG S.I. (2020), "Digital mindsets: recognizing and leveraging individual beliefs for digital transformation", *California Management Review*, vol. 62, n. 4, pp. 105-124.
- STRAUSS A., CORBIN J. (1994), "Grounded theory methodology: An overview", In Denzin N.K., Lincoln Y.S. (Eds.), *Handbook of qualitative research*, pp. 273-285. Sage Publications, Inc.
- TALESRA K., NAGARAJA G.S. (2021), "Low-Code Platform for Application Development", *International Journal of Applied Engineering Research*, vol. 16, n. 5, pp. 346-351.
- WOO M. (2020), "The Rise of No/Low Code Software Development - No Experience Needed?", *Engineering*, vol. 6, n. 9, pp. 960-961.
- YIN R.K. (2018), *Case Study Research and Applications. Design and Methods*. Sixth edition. Los Angeles: Sage Publications.

Websites

<https://kissflow.com/low-code/low-code-vs-no-code/>

<https://steelkiwi.com/blog/traditional-coding-vs-no-codelow-code-development/>

<https://research.aimultiple.com/low-code/>

Connecting Knowledge Brokers for SMEs Digital Transformation: a configurational study

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Framing of the research. *Small and Medium-sized Enterprises (SMEs) struggle to adopt digital technologies that are necessary to survive and be competitive (Matt et al., 2020). To overcome this challenge, SMEs require tailored approaches based on cooperation with other actors, including institutions, academia and firms (Benitez et al., 2020). SMEs can obtain access to knowledge by connecting to regional innovation networks that include actors well linked to global knowledge sources (Kauffeld-Monz and Fritsch, 2013). Indeed, knowledge diffusion across regions can bring many benefits to SMEs that they would not be able to afford on their own (Fuller-love, 2009). Nevertheless, spending resources on regional networks does not always lead to positive outcomes for firms (Elvekrok et al., 2018). Thus, scholars have tried to understand the factors that underpin successful knowledge exchange. A particular area of research has focused on intermediary organizations acting as knowledge brokers across regional boundaries (Wink, 2018). These intermediaries can act as agents connecting two or more parties in innovation processes (Howells, 2006) and as gatekeepers able to establish extra-local linkages (Le Gallo and Plunket, 2020). Therefore, there is a need for further investigations to help policy-makers choose the right intermediary (Larty et al. 2017). This call becomes relevant in the emerging scenario of digital innovation hubs (DIHs). DIHs are structures that the European Commission recognizes as supporting the digital transformation of SMEs by connecting these firms to external stakeholders, such as research centres, universities, institutions, and other firms (Macias Aragonés et al. 2020). DIHs, acting as orchestrators, constitute one of the leading regionally focused European programs to facilitate Industry 4.0 in European regions within the Digital Single Market package. These intermediaries are knowledge brokers that through their activities and partnerships shape the digital transformation of SMEs (Crupi et al., 2020). The European Commission aims at creating a network of European DIHs. In fact, DIHs should be able to act as a doorway providing access to knowledge not available locally through the network of DIHs across Europe (Kalpaka et al. 2020). Based on this goal, it becomes necessary to investigate what are the characteristics that can explain the presence of a regular exchange of knowledge among DIHs.*

Purpose of the paper. *The paper aims to identify the conditions that can explain the exchange of knowledge among DIHs across regional borders. Thus, the objective of the paper is to support the creation of a network of DIHs that based on the continuous exchange of knowledge can effectively support the digital transformation of SMEs.*

Methodology. *We apply the Qualitative Comparative Analysis (QCA). Configurational methods integrate qualitative and quantitative approaches and are useful for building richer theories. Recent studies used a configurational perspective to individuate the condition or some useful combinations of conditions able to explain the presence of an outcome or the occurrence of a particular final state (Fiss, 2011). Among others, QCA is considered one of the approaches that helps bridge the division when difficult phenomena are being studied, as well as facilitating the analysis of small samples that do not acquire representativeness, or of relationships that do not adapt to statistical models (Fernández-Esquinas, 2021). The QCA does not demonstrate the existence and the magnitude of causal relationship among variables but allows to reduce a large number of causal conditions to a small set of configurations that contribute to a certain outcome across all cases. In this study, we use the fuzzy set qualitative comparative analysis (fsQCA), which extends the general Boolean functioning by introducing fuzzy set-membership scores, in contrast to the presence/absence categorization of the data (as in crisp set). Fuzzy membership scores range from 0 to 1 and can take any values between them according to the calibration method adopted (Ragin, 2006). The basic step in fsQCA is data calibration, which refers to the operationalization of collected data as membership scores within predefined sets, whose values range from 0 to 1. In this study, we refer to the direct calibration approach, so that we directly choose the fully in, intermediate and fully out thresholds. Our outcome variable refers to the regular exchange of knowledge among*

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DIHs, and instead of using a binary fuzzification, we adopt a three-scale variable: absence of knowledge exchange (0); only intra-regional exchanges (0.33) and extra-regional (1).

Since there is no specific literature explaining the conditions that could determine the presence of networks among knowledge brokers, the selection of conditions contributing to connections among DIHs is based on a literature review on knowledge management, innovation intermediaries and DIHs specifically. The literature review is combined with the expertise gained by the group of researchers from working in DIHs and collaborating in their research and training activities as well as on the insights gained from other experts on DIHs. The conditions selected include the following characteristics of DIHs:

i) structure. DIHs are defined as no-profit organizations supporting the digital transformation of SMEs. Cooke (1996) highlighted that not-for-profit organizations are excellent for setting up networks because they are trusted. The most common leading actors hosting or creating DIHs are public organizations (research transfer office or University) or governmental (innovation or development) agencies. Other leading actors are private accelerators or public-private partnerships for research, presenting organizational structures such as joint ventures, network organizations (formal or informal) and projects with multi-partners with formalized ending time (Hervas-Oliver et al., 2021). In this study, we follow Crupi et al. (2020) classification differentiating between industrial associations, academia, institutional and network-based structures, according to the analysis conducted on the Italian case.

ii) involvement in the regional S3 design. We differentiate between active and passive involvement based on the participation of the DIHs in designing the S3; Since DIHs have a strong regional dimension, there is a strong potential connection to policy initiatives, especially with reference to the S3 (Rissola and Sörvik, 2018). S3 is a place-based innovation policy concept to support regional prioritisation in innovative sectors, fields or technologies through the entrepreneurial discovery process, which is a bottom-up approach to reveal what a region does best in terms of its scientific and technological endowments (Foray et al., 2011). DIHs should be involved in the regional S3 through cross-fertilization of regional actors, industries and activities, not limited just to the entrepreneurial discovery process (Hervas-Oliver et al., 2021). Moreover, DIHs are pictured as collaborative enablers that allow the integration of Industry 4.0 plans into the S3 (Lepore and Spigarelli, 2020).

iii) presence of a technological focus. Specializing in a homogeneous set of ideas is both more efficient and less risky. Nevertheless, specializing implies increasingly exhausting existing recombinant possibilities, while brokerage generates new ones. Therefore, technology domains tend to grow faster when they specialize, but the more specialized they are, the more they require knowledge brokerage to develop (Carnabuci et al., 2009). As for DIHs, the European Commission is creating networks of DIHs based on a technological focus as means to support businesses in their digital transformation and promote cooperation among them. In this sense, the European Commission has launched a preparatory action to establish a framework for continuous collaboration and networking between DIH focusing on specific technological domains, like Artificial Intelligence (AI) and provide evidence and support for the preparation of relevant policy and future programmes. At the same time, other DIH networks are emerging at the national and European levels without a specific technological focus. Therefore, it is of interest to understand if having or not a technological focus can incentivise the exchange of knowledge among DIHs.

iv) competencies of staff based on the presence of administrative, technical or mixed competences. There is an area of study that considers the weaknesses of intermediaries, which are due to a lack of expertise and qualified staff (Chandran et al., 2013). Intermediaries should be built up of people with a range of backgrounds and skills, which often includes postgraduate scientists, technologists, business project managers, and research analysts, who are skilled at merging commercial experience with technical knowledge (Malik, 2012). Even if there has been an increase in the numbers of such professionals, there has been little focus on their functions and development (Phipps and Morton, 2013). Given the variety of services offered by DIHs from seeking partners and financial resources to technological development, a mix of administrative and technological skills are expected to ensure that the DIH is able to seize external opportunities.

v) level of formality in managing relationships with other stakeholders. The benefits of informal networks are that information is transferred fast. In general, informal networks provide the chance for information and knowledge to flow in both vertical and horizontal directions, which contributes positively to the flexibility of the organization (Cross et al. 2002). Scholars have examined the role of formal and informal networks in the case of SMEs. Kingsley and Malecki (2004) found that small firms employ informal networks for distinct types of advice, including product development, competitive concerns, or labour matters. They also seem quite comfortable having a mix of informal and formal relationships with suppliers and customers.

vi) type of brokerage activities, including knowledge selection, exchange and appropriation. As reported by Crupi et al. (2020), DIHs can engage in three main types of knowledge brokering activities: knowledge selection by selecting potential stakeholders (e.g., firms, academia, investors) that can contribute towards the digital transformation of SMEs; knowledge exchange by connecting and translating knowledge flows between stakeholders and SMEs; knowledge appropriation following up the collaboration and market development of the collaboration established between stakeholders and SMEs. The positive and negative forms of six conditions were included in the necessity analysis. The analysis has been performed with R-package QCA (Dusa, 2019) through the Quine-McCluskey algorithm that provides three different solutions: a complex solution, a parsimonious solution and an intermediate one.

As a first step, fully operational DIHs registered in the European catalogue of DIHs were contacted with an e-mail to invite them to participate in the survey. A complex and intermediary solution based on a sample of thirty-eight DIHs

is discussed to provide recommendations on DIHs' development. Based on the results, interviews were conducted with significant cases of DIHs in order to interpret the findings.

Results. Thirty-eight DIHs participated in the study by answering the online questionnaire that was sent by e-mail. The questionnaire was composed of multiple questions addressing the six conditions and open questions to allow DIHs to further integrate their answer and report on the opportunities and challenges faced when collaborating with other DIHs. DIHs answering to the questionnaire are located in different European and Extra-European countries as follows: Austria (2), Croatia (1), Denmark (1), Finland (1), France (4), Germany (1), Greece (1), Ireland (1), Israel (1), Italy (7), Latvia (1), Lithuania (2), Netherland (2), Romania (1), Serbia (1), Slovenia (1), Spain (4), Sweden (2), Turkey (1), UK (2), Ukraine (1).

The cases leading to the presence of extra-regional knowledge exchange are 11, while on the other hand absence of the outcome revealed 27 cases. Among the 27 cases, it must be considered that four DIHs exchange knowledge with other DIHs but only at the regional level. By applying the fsQCA, among all the 16 OR-configurations, the analysis reveals that none of the conditions alone is a necessary condition for the output "regular knowledge exchange among DIHs". This means that no single condition on its own leads to the output, implying that taking a configurational perspective is essential. We concentrate on the intermediate solution for our analysis because it is more suitable for theoretical interpretation (Fiss, 2011).

The intermediate solution can be considered as a complex solution reduced by the conditions that run counter to fundamental theoretical knowledge so that it takes advantage of the most plausible simplifying assumption. Based on this solution, we identify a set of pathways that can lead to extra-regional knowledge exchange among DIHs, with a consistency and coverage that comply with the criteria established by Ragin et al. (2008). The results contribute to a very interesting stream of literature that aims to understand the ratio behind the successful exchange of knowledge among DIHs. By considering all the different pathways, when focusing on the most positive configuration of all the conditions, the regular exchange of knowledge is enhanced for those DIHs that are actively engaged in the S3 and in all three types of knowledge brokerage activities. The active involvement in the S3 agrees with Miörner et al. (2019), according to whom S3 managers should proactively identify industry needs and fit their support to DIHs accordingly and work to make sure that DIHs contribute to integrating different parts of the regional innovation ecosystem. Among the cases, a deviant case is identified and is justified by being one of the few cases of DIHs belonging to an extra-European country. Indeed, structures acting as DIHs can apply to the European catalogue even if there are part of an Extra-European country. In deepening the analysis, DIHs state to know other DIHs based on previous relationships with their stakeholders (n.24). A group of DIHs has also used the European catalogue to search for other DIHs (n.15). DIHs also stress the need to collect and study not only best practices but also examine negative experiences of collaboration. Furthermore, exemplary cases of DIHs reported the need to foster informal networking activities among DIHs based on face-to-face meetings, underlining the negative impacts of the COVID-19 pandemic. Looking into the partnerships that DIHs have with other stakeholders, it is noted that when considering companies, universities and governments there are strong relations at the regional and national level. Instead, when considering the case of collaborations with other DIHs, the European and non-European collaborations are higher respect to national and regional ones. Matching the results gathered from the fsQCA and interviews conducted with selected DIHs we conceptualize the key dimensions to build a knowledge ecosystem of brokers that acts at the regional, national, European and Extra-European levels.

Research limitations. The study encounters several limitations that should be addressed by future studies investigating the case of knowledge brokers enabling the digital transformation of SMEs. First, the conditions used in the QCA methodology were derived indirectly from the literature on knowledge management, innovation intermediaries and DIHs specifically, and from experts on DIHs. Therefore, this means that significant conditions may have been excluded. Second, the perspective used was only one of the knowledge brokers. Thus, interviews based on interpreting the configurations found should be complemented with the perspectives of SMEs, DIHs' stakeholders and policy-makers. In this way, it would be possible to provide a more comprehensive analysis of the phenomenon understanding the opportunities and the obstacles towards creating an active network of DIHs enabling the digital transformation of SMEs.

Managerial implications. The results provide a set of relevant implications for DIHs managers, SMEs, DIHs' stakeholders and policy-makers in line with the intention of the European Commission of building a network of European DIHs. Based on the results of the fsQCA as well as the interviews of DIHs, DIHs managers can become aware of the elements to focus on for redefining their objectives and activities in order to engage with other regional DIHs and encourage an effective and regular exchange of knowledge. Thanks to a strong network of DIHs, SMEs can have access to a wider degree of knowledge and experiences that can overcome the challenges faced in their digital transformation. Also, the stakeholders of DIHs can have the opportunity to engage with a broader range of stakeholders and overcome lock-in and path dependence issues. Finally, the paper provides innovative indications to policy-makers at the regional, national, European and Extra-European levels to structure programs and incentives that leverage the positive as well as negative experiences reported by DIHs. Indeed, the results of the sample highlighted the need of focusing not only on best practices but also on reporting negative experiences in DIHs collaboration in order to design effective managerial and policy strategies.

Originality of the paper. The paper contributes to the emerging literature on knowledge brokers focused on the digital transformation of SMEs. Specifically, the results provide a new theoretical and practical perspective on how to build and support networks of knowledge brokers across regions. The paper combines results from the fsQCA analysis

with interviews with exemplary cases of DIHs to provide a broader interpretation of the configurations identified. Both qualitative and quantitative studies can further integrate the findings here provided by extending the sample and integrating the conditions selected.

Keywords: digital transformation; digital innovation hub; innovation intermediaries; knowledge brokers; smart specialization strategies.

References

- BENITEZ G.B., AYALA N.F., FRANK A.G. (2020), "Industry 4.0 innovation ecosystems: An evolutionary perspective on value cocreation," *International Journal of Production Economics*, vol. 228, 107735.
- CARNABUCI G., BRUGGEMAN J., "Social Forces", vol. 88, n. 2, pp. 607-641,
- CHANDRAN V.G.R., SUNDRAM V.P.K.S., SANTHIDRAN S. (2013), "Innovation systems in Malaysia: a perspective of university-industry R&D collaboration", *AI & Society*, DOI 10.1007/s00146-013-0468-9
- COOKE P. (1996), "The new wave of regional innovation networks: Analysis, characteristics and strategy", *Small Bus Econ*, vol. 8, pp. 159-171.
- CROSS R., NOHRIA N., PARKER A. (2002), "Six myths about informal networks - and how to overcome them", *MIT Sloan Management Review*, vol. 43, n. 3, pp. 67-76.
- CRUPI A., DEL SARTO N., DI MININ A., GREGORI G.L., LEPORE D., MARINELLI L., SPIGARELLI F. (2020), "The digital transformation of SMEs - a new knowledge broker called the digital innovation hub", *Journal of Knowledge Management*, vol. 24, n. 6, pp. 1263-1288.
- DUSA A. (2019), *QCA with R. A Comprehensive Resource*, Cham, Switzerland: Springer International Publishing.
- ELVEKROK I., VEFLEN N., NILSEN E.R., GAUSDA A.H. (2018), "Firm innovation benefits from regional triple-helix networks", *Regional Studies*, vol. 5, n. 9, pp. 1214-1224.
- FERNÁNDEZ-ESQUINA , M.S. (2021), "The use of QCA in science, technology and innovation studies: a review of the literature and an empirical application to knowledge transfer", *Scientometrics*, vol. 126, pp. 6349-6382.
- FIS P.C. (2011), "Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research", *Academy of Management Journal*, vol. 54 n. 2, pp. 393-420.
- FORAY D., DAVID P., HALL BH. (2011), "Smart specialization: from academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation," *MTEI Working Paper*, École Polytechnique Fédérale de Lausanne.
- FULLER-LOVE, N. (2009). "Formal and informal networks in small businesses in the media industry", *International Entrepreneurial Management*, vol. 5, pp. 271-284.
- HERVAS-OLIVER J.L., GONZALEZ-ALCAIDE G., ROJAS-ALVARADO R., MONTO-MOMPO S. (2021), "Emerging regional innovation policies for industry 4.0: analyzing the digital innovation hub program in European regions", *Competitiveness Review*, vol. 31, n.1, pp. 106-129,
- HOWELLS J. (2006), "Intermediation and the role of intermediaries in innovation," *Research Policy*, vol. 35 n. 5, pp. 715-728.
- KALPAKA A., SÖRVIK J., TASIGIORGOU A. (2020), "Digital Innovation Hubs as policy instruments to boost digitalization of SMEs", Kalpaka, A., Rissola, G. (Eds.), Publications Office of the European Union.
- KAUFFELD-MONZ M., FRITSCH M. (2013), "Who Are the Knowledge Brokers in Regional Systems of Innovation? A Multi-Actor Network Analysis", *Regional Studies*, vol. 47 n. 5, pp. 669-685
- KINGSLEY G., MALECKI E.J. (2004), "Networking for Competitiveness", *Small Business Economics*, vol. 23, pp. 71-84,
- LARTY J., JACK S., LOCKETT N. (2017), "Building regions: a resource-based view of a policy-led knowledge exchange network", *Regional Studies*, vol. 51 n.7.
- LE GALLO J., PLUNKET A. (2020), "Regional gatekeepers, inventor networks and inventive performance: Spatial and organizational channels", *Research Policy*, vol. 49, n.5.
- LEPORE D., SPIGARELLI F. (2020), "Integrating Industry 4.0 plans into regional innovation strategies", *Local Economy*, vol.35, n.5, pp. 496-510.
- MACIAS ARAGONÉS M., DE LA VIÑA NIETO G., NIETO FAJARDO M., (2020), "Digital Innovation Hubs as a Tool for Boosting Biomass Valorisation in Regional Bioeconomies: Andalusian and South-East Irish Case Studies", *Journal of Open Innovation: Technology, Market, and Complexity* vol. 6 n. 4.
- MALIK K. (2012), "Use of knowledge brokering services in the innovation process", In 2012 IEEE 6th International Conference on Management of Innovation and Technology, ICMI T 2012|IEEE Int. Conf. Manage. Innov. Technol., ICMIT (273-278). IEEE.
- MATT D.T., MODRÁK V., ZSIFKOVITS H. (2020), *Industry 4.0 for SMEs. Challenges, Opportunities and Requirements*, Palgrave Macmillan.
- MIÖRNER J., KALPAKA A., SÖRVIK J., WERNBERG J. (2019), "Exploring heterogeneous Digital Innovation Hubs in their context. A comparative case study of six (6) DIHs with links to S3, innovation systems and digitalisation on a regional scale", Rissola, G and Kalpaka, A. (Eds.), EUR 29851 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-11108-5, doi:10.2760/627437, JRC117976).

- PHIPPS D., MORTON S. (2013), "Qualities of knowledge brokers: reflections from practice", *Evidence & Policy: A Journal of Research, Debate and Practice*, vol. 9, n. 2, pp. 255-265.
- RAGIN C. (2008), "Redesigning Social Inquiry: Fuzzy Sets and Beyond", *University of Chicago Press*, Chicago. doi:10.7208/chicago/9780226702797.001.0001
- RAGIN C. (2006). "Set Relations in Social Research: Evaluating Their. Consistency and Coverage", *Political Analysis*, vol.14, n. 3, pp. 291-310
- RISSOLA G., SÖRVIK J. (2018), "Digital Innovation Hubs in Smart Specialisation Strategies", EUR 29374 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-94828-2,
- WINK R. (2008), "Gatekeepers and Proximity in Science-driven Sector in Europe and Asia: The Case of Human Embryonic Stem Cell Research", *Regional Studies*, vol. 42, n.6, pp. 777-791.

Websites

AI DIH network, <https://www.ai-dih-network.eu/>

Energy to change: Agility and transformation in Plenitude Eni Gas e Luce

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Framing of the research: What is wrong with agility? Why transformation often fails. *Philip Morris International announced it will stop selling cigarettes by 2030, starting a disruptive business transformation towards a medical and wellness company. Europe's biggest utility player Enel planned to become a carbon-free power producer by 2050. IKEA began a profound digital transformation aimed at offering a 'phygital' shopping experience. Business transformation is undoubtedly a hot topic in the contemporary era, enhanced by unprecedented worldwide challenges, like climate change or the pandemic. However, transformation often fails.*

Some companies pursue the goal by leveraging on M&A strategies to force change from outside and transform quickly. Others depart from inside: this option is particularly challenging from a managerial perspective, since it requires "to hack" the organizational DNA.

Actually, business transformation and transformation towards agility may appear as two sides of the same coin. Both are processes that can be developed to symbiotically evolve with the company. Business agility is on the management agenda because it is seen as the missing link between external change and internal response. However, although it seems to be an answer to today's key challenges, scientific answers on how to transform towards agility are still at an infant stage.

Plenitude - formerly known as 'Eni Gas e Luce' - is a particularly revealing case to inform on transformation efforts. It is the outcome of an in depth transformation process of an extremely successful organization. While digital and agile transformation started at the same time, the company decided to give precedence to building an agile culture and new ways of working. Its transformation trajectory, as well as its building blocks may inspire the debate on how the large organization can address processes of change, with business agility at its core.

The topic is highly relevant, especially for large and established companies, where strategic decisions mainly belong to the Top Management Team, planning is at the forefront, and functions tend to be 'siloed', whilst business agility relies on collaborative and coordinated actions and behaviors across the hierarchy, units, and markets. The traditional way of strategizing and organizing thus may generate a fracture that inhibits the organization to react nimbly to rapidly changing circumstances and capture market opportunities. In extant literature, a frequently described question is how to have people empowered on all levels so that everybody can make decisions that are relevant - and possible - at their respective level, while contributing to a wider effort.

Purpose of the paper. *This study investigates the process of mutual interplay between business transformation and the development of firm agility within organizations. The empirical analysis relies on the case study 'Plenitude', an ENI spin-off previously known as 'ENI Gas e Luce'. Data have been analyzed through the Gioia Methodology. Business across markets and industries has become borderless and interconnected with technology and digitalization accelerating and triggering complexity and change exponentially. The times of predictable customer behavior and competitive sets are gone and with them organizational strategies and structures designed for a 'known future'.*

Methodology. *Our empirical research is qualitative in nature, relying on the single case study method (see e.g. Gerring 2017). We provide an in-depth discussion of Plenitude Eni's agile transformation journey as it unfolds. Plenitude Eni's transformation is a revealing setting. It is intentional, proactive in its outlook, searching to establish a future-oriented culture and company, in the context (and with the legacy) of the highly successful company it has been throughout the years. Usually, unsatisfactory performance calls existing strategy and practice into question. Then, transformation is reactive and the need for it is easier to grasp. The rich primary data we draw on results from in depth interviews with people in the transformation project that represent the full range of internal stakeholders, roles, levels, backgrounds and Plenitude Eni maturity. Interview data, based on a semi-structured interview guideline, is triangulated with secondary data from the company and publicly available information. The interviews, with duration between 60 and 90 minutes, were recorded, transcribed and coded by the three authors.*

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Results: The Transformation Journey in Plenitude Eni Gas and Luce. *‘Plenitude’ is an Italian company owned by ENI S.p.A, one of the largest energy suppliers operating in Italy, with over 10 million customers in 6 European countries.*

Plenitude (formerly ENI gas e luce), spun off in 2017, committed to expand its product offer beyond commodities by adopting a more retail-oriented approach and establishing a strong relationship with its customers. To face these challenges, starting from 2019 the company has undergone a process of internal change called ‘Transformation Journey’ with the aim to become more future-oriented and agile in coping with uncertainty and exploiting opportunities. In particular, the introduction of agile, cross-functional teams in combination with the existing traditional waterfall trains led to a more efficient time-to-market and improved the overall customer experience.

The advent of the Covid-19 pandemic marked a crucial turning point in the company’s transformation journey: in a dramatic and extremely challenging context, thanks to its new disposition, Plenitude found itself having a great competitive advantage. An agile and dynamic organization, with a system based on prioritization and providing a rapid response to external inputs, made the company outperform its competitors during the crisis.

During the last five year Plenitude (formerly ENI Gas e Luce) has known an extraordinary success, as evidenced by its performance data: digital channels went from 5% to 35% of total sales, with a +10% in the period 2020-2021. Company’s portfolio was expanded beyond commodities to include many other products: from domestic appliances and smart home to maintenance services and insurance etc... Moreover, during the same period Net Sales jumped +16% while the ENI Group marked an adjusted net profit of 4.74 billion, the highest since 2012.

However, recently this organization felt the need to transform itself, to complete the spin-off process from ENI and complete the evolution from ‘product commodity’ to ‘data-driven platform of services’ in the energy sector. So, also to emphasize such a change, in 2022 the organization changed the brand name: from “ENI gas e luce” to “Plenitude” giving room to renewable energy and e-mobility, considered drivers for the future. The overall goal of the Plenitude Transformation Journey (PETJ) is to lead the company to a future-oriented organization through the process of digitization and through an agile culture and way of working. Today the PETJ entered its maturity phase, though it is still in progress. In just a few (how many) years the company completely renewed its operating model which consists of three building blocks: 1) organizational structure (inclusive of roles and responsibilities), 2) culture and ways of working and 3) technology.

In the next section we will first give an overview of the journey’s trajectory along three phases we inductively uncovered from 6 interviews, continue with a detailed account of major conversations during those phases and conclude with a discussion of the outcome. The above mentioned transformation journey followed three main phases. Phase 1 regards everything that happened before the official beginning of PETJ. Phase 2 covers the design and the kick-off, aimed at progressively scaling what had been tested in phase 1. Phase 3 is the transformation enablement: This covers three sub-phases. First, a fluctuation between a productive “experimental evolution” (3a) and a kind of “creative involution” (3b) takes place. Then they converge to a “focused revolution” (3c), regarding only specific areas of the company, and a clear focus on their needs.

Along with the description of phases in the next sections, we introduce quotes from the in-depth interviews we conducted. In 2017, the retail word of the ENI SpA group was spun off to become ENI Gas e Luce, a move to cope with a continuously evolving and extremely turbulent market. “We needed to focus and exploit synergies, but we also needed to develop the culture of the company - practically, a start up, its ways of working and the operating model. Additionally, a fourth element, the technology to support this transformation, had to be implemented”.

ENI, to compete in the retail space “definitely needed a different speed ...and also had to equip itself with new technologies, but above all it was our desire to become ‘Future Proof’.

Paola says “I was a newcomer at that time, but I must admit I was rather puzzled by the many processes, procedures and slowness of the company. Sometimes I was told “here we take our time, you are going to quickly”

The management, guided by a great leader, Chiarini Alberto, understood “that the company could be transformed into a gem...if the traditional ENI way of working was changed. Chiarini tried, he believed in it, he believed in the people who were showing him different ways of working and doing business - he trusted them as much as we trusted him and his leadership”.

The company decided to open a Smart Factory - We did not want to call it a ‘digital factory, it was something bigger. Of course, digital transformation is fundamental, but it had to be something bigger right from the start - and to start with two cross-functional teams who would work on big challenges.

Precisely because the objectives - a new way of working, a new organization, new technology... - were (and still are) challenging “we established two monster goals: for example, the goal of doubling digital sales year on year for the next three years”- Vincenzo laughs “Congratulations! Feasible? No, not feasible”. The monster objectives were established on the basis of a completely revised roadmap with the macro-level redesign of customer experience. Also, the clear and important impact on the business numbers and customer centrality was required. The ‘monsters’ were decided top down with the CEO and the strong and important support of Human Resources. The objective for this second phase is to design and kick-off the PETJ ‘officially’, to design an enabling ecosystem to create a future-oriented environment and culture conducive to innovation and renewal.

Now, in its Smart Factory, - “ a ‘concrete’ and very important step, clearly wanted and sponsored by top management “ - ENI Gas and Luce brings together two cross-functional teams, composed of the ‘best’. With different expertise they sat together, every day, at the same table.

Working cross-functionally was a change, as was the alignment of objectives within the teams - Business and IT

were on equal footing with objectives that aim at creating products as efficiently and efficiently as possible with the customer in the center.

“We were two teams with the same goal and with people who, as I have been saying ever since to all teams that are going to start, bring their brains to the teams, before they bring their expertise or their label. People then are not afraid to express their point of view, even if it is not their core competence”, Importantly, what happens here is that the logic of projects gives way to a logic of people and teams and their empowerment - working jointly towards common (business) objectives. “The outcome? Great success”, The experimental evolution phase starts with the clear goal to scale the cultural transformation and to bring the new ways of working to life as best as possible. At this stage, this means to bring them deeper and systematically into PETJ.

The ways of working experienced with much success in the Smart Factory are formalized now in a more agile organization with chapters and tribes and “a large part of the people moves to a new location, called Ripamonti, which is our place of work. Not only the way of working here radically changed, even the workplace did - we had no longer offices but an open space, transparent, very collaborative. “

Another step taken in this phase is the introduction of agile figures in a structured way - an important qualitative leap and, importantly, the transformation leader - already part of the Smart Factory teams - is nominated.

The company departs from its heritage to rediscover the ‘good things and the very good things it had’, to give them ‘a different look and working on them to improve them’. The identification with the company, the mutual trust and the fact that ‘here people work well together’. Also, customer centricity, for example, the ability to listen to them, working with passion, courage...all these values were great accelerators for the transformation efforts - as was the implementation of a ‘no blame policy’.

In this phase, a number of new people joins, bringing in new competences and facilitating the adoption and the spread of an agile way of working. In this phase, we observe a critical step, a ‘discontinuous continuation’, fundamental to make the next step forward. “Well, there was the moment when we decided to tackle this ‘monster’ in an agile mode and we were asking ourselves: are we sure that putting digital and agile transformation, something so important, so difficult to do, with such a disruptive cultural transformation of the way of working, won’t jeopardize both? That was the big question we asked ourselves...we prioritized agile, understanding technological change and transformation as the enabler”,

Now, the discontinuity arises from the decision to restructure the organization around the agile teams already in place. What before were functional silos, now become value streams. ‘We redesigned the organization with a matrix concept. On one side we had value streams, and on the other side the chapter leaders. The functional heads were constantly challenged to increase the professionalism of their people so that they generated as much value as possible for the value streams.’ What has been a crescendo in this phase, is ‘the need to synchronize the machine’. ‘We had learned from the previous phase that the model was designed too strongly around the selection of ‘the best’, who took part to in the Smart Factory - it had to work for all people involved if we were to scale it successfully in the entire organization. Therefore, the moments of synchronization between different teams increased, without, however, creating superstructures, committees, responsibilities etc. ‘and keeping the overall system agile. Assistance comes also from the ‘enablement team’. Its role is to constantly keep touch with those areas of the organization where the processes and new ways of working need help to ingrain. The team intervenes with specific coaching and training, ‘it is just a matter of fostering understanding regarding the new way of working or to illustrate how we could work better.’ The two previous phases converge to a focused revolution. Continuity with and consolidation of the new ways of working - also externally - now is key. The broader roll out of PETJ builds on the learnings from these two phases.

Overall, the revolution is “focused” because (1) it regards broadening the PETJ in a selective manner with regard to functional areas (2) it is “tailored-made” for the needs of the stakeholders, also external ones.

Although the PETJ in itself addresses cultural and behavioral change, it continues to stimulate changes and effects also with regards to the ‘harder’ factors, i.e. procedures, processes, resources. Through the PETJ also the change of the enabling factor, technology, is triggered.

“The last step, which is the one of the last year, or rather of the last semester because a year has not yet passed, was to bring this model, which had become a new organizational model, to scale. The number of teams is radically increased to around 35, involving almost 500 people in an agile organization - getting close to the dimensions of working in a large company”,

Overall, now, it seems the transformation “was simply a formalization of something that was going on for around 1,5 years, first in the Smart Factory and then in Ripamonti (the new offices)”. There is awareness that not necessarily the entire organization needs to work in an agile manner. What is important is “that all people realize that it is the mindset which counts”. “We need adaptability and the ability to change quickly - as we did when Covid appeared. In just 4 days we were able to change our priorities”, What is now on the agenda is to extend the way of working to value chain partners. There is much enthusiasm and interest from stakeholders who say “I want to do this too!” so that we see a virtuous circle with multipliers of efficiency and productivity. Suppliers become partners, play an active role, with shared objectives and shared risk. A second important point is to foster long-living teams.

Research limitations. The study in the present version relies on a single case study, whilst a multiple case study would be beneficial to ensure reliable findings.

Managerial implications. What lessons are to be learned from PETJ? Can we define an archetypical pattern with its drivers and outcomes that informs organizations in their agility-transformation endeavors? The first crucial integration element is customer centricity. Rooting the agile transformation in customer centricity is a winning

approach for the following reasons: first, it copes with external uncertainty in that sensing is based on customer and partner intimacy. Building on customers and partners helps not only in sensing change but also in co-creating highly valued solutions that have a high chance of success once on the market (Hagen et al., 2019). Second, customer knowledge and relationships are core for PE from the outset. The new direction aligns the organization around a familiar, known logic - which facilitates the understanding of the new direction (Lounsbury, 2007). At the same time, it provides a relevant, enduring backbone to orient the company over the long term. A second integration element are cross-functional empowered teams. Such teams bring the potential of boundary spanning across levels and functions, building and sustaining relationships inside- and outside the organization. They manage complexity within non-hierarchical environments, by understanding motives, roles and responsibilities (Williams, 2002). Being part of both the established structure and the new teams, they automatically build a bridge and contaminate their respective worlds. New ways of working for example spill over to existing worlds, while the new space, the team, profits from diversity of knowledge and perspectives. An important side effect is that also in this way an 'outside'-view between different backgrounds and knowledge bases is generated - conducive to quickly finding multiple alternatives and solutions, i.e. manifestations of flexibility, one of the key dimensions of agility. Also general conversations and contacts are facilitated. A third integration element is the pivoting around core capabilities and values. The balancing act of any transformation requires that existing talent and capabilities are built upon, leveraged and developed.

A fourth integration element is trust, one of the key elements that characterized the organization already before the TJ took off. Trust, and a generally very positive collaborative attitude is recurrent in the interviews. It is an enabler of agility as it creates serenity and a good atmosphere which help in overcoming shyness and fear in front of the unknown - such as the new ways of working. Although the many facets of organizational reality have to be considered, we believe that PETJs transformation journey provides actionable insight for organizations that consider embarking on business agility. PETJ acts on strategic, leadership and resource levels - the reason why Doz and Kosonen (Doz and Kosonen, 2008) see it difficult to bring to life and why so many organizations are stuck in transformation.

Being rooted in customer centricity and business objectives, the TJ walks the fine line between external and internal views and the strategic dialogue held across the Management Team. At the same time, the collaborative way of working and organizing ensures leadership unity and aligns the organization along a known, yet improved future-proof understanding of external and internal challenges. With the identification of transformation spaces, i.e. projects run by cross-functional teams, resources and structures follow strategy, which trickles down in the organization. Resource 'fluidity' is enhanced with such a flexible project and team structure but also supported by the lean approach to developing solutions. These transformation spaces, in a virtuous circle, link and reinforce the various levels. Leadership, responsibility, and accountability spread through team participation and team scaling, strategic sensitivity increases with constant dialogue, which involves, again inside and outside views and feeds into innovative solutions.

PETJ thus is much more than a description of agility dimensions or a description of transition through phases. It is an account of the 'how' of organizational transformation towards business agility and, in turn, renewal in the face of an ever more complex environment.

A final consideration relates to the outcome, the manifestations of agility along PETJ. Agility, understood as the timely generation (speed) of a variety of solutions (flexibility) manifests in mindsets, ways of working, and in business results. Overall, our interview partners speak of a "new" organization, vital, innovative with a completely different ability to (re)act. What emerges too is that the core values and competences have been an asset to build upon and that these have been further developed. Looking at indicators, we note the frequent mention of shorter time-to-market, hear of a net promoter score that tripled and of market shares that have substantially increased.

"Energy to change" - in the truest sense of the word.

Originality of the paper. Managing and growing the large enterprise is more challenging than ever, and the calls towards agile transformation, i.e. to build a fast, 'fluid, and flexible (3Fs) organization, abound. It seems to be clear that "business agility" (simply defined as a responsive organization that can change quickly to meet changing business needs) has the potential of being a critical driver of firm performance and growth. What is not so clear, however, is how to design and implement transformation processes and which factors drive (or hinder) a transformation in which business agility in itself is an ongoing process of change. Second, it's not clear what the difference is compared to other forms of organizational change.

Keywords: business agility, customer centricity; empowerment; energy and utility sector.

References

- BADEN-FULLER C., TEECE D.J. (2020), "Market sensing, dynamic capability, and competitive dynamics", *Industrial Marketing Management*, vol. 89, pp. 105-106.
- DE MASSIS A., FRATTINI F., KOTLAR J., MESSENI PETRUZZELLI A., WRIGHT M. (2016), "Innovation through tradition: Lessons from innovative family businesses and directions for future research", *Academy of Management Perspectives*, vol. 30, n. 1, pp. 93-116.
- DEPERT J.R., BURRIS E.R. (2007), "Leadership behavior and employee voice: Is the door really open?" *Academy of Management Journal*, vol. 50, n. 4, pp. 869-884.
- DOZ Y., KOSONEN M. (2008), "The dynamics of strategic agility: Nokia's rollercoaster experience", *California*

Management Review, vol. 50, n. 3, pp. 95-118.

- GERRING J. (2017), *Case Study Research: Principles and Practices*. Cambridge University Press, Cambridge.
- GIROD S.J.G., KRALIK M. (2021) *Resetting Management: Thrive with Agility in the Age of Uncertainty*, Kogan Page.
- GREWAL R., TANSUHAJ P. (2001), “Building organizational capabilities for managing economic crisis: The role of market orientation and strategic flexibility,” *Journal of Marketing*, vol. 65, n. 2, pp. 67-80.
- HAGEN B., ZUCHELLA A., GHAURI P.N., (2019), “From fragile to agile: marketing as a key driver of entrepreneurial internationalization”, *International Marketing Review*, vol.6, n. 2, pp. 260-288.
- HUNT S.D., MADHAVARAM S. (2020), “Adaptive marketing capabilities, dynamic capabilities, and renewal competences: The “outside vs. inside” and “static vs. dynamic” controversies in strategy”, *Industrial Marketing Management*, vol. 89, pp. 129-139.
- IDEN J., METHLIE L.B., CHRISTENSEN G.E. (2017), “The nature of strategic foresight research: A systematic literature review”, *Technological Forecasting and Social Change*, vol. 116, pp. 87-97.
- JAGDIP S., SHARMA G., HILL J., SCHNACKENBERG A. (2013), “Organizational Agility: What It Is, What It Is Not, and Why It Matters,” *Academy of Management Proceedings*, vol. 1/2013, pp. 11813-11813.
- LAFLEY A.G., MARTIN R.L. (2013), *Playing to win: How strategy really Works*, Harvard Business Review Press, Boston.
- LEWIS M.W., ANDRIOPOULOS C., SMITH W.K. (2014), “Paradoxical leadership to enable strategic agility”, *California management review*, vol. 56, n. 3, pp. 58-77.
- LOUNSBURY M. (2007), “A tale of two cities: Competing logics and practice variation in the professionalizing of mutual funds”, *Academy of Management Journal*, vol. 50, n. 2, pp. 289-307.
- MARTIN R. (2009), *Design of Business: Why Design Thinking is the Next Competitive Advantage*, Harvard Business Press, Boston.
- MORTON J., STACEY P., MOHN M. (2018), “Building and maintaining strategic agility: an agenda and framework for executive IT leaders”, *California management review*, vol. 61, n. 1, pp. 94-113.
- PRANGE C., HENNIG A. (2019), “From strategic planning to strategic agility patterns”, *Journal of Creating Value*, vol. 5, n. 2, pp 111-123.
- RAISCH S., BIRKINSHAW J. (2008), “Organizational ambidexterity: Antecedents, outcomes, and moderators”, *Journal of Management*, vol. 34, n. 3, pp. 375-409.
- RUBIN R.S., MUNZ D.C., BOMMER W.H., (2005), “Leading from within: The effects of emotion recognition and personality on transformational leadership behavior”, *Academy of Management Journal*, vol. 48, n. 5, pp. 845-858.
- WILLIAMS P. (2002), “The competent boundary spanner”, *Public Administration* vol. 80, n. 1, pp. 103-124.

Websites

<https://www.eni.com/assets/documents/press-release/migrated/2022-it/02/eni-quarto-trimestre-2021-claudio-descalzi-amministratore-delegato-eni-commenta-risultati.pdf>

Document: Go Beyond, our transformation journey

The Dynamic Capabilities of Emergent Firms: A Case Study of VinGroup

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Introduction. *The integration of global markets and corporations has changed how modern firms do business, which has led to international hyper-competition. Firms are incentivized to explore global expansion by identifying the factors influencing the global markets within this context. However, going global could be challenging for many firms, especially those from emerging economies like Vietnam. The established competitive advantage theories, such as the Resource-Based View (RBV) (Penrose, 1959), may not be enough in the current global competitive environment, heavily influenced by the dependency on the technological evolution such as information, communication, and business solutions, and internet-based platforms. According to the RBV, resources consist of a firm's assets; capabilities to exploit its resources by applying its core and distinctive competencies as cross-functional integration and coordination of all capabilities (Wahl and Prause, 2013.) Recently, the success achieved by many firms in the global arena could partly be attributed to their capability, flexibility, and adjustment to the constant variations of the ecosystem and their capacity to face the emerging challenges positively and the exploitation of resources (Schoemaker, Heaton, and Teece, 2018.) Nevertheless, success for many emergent firms, especially those from developing economies like Vietnam, has yet to be fully investigated.*

Conceptual Framework. *Our research is based on the concept of a firm's dynamic capabilities. It adopts Teece's (2007) model as its theoretical framework, identifying three macro-categories of dynamic capabilities. According to Teece et al. (1997), the 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.) Since the early development stage of this conceptual work; various authors have engaged in further development 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 looking into the research domain's origins, development, and future directions. The deconstruction showed that the conceptual framework, first published within the management domain, had sparked interest by 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, 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 and Verdier, 2011). Based on the literature, this research applies the concept of dynamic capabilities to study the current performance and the potential future global expansion of a rapidly growing firm in an emerging economy in a "volatile, uncertain, complex, and ambiguous (VUCA)" environment, (Schoemaker et al., 2018.)

Within this context, the dynamic capabilities framework consists of the following three pillars: sensing, seizing, and transforming (Schoemaker et al., 2018.)

I. Sensing

The capability to assess the changes in the local and global markets by analyzing the opportunities and threats that may present themselves then and possibly in the near future.

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II. Seizing

The analysis of the external environment is crucial but not sufficient for a firm to seize the opportunities. The firm must also seize the opportunity in a timely way and attempt to determine the unexpected and the changes needed to innovate and implement new systems. Consequently, this represents the second pillar, during which time new business models are developed.

III. Transforming

According to the framework, exploiting the capabilities in an uncertain environment is often insufficient for firms to adapt to changes gradually. Firms 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.

Purpose of the Study. *This study intends to determine the future success of VinGroup and its contribution to Vietnam's economic prosperity applying the concept of dynamic capabilities (Schoemaker et al., 2018.) Operating in Vietnam's planned economy requires the positive vision and collaboration of the government and its legislative support, with reform and regulations' relaxation, to enable entrepreneurs of private enterprises to contribute to the country's success and improve the well-being of its people. Specifically, we want to determine whether the dynamic growth of VinGroup can lead to a successful and sustainable global competitive advantage to position itself as an economic power to support Vietnam's national economic growth (Eisenhardt and Schoonhoven, 1990; Khanna and Palepu, 2006). We benchmark our research on past and concurrent successes of global players such as Hayer - China, Samsung-South Korea, Mahindra- India, Gazprom- Russia, and Dangote Cement- Nigeria (BCG, 2018). This research is based on the case study method to analyze an emergent global competitor's dynamic capabilities.*

Company Background. *VinGroup has rapidly become one of Vietnam's largest private and most diverse companies employing over 75,800 people. With its corporate headquarter in Hanoi, the company has seen remarkable growth since its modest beginnings as a producer of consumer-packaged goods. Originally called Technocom, the company was founded in Ukraine in 1993 by Pham Nhat Vuong and produced dehydrated instant noodle bowls. Today, VinGroup is one of the nation's largest property developers, with an aggregate market capitalization of over 369 trillion Vietnamese Dong (VND) or + 16.2 billion USD. Although most revenues in earlier years were generated from real estate operations, about 69.9% in 2017, current revenue streams are diversified due to its rapid expansion across industries.*

Leadership

Born in 1968, CEO Pham Nhat Vuong grew up in Hanoi and graduated from Kim Lien High School in 1985. In 1987, he joined Hanoi University of Mining and Geology. He went to Russia to further his studies at the Moscow Geological Prospecting Institute. Following his graduation in 1992, he married Pham Thu Huong and moved to Kharkiv, Ukraine, where in 1993, he started Technocom. In 2000, he returned to Vietnam, opening his first real estate projects: the Vinpearl Resort Nha Trang and the Vincom City Towers (later renamed Vincom Ba Trieu) in central Hanoi. Vincom became a publicly-traded company in 2007 and, during the same year, merged with Vinpearl, Vuong's luxury resort business. In 2009, Pham Thu Huong sold his original company Technocom to Nestlé for \$150 million. In 2015, Vuong became the wealthiest businessperson in Vietnam, with assets totaling 24.3 trillion Vietnam Dong, ±1.1 billion USD. Through Pham Thu Huong's entrepreneurial activities, his wife, Pham Thu Huong, and sister-in-law Pham Thuy Hang became financially successful and ranked third and fifth respectively in personal wealth (Forbes, 2019). As of February 25, 2022, Pham Nhat Vuong remains Vietnam's richest person, with a net worth of \$6.2 Billion (Forbes, 2022). In January 2012, Vinpearl Joint Stock Company merged with Vincom Joint Stock Company to create VinGroup Joint Stock Company. Since 2012, the firm has expanded its economy of scope, becoming a conglomerate by developing a diversified portfolio across several industries and business segments: real estate property, hospitality and entertainment, consumer retail, manufacturing, healthcare, education, agriculture, technology, and automotive.

VinGroup owns a large market share in Vietnam for property development alone. Its real estate subsidiary, VinHomes, owns several housing projects in Hanoi, Ho Chi Minh City, Quang Ninh, and Ha Tihn. In 2019, it completed and delivered 28,900 apartments, villas, shophouses, and beach villas. As of February 2022, and after 18 years of hospitality operational experience, VinPearl owns and operates 43 facilities, with over 18,500 rooms and villas, 3 theme parks, 2 amusement parks, 2 animal safaris, and 4 golf courses in 17 cities and provinces nationwide and it plans to expand further on both national and global scales in the near future. In addition,

VinGroup manages, develops, and leases retail shopping malls, commercial office buildings, residential apartments, and business centers. VinCom Retail currently owns 80 retail operations reaching 1.7 million square meters (±17.2 million square feet) of gross floor area and attracting more than 225 thousand customer visits in 43 provinces with a 21% Compound Average Growth Rate (CAGR) in leasing revenues. The firm serves over 4 million visitors in its amusement parks annually. VinGroup also has a growing presence in health care (Vinmec), education (Vinschool), agriculture (VinEco), and most recently, in auto manufacturing (VinFast) with foreign expansion in Australia. VinGroup's primary goals are to 'create a better life for the Vietnamese people' and to 'go global.

Strategic posture

Within this context we assess VinGroup's strategic posture by analyzing the data readily available from its public domain to determine how the tools and strategic choice align with its long-term strategic goals. Strategic posture can be explained as the adaptation to market conditions to shape the future, becoming an industry leader and by influencing

the direction of an entire industry. Further adaptations include implementing reactive strategies to industry changes not to become the leader but to remain an active and competitive player to achieve the long-term objectives. Summarized, there are three common strategic postures: shaping the future, adapting to the future, or reserving the right to play (Vorhies and Morgan, 2003.)

On October 2, 2018, VinFast, a subsidiary of VinGroup, a rapidly growing Vietnamese firm, surprised the automotive world by unveiling two car models: the VinFast Lux A2.0 sedan and the VinFast LUX SA2.0 SUV at the Paris World Motor Show (Vinfast, 2019). Before this event, VinFast was not known globally, especially in the global car manufacturing industry. Nevertheless, following the successful debut, the VinGroup corporate automobile brand was introduced to the business world. Currently, according to VinGroup's published data, the company has established itself as one of Vietnam's largest private corporations within the economic framework of "State Capitalism". However, the Vietnamese government acknowledges the need to spark a 'second wave' of reforms since joining the WTO in January 2007 (WTO, 2021), including reforming state-owned enterprises, reducing red tape, increasing business sector transparency. VinGroup's strategic objective is to boost Vietnam's industrial development by being the driving force for modernization to create a better life for the Vietnamese people. Currently, VinGroup is a market leader in several Vietnamese industries: technology, industrial, property ownership and management, and service industry, with several subsectors.

As of the last quarter of 2021, the company reported the following subsidiaries:

- VinFast: auto manufacturing, three-car models, one electric scooter model, now with sales in Australia
- VinHomes: Premium integrated offerings of apartments, villas, and shophouses
- VinPearl: tourism, recreation, and entertainment, which include hotel complexes, golf resorts, and theme parks
- VinPro: electronic and appliances store
- VinCom: 46 retail malls and plazas
- VinMart and VinMart+: over 1,200 convenience stores and supermarkets
- VinMec: private hospitals and healthcare services
- VinsShool-VinUniversity: private schools and universities with collaborative agreements with U.S. educational institutions
- VinEco: leading the modernization of Vietnam's farming sector
- VinRetail: all-in-one shopping
- VinID: digital ecosystem
- VinSmart: smart phone company
- VinComRetail: real estate development and operations
- VinBus: public transport services by electric bus
- Vantix: A.I. and data management services and solutions
- VinBrain: AI-focused
- VinIF: Vingroup Innovation Foundation
- VinAi: Artificial Intelligence research
- VinHMS: software development
- VinBioCare: biotechnology
- VinFuture: nonprofit foundation
- VinBigData: scientific research and technology development
- VinCSSm: network security services
- Quy Thien Tam: philanthropical organization

Currently, VinGroup is classified as a conglomerate, and its aggregate businesses represent a portfolio of 48 subsidiary companies in various segments of multiple industries, both domestic and international. Accordingly, we posit that within its ecosystem, the company continues to develop and maintain the three strategic postures of "shaping the future", "adapting to the future," and "reserving the right to play".

Research Questions

- 1) What are the dynamic capabilities of VinGroup?
- 2) What are VinGroup's current strengths, weaknesses, opportunities, and threats?
- 3) What are the political, economic, social, technological, legal, and environmental implications for VinGroup, and how do they affect the vision for global expansion?
- 4) What is VinGroup's Environmental and Social Governance (ESG) Strategy?
- 5) What attributes have contributed to the company's past success, and can these attributes support a successful future for global expansion?
- 6) What are the company's critical success factors to become a global player with its current 'economy of scope' strategy?
- 7) Can the current strategic posture be aligned with VinGroup future dynamic capabilities and long-term global expansion?
- 8) What are currently known constraints that might prevent VinGroup from becoming a global competitor?
- 9) Is VinGroup striving to mirror established firms' success like Samsung's in South Korea and worldwide?
- 10) What are the domestic and international political and economic risks in pursuing global expansion?

Methodology. *For this study, we employ qualitative and quantitative methods using primary and secondary data available in public domains, from company shareholder meetings, quarterly and annual financial information, and financial analysts' reports across internet domains. We have also established contact with VinGroup's representatives to obtain information not available in public domains which require proprietary protection before disclosure. We use and triangulate cross-references and corporate information from complementary companies that are either clients, affiliated, or suppliers of VinGroup. We then extrapolate secondary quantitative and qualitative relevant data, summarize the findings, and synthesize the results. The aim is to use various methods to obtain quality data that can be used to reference future enterprises' strategic planning and execution in developing economies and contribute to global and comparative strategic management.*

Preliminary Findings

Strategic Vision

“With the aspiration to be a pioneer and the capability to deploy sustainable investment and development strategies, VinGroup aims to become the leading regional Technology - Industrials - Services business group. The Group will continue to innovate in building an ecosystem of high-quality products and services aimed at improving the lives of customers and enhancing the international reputation of Vietnamese brands”.

VinGroup's vision is to become one of the leading emerging companies in Vietnam, Southeast Asia, and the global landscape and gain market shares in its industries. It is currently focused on introducing Vietnamese consumers to a modern lifestyle by striving to offer international-standard products and services. Therefore, continuous improvement in products and services offerings is key to future developments. The corporate brand is highly recognizable within Vietnam; however, for the company to grow and gain a global reputation, it must formulate a competitive strategy to gain a global presence (Peng and Heath, 1996). Through its economy of scope, VinGroup strives to meet international standards with its high quality of products and services and highly qualified and trained employees (Hill and Hoskisson, 1987; Marquis and Raynard, 2015). Corporate leadership aims to accomplish this goal through team members' leadership, professionalism, and integrity. VinGroup believes future success depends on a team willing to listen, research, innovate, create, and continually exceed customer expectations. In his own words, Chairman Pham Nhat Vuong stated:

“VinGroup is a premier corporate group, but its influence is only within Vietnam. We strive to become a true international enterprise that is recognized globally. Our international standards of superiority should be reflected not only in our services and products but also in our people. Every member of the VinGroup team must become a professional leader, serve with the highest integrity, and inspire co-workers to achieve the best levels of service”.

To support the corporate vision and ambition to become a world player and a competitor, VinGroup also strives to capitalize on its core values of credibility, integrity, creativity, speed, quality in people, humanity, and the Vietnamese values of the good name, respect, love for learning, and family loyalty.

Strategic Mission

Its mission is based on four factors: customers, employees, shareholders and business partners, and society/ social responsibility. VinGroup's mission is to become one of the most successful and respected companies in Vietnam, Southeast Asia, and the global landscape. The company has and will continue to partner strategically with world leaders to achieve its ambitious objective to become a global player. A partial list of strategic partners includes Bosh, BMW, EDAG, Siemens, LG Chem, Kreisel, Magna, SAP, ABB, and Samsung. Accordingly, we can infer that due to its current dynamic growth and financial success, VinGroup is meeting and exceeding its long-term objectives.

Core values. *VinGroup is committed to embracing discipline and professionalism while striving to uphold six core values: “credibility, integrity, creativity, speed, quality, and compassion”.*

Company description of the group's economic activities. *VinGroup Joint Stock Company (2019b) (“VinGroup” or “the Group”) is the largest listed company in Vietnam. Measured by market capitalization, it has a market value of VND 306.24 trillion (USD 13.4 billion) as of Feb 22, 2022. VinGroup today bases its Strategy on the principles of sustainability and professional management to operate in six major and fourteen subsectors' business segments:*

- Industrial
- Technology
- Property ownership and management
- Hospitality and entertainment
- Health care
- Education

Despite its successful development, with a compound average growth rate (CAGR) higher than 60% over the past years, VinGroup could face compelling challenges in the years ahead and in the pursuit of becoming a global competitor. We determined that one of VinGroup's strategic success factors is sustainability during our preliminary data gathering. However, a search for ISO certifications of any company under the VinGroup in the ISO database returned zero results. Hence, our inference into a possible challenge could be demonstrated by the lack of VinGroup's

ISO certifications. However, on the contrary, the company has begun its international expansion. On March 4th, 2019, VinGroup officially debuted VinTech Korea in the City of Daegu, Korea, to research applied IoT technologies, artificial intelligence, robotics, smart manufacturing plants, and develop products and solutions for vehicle transportation. Also, “On June 11th, 2020, VinFast officially opened its office in Melbourne (Australia). VinFast Australia aims to research and develop new car models and lay the foundation for VinFast’s international expansion, towards realizing the vision of becoming a global automobile brand in the future (MarkLines, 2020.)”

Strategic Posture. Within its ecosystem, VinGroup continues to develop and maintain the three strategic postures of “shaping the future,” “adapting to the future,” and “reserving the right to play”. Hence, through the successful launch of VinFast, the parent company has positioned itself as a competitive world leader in electric car innovation. In fact, “Following its U.S. debut at the 2021 Los Angeles Auto Show, VinFast is taking important steps towards a sustainable future of mobility as it is announcing it will stop producing vehicles with internal combustion engines (ICE) by the end of 2022. VinFast will focus research and development efforts on all-electric powertrains for their vehicles. This bold move makes VinFast one of the world’s first automotive companies to completely switch to pure electric, affirming its position as a leader in the global E.V. revolution” (VinFast, 2022.)

Financial Analysis. The summary of our preliminary analysis from aggregate financial statements and strategic planning shows the following results. The analyses are performed using Vietnamese Dong (VND), the current currency conversion rate is: USD 1.00 = VND 22,759.85 or 1.00 VND = USD 0.00004 (Xe, 2022). The analysis performed after the latest results disclosure in 2022 presents VinGroup’s dynamic growth between 2015 and 2021. The group’s fiscal year runs from January 1st to December 31st.

For 2021, the total revenue was 130.8 trillion VND or about USD 5.74 billion, representing a decrease of 5% from 2020. Similarly, the 2021 after-tax profit was -7.5 trillion VND, a decrease from 4.5 trillion VND in 2020. The market capitalization was 369 trillion VND, or USD 16.2 billion. The total asset as of December 31, 2021 was 427.3 trillion VND, an increase of 1% from 422.5 trillion VND at the end of 2020. The total equity has seen a larger increase of 17%, from 135.9 trillion VND at the end of 2020 to 159.1 trillion VND on December 31, 2021

VinGroup’s selected financial ratio analyses from 2020-2021 are shown in Table 1 below.

Tab. 1: VinGroup’s current financial analyses

Key ratios	Year	
	2021	2020
Total-debt ratio	0.628	0.678
Debt-to-equity ratio	1.685	2.110
Current ratio	1.593	1.474
Quick ratio	1.404	1.256
Return on equity	78.736%	81.331%
Return on asset	29.323%	26.151%

Although most companies around the world were affected by the COVID 19 pandemic, the analyses of VinGroup financial performance show that VinGroup has more assets than debts, has the financial resource to remain solvent in the short-term, is managing its capital efficiently, and is profitable. These results may indicate that the company expansion could have generated domestic market dominance by owning most of the market shares, thus allowing the decision to begin global expansion. VinGroup may seek global expansion to increase the opportunity to earn higher returns for stakeholders. However, this finding cannot be considered definite as the preliminary findings cannot support it. Thus, our assertion needs to be further validated. Overall, the preliminary financial analyses of VinGroup have determined that as of the last quarter of 2021 fiscal year, the firm is financially stable, going concern, and solvent.

Competition. VinGroup is a highly competitive company that operates in many markets in what we determined as a hyper-competitive environment in a regional-industrial cluster that includes China, Japan, Taiwan, and other South China Sea countries. The firm’s adversaries include international and domestic groups that provide services similar to VinGroup’s. The largest domestic competitor in real estate is Dat Xanh Group, which deals in apartment complexes in major Vietnamese cities. The second-largest domestic competitor is FLC Group, which owns multiple subsidiaries in real estate, finance, education, media, mining, technology, and aviation. One of the strategic initiatives to gain a competitive advantage is the VinID loyalty program to increase customer acquisition and retention. The objective is to connect customers with products and services in the firm’s ecosystem, providing rewards and discounts to returning clients.

Challenges and Opportunities in Hiring and Retention of Human Capital. Through its dynamic growth and success, VinGroup gained its corporate reputation through various achievements and awards it received. In 2017, the group became the largest private-sector enterprise in Vietnam. Striving to continually exceed customer and investor expectations through above-expectation performance, brand awareness, achievements, social projects centered around its core values, the firm has attracted loyal investors and highly qualified employees. This makes the firm attractive to investors and employees and counters the negative image firms have usually projected of Vietnam (Better Work Vietnam, 2015). Accordingly, the firm aligns all employees with its corporate governance principles: “Elevate -

Standardize - Simplify - Automate - Share". To "elevate" promotes individual responsibility and accountability. To "standardize - simplify - automate - share" means standardizing operations and making goals clear, simple, and achievable. This Strategy promotes shared know-how and resources within the firms. Although VinGroup is very efficient in recruiting well-qualified employees, it faces challenges in human capital retention.

The corporate culture provides vast opportunity; however, foreign investors act cautiously in what is still considered a communist environment modeled by Vietnam's government. Besides, investors are concerned about employee dissatisfaction. Former employees' comments shared on the web through an online recruitment platform (Glassdoor, 2019) demonstrate the lack of efficient top management leadership. Complaints posted on Glassdoor include "lack of provided structure; an ever-present pressure from upper administration and management". Several former employees felt little to no leadership, with no careful attention given by management to subordinates. Also, employees felt a lack of connection to their superiors. Ex-employees also reported significant indifference displayed by their upper management, who also imposed unrealistic expectations and pressures on them. These assertions contradict the most significant core values of the firm (Glassdoor, 2019). According to an internal memorandum leaked to the press, VinGroup's management applies an authoritative leadership style toward its employees (Financial Times, 2019). The memorandum states that employees must buy VinFast cars and Vsmart cellular phones; otherwise, they may lose their bonuses.

Corporate Challenges in Pursuing Global Expansion. Among many factors that influence VinGroup's global expansion's success is a well-defined corporate social responsibility (CSR) policy and an effective sustainability policy. Our preliminary findings show that this was non-existent until about 2015 (VBCSD, 2015). However, the firm has formulated a sustainability plan that was to be implemented in the fiscal year 2020, the pre-pandemic period (VinGroup, 2019c). In today's global landscape, firms must increasingly focus on the importance of a diversified CSR program (Rangan et al., 2015). The absence of a well-designed and localized CSR program may pose severe challenges in formulating a global expansion strategy. Also, VinGroup lacks ISO certifications, which are vital when considering the inclusion in sustainability indices like the Dow Jones sustainability index (VinGroup, 2019a). Lack of CSR data and non-transparency may have a negative effect on investors who expect their ROI without the financial risks associated with CSR (Porter and Kramer, 2006). Nonetheless, as indicated in the "Strategic Posture" section, VinGroup has proven to be successful in implanting its plan to become a leader in global sustainability and in environmental, social governance (ESG) as demonstrated by its subsidiary VinFast. Accordingly, "VinFast is taking important steps towards a sustainable future of mobility as it is announcing it will stop producing vehicles with internal combustion engines (ICE) by the end of 2022. VinFast will focus research and development efforts on all-electric powertrains for their vehicles. This bold move makes VinFast one of the world's first automotive companies to completely switch to pure electric, affirming its position as a leader in the global E.V. revolution" (VinFast, 2022.)

Conclusion. This case study is a work in progress. The qualitative and quantitative data analyses will be continuously updated until the paper is published to reflect the most current and accurate information for the reader.

Work to be completed:

- Suggested Teaching Plan Flow
- Conceptual understanding of the case and theory
- Case description - scope - motivation for the study
- Learning objectives
- Learning outcomes
- Discussion questions
- Scenario planning and discussion
- Assessment
- Study plan - self-test
- Test questions and answer keys

References

- BARRETO I. (2010), "Dynamic capabilities: A review of past research and an agenda for the future", *Journal of Management*, vol. 36, n. 1, pp. 256-280.
- BCG. (2018), Digital Leapfrogs, BCG Global Challengers. Boston Consulting Group Collections. Retrieved on September 25, 2019 from <https://www.bcg.com/publications/collections/2018-global-challengers-digital-leapfrogs.aspx>
- BETTER WORK VIETNAM (2015), World Bank newsletter No. 12, Sep 2014-Jan 2015. Ho Chi Minh City, Vietnam. Redacted Investigation Reports. Retrieved on September 24, 2019 from <https://www.worldbank.org/en/about/unit/integrity-vice-presidency/redacted-investigation-reports#2>
- DI STEFANO G., PETERAF M., VERONA G. (2010), "Dynamic capabilities deconstructed: a bibliographic investigation into the origins, development, and future directions of the research domain", *Industrial and Corporate Change*, vol. 19, n. 4, pp. 1187-1204.

- EISENHARDT K.M., SCHOONHOVEN C.B. (1990), "Organizational growth: Linking founding team, Strategy, environment, and growth among U.S. semiconductor ventures, 1978-1988", *Administrative Science Quarterly*, n. 35, pp. 504-529.
- EVERS N. (2011), "International new ventures in low tech sectors: A dynamic capability perspective", *Journal of Small Business Enterprise Development*, n. 18, pp. 502-528.
- FINANCIAL TIMES (2019), Vietnam's VinGroup gives hard sell to own workers. Financial Times, Latest on Vietnam. Retrieved on October 5, 2019 from <https://www.ft.com/content/9fa6f1f8-d29d-11e9-8367-807ebd53ab77>
- FORBES (2019), Asia's Fab 50 2018: Newcomers Breaking Into The Ranks Of Asia's Top Companies. Forbes. Retrieved on September 29, 2019 from <https://www.forbes.com/sites/forbesasia/2018/09/05/asias-fab-50-2018-newcomers-breaking-into-the-ranks-of-asias-top-companies/#6d0485096efc> and <https://www.forbes.com/profile/pham-nhat-vuong/#7436d684382e>
- FORBES (2022), Pham Nhat Vuong profile real time net worth. Retrieved on February 25, 2022 from <https://www.forbes.com/profile/pham-nhat-vuong/?sh=297ab38c382e>
- GLASSDOOR (2019), VinGroup reviews. Glassdoor company reviews. Retrieved on September 29, 2019 from <https://www.glassdoor.ca/Reviews/VinGroup-Reviews-E738847.htm?countryRedirect=true>
- KEVILL A., TREHAN K., EASTERBY-SMITH M. (2017), "Perceiving 'capability' within dynamic capabilities: The role of owner-manager self-efficacy", *International Small Business Journal*, vol. 35, n. 8, pp. 883-902.
- KHANNA T., PALEPU K.G. (2006), "Emerging giants: Building world-class companies in developing countries", *Harvard Business Review*. Retrieved on September 24, 2019 from <https://hbr.org/archive-toc/BR0610>
- HELFAT C.E., FINKELSTEIN S., MITCHELL W., PETERAF M., SINGH H., TEECE D.J., WINTER S.G. (2007), *Dynamic capabilities: Understanding strategic change in organizations*. Malden, MA: Blackwell Publishing.
- HILL C.W.L., HOSKISSON R.E. (1987), "Strategy and structure in the multiproduct firm", *Academy of Management Review*, n. 12, pp. 331-341.
- JANTUNEN A, PUUMALAINEN K., SAARENKETO S., KYLAHEIKO K. (2005), "Entrepreneurial orientation, dynamic capabilities and international performance", *Journal of International Entrepreneurship*, n. 3, pp. 223-243.
- MARKLINES (2020), VinFast officially opens office in Melbourne, Australia. MarkLines, Automotive Industry Portal: retrieved November 30, 2020 from <https://www.marklines.com/en/news/240583>
- MARQUIS C., RAYNARD M. (2015), "Institutional strategies in emerging markets", *Academy of Management Annals*, vol. 9, n. 1.
- XE (2022), Currency Exchange Service. 1 UDS to VND - Convert U.S. Dollars to Vietnamese Dongs. (n.d.) Retrieved 2022, February 22, from <https://www.xe.com/currencyconverter/convert/?Amount=1&From=USD&To=VND>
- PENG M.W., HEATH P.S. (1996), "The growth of the firm in planned economies in transition: Institutions, Organizations, and Strategic Choice", *Academy of Management Review*, vol. 1, n. 2, pp. 492-528
- PORTER M.E., KRAMER M.R. (2006), "Strategy and Society: The Link Between Competitive Advantage and Corporate Social Responsibility", *Harvard Business Review, Social Enterprise Topic*. Retrieved September 30, 2019 from: <https://hbr.org/2006/12/strategy-and-society-the-link-between-competitive-advantage-and-corporate-social-responsibility>
- PRANGE C., VERDIER S. (2011), "Dynamic capabilities, internationalization processes and performance", *Journal of World Business*, n. 46, pp. 126-133.
- RANGAN V.K., CHASE L., KARIM S. (2015), "The truth about CSR. Harvard Business Review", *Social responsibility topic*. Retrieved on September 24, 2019 from <https://hbr.org/2015/01/the-truth-about-csr>
- SCHOEMAKER PJH., HEATON S., TEECE D. (2018), "Innovation, dynamic capabilities, and leadership", *California Management Review*, vol. 61, n. 1, pp. 15-42
- TEECE D.J. (2007), "Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal*, n. 28, pp. 1319-1350.
- TEECE D.J. (2010), "Business models, business strategy and innovation", *Long Range Planning*, n. 43, pp. 172-194.
- TEECE D.J. (2014), "The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms", *Academy of Management Perspectives*, vol. 28, n. 4, pp. 328-352.
- TEECE D.J. (2018), "Dynamic capabilities as (workable) management systems theory", *Journal of Management & Organization*, pp. 1-10. First View. <https://doi.org/10.1017/jmo.2017.75>, 24, 359-368.
- TEECE D.J., PISANO G., SHUEN A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, vol. 18, n. 7, pp. 509-533.
- VBCSD (2015), Launch of the sustainable businesses ranking in Vietnam in 2016. Vietnam Business Council for Sustainable Development (VBCSD). Accessed October 4, 2019 at: <http://en.vbcSD.vn/detail.asp?id=746>
- VINFAS (2019), Vinfast global news. Accessed October 4, 2019 at: <https://vinfast.vn/en/news>
- VINFAS (2022), Global E.V. Day - Las Vegas Consumer Electronic Show, January 5, 2022. Accessed February 25, 2022, at <https://vingroup.net/en/news/detail/2466/vinfast-announces-its-all-electric-strategy-and-full-electric-vehicle-lineup-at-ces-2022>
- VINGROUP (2019d), Annual reports 2013 - 2017. Retrieved on September 29, 2019 from <https://VinGroup.net/en/investor-relations/financial-statement>
- VINGROUP (2019a), Sustainable development. Retrieved on October 4, 2019 from <https://VinGroup.net/en/development>

- VINGROUP (2019b), VinGroup Joint Stock Company. Retrieved on September 24, 2019 from <https://www.VinGroup.net/en>
- VINGROUP (2019c), VinGroup vision for sustainability. VinGroup annual report 2018. Retrieved on October 4, 2019 from <https://VinGroup.net/en/investor-relations>
- VINGROUP (2022), Member Brands. (n.d.) Retrieved 2022, February 22, from <https://vingroup.net/en/about>
- VINGROUP. Consolidated financial statements for the year ended 31 December 2020. (n.d.) Retrieved 2022, February 24, from https://vingroup.net/viewer.html?file=https%3A%2F%2Fircdn.vingroup.net%2Fstorage%2FUploads%2F0_Quan%20he%20co%20dong%2F0_Vingroup_2021%2FMar%2FBCTC%2F2020_Audited%20Consolidated%20Financial%20Statements.pdf
- VINGROUP (2021), Consolidate financial statements Quarter IV 2021. (n.d.) Retrieved 2022, February 24, from https://vingroup.net/viewer.html?file=https%3A%2F%2Fircdn.vingroup.net%2Fstorage%2FUploads%2F0_Bao%20caotaichinh%2FNam%202021%2FQIV%2F2021_Consol%20Financial%20Statement%20Quarter%20IV.pdf
- VINGROUP (2021), 4Q2021 Earnings Presentation. (n.d.) Retrieved 2022, February 22, from https://vingroup.net/viewer.html?file=https%3A%2F%2Fircdn.vingroup.net%2Fstorage%2FUploads%2F0_Quan%20he%20co%20dong%2F0_Vingroup_2022%2FJan%2F22.02_VIC_Earnings%20Presentation.pdf
- VINGROUP (2021), JSC Ho Chi Minh Stock Exchange. (n.d.). Retrieved 2022, February 22, from <https://www.barrons.com/market-data/stocks/vic?countryCode=vn>
- VORHIES D.W., MORGAN N.A. (2003), “A configuration theory assessment of marketing organization fit with business strategy and its relationship with marketing performance”, *Journal of Marketing*, n. 67, pp. 100-115.
- PRAUSE G. (2013), “Toward understanding resources, competencies, and capabilities: business model generation approach”, *Entrepreneurship and Sustainability Issues*, vol. 1, n. 2, pp. 67-80.
- WTO (2021), Viet Nam became the WTO’s 150th member on 11 January 2007. World Trade Organization. Retrieved January 2, 2021 from https://www.wto.org/english/thewto_e/acc_e/a1_vietnam_e.htm

Websites

<https://vingroup.net/en/>
Global E.V. Revolution

Il ruolo delle risorse nei processi di diversificazione delle imprese familiari

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Inquadramento della ricerca. All'inizio degli anni Novanta del XX secolo, Barney (1991) diede vita a una nuova prospettiva teorico-concettuale, la teoria delle risorse (nota come Resource-based View), finalizzata a spiegare come i processi di acquisizione e di sviluppo delle risorse dell'impresa contribuissero alla realizzazione del vantaggio competitivo sostenibile (Barney et al., 2011). Basandosi sui concetti e sulla logica fondante di tale prospettiva, gli studiosi di strategia d'impresa hanno esaminato come operare in diversi contesti d'impresa influisse sui processi sopra indicati (Godfrey e Gregersen, 1999).

Anche la letteratura sulle imprese familiari ha beneficiato del contributo teorico della teoria delle risorse, ad esempio, formulando il concetto di familiness per indicare le peculiari risorse e capacità sviluppate delle imprese familiari tramite l'interazione tra la famiglia proprietaria, l'impresa e gli individui che compongono la famiglia (Arregle et al., 2007; Habbershon e Williams, 1999). In effetti, la letteratura di family business basa la sua specificità sul riconoscere la "famiglia" come la risorsa idiosincratICA, in grado di creare processi unici e, conseguentemente, incidendo anche sui risultati. E' curioso, però, notare che sebbene la nascita ufficiale del filone del family business può essere datata 1988 (anno di pubblicazione del primo numero della rivista Family Business Review) soltanto undici anni dopo appare il primo contributo interamente dedicato all'applicazione della teoria delle risorse all'impresa familiare, coniando il termine "familiness" per identificare le risorse legate alla famiglia (Habbershon and Williams, 1999). A seguire, altri lavori hanno ripreso questo aspetto, riconoscendo la famiglia come la "variabile mancante" (Dyer, 2003) e sviluppando contributi teorici ed empirici su questo tema (Dyer, 2006; Habbershon et al., 2003; Sirmon and Hitt, 2003; Zahra et al., 2004). Definitivamente, l'idiosincratICA che contraddistingue la familiness contribuisce a spiegare, almeno in parte, l'eterogeneità delle performance delle imprese familiari (Dyer, 2006; Sirmon e Hitt, 2003), come pure la capacità di tali imprese di rendere sostenibili nel tempo i loro vantaggi competitivi rendendo l'imitazione di tali risorse difficile e costosa (Zahra et al., 2004).

Parallelamente, gli studi sulla diversificazione delle imprese hanno beneficiato dell'applicazione dei concetti e delle argomentazioni sviluppati dalla teoria delle risorse mettendo in luce che la logica sottesa alla realizzazione delle strategie di diversificazione si basa sulla ricerca da parte delle imprese dello sfruttamento delle opportunità di creare e di estrarre valore dalla loro dotazione di risorse e capacità (Rumelt, 1982; Wernerfelt, 1984). L'applicazione della prospettiva teorica delle risorse allo studio delle strategie di diversificazione rappresenta un contributo "unico" degli studi manageriali al fenomeno della diversificazione (Wan et al., 2011), che integra ed estende i contributi derivanti dall'applicazione della teoria dell'agenzia (Jensen e Meckling, 1976) e della teoria dei costi di transazione (Williamson, 1975). Ciò ha portato allo sviluppo di un ammontare rilevante di lavori che indagano tali strategie, in particolar modo le strategie di diversificazione correlata, e le performance loro associate (Haushild e Knyphausen-Aufseß, 2013).

Con riferimento allo specifico studio della diversificazione delle imprese familiari si osserva un percorso simile agli studi su diversificazione in generale per l'applicazione della prospettiva della teoria dell'agenzia (Hernández-Trasobares e Galve-Górriz, 2015, 2020; Schmid et al., 2015) e della teoria dei costi di transazione, che di recente tendono ad essere associate alla prospettiva della social-emotional wealth theory (Gomez-Mejia et al., 2010; Muñoz-Bullon et al., 2018; Shen, 2018). Sorprendentemente, invece, i lavori che applicano la prospettiva delle risorse sono ancora numericamente limitati (Jones et al., 2013; McGovern e McLean, 2013; Stadler et al., 2018; Siegel et al. 2011). In particolare, per quanto a nostra conoscenza, manca in tale letteratura un approccio resource-based che indaghi e, soprattutto, metta a sistema il potenziale esplicativo di tale lente teorica per migliorare la nostra comprensione dei peculiari processi decisionali (tipo di diversificazione, tempi e modalità di diversificazione) sottesi alla formulazione e all'implementazione delle strategie di diversificazione nelle imprese familiari (Hafner, 2021).

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Obiettivo del paper. *Alla luce dell'inquadramento della ricerca sopra esposto, il presente lavoro intende fornire un framework teorico resource-based sulle strategie di diversificazione delle imprese familiari. In maggior dettaglio, sulla base dei principali costrutti e argomentazioni logiche caratterizzanti la teoria delle risorse, il lavoro esamina come le imprese familiari decidano di avviare una nuova attività stabilendo il tipo di diversificazione (correlata vs. conglomerata), i tempi di ingresso nel nuovo business e la modalità di ingresso maggiormente idonea (sviluppo interno, operazioni di acquisizione, alleanze strategiche). Pertanto, si delinea un quadro teorico complessivo che considera simultaneamente l'insieme delle principali scelte che attengono alla definizione di una strategia di diversificazione nelle imprese familiari (Chatterjee e Wernerfelt, 1991; Sánchez-Peinado e Menguzzato-Boulard, 2009; Schoenecker e Cooper, 1998). In tal modo, in primo luogo, la presente ricerca contribuisce a isolare le risorse specifiche che modellano il tipo di diversificazione prediletto dalle imprese familiari. Quindi, si identificano le differenze tra imprese familiari e non familiari nella scelta del tipo di diversificazione preferito. In secondo luogo, si avanza la comprensione delle peculiarità che caratterizzano la strategia di diversificazione nelle imprese familiari per quanto riguarda i "giusti" tempi e modalità di ingresso. Alla luce delle principali intuizioni fornite nel framework e da una loro lettura complessiva e integrata, infine, si evidenziano i lati positivi e quelli negativi relativi a come le imprese familiari gestiscono le strategie di diversificazione.*

Metodologia. *Si tratta di un lavoro teorico-concettuale che al fine di indagare le peculiarità che contraddistinguono le strategie di diversificazione realizzate dalle imprese familiari, mette insieme e fa leva sugli studi che adottando una prospettiva delle risorse si focalizzano su tre specifici aspetti:*

- a) *i peculiari comportamenti, obiettivi e dotazione di risorse e capacità che caratterizzano le imprese familiari (Arregle et al., 2007; Carney, 2005; Chrisman et al., 2003; Habbershon e Williams, 1999; Sharma 2008; Simon e Hitt, 2003). In particolare, Habbershon e Williams (1999) sostengono che le risorse possedute o controllate dal nucleo familiare (e dai singoli membri della famiglia) rappresentano potenziali input per le imprese familiari. In un determinato contesto spazio-temporale, le risorse familiari comprendono sia le risorse coinvolte nell'impresa familiare, sia le risorse non coinvolte in essa. Inoltre, Habbershon e colleghi (2003) spiegano come le imprese familiari siano dei metasistemi che emergono dall'integrazione e dalle interazioni di tre sottosistemi distinti (la famiglia controllante, l'impresa/business e i singoli componenti della famiglia) e dalle loro specifiche risorse e capacità. Tali interazioni generano dotazioni uniche e idiosincratice di risorse e capacità delle imprese familiari, definite risorse "familiness" (Arregle et al., 2007; Habbershon et al., 2003). Simon e Hitt (2003) identificano tra le principali risorse "familiness": il capitale umano, il capitale sociale, il capitale paziente e le strutture di governo dell'impresa familiare;*
- b) *la generazione alla quale è arrivata l'impresa familiare, quale fattore chiave in grado di influire sui processi di preservazione, trasferimento e accumulazione delle risorse e delle capacità possedute e/o controllate dalle imprese familiari (Gersick et al., 1997; Miller et al., 2003). Da un lato, la letteratura mostra che l'intenzione della famiglia di trasmettere la propria "visione" dell'impresa e la sua proprietà attraverso le generazioni rappresenta una caratteristica delle imprese familiari (Chua et al., 1999); d'altra parte, gli studiosi rilevano come le risorse e le capacità della famiglia si evolvono a causa dei cambiamenti e delle interazioni delle diverse generazioni (de Groot et al., 2022; Habbershon et al., 2003; Magrelli et al., 2020);*
- c) *le motivazioni sottese all'implementazione delle strategie di diversificazione. La logica alla base delle strategie di diversificazione è spiegata, alla luce della prospettiva delle risorse, dagli sforzi delle imprese finalizzati a sfruttare le imperfezioni del mercato dei fattori produttivi creando ed estraendo valore dalle loro risorse e capacità (Barney, 1991, 1997; Rumelt, 1982; Wernerfelt, 1984). In dettaglio, quando le imprese possiedono o controllano volumi di risorse di valore e rare superiori rispetto a quelli richiesti dagli attuali processi produttivi, esse sono incoraggiate a diversificare per creare valore addizionale in forza dello sfruttamento delle risorse in eccesso (Montgomery e Wernerfelt, 1988; Teece, 1982; Wernerfelt, 1984). Inoltre, gli studi empirici evidenziano che i vantaggi del trasferimento delle risorse in eccesso ad attività e business correlati a quelli dove l'impresa già opera, tendono ad essere superiori rispetto ai benefici del trasferimento di tali risorse in business non correlati (Barney, 1997; Rumelt, 1982) Una volta presa la decisione di entrare in un nuovo business, l'attuazione della strategia di diversificazione richiede due scelte fondamentali riguardanti: i tempi di ingresso (Lieberman e Montgomery, 1988; Schoenecker e Cooper, 1998) e le modalità di ingresso (Chatterjee, 1990; Datta et al., 1991; Sánchez-Peinado e Menguzzato-Boulard, 2009).*

Risultati. *Testo Muovendo dalla prospettiva della teoria delle risorse applicata al contesto delle imprese familiari, il presente lavoro teorico-concettuale delinea le principali preferenze delle imprese familiari con riferimento al tipo, alla tempistica e alle modalità di ingresso delle strategie di diversificazione. Considerato che la famiglia proprietaria può influenzare fortemente lo sviluppo e l'orchestrazione delle risorse, come pure definire con notevole discrezionalità le strategie di crescita (Carnes et al., 2021; Chirico et al., 2011), sembra fondamentale comprendere, in dettaglio, come le imprese familiari progettano e gestiscono le strategie di diversificazione. Rispetto ad altre imprese, quelle familiari possono sfruttare le risorse familiari non direttamente coinvolte nell'attività di business e le risorse familiness originate dall'interazione tra famiglia, business e singoli soggetti appartenenti alla famiglia. Di conseguenza, nello sviluppo del quadro teorico di questo scritto, vengono considerate le relazioni di causa-effetto primarie che intercorrono tra le risorse e le capacità a disposizione - anche potenzialmente - dell'impresa familiare e il tipo, i tempi e le modalità di ingresso delle strategie di diversificazione.*

In particolare, la costruzione, ancora in fieri, del nostro framework muove dalle seguenti considerazioni:

- le imprese familiari ricercano modalità di diversificazione che sfruttano le risorse proprie della famiglia o legate alla familiness;
- le imprese familiari perseguono il loro percorso di diversificazione più lentamente rispetto alle imprese non familiari;
- le imprese familiari preferiscono entrare in nuovi business tramite operazioni di greenfield.

Successivamente, per ciascuna decisione (tipologia, tempistica e modalità di ingresso di diversificazione), si considera anche il ruolo delle generazioni della famiglia come fattore critico che attenua, modifica, o cambia radicalmente le relazioni sopra citate.

Infine, si discute l'impatto che le preferenze in ordine alle diverse decisioni che contraddistinguono le imprese familiari, in merito alle strategie di diversificazione, hanno sulle performance di tali strategie. A tal proposito, si evidenzia l'esistenza di un lato positivo e di un lato "oscuro" che le preferenze delle imprese familiari in merito ai diversi aspetti delle strategie di diversificazione esercitano sulle connesse performance.

Limiti della ricerca. Il principale limite della ricerca fin qui condotta è costituito dalla natura teorico-concettuale dello studio. Tale natura fa emergere l'opportunità di ulteriori approfondimenti. In primo luogo, si potrà estendere il nostro lavoro con lavori qualitativi-longitudinali che mostrino le relazioni che saranno riportate nel framework e spieghino "come" esse emergono nel mondo reale. In secondo luogo, si potranno corroborare empiricamente con metodologie quantitative, in tutto o in parte, il framework e le proposition in corso di sviluppo. L'uso delle metodologie quantitative dovrà prestare particolare attenzione ai seguenti costrutti: (a) impresa familiare, in quanto esistono molteplici definizioni (Chua et al., 1999; Astrachan et al., 2002; Rau et al., 2018;); (b) relatedness, ad esempio, sulla base di quanto esposto da Hauschild e Knuphausen-Aufseß (2013); (c) performance, sia quale costrutto multidimensionale (Kotlar et al., 2018) sia in riferimento ai risultati economico-finanziari misurabili con il ROA o la q di Tobin (Wan et al., 2011).

Implicazioni manageriali. Il framework teorico elaborato fornisce delle intuizioni su come la proprietà e il management familiari possono informare sulle scelte strategiche delle imprese. A tal riguardo la disamina degli aspetti positivi e negativi che la famiglia e la familiness sono in grado di fornire alle scelte di diversificazioni possono costituire una guida per i manager delle imprese familiari. In particolare, lo studio potrà dare indicazioni sulle modalità di valorizzazione delle risorse familiari nella formulazione delle strategie di diversificazione, ad esempio, con riferimento al tipo di diversificazione. Inoltre, conoscere gli aspetti negativi legati alla gestione delle risorse nei percorsi di formulazione e implementazione della diversificazione delle imprese familiari può aiutare i manager ad evitare gli errori più perniciosi e le scelte meno efficaci. Ad esempio, si metteranno in luce gli svantaggi legati al ritardo temporale delle imprese familiari nella gestione dei processi di diversificazione.

Originalità del paper. Fornendo un framework teorico che facendo leva sulla prospettiva delle risorse mette a sistema ed estende la ricerca sulle strategie di diversificazione delle imprese familiari, il lavoro perviene all'individuazione di nuove direzioni per futuri approfondimenti. In particolare, l'agenda di ricerca verrà suddivisa in due parti. In primo luogo, l'agenda di ricerca si concentra sull'estensione del framework teorico e delle sfide empiriche per studiare le strategie di diversificazione delle imprese familiari in una prospettiva resource-based. In secondo luogo, si individuano le potenzialità connesse all'integrazione della prospettiva delle risorse con altre prospettive concettuali al fine di comprendere più nel dettaglio le scelte strategiche delle imprese familiari. In particolare, si ravvedono talune linee future di ricerca fertili dall'integrazione: a) della teoria delle risorse con gli studi di strategia comportamentale; b) della teoria delle risorse con la teoria istituzionale; c) della teoria delle risorse con la social-emotional wealth theory.

Focalizzando l'attenzione sulla possibile integrazione della teoria delle risorse con gli studi di strategia comportamentale, si osserva che la dotazione di risorse dell'impresa familiare impatta sull'emergere di alcune euristiche e taluni bias cognitivi che, a loro volta, modellano gli obiettivi e la strategia dell'impresa stessa (Picone et al., 2021). Dunque, sarebbe interessante esplorare la relazione tra risorse, euristiche e bias delle imprese familiari e strategie di diversificazione. Similmente, Humphrey et al. (2021) e Labaki e D'Allura, (2021) sostengono che le emozioni influenzano la percezione e/o la effettiva disponibilità per l'impresa familiare delle risorse intellettuali, psicologiche e sociali. Si potrebbe, quindi, supporre che l'ammontare delle risorse (percepito ed effettivo) giochi il ruolo di mediatore nella relazione tra le emozioni dei membri della famiglia e la strategia di diversificazione.

Spostando l'attenzione sulle aree di ricerca di interfaccia tra la teoria delle risorse e la teoria istituzionale, riteniamo utile studiare le interazioni tra le risorse dell'impresa familiare e l'ambiente generale (Purkayastha et al., 2012). Muovendo dallo studio di Campa e Kedia (2002), si potrebbe indagare l'evoluzione dinamica delle risorse delle imprese familiari dovute alle strategie di diversificazione e il loro effetto sulle performance economiche e non alla luce dei mutamenti del contesto istituzionale (D'Allura et al., 2019).

Infine, si suggeriscono ricerche che combinino la teoria delle risorse e la social-emotional wealth theory. Quest'ultimo approccio teorico considera il successo d'impresa come un costrutto multidimensionale (Berrone et al., 2012) ed è stata utilizzata per spiegare la bassa propensione delle imprese familiari a diversificare sulla base della "necessità" della famiglia di preservare il proprio controllo (Gomez-Mejia et al., 2010). Da una prospettiva alternativa, il nostro lavoro considera anche il ruolo delle risorse delle imprese familiari (ad esempio, il capitale umano e relazionale) per identificare/scoprire e sfruttare opportunità imprenditoriali (Hsu e Chang, 2011; Kellermanns et al., 2008; Sirmon et al., 2008) essendo la strategia di diversificazione una di queste. Inoltre, si potrebbe supporre che l'ingresso di diverse generazioni aiuti a costruire le nuove capacità di un'impresa (Habbershon et al., 2003; Le Breton-Miller & Miller, 2006) e tali nuove capacità alleviano le incertezze e i rischi associati alla

diversificazione. Di conseguenza, si suggeriscono studi che integrino la teoria delle risorse e la social-emotional wealth theory per spiegare l'evoluzione della diversificazione delle imprese familiari.

Parole chiave: *teoria delle risorse; diversificazione; imprese familiari; modalità di ingresso; generazioni*

Bibliografia

- ARREGLE J.L., HITT M.A., SIRMON D.G., VERY P. (2007), "The Development of Organizational Social Capital: Attributes of Family Firms", *Journal of Management Studies*, vol. 44, n. 1, pp. 73-95.
- ASTRACHAN J.H., KLEIN S.B., SMYRNIOS K.X. (2002), "The F-PEC Scale of Family Influence: A Proposal for Solving the Family Business Definition Problem", *Family Business Review*, vol. 15, n. 1, pp. 45-58.
- BARNEY J.B. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, vol. 17, n. 1, pp. 99-120.
- BARNEY J.B. (1997), *Gaining and Sustaining Competitive Advantage*, Addison-Wesley Publishing Company, Reading, MA.
- BARNEY J.B., KETCHEN JR D.J., WRIGHT M. (2011), "The Future of Resource-based Theory: Revitalization or Decline?", *Journal of Management*, vol. 37, n. 5, pp. 1299-1315.
- BERRONE P., CRUZ C., GOMEZ-MEJIA L.R. (2012), "Socioemotional Wealth in Family Firms: Theoretical Dimensions, Assessment Approaches, and Agenda for Future Research", *Family Business Review*, vol. 25, n. 3, pp. 258-279.
- CAMPA J.M., KEDIA S. (2002), "Explaining the Diversification Discount", *Journal of Finance*, vol. 57, n. 4, pp. 1731-1762.
- CARNES C.M., HITT M.A., SIRMON D.G., CHIRICO F., HUH D.W. (2021), "Leveraging Resources for Innovation: The Role of Synchronization", *Journal of Product Innovation Management*, pp.1-17.
- CARNEY M. (2005), "Corporate Governance and Competitive Advantage in Family-Controlled Firms", *Entrepreneurship Theory and Practice*, vol. 29, n. 3, pp. 249-265.
- CHATTERJEE S. (1990), "Excess Resources, Utilization Costs, and Mode of Entry", *Academy of Management Journal*, vol. 33, n. 4, pp. 780-800.
- CHATTERJEE S., WERNERFELT B. (1991), "The Link between Resources and Type of Diversification: Theory and Evidence", *Strategic Management Journal*, vol. 12, n. 1, pp. 33-48.
- CHIRICO F., SIRMON D.G., SCIASCIA S., MAZZOLA P. (2011), "Resource Orchestration in Family Firms: Investigating How Entrepreneurial Orientation, Generational Involvement, and Participative Strategy Affect Performance", *Strategic Entrepreneurship Journal*, vol. 5, n. 4, pp. 307-326.
- CHRISMAN J.J., CHUA J.H., LITZ R. (2003), "A Unified Systems Perspective of Family Firm Performance: An Extension and Integration", *Journal of Business Venturing*, vol. 18, n. 4, pp. 467-472.
- CHUA J.H., CHRISMAN J.J., SHARMA P. (1999), "Defining the Family Business by Behavior", *Entrepreneurship Theory and Practice*, vol. 23, n. 4, pp. 19-39.
- D'ALLURA G.M., COLLI A., GOEL S. (Eds.) (2019), *Family Firms and Institutional Contexts: Business Models, Innovation and Competitive Advantage*, Edward Elgar Publishing.
- DATTA D.K., RAJAGOPALAN N., RASHEED A.M. (1991), "Diversification and Performance: Critical Review and Future Directions", *Journal of Management Studies*, vol. 28, n. 5, pp. 529-558.
- DE GROOT M.B., MIHALACHE O.R., ELFRING T. (2022), "Toward a Theory of Family Social Capital in Wealthy Transgenerational Enterprise Families", *Entrepreneurship Theory and Practice*, vol. 46, n. 1, pp. 159-192.
- DYER Jr W. G. (2003), "The family: The missing variable in organizational research", *Entrepreneurship Theory and Practice*, vol. 27 n. 4, pp. 401-416.
- DYER Jr W.G. (2006), "Examining the "Family Effect" on Firm Performance", *Family Business Review*, vol. 19, n. 4, pp. 253-273.
- ERSICK K.E., DAVIS J.A., HAMPTON M.M., LANSBERG I. (1997), *Generation to Generation: Life Cycles of the Family Business*, Harvard Business School Press, Boston, MA.
- GODFREY P.C., GREGERSEN H.B. (1999), "Where do Resources Come From? A Model of Resource Generation", *Journal of High Technology Management Research*, vol. 10, n. 1, pp. 37-60.
- GOMEZ-MEJIA L.R., MAKRI M., KINTANA M.L. (2010), "Diversification Decisions in Family-Controlled Firms", *Journal of Management Studies*, vol. 47, n. 2, pp. 223-252.
- HABBERSHON T.G., WILLIAMS M.L., MACMILLAN I.C. (2003), "A Unified Systems Perspective of Family Firm Performance", *Journal of Business Venturing*, vol. 18, n. 4, pp. 451-465.
- HABBERSHON T.G., WILLIAMS M.L. (1999), "A Resource-based Framework for Assessing the Strategic Advantages of Family Firms", *Family Business Review*, vol. 12, n. 1, pp. 1-25.
- HAFNER C. (2021), "Diversification in Family Firms: A Systematic Review of Product and International Diversification Strategies", *Review of Managerial Science*, vol. 15, n. 3, pp. 529-572.
- HAUSCHILD S., KNYPHAUSEN-AUFSESß D. (2013), "The Resource-based View of Diversification Success: Conceptual Issues, Methodological Flaws, and Future Directions", *Review of Managerial Science*, vol. 7, n. 3, pp. 327-363.

- HERNÁNDEZ-TRASOBARES A., GALVE-GÓRRIZ C. (2015), “Does Concentration of Ownership and Family Control Affect Specialisation/Diversification Business Strategies?”, *Ekonomika and Management*, vol. XVIII, n. 4, pp. 78-92.
- HERNÁNDEZ-TRASOBARES A., GALVE-GÓRRIZ C. (2020), “Effects of Family Control on the Degree and Type of Diversification: Empirical Evidence for Business Groups”, *Thunderbird International Business Review*, vol. 62, n. 1, pp. 93-105.
- HSU L.C., CHANG H.C. (2011), “The Role of Behavioral Strategic Controls in Family Firm Innovation”, *Industry and Innovation*, vol. 18, n. 7, pp. 709-727.
- HUMPHREY R.H., MASSIS A.D., PICONE P.M., TANG Y., PICCOLO R.F. (2021), “The Psychological Foundations of Management in Family Firms: Emotions, Memories, and Experiences”, *Family Business Review*, vol. 34, n. 2, pp. 122-131.
- JENSEN M.C., MECKLING W.H. (1976), “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure”, *Journal of Financial Economics*, vol. 3, n. 4, pp. 305-360.
- JONES O., GHOBADIAN A., O'REGAN N., ANTCLIFF V. (2013), “Dynamic Capabilities in a Sixth-Generation Family Firm: Entrepreneurship and the Bibby Line”, *Business History*, vol. 55, n. 6, pp. 910-941.
- KELLERMANN F.W., EDDLESTON K.A., BARNETT T., PEARSON A. (2008), “An Exploratory Study of Family Member Characteristics and Involvement: Effects on Entrepreneurial Behavior in the Family Firm”, *Family Business Review*, vol. 21, n. 1, pp. 1-14.
- KOTLAR J., DE MASSIS A., WRIGHT M., FRATTINI F. (2018), “Organizational goals: Antecedents, formation processes and implications for firm behavior and performance”, *International Journal of Management Reviews*, vol. 20, pp. S3-S18.
- LABAKI R., D'ALLURA G.M. (2021), “A Governance Approach of Emotion in Family Business: Towards a Multi-level Integrated Framework and Research Agenda”, *Entrepreneurship Research Journal*, vol. 11 n. 3, pp. 119-158.
- LE BRETON-MILLER I., MILLER D. (2006), “Why Do Some Family Businesses Out-Compete? Governance, Long-Term Orientations, and Sustainable Capability”, *Entrepreneurship Theory and Practice*, vol. 30, n. 6, pp. 731-746.
- LE BRETON-MILLER I., MILLER D. (2013), “Socioemotional wealth across the family firm life cycle: A commentary on ‘Family Business Survival and the Role of Boards’”, *Entrepreneurship Theory and Practice*, vol. 37, n. 6, pp. 1391-1397.
- LIEBERMAN M.B., MONTGOMERY D.B. (1988), “First-Mover Advantages”, *Strategic Management Journal*, vol. 9, n. S1, pp. 41-58.
- MAGRELLI V., ROVELLI P., BENEDETTI C., ÜBERBACHER R., DE MASSIS A. (2020), “Generations in Family Business: A Multifield Review and Future Research Agenda”, *Family Business Review*, 08944865211069781.
- MCGOVERN T., MCLEAN T. (2013), “The Growth and Development of Clarke Chapman from 1864 to 1914”, *Business History*, vol. 55, n. 3, pp. 448-478.
- MILLER D., STEIER L., LE BRETON-MILLER I. (2003), “Lost in Time: Intergenerational Succession, Change, and Failure in Family Business”, *Journal of Business Venturing*, vol. 18, n. 4, pp. 513-531.
- MONTGOMERY C.A., WERNERFELT B. (1988), “Diversification, Ricardian Rents, and Tobin's q”, *Rand Journal of Economics*, vol. 19, n. 4, pp. 623-632.
- MUÑOZ-BULLON F., SANCHEZ-BUENO M.J., SUÁREZ-GONZÁLEZ I. (2018), “Diversification Decisions among Family Firms: The Role of Family Involvement and Generational Stage”, *BRQ Business Research Quarterly*, vol. 21, n. 1, pp. 39-52.
- PICONE P.M., DE MASSIS A., TANG Y., PICCOLO R.F. (2021), “The Psychological Foundations of Management in Family Firms: Values, Biases, and Heuristics”, *Family Business Review*, vol. 34, n. 1, pp. 12-32.
- PURKAYASTHA S., MANOLOVA T.S., EDELMAN L.F. (2012), “Diversification and Performance in Developed and Emerging Market Contexts: A Review of the Literature”, *International Journal of Management Reviews*, vol. 14, n. 1, pp. 18-38.
- RAU S.B., ASTRACHAN J.H., SMYRNIOS K.X. (2018), “The F-PEC Revisited: From the Family Business Definition Dilemma to Foundation of Theory”, *Family Business Review*, vol. 31, n. 2, pp. 200-213.
- RUMELT R.P. (1982), “Diversification Strategy and Profitability”, *Strategic Management Journal*, vol. 3, n. 4, pp. 359-369.
- SÁNCHEZ-PEINADO L., MENGUZZATO-BOULARD M. (2009), “Antecedents of Entry Mode Choice When Diversifying”, *Industrial Marketing Management*, vol. 38, n. 8, pp. 971-983.
- SCHMID T., AMPENBERGER M., KASERER C., ACHLEITNER A.K. (2015), “Family Firm Heterogeneity and Corporate Policy: Evidence from Diversification Decisions”, *Corporate Governance: An International Review*, vol. 23, n. 3, pp. 285-302.
- SCHOENECKER T.S., COOPER A.C. (1998), “The Role of Firm Resources and Organizational Attributes in Determining Entry Timing: A Cross-Industry Study”, *Strategic Management Journal*, vol. 19, n. 12, pp. 1127-1143.
- SHARMA P. (2008), “Commentary: Familiness: Capital Stocks and Flows between Family and Business”, *Entrepreneurship Theory and Practice*, vol. 32, n. 6, pp. 971-977.

- SHEN N. (2018), "Family Business, Transgenerational Succession and Diversification Strategy: Implication from a Dynamic Socioemotional Wealth Model", *Cross Cultural & Strategic Management*, vol. 25, n. 4, pp. 628-641.
- SIEGER P., ZELLWEGER T., NASON R.S., CLINTON E. (2011), "Portfolio Entrepreneurship in Family Firms: A Resource-based Perspective", *Strategic Entrepreneurship Journal*, vol. 5, n. 4, pp. 327-351.
- SIRMON D.G., ARREGLE J.L., HITT M.A., WEBB J.W. (2008), "The Role of Family Influence in Firms' Strategic Responses to Threat of Imitation", *Entrepreneurship Theory and Practice*, vol. 32, n. 6, pp. 979-998.
- SIRMON D.G., HITT M.A. (2003), "Managing Resources: Linking Unique Resources, Management, and Wealth Creation in Family Firms", *Entrepreneurship Theory and Practice*, vol. 27, n. 4, pp. 339-358.
- STADLER C., MAYER M.C., HAUTZ J., MATZLER K. (2018), "International and Product Diversification: Which Strategy Suits Family Managers?", *Global Strategy Journal*, vol. 8, n. 1, pp. 184-207.
- TEECE D.J. (1982), "Towards an Economic Theory of the Multiproduct Firm", *Journal of Economic Behavior & Organization*, vol. 3, n. 1, pp. 39-63.
- WAN W.P., HOSKISSON R.E., SHORT J.C., YIU D.W. (2011), "Resource-based Theory and Corporate Diversification: Accomplishments and Opportunities", *Journal of Management*, vol. 37, n. 5, pp. 1335-1368.
- WERNERFELT B. (1984), "A Resource-based View of the Firm", *Strategic Management Journal*, vol. 5, n. 2, pp. 171-180.
- WILLIAMSON O.E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, Free Press-Macmillan, New York.
- ZAHRA S.A., HAYTON J.C., SALVATO C. (2004), "Entrepreneurship in Family vs. Non-Family Firms: A Resource-based Analysis of the Effect of Organizational Culture", *Entrepreneurship Theory and Practice*, vol. 28, n. 4, pp. 363-381.

Humanism in Leadership, Business, and Society: Olivetti's exemplary case

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Framing of the research. *Over the past 50 years, business strategy and organisational design have been strongly enriched to address global challenges. Concepts like CSR, corporate social responsiveness, business citizenship, and business ethics have emerged and strengthened, paving the way for practical and conceptual improvements in business management (Waddock, 2004). CSR's definition of operational measures in the workplace - safety, professional training, internal communication, work-life balance, social reporting, sanitary assistance, leisure services, employees' involvement - shows convergence with corporate welfare measures (Mallone, 2013). However, recent evolutions have moved towards strategic-oriented approaches in CSR (Farmaki, 2019), integrating responsibility in the company's value chain. The transition from an inside-out to an outside-in perspective strongly connects CRS to the business ecosystem and systemic approaches such as the Triple Bottom Line approach (Elkington, 1997), the Blended Value approach (Emerson, 2003), and the ecosystem of Shared Value (SV) (Porter and Kramer, 2011; Kramer and Pfitzer, 2016). "Creating economic value in a way that also creates value for society by addressing its needs and challenges" (Porter and Kramer, 2011, p. 4) puts forward explicitly that shared value is a new socio-economic frontier connecting profit and social progress in the enterprise. The ecosystem of SV (Kramer and Pfitzer, 2016) connects profit and societal progress in the business ecosystem and the related societal needs, environmental challenges, and social policies and processes. This evolution brings about a change in the mindset of businesspeople, economists, politicians, and legislators, blurring existing frontiers between private and public spheres. This change determines a more general transition towards the paradigm of sustainability where business and social concerns are re-integrated within both private and public, individual, and collective strategies (Elkington, 1997).*

The debate on true sustainability argues that companies' behaviours and management priorities must rest on effective and efficient solutions to increase the value of common goods (Dyllick and Muff, 2016), e.g. the creation of social and environmental value (Hall et al., 2010; Shevchenko et al., 2016; Gold and Schleper, 2017). The business ecosystem brings a variety of sources and the multifaceted nature of SV: the collective-impact efforts of multiple stakeholders to enhance value co-creation (economic) and reduce value co-destruction (environmental and social) (Camarinha-Matos et al., 2010; Ramezani and Camarinha-Matos, 2020; Dyllick and Muff, 2016). Literature underlines the difficulties in managing multiple stakeholders' needs in reaching true sustainability (Shevchenko et al., 2016) due to drastic changes in their business model. Size, innovation attitude, readiness to change, and the ability to offset stakeholder pressure might support or lock the transition. New approaches must be adopted to unlock change factors.

Purpose of the paper. *Inspired by the hints mentioned above and institutional requirements, several streams of research are exploring how to support firms to move from an inside-out to an outside-in perspective to face current global challenges. Humanistic management (HM) has become promising research, practice, policy, teaching, and education as an alternative business and development approach (Author et al., 2021). HM literature has grown out of the recent strand of studies drawing together the concepts of business ethics, conscious capitalism, cooperative capitalism, social business, social entrepreneurship, and sustainability. HM represents a novel values-based paradigm where individuals engage in long-term relationships and materialise their freedom through value-based social interactions instead of maximising their immediate utility (Melé 2016; Pirson, 2017). At the heart of HM, there is the unconditional support of the dignity of every human being that becomes a core organisational goal (Spitzeck, 2011) affecting both the inside and outside management perspectives. Approaching business change from the HM lens opens questions on change management through leadership and the impact of this transformation on the business ecosystem (Lawrence and Pirson, 2015; Shevchenko et al., 2016). Despite HM has born with a strong individual-level emphasis within the business context, it has developed over the decades to include the multi-level nature of responsible managerial actions (Laasch et al., 2020; Pirson, 2020) - from the humanizing of business (meso level) to the humanism in economies and societies (macro and supra levels). At the organizational level, responsible leaders are oriented to the development of human virtue to its fullest extent thus affecting employee welfare and commitment (Miska and*

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Mendenhall, 2018), grounding leaders' legitimacy for corporate activities and corporate responsibility for systemic consequences. At the business ecosystem level, responsible practices and routines foster trust, company image and reputation, but also political legitimacy (Pirson, 2015; Gomes et al., 2022).

Entering the debate, this paper explores the interplay between leadership, innovation of firm's business model and business ecosystem by examining an exemplary single case study (Yin, 2014) in Italy. Olivetti, based in Ivrea nearby Turin and operated between WWII and the 1960s, specialised in the electronic industry. The company has been led by a progeny of enlightened founders and leaders - Camillo Olivetti, the founder and, more prominently, the son, Adriano Olivetti. This case is not original, as it has been already analysed from both CRS and corporate welfare perspectives (Colombo and Gazzola, 2014; Gallino, 2014; Gallino and Ceri, 2001; Strati, 2020). However, we use this case "in the context of making a conceptual contribution [and employ it] as an illustration" (Siggelkow, 2007, 21) from the novel perspective of humanistic management.

Methodology. An inductive longitudinal research design (Gioia et al., 2013) is used to analyse this exemplary single case study (Yin, 2014) that spans seven decades, from the start-up phase of the company, i.e., 1896 when Camillo Olivetti founded "C. Olivetti & C." - the first Italian factory of typewriters - to the death of Adriano Olivetti in 1960. Qualitative data were collected from newspapers and Adriano Olivetti's major writings to evaluate whether and how the leader's and company's conducts may be directly or indirectly connected to humanistic management elements - dignity, ethics, and legitimacy (Pirson and Amann 2010). By exploiting several historical documents, we map out the evolution of Olivetti's managerial approach allowing the "detection and scanning of, and response to, the social demands to achieve social legitimacy, greater social acceptance and prestige" (Garriga and Melé, 2004, p.58). This exploratory effort aims to draw attention to the modernity of Olivetti's thought, laying the foundations for a cutting-edge reflection on humanism entering the multilevel perspective of organisational management, i.e., leadership, business management, and business ecosystem. This multilevel approach to humanistic management supports shedding light on the opportunities and challenges of the transforming process of capitalism.

Results. Olivetti's original theorisation holds the seeds and foreruns innovative academic literature on the firm's role in the economy and society. Olivetti company showcases the reconciliation between its profit and its social functions in the economy and society. In 2018, the UNESCO committee recognised the value of Olivetti's vision by awarding the town of Ivrea for the industrial and Avant-guard town planning, marked by the presence of the Olivetti company (UNESCO, 2018). Due to its modernity, Olivetti can be considered an exemplary case of humanistic management in practice. The dignity, ethics, and legitimacy key to humanistic management are recognised in its leadership, business management, and positive impact on its ecosystem.

Leadership. Adriano Olivetti, Camillo's son, promoted modernisation and corporate reformism aimed primarily at improving the dignity of workers within corporate performance. "Until the technical progress [...] was not achieved and the financial success that was the main consequence allowed it, I was not induced to deal with the relations between the workers and the factory", Adriano stated (Olivetti, 1953, p.13). To overcome conflicts coming from "alienation", Olivetti - in his well-known discourse soon after the re-opening of the factory in June 1945 - stated that workers, entrepreneurs, and the community should be intertwined by a "reciprocal understanding" being at the core of mutual respect. Employees had to know "the effects and the aims of their work, to understand where the factory goes and why it goes [...], to give a deeper sense to the job and to make workers conscious about individual and collective aims of their work".

Olivetti's vision seems to take shape primarily from the need to embody and convey democratic and social issues. His writings clearly show the idealistic, unique and in some respects "utopian" nature of this thought. Social responsibility was not a "declared" means to increase the company profit, but rather a means to boost progress and the moral, social and collective well-being. Therefore, Olivetti's leadership unveiled a corporate philosophy with an extraordinary "culture" that displays great "humanity" (Gallino and Ceri, 2001).

Ethics become the foundation of Olivetti's actions and responsibility towards the workers and community. From the beginning of the twentieth century, both Camillo and Adriano Olivetti introduced several social services for the company's employees - maternity and infancy assistance, such as nurseries and summer camps, and to the reduction of working time at equal pay with the introduction of the 5-day work week (Olivetti, 1968). Other social services - that stood out for their variety and quality - were also provided to the local community - free technical and architectural consultancy for the surrounding villages of Ivrea. The introduction of these services fostered legitimacy and trust in Olivetti's social actions (Berta, 1980).

Business management. After his degree in chemical engineering and a working period in the US, Adriano Olivetti (1901-1960) gradually took the company's lead, becoming general manager and effectively head of the company in 1933. From the early 1930s, Olivetti showed an active interest in corporate welfare programs to improve the living, social and cultural conditions of its workers. Its ambition to create a humanistic corporate environment is mirrored in the Burzio Fund (1932), the Care Card (1949) and the corporate welfare plan (1950), along with related projects.

The Burzio Fund, which connected Camillo and Adriano's management direction, was created as a commemorative Fund in honour of Domenico Burzio. This first technical director contributed decisively to the company's growth. Camillo settled Domenico Burzio's Fund as an immediate assistance organism to deal with employees' concerns when they met poverty, health, and family care problems. The "Care Card", drawn up between 1949 and 1950 by the Management Council, is the manifesto embedding the commitment of the company for the social responsibility, explicitly taking distances from any paternalistic intent and other companies' recent initiatives (Cesari, 2016; Astarita, 2000; Berta, 1980). The related corporate welfare plan, implemented by Adriano in the 1950s, was highly

sophisticated: the family was considered the first and essential unit of communitarian relations in the workplace and out-of-work (Olivetti, 1946). "It was necessary to create a fair and human authority that could reconcile wealth in the interests of all [...] and thus demonstrate that the factory was a common good and not a private interest", Olivetti (1956, p.11) declared.

Olivetti's welfare plan also embedded a cultural project inspired by the principles of beauty, democracy, efficiency, and safety for any enterprise's stakeholder, as Adriano pointed out explicitly in his literary works (Olivetti; 1945, 1946, 1960). For example, the first company's advertising office, opened in 1928, later employed some of the most quoted European artists and intellectuals distinguishing Olivetti's longstanding commitment to aesthetics.

Trust and reputation supported the Olivetti company to enjoy unprecedented growth following the war. Adriano Olivetti opened the "New Canaan" in the United States (1952), a research laboratory on electronic computers and founded the "Società Generale Semiconduttori" (General Society of Semiconductors), to independently develop the transistors, core devices of the new electronic technologies (Pisa, 1957). The entrepreneurial success of Adriano Olivetti was formally consecrated by the "National Management Association" of New York (1957), awarded him a prize for "the avant-garde action in the field of international business management" (*Rivista aziendale Notizie Olivetti*, January 1957, n.43, p.38).

Business ecosystem. Adriano Olivetti's unconditional respect for the dignity of every person was the foundation for interpersonal interactions both within and outside the business. Issues related to the surrounding environment, public administration and political fields were embedded into the company's management. "I saw that every problem of the factory [...] became an external problem and that only who was able to coordinate internal problems with external ones would have managed to find a correct answer for everything" (Olivetti, 1952, p.11).

Levering his personal experience as a chief of industry, Olivetti acted and was formally entrusted with several responsibilities. The Olivetti's Cultural Centre, the Spille d'Oro Association, and the Olivetti Recreational Sports Group (established in 1947) showcase the cultural plan and related services designed to benefit the company's social ecosystem. The former provided an organic set of studies, information, and recreation tools through the factory library (61,000 volumes and 3,000 periodicals in 1961), cultural events and debates, art exhibitions, film screenings. Later (the '50s and 60's), conferences, concerts, and shows took place near the factory, even during lunch break hours. The Spille d'Oro Association (1946), which grouped employees with more than 25 years of seniority, aimed to support long-term relations between the company's employees through sporting, cultural activities, group travelling, voluntary works, and entertainment. This Association had the main scope to protect the well-being and interests of older workers and retirees. Olivetti Recreational Sports Group included infrastructures and planned activities related to improving physical and psychological fitness, fun, and social engagement of the company's workers and their families.

The ever-increasing expansion of the factory allowed Olivetti to embark on the ambitious plan to restructure and renovate the entire town of Ivrea, which involved building schools, housing, roads, recreation facilities. Olivetti's renovation urban plan was one of the pillars of a multi-level and comprehensive project for the development plans of different urban and rural areas (Ivrea, Matera and Pozzuoli) that he developed as President of the National Institute of Urban Planning from 1952 until he died.

Adriano also proposed a path-breaking political solution to face societal development problems based on each local community's specificities. The new political-administrative and economic structure should have been based on "communities" to achieve administrative efficiency and harmonious productive activities. According to him, understanding communities' needs and establishing a sense of community was central in supporting a shared vision of action based on the individual's ambitions, inclusivity, and collective well-being. In this regard, he proposed the idea of a "natural" local community that had to be "neither too large nor too small [...] but in proportion to mankind". This community-based administrative and economic structure was required to reveal local "expressions of life" (Olivetti, 1960, p.60) and to strengthen local "communitarian ties between workers and farmers". Traditional geographical unities (like the neighbourhood, the diocese, the precinct, and the constituency) make it possible to create an ideal harmony that had "its foundations" in nature and history and the life experiences of the individuals. By looking at the risks of social polarisation, Adriano Olivetti was supporting that the new models of development should have been consistent with the "the optimal dimension of local auto-government" (Olivetti, 1960, pp.37-51), for example, a consortium of municipalities able "to strengthen common bonds of solidarity between farmers and workers" (Olivetti, 1960, p.45).

Adriano engaged in political activism founding the Movimento Comunità (1948), a social, cultural, meta-political movement that in the 1950s became a proper political party. He also settled a newspaper and a publishing house to further his social-political ideas and those of the philosophers and other social scientists he was inspired by. In 1956, Olivetti became the mayor of Ivrea, and in 1958 he presented himself for political elections with the Community Political Party. He obtained two seats in Parliament.

Research limitations. This exploratory single case study is mainly based on the entrepreneur's viewpoint within its specific context, i.e., historical, cultural, and geographical. Overcoming the sole entrepreneur viewpoint requires triangulation through in-depth interviews with key actors, such as local politicians, local entrepreneurs, and scholars from Centro Studi Olivetti of Ivrea. In addition, the analysis of the context in terms of social and cultural capital must be considered to evaluate whether and how it has affected both the leader's and the firm's choices over time. Further research should also deal with the exploration of HM in contemporary multiple case studies that span a variety of contexts and stakeholders within the firms and their business ecosystem.

Managerial implications. *A paradigmatic shift in leadership and business is needed to address global social and environmental challenges. The Olivetti case study allows understanding how the communitarian enterprise depends on the local community's solid cooperation acting as the main "stakeholder" taking part in localised productive processes and creating a communitarian shared value. The entrepreneurial style was combined masterfully with the local society's needs, historical vocations, and know-hows, supporting collective goods and shared values. The Olivettian oeuvre, which cannot be considered just a simple "historical" model of enlightened capitalism, can represent a concrete model of business responsibility for local development. The implementation of development models inspired by "communitarian" strategies is easily associated with the quadruple-helix model of social innovation (Carayannis et al., 2019). The economic, political, and educational systems are strictly intertwined and encompassed within the needs and norms of society and the embedded firms. Literature underlines the difficulties companies face to reach true sustainability (Shevchenko et al., 2016). This paper demonstrates that dignity, ethics, and legitimacy allow us to connect leadership, business management, and corporate responsibility for systemic consequences (sustainability), attempting to promote human flourishing, adding value to society at large, and helping to alleviate social problems through business and economic activities.*

The originality of the paper. *While Olivetti's case study is not novel, adopting a humanistic management approach to analyse it is original and promising. Its strength lies in bridging different streams of research, including CRS, CW, true sustainability, and SV. In so doing, HM may set the ground for a transition towards alternative business and development models. The contemporary relevance of human dignity may interpret and manage the weaknesses of traditional approaches and cope with challenges and new scenarios, including the current COVID-19 pandemic crisis. Olivetti's case study is accurate humanistic management in practice: Olivetti's philosophical viewpoint crosscut the enterprise and its socio-economic and institutional ecosystem, forerunning the debate on the future of capitalism: the mission of the enterprise, the impact on the economy and society, the social state, and (dignity in) labour policies.*

Keywords: *CSR; true sustainability; humanistic management; Olivetti; humanistic leader; humanism in business*

References

- ARTS B. (2002), "Green Alliances' of Business and NGOs. New Styles of Self-Regulation or 'Dead-End Roads'?", *Corporate Social Responsibility and Environmental Management*, vol. 9, n. 1, pp. 26-36.
- ASTARITA R., DE SETA C. (2000), *Gli architetti di Olivetti: una storia di committenza industriale*, Franco Angeli, Milano.
- BERTA G. (1980), *Le idee al potere: Adriano Olivetti tra la fabbrica e la comunità* (Vol. 4), Edizioni di Comunità, Ivrea.
- CAMARINHA-MATOS L.M., AFSARMANESH H., BOUCHER X. (2010), The Role of Collaborative Networks in Sustainability, in Camarinha-Matos L.M., Boucher X. and Afsarmanesh H. (Eds.), *Collaborative Networks for a Sustainable World*, Springer Berlin Heidelberg, Berlin, Heidelberg, pp. 1-16.
- CARAYANNIS E.G., GRIGOROUDIS E., STAMATI D., VALVI T. (2019), *Social Business Model Innovation: A Quadruple/Quintuple Helix-Based Social Innovation Ecosystem*, IEEE.
- CARROLL A.B. (1979), A Three-dimensional Conceptual Model of Corporate Performance, *Academy of Management Review*, vol. 4, pp. 497-505.
- CESARI P. (2016), *Architettura per un'idea. Mattei e Olivetti, tra welfare aziendale e innovazione sociale*, Il Mulino: Bologna.
- CILLO V., PETRUZZELLI A.M., ARDITO L., DEL GIUDICE M. (2019), "Understanding sustainable innovation: A systematic literature review", *Corporate Social Responsibility and Environmental Management*, vol. 26, pp. 1012- 1025.
- COLOMBO G., GAZZOLA P. (2014), "Ethics and CSR: The strategy debate", *Revista Interdisciplinar de Sociologia e Directo*, vol. 16, n. 1, pp. 85-98.
- DIMANCHE F., GIUDICI E., CAMARGO B. A., WINCHENBACH A. (2021), "Enhancing tourism education: The contribution of humanistic management", *Humanistic Management Journal*, vol. 6, n. 3, pp. 429-449.
- DYLLICK T., MUFF K. (2016), "Clarifying the Meaning of Sustainable Business: Introducing a Typology from Business-as-Usual to True Business Sustainability", *Organization & Environment*, vol. 29, n. 2, pp. 156-174.
- ELKINGTON J. (1997), "The triple bottom line", *Environmental management: Readings and cases*, vol. 2, pp. 49-66.
- EMERSON J. (2003), "The Blended Value Proposition: Integrating Social and Financial Returns", *California Management Review*, vol. 45, n. 4, pp. 35-51.
- EUROPEAN COMMISSION. DIRECTORATE-GENERAL FOR EMPLOYMENT. (2001), *Promoting a European Framework for Corporate Social Responsibility: Green Paper*, Office for Official Publications of the European Communities, European Commission.
- GALLINO L., CERI P. (2001), *L'impresa responsabile: un'intervista su Adriano Olivetti*, Edizioni di Comunità, Milano.
- GALLINO L. (2014), La responsabilità sociale dell'impresa. Il caso Olivetti, *Parolechiave*, vol. 22, n. 1, pp. 201-214.
- GARRIGA E., MELÉ D. (2004), "Corporate social responsibility theories: Mapping the territory", *Journal of business ethics*, vol. 53, n. 1, pp. 51-71.

- GOMES J.F., MARQUES T., CABRAL C (2022), "Responsible leadership, organizational commitment, and work engagement: The mediator role of organizational identification", *Nonprofit Management and Leadership*, 2022, pp. 1-20.
- GIOIA D.A., CORLEY K.G., HAMILTON A.L. (2013), "Seeking qualitative rigor in inductive research: Notes on the Gioia methodology", *Organizational research methods*, vol. 16, n. 1, pp. 15-31.
- GOLD S., SCHLEPER M.C. (2017), "A pathway towards true sustainability: A recognition foundation of sustainable supply chain management", *European Management Journal*, vol. 35, n. 4, pp. 425-429.
- HALL J.K., DANEKE G.A., LENOX M.J. (2010), "Sustainable development and entrepreneurship: Past contributions and future directions", *Journal of business venturing*, vol. 25, n. 5, pp. 439-448.
- KRAMER M.R., PFITZER M.W. (2016), "The ecosystem of shared value", *Harvard Business Review*, vol. 94, n. 10, pp. 80-89.
- LAWRENCE P.R., PIRSON M. (2015), "Economistic and humanistic narratives of leadership in the age of globality: Toward a renewed Darwinian theory of leadership", *Journal of Business Ethics*, vol. 128, n. 2, pp. 383-394.
- LAASCH O., SUDDABY R., FREEMAN R.E., JAMALI D. (2020), "Mapping the emerging field of responsible management: domains, spheres, themes, and future research", In Laasch O., Suddaby R., Freeman R., and Jamali D. (Eds.), *Research Handbook of Responsible Management*, pp. 2-35. Edward Elgar Publishing.
- MALLONE G. (2013), *Il secondo welfare in Italia: esperienze di welfare aziendale a confronto. Percorsi di secondo welfare*, Centro Einaudi, Torino
- MATTEN D., MOON J. (2008), "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility", *Academy of Management Review*, vol. 33, n. 2, pp. 404-424.
- MELÉ D. (2016), "Understanding humanistic management", *Humanistic Management Journal*, vol. 1, n. 1, pp. 33-55.
- MISKA C., MENDENHALL M.E. (2018), "Responsible leadership: A mapping of extant research and future directions", *Journal of Business Ethics*, vol. 148, n. 1, pp. 117-134.
- OLIVETTI A. (1945), *L'ordine politico della comunità. Le garanzie di libertà in uno Stato socialista*, Nuove Edizioni Ivrea, Ivrea.
- OLIVETTI A. (1946), *L'ordine politico della comunità. Dello stato secondo le leggi dello spirito*, Edizioni di Comunità, Roma.
- OLIVETTI A. (1952), *Società stato comunità*, Edizioni di Comunità, Roma.
- OLIVETTI A. (1953), *Servizi e assistenza sociale di fabbrica*, Edizioni di Comunità, Roma.
- OLIVETTI A. (1956), *La fabbrica e la comunità*, Edizioni di Comunità, Roma.
- OLIVETTI A. (2014), *Le fabbriche di bene* (Vol. 4), Edizioni di Comunità, Roma.
- OLIVETTI A., SAIBENE A. (1960), *Città dell'uomo*, Edizioni di Comunità, Roma.
- OLIVETTI C. (1968), *Lettere Americane* (1893-1894), Edizioni di Comunità, Milano.
- PIRSON M. (2015), "Conceptualizing humanistic management as an alternative to managing in a post crisis world", *Human Systems Management*, vol. 34, n. 1, pp. 1-4.
- PIRSON M. (2017), *Humanistic management: Protecting dignity and promoting well-being*, Cambridge University Press.
- PIRSON M. (2020), "A humanistic narrative for responsible management learning: An ontological perspective", *Journal of Business Ethics*, vol. 162, n. 4, pp. 775-793.
- PORTER M.E., KRAMER M.R. (2011), "The big idea: Creating shared value", *Harvard Business Review*, January - February, pp. 3-17.
- RAMEZANI J., CAMARINHA-MATOS L.M. (2020), "Approaches for resilience and antifragility in collaborative business ecosystems", *Technological Forecasting and Social Change*, vol. 151, n. November 2019 P. 119846.
- SHEVCHENKO A., LÉVESQUE M., PAGELL M. (2016), "Why firms delay reaching true sustainability", *Journal of Management Studies*, vol. 53, n. 5, pp. 911-935.
- SIGGELKOW N. (2007), "Persuasion with case studies", *Academy of management journal*, vol. 50, n. 1, pp. 20-24.
- STRATI A. (2020), *Beauty of responsible management: The lens and methodology of organizational aesthetics*, In Research Handbook of Responsible Management, Edward Elgar Publishing.
- WADDOCK S.A. (2004), "Parallel universes: Companies, academics, and the progress of corporate citizenship", *Business and Society Review*, vol. 109, pp. 5-42.

On the gap between CSR Talk and CSR Walk: Linguistic-based evidences of a formative and iterative process

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Framing of the research. *The growing concerns about a number of societal issues has fostered the emergence of new conceptualizations of capitalism (Adler, 2014) and has renewed the discussion about the role of corporations in society (Lazzarini, 2021; Mayer, 2021). The well-established paradigm of “shareholder primacy” has been denying for decades any form of corporate social responsibility (CSR) other than profit maximization (Friedman, 1962), but business ethics scholars have been proposing alternative CSR views that envisage direct corporate commitment in creating social and environmental value. Together with them, scholars and opinion leaders from different disciplines and background have intensified their contributions in this field in the last decade (Hollensbe et al., 2014; Henderson, 2021; Rocha et al., 2021).*

A lot of work is currently being carried out to assess the theoretical validity and the empirical effectiveness of changes to the present capitalist system, including new roles for corporations, in order to overcome the evident shortcomings of shareholder capitalism, such as income inequalities, social injustices or environmental degradation (de Bakker et al., 2020).

In particular, the stakeholder theory of the corporation (Freeman, 1984) - which lays its foundation on a Kantian vision of capitalism (Evan and Freeman, 1988) - has received scholarly attention because of the consideration of social expectations by multiple stakeholders, not just shareholders, on corporate activities and outcomes. According to such theory, stakeholder-oriented corporations should strategically balance value creation and value destruction processes for customers, employees, communities, suppliers, shareholders and other relevant parties, in order to financially survive and societally prosper. This appears to be especially necessary in today’s globalized capitalism, characterized by great institutional complexity and a rapidly changing business environment (Greenwood et al., 2011; Vermeulen et al., 2016).

In today’s business environment, corporations may face divergent and, sometimes, conflicting interests, goals, and demands related to economic, social and environmental issues (Greenwood et al., 2011; Zyglidopoulos et al., 2012). The difficulties to combine different logics, which may be even conflicting (Pache and Santos, 2010), can lead corporations to take a pragmatic approach and seek external legitimacy (Scherer and Palazzo, 2011), which, in turn, generates a misalignment between real actions and what is communicated to external stakeholders (Boxenbaum and Jonsson, 2008; Ramus and Montiel, 2005; Testa et al., 2018).

In particular, to this regard, the relationship between actions (CSR walk) and communication (CSR talk) has attracted the attentions from numerous scholars in the last two decades (Schoeneborn et al., 2020). A research stream has interpreted the discrepancy between talk and walk as a proxy of the concept of greenwashing (Diouf and Boiral, 2017; Lyon and Montgomery, 2015; Testa et al., 2018) and communication strategy is used, intentionally or unintentionally, by corporations to provide a better projection of itself and satisfy external demands (Banerjee, 2008). On the other hand, an opposite research lens relies on an optimistic view by emphasizing the aspirational role of CSR communication as a lever for improving CSR actions in the short and medium term (Haack and Schoeneborn, 2015; Penttilä, 2020).

However, the two approaches seem to fall in what Grewatsch, Kennedy and Bansal (2021) have recently called a reductionist approach taken by many strategic scholars. The relations between communication and actions are less linear and fluid than how an optimistic or a negative view suggest. Research should move to explore co-evolutionary dynamics (Grewatsch et al., 2021) where the relationship between talk and walk may change according to internal and external factors (Feix and Philippe, 2020; Winkler et al., 2020).

An interesting context where explore that relationship is undoubtedly the purpose-driven corporations which can be

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interpreted as a more comprehensive reply to a complex institutional environment (Rey et al., 2019). Defined as “the reason for which business is created or exists, its meaning and direction” (Hollensbe et al., 2014: 1228), corporate purpose drives strategic decisions and actions of corporations (Henderson and Van den Steen, 2015). While Milton Friedman (1962) paved the way for shareholder primacy, arguing that the social responsibility of corporations was to maximize profits, within an economics of purpose, corporations aim to “to produce profitable solutions to the problems of people and planet and not to profit from producing problems for people or planet” (Mayer, 2021: 889).

Along these lines, corporations themselves have been recently making declarations about their commitment towards new strategic orientations. An excellent example of this is the Business Roundtable Statement on the Purpose of a Corporation released in August 2019. The 181 American CEOs who first signed it committed to equally deliver value to five categories of stakeholders, namely customers, employees, suppliers, the community and shareholders. Harrison, Phillips and Freeman (2020:1225) discussed the implications of the Business Roundtable Statement under the stakeholder theory lenses, claiming that it “serves as an important signal that the tide has shifted, replacing shareholder primacy with a multistakeholder purpose”. As a matter of fact, such a statement opens up plenty of research opportunities on stakeholder-oriented performance and corporate metrics.

Purpose of the paper. In order to contribute to understand the dynamics behind CSR communication and actions, we use the rhetorical lens recently applied to the research on aspirational talk (Christensen et al., 2013; Winkler et al., 2020).

On the basis of the mentioned Business Roundtable Statement, we empirically explored how the adoption of the new multistakeholder purpose influenced CSR strategies. More specifically, we linguistically compared the Business Roundtable Statement with the extra-financial reports of the signatory companies in order to understand the role played by multistakeholder purpose in filling the gap between CSR talk and CSR walk.

First, for each company, we calculated a score of semantic similarity between the Business Roundtable Statement and its extra-financial report, differentiating for stakeholder type. Second, by clustering those similarity scores, we created four “Purposivity profiles”. Third, we analyzed the extra-financial reports with a cognitive-language perspective, using the language categorization of Crilly et al. (2016), which indicates if a company is most likely to be a CSR implementor or CSR decoupler. In this way we created an implementor scoring index that we applied to our sample of companies. Finally, we evaluated the differences between the semantic similarity scores and the implementor scores among the four Purposivity profiles.

Using the methodology that we just synthetically described, we found that companies with high semantic similarities scores exhibit lower implementor scores than companies with low semantic similarities scores. There is a negative correlation between the semantic and implementor results that we interpreted in light of the recent literature about the formative relationships between CSR talk and walk (Schoeneborn et al., 2020), the aspirational role of CSR talk (Christensen et al., 2013) and the political conception of corporate responsibility (Scherer and Palazzo, 2007).

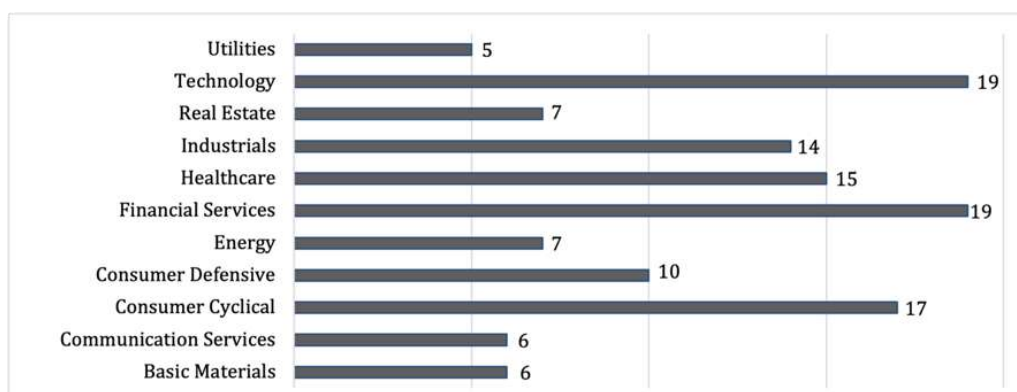
Methodology.

Data Collection. Our starting sample consisted of the 181 companies that signed the BRT Statement when it was first released in August 2019. Although there have been signatures updates - in July 2021 the signature companies reached 243- we did not include later companies to avoid results bias due to temporal differences in commitment towards the declared corporate purpose.

In September 2021, we collected the EFRs of analyzed companies via their websites and publicly available databases. We only included (1) companies that were classified by sector according to the Global Industry Classification Standard (GICS) and only those EFRs (2) that covered years 2019 or 2020 and (3) that were available in downloadable versions. In this way, starting from 181 signatory companies, we reached a final sample of 120 valid observations after eliminating 47, 9 and 5 in the abovementioned sampling phases.

We classified companies according to the GICS sector (Figure 1).

Fig. 1: Analyzed companies' sector according to Global Industry Classification Standard (n=120)



We classified companies' EFRs according to the covered year (i.e., 2019 or 2020), and specific report type (i.e., Corporate Citizen Report, CSR Report, Environmental Report, ESG Report, GRI Report, Impact Report, Integrated Report or Sustainability Report). In case both 2019 and 2020 EFRs were available at the time of data collection, we selected the most recent EFR (Table 1).

Tab. 1: Report type and report covered year of analyzed extra-financial reports

Report Type	Report covered Year		Total by report type
	2019	2020	
Corporate Citizen Report	2	5	7
CSR Report	12	19	31
Environmental Report	0	2	2
ESG Report	1	16	17
GRI Report	0	5	5
Impact Report	0	6	6
Integrated Report	0	3	3
Sustainability Report	8	41	49
Total by year	23	97	120

Semantic analysis. Language models can recognize relationships between individual words in a particular context and encode this information into numerical vectors suitable for further statistical analysis. These numerical vectors store semantic and syntactic information so that similar numerical vectors tend to have similar meanings. These innovative text representations can be used for semantic similarity analysis, clustering, and classification.

In recent years, the so-called Neural Language Models based on transformer architectures (Peters, Neumann, Zettlemoyer & Yih, 2018) have marked a new era for NLP, outperforming previous statistical approaches (Landauer, Foltz & Laham, 1998) in several NLP Task. In fact, these language models are trained on large scale to solve multiple NLP tasks (such as prediction of the next word or phrase in a linguistic context, question answering, sentiment analysis, paraphrasing) and generate a rich textual representation that can be universally transferred to a wide variety of NLP tasks, such as semantic similarity, clustering, paraphrase detection, and text classification.

In our study, we semantically compared sentences of the BRT Statement that the sample companies had signed with sentences of corporate EFRs. In particular, we applied the Universal Sentence Encoder (USE) based on the Transformer model developed by Cer et al. (2018) to encode purpose declaration and CSR communication sentences into 512-dimensional vectors which were compared semantically using the cosine similarity formula:

$$\text{similarity} = \cos(\theta) = \frac{A \cdot B}{\|A\| \cdot \|B\|}$$

The cosine similarity between two vectors of attributes, A and B, is the division between the dot product of vectors and the product of the Euclidean norms.

We first manually extracted five sentences corresponding to the five categories of stakeholders to which companies themselves declared to commit in the BRT Statement (see Table 2), while we used Spacy library (Honnibal & Montani, 2017) to automatically split each EFR in sentences.

Tab. 2: BRT Statement sections corresponding to stakeholder categories.

Stakeholder	BRT Statement section
Customers	"Delivering value to our customers. We will further the tradition of American companies leading the way in meeting or exceeding customer expectations."
Employees	"Investing in our employees. This starts with compensating them fairly and providing important benefits. It also includes supporting them through training and education that help develop new skills for a rapidly changing world. We foster diversity and inclusion, dignity and respect"
Suppliers	"Dealing fairly and ethically with our suppliers. We are dedicated to serving as good partners to the other companies, large and small, that help us meet our missions."
Community and Environment	"Supporting the communities in which we work. We respect the people in our communities and protect the environment by embracing sustainable practices across our businesses"
Shareholders	"Generating long-term value for shareholders, who provide the capital that allows companies to invest, grow and innovate. We are committed to transparency and effective engagement with shareholders."

Second, for each company analyzed, we calculated scores of semantic similarity on the basis of the comparison between all the EFR' sentences and each section of the BRT statement. For instance, the Customers section in the BRT

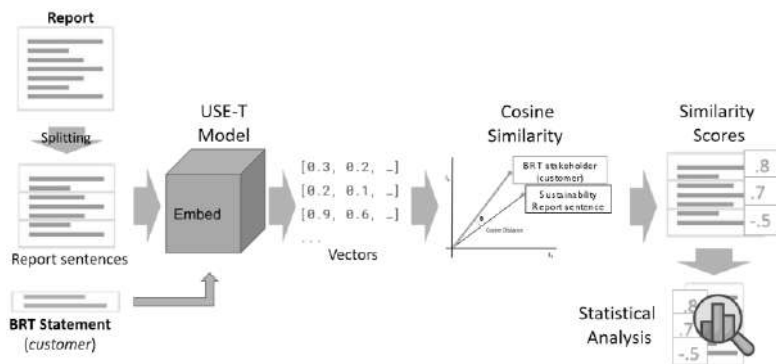
Statement would be compared with the n EFR sentences of Company A, obtaining n scores of semantic similarity that referred to the Customers section, and this operation would be repeated for the other four sections of the BRT Statement, obtaining $5*n$ scores¹. This calculation was made for all 120 companies.

Scores of semantic similarity vary from -1 to +1. Low values indicate a higher distance in terms of linguistic context between – in our case - the EFRs sentences and the BRT section analyzed, while high values indicate the opposite. With higher distance, we mean that the specific EFR sentence analyzed is semantically far in terms of words used and linguistic context from the BRT Statement section compared to it.

Third, for each company, we grouped all the semantic similarity scores obtained for each one of the five BRT stakeholder categories and we computed the median for each category. Each one of the five values obtained therefore represents the median semantic similarity between what is written in the BRT Statement with regard to a specific stakeholder category and what is written in a specific company’s EFR.

In a nutshell, the semantic analysis provided a 5-scores (i.e. for each stakeholder category) linguistic evaluation for each one of the 120 companies that indicates to what extent the words/text of each EFR semantically corresponds to the words/text of the BRT Statement (see Figure 2).

Fig. 2: The Semantic Similarity Pipeline to compare BRT Statement and extra-financial reports



Cluster analysis. We then applied a cluster analysis to the semantic analysis results (five scores of linguistic evaluation for each one of the 120 companies), using K-Means clustering algorithm (MacQueen, 1967). The clusters that were obtained are labeled as Purposivity Profiles and group together companies according to the semantical similarity between their EFR and the BRT Statement.

First, we used the Elbow Method (Kodinariya & Makwana, 2013) with Within-Cluster-Sum-of-Squares to determine the optimal number of clusters to be used in our study. We therefore randomly initialized the K-Means algorithm for a range of K values and plotted it against the WCSS for each K value. The “elbow” (the point of inflection on the curve) is a good indication that the underlying model fits best at that point.

Second, we used the optimal value of clusters as a parameter for K-Means to cluster our observations based on the closeness of semantic similarity scores on stakeholders.

Third, we labelled the clusters obtained in Purposivity Profiles and we plotted the results.

Cognitive-linguistics analysis. Drawing on the study by Crilly et al. (2016), we also analyzed the 120 EFRs from a cognitive-linguistic perspective. To do so, we first used the grammatical categorization employed by Crilly et al. (2016) to evaluate the companies EFRs from a cognitive-language perspective. In particular, we used the LIWC Software - setting the Internal Dictionary 2007 – to obtain for each company’s EFR the percentage of words using (1) exclusive language, (2) inclusive language and (3) the ratio of past-oriented language on future-oriented language. The results for the 120 EFRs were automatically provided by LIWC Software on a worksheet.

Second, we created an Implementor Score based on the grammatical interpretation of language given by Crilly et al. (2016), who empirically demonstrated that exclusive language is mostly used by implementor companies – i.e., companies in whose cases CSR talk does correspond to CSR walk – while inclusive language is mostly used by decoupler companies – characterized by a gap between CSR talk and CSR walk. Moreover, Crilly et al. (2016) also found that higher values of the ratio between past to future language are mostly associated with implementor companies.

Our implementor score is obtained by a formula according to which “Past/Future” is equal to the ratio between past to future oriented language, “Exclusive/Inclusive” is equal to the ratio between exclusive to inclusive oriented language and “scaling” is an operator that scales the input ratio between zero and one.

$$Imp_{score} = scaling \left(\frac{Past}{Future} \right) + scaling \left(\frac{Exclusive}{Inclusive} \right)$$

¹ It is worth precisating that each report of the 120 sample companies contains a different number of sentences

Third, we analyzed the distribution of implementor scores on Purposivity profiles. In particular, we evaluated if companies belonging to higher Purposivity Profiles – i.e. those profiles for which CSR talk highly semantically corresponds to the BRT statement – also result to have higher values of implementor scores or not. We also box-plotted the correlation results.

Results. In this section we describe and discuss the results at aggregate level, i.e., at sector and stakeholder category level. For each company, we reported the 5-scores semantic evaluation described in the method, the cluster analysis, as well as the results of the cognitive-linguistic analysis, that are the company Implementor Score and the factors necessary to calculate it. Companies are anonymized but we reported the sector which they belong to.

Semantic analysis

We grouped the company level results by sector, computing the average for stakeholder of semantic similarity scores of companies (Table 3).

Tab. 3: Stakeholder Average of semantic similarity scores in percentage grouped by sector

Sector	AVG Customers (%)	AVG Employees (%)	AVG Suppliers (%)	AVG Communities (%)	AVG Shareholders (%)	AVG by Sector (%)
Basic Materials	6.40	8.40	7.00	8.20	8.20	7.64
Communication Services	7.17	10.17	7.83	9.83	8.17	8.63
Consumer Cyclical	6.38	7.69	6.63	7.06	8.00	7.15
Consumer Defensive	6.90	9.00	7.50	9.50	8.60	8.30
Energy	6.57	8.57	6.71	8.40	7.71	7.60
Financial Services	7.56	9.44	8.61	9.50	9.28	8.88
Healthcare	7.13	8.87	8.13	8.60	8.53	8.25
Industrials	7.46	8.77	8.15	9.08	7.77	8.25
Real Estate	7.43	8.29	7.29	9.43	8.14	8.11
Technology	6.33	8.56	7.44	8.67	7.33	7.67
Utilities	6.60	9.20	7.20	9.40	9.00	8.28
Total	6.93	8.76	7.62	8.78	8.23	
St. Deviation	0,005	0,007	0,006	0,008	0,006	

This table reports the percentage average scores of semantic similarity grouped by sector, where we computed the average of companies scores belonging to the same sector for each stakeholder type.

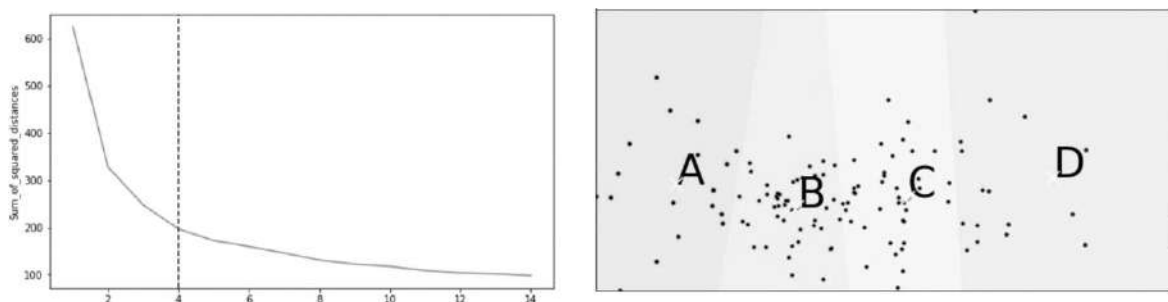
The results indicate that the analyzed companies talk about Employees and Communities in their EFRs in the most similar way to how they talk about them in the BRT statement with respect to other stakeholder categories. In fact, the total percentage average of similarity scores is 8.76% for Employees and 8.78% for Communities). The least semantically similar stakeholder category is customers (6.93%), indicating that companies do not talk about customers as much or the phrases in the EFRs are not related to customers compared to others in the BRT statement.

Moreover, the stakeholder averages by sector show that companies belonging to some sectors adhere more to BRT statements than others. More precisely, services sectors (Communication Services and Financial Services) result to have the highest scores across different stakeholders, with sector average similarity scores that are respectively equal to 8.63% and 8.88%. On the contrary, Consumer Cyclical and Energy sectors have the lowest scores across different stakeholders, with sector average similarity scores that are respectively equal to 7.15% and 7.60%.

We also note that the stakeholder results have a different degree of homogeneity across sectors. The lowest standard deviation is in Customers (0.005), while the greatest standard deviation is in Communities (0.008).

Cluster analysis. As far as concerns the cluster analysis results, Figure 3 shows the Elbow Method determination with Within-Cluster-Sum-of-Squares of optimal clusters, which is equal to 4, and the consequent K-means clustering of observations represented on a bi-dimensional graph using the principal components analysis for visualization purpose (Pearson, 1901).

Fig. 3: Elbow Method and K-means clustering on the 5 semantic similarity scores of 120 companies



The number of companies belonging to cluster A, B, C, D are respectively 19, 48, 42 and 11. Table 4 contains the stakeholder average of semantic similarity scores, grouped by cluster.

Tab. 4: Stakeholder Average of semantic similarity scores in percentage grouped by cluster

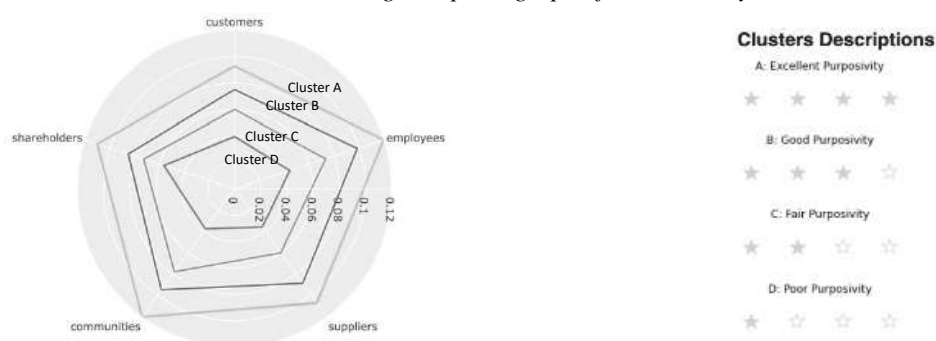
Clusters	AVG Customers (%)	AVG Employees (%)	AVG Suppliers (%)	AVG Communities (%)	AVG Shareholders (%)	AVG by Sector (%)
A	9.27	11.95	10.69	12.11	11.00	11.00
B	7.48	9.77	8.77	9.46	8.58	8.81
C	6.00	7.31	6.00	7.83	7.26	6.88
D	4.00	4.36	3.45	3.73	5.64	4.24
Total	6.92	8.76	7.62	8.79	8.23	

This table reports the percentage average scores of semantic similarity grouped by cluster, where we computed the average of companies scores belonging to the same cluster for each stakeholder type.

The scores indicate a clear cluster tendency to show similar semantic similarity scores when differentiating for stakeholder category.

Given these results, we associated to four Purposivity Profiles the four clusters, reflecting the empirical trend of increasing average semantic similarity scores from cluster D to cluster A (Figure 4).

Fig. 4: Spider graph of cluster analysis results



Cluster A groups companies of Excellent Purposivity, Cluster B of Good Purposivity, Cluster C of Fair Purposivity, while Cluster D of Poor Purposivity. In other words, companies belonging to clusters with high level of purposivity talk about CSR in their EFRs in a way that is more semantically similar to the purpose declaration signed in the BRT Statement than companies belonging to clusters with low level of purposivity, and this is empirically verified for all the five stakeholder categories.

Cognitive-linguistic analysis. In Table 5 we report the percentage average Past to Future ratio, Exclusive to Inclusive ratio and Implementor Score, which are the linguistic categories through which evaluate if companies are likely to be implementors or decouplers, grouped by sector, with also standard deviations of average implementor scores.

Tab. 5: Average of cognitive-linguistic results grouped by sector

Sector	AVG Past/Future	AVG Exclusive/Inclusive	AVG Imp_score	STDEV Imp_score
Basic Materials	2.90	0.09	0.42	0.22
Communication Services	3.31	0.08	0.45	0.23
Consumer Cyclical	3.27	0.11	0.50	0.18
Consumer Defensive	3.15	0.09	0.46	0.14
Energy	3.67	0.10	0.53	0.13
Financial Services	3.17	0.08	0.44	0.17
Healthcare	3.78	0.09	0.54	0.12
Industrials	3.23	0.10	0.47	0.23
Real Estate	3.29	0.11	0.52	0.09
Technology	3.87	0.09	0.53	0.23
Utilities	4.10	0.11	0.67	0.21
Total	3.44	0.09	0.50	0.18

This table reports the results of cognitive-linguistic analysis grouped by cluster, where we computed the average ratios and average implementor scores of companies belonging to the same sector.

The maximum average implementor score (0.62) is for the Utilities sector, while the minimum average Implementor Score (0.42) is for the Basic Material Sector. Standard deviations results oscillate between 0.09 and 0.25, indicating a discrete variance between company results belonging to the same sector.

Companies belonging to services sectors (Communication and Financial Services) exhibit lower average Implementor Score (0.45 and 0.44) with respect to non-grouped average Implementor score (0.50), while companies belonging to Consumer Cyclical and Energy sectors exhibit equal or higher average Implementor Scores (0.50 and 0.52).

These Implementor Score results indicate a potential negative correlation with the results of the semantic analysis. As a matter of fact, the abovementioned sectors have opposite positions in the ranking of average semantic similarity scores, where Communication and Financial Services are ranked first, while Consumer Cyclical and Energy are last (see Table 3).

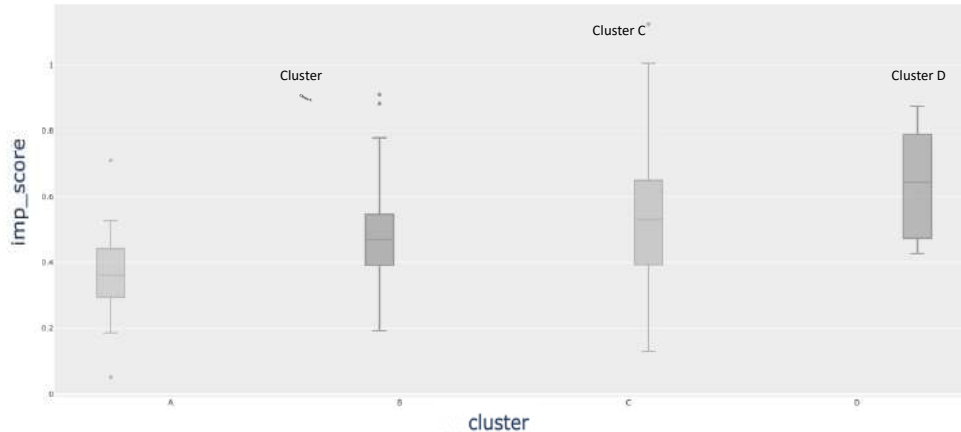
To further explore for the potential negative correlation between Implementor Scores and semantic similarity scores, we illustrate in Table 6 the distribution of implementor scores and semantic similarity scores on Purposivity profiles.

Tab. 6: Average implementor scores in percentage and semantic similarity scores grouped by cluster

Purposivity Profiles	AVG Semantic Similarity Scores (%)	AVG Imp_score
A	11.00%	0.36
B	8.81%	0.48
C	6.88%	0.54
D	04.24%	0.65

The results clearly indicate that companies belonging to high Purposivity profiles are – on average – companies with lower implementor scores with respect to their counterparts. Indeed, there is a clear trend of increasing implementor scores when moving from High Purposivity Profiles to Low Purposivity Profiles. We also boxplot the average implementor score by cluster to give graphical evidence of such correlation (Figure 5).

Fig. 5: Boxplot of average implementor score distribution by cluster



Overall, these results show that – on average - companies using in their EFRs sentences and words that are semantically similar to the BRT Statement are more likely to be decouplers with respect to their counterparts, according to the cognitive linguistic categories of Crilly et al. (2016). In contrast, implementor companies – showing a language that is exclusive and past oriented – write in their EFR sentences and words that are semantically different or do not faithfully report what declared in the BRT Statement.

The iterative formative movement among CSR talk and CSR walk. Our analytical snapshot of the 120 companies analyzed in this study offers a complete overview on the different possibilities that extant literature on CSR walk and CSR talk theorized. More specifically, regarding CSR walk, we observed both decouplers and implementors, while for CSR talk, we observed both companies using aspirational language – i.e., language that is semantically similar to the BRT statement language –and companies using language more adherent to reality and not aspirational. Most interesting was the variety in the relation between the two. In fact, we found a positive association between the use of aspirational language and the likelihood of being CSR decoupler. We also found the opposite, that is the tendency for CSR implementors to use language that is not aspirational, but it is semantically distant from the BRT statement language.

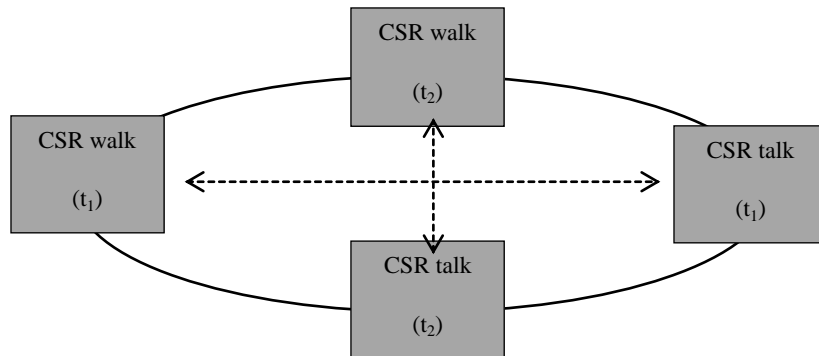
Such variety in company positioning suggests an evolutionary dynamic in the relation between CSR talk and walk. More specifically, it seems that CSR talk and CSR walk reciprocally influence each other within the same company in

different ways according to the specific time of analysis. There is the time in which a company needs to move towards a greater sustainable objective or result and thus may use CSR talk to be inspired, even if this temporarily increase the gap between CSR talk and walk, making the company become a CSR decoupler. When the company reaches the objective, the language used in CSR talk may change, becoming more past-oriented and with exclusive terms, since the company – in that moment as CSR implementor - internalized the sustainable results achieved. This is the formative dynamic that happens within the same company.

Most importantly, this formative movement between CSR talk and CSR walk is iterative, it does not happen only once. On the contrary, it is a dynamic that may promote greater sustainability performance in companies, thanks to the aspirational role played by CSR talk and the subsequent desire not to be a decoupler.

We represented this time-dependent formative dynamic in Figure 6.

Fig. 6: Iterative formative movement among CSR talk and CSR walk



Within the iterative formative movement among CSR talk and CSR walk, at t1 companies behave as CSR decouplers and CSR talk can play an aspirational role, while at t2 companies behave as implementors, using language that is adherent to reality and not aspirational.

Research limitations. *The main limitation of our research is to have obtained our findings with a cross-sectional study. Future research may use longitudinal data to confirm the presence of an iterative movement among CSR talk and CSR walk, contributing with further evidence on the mechanisms of the overall dynamic. In addition, we did not assess the actual sustainable performance of the companies analyzed, in order to verify whether the implementing or decoupling company was actually so according to empirical evidence. Future research could offer analyses based on ESG data or sustainable ranking of companies.*

Managerial implications. *By overcoming a reductionist approach, we found that the formative movement from CSR talk to CSR walk is recursive over time and generate a sort of cycle which mirrors the level on internalization of sustainable principles. Initially, companies got inspired by purpose and wrote their extra-financial reports – CSR talk – in a way that is highly semantically similar to the Business Roundtable Statement, by using an aspirational talk. Next, companies moved towards the implementation of CSR walk - enabled by the internalization of the multi-stakeholder purpose - thus writing their extra-financial reports in a way that is less semantically similar to the Business Roundtable Statement.*

The first implication for managers is to engage in public discourses with stakeholders and justify their time positioning within the formative process from CSR talk to CSR walk, thus avoiding being “labeled” as decouplers or green washers. The second implication for managers is to pay greater attention to the language used in their extra-financial reports and in particular to inclusive or exclusive language aimed at convincing stakeholders.

Originality of the paper. *Our research contributes to the literature on CSR communication by overcoming the reductionist views on the relationship between CSR talk and CSR walk. We offer a formative perspective that advances an alternative view to the dominant CSR communication theory (Crane and Glozer, 2016; Schoeneborn, et al, 2020). The CSR walk to talk relation is not static and not linked to a positive or a negative perspective (Christensen et al., 2013; Winkler et al., 2020). Our findings also solve the diatribe between positivists and negativists on the dynamics between talk and walk. Alignment and misalignment, aspirational and confirmational talk depends on the point of the cycle that is analyzed by a researcher which can generate a limited vision of the overall dynamic.*

Overall, our findings suggest that is important to have awareness of the moment in which an analysis of the company is made - regarding the relation between CSR talk and CSR walk - in order to not draw erroneous interpretations. In particular, the conceptualization of our iterative formative movement offer clarity to understand the overall dynamic of CSR communication and CSR implementation.

Keywords: CSR Talk and Walk; Linguistic Analysis; Corporate Purpose; BRT Statement

References

- ADLER P. S. (2014), "Capitalism in question", *Journal of Management Inquiry*, vol. 23, n. 2, pp. 206-209.
- DE BAKKER F.G., MATTEN D., SPENCE L.J., WICKERT C. (2020) "The elephant in the room: The nascent research agenda on corporations, social responsibility, and capitalism", *Business & Society*, vol. 59, n. 7, pp. 1295-1302.
- BANERJEE S.B. (2008), "Corporate social responsibility: The good, the bad and the ugly", *Critical sociology*, vol. 34, n. 1, pp. 51-79.
- BOXENBAUM E., JONSSON S. (2017), *Isomorphism, diffusion and decoupling: Concept evolution and theoretical challenges*. The Sage handbook of organizational institutionalism, n. 2, pp. 79-104.
- CER D., YANG Y., KONG S.Y., HUA N., LIMTIACO N., JOHN R.S., KURZWEIL R. (2018), *Universal sentence encoder for English*, In Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing: System Demonstrations, pp. 169-174.
- CHRISTENSEN L.T., MORSING M., THYSSEN O. (2013), "CSR as aspirational talk" *Organization*, vol. 20, n. 3, pp. 372-393.
- CRANE A., GLOZER S. (2016), "Researching corporate social responsibility communication: Themes, opportunities and challenges", *Journal of management studies*, vol. 53, n. 7, pp. 1223-1252.
- CRILLY D., HANSEN M., ZOLLO M. (2016), "The grammar of decoupling: A cognitive-linguistic perspective on firms' sustainability claims and stakeholders' interpretation", *Academy of Management Journal*, vol. 59, n. 2, pp. 705-729.
- DELMAS M.A., BURBANO V.C. (2011), "The drivers of greenwashing", *California management review*, vol. 54, n. 1, pp. 64-87.
- DIOUF D., BOIRAL O. (2017), "The quality of sustainability reports and impression management: A stakeholder perspective", *Accounting, Auditing & Accountability Journal*.
- EVAN W.M., FREEMAN R.E. (1988), *A stakeholder theory of the modern corporation: Kantian capitalism*, In T. Beauchamp, N. Bowie (Eds.), *Ethical theory and business*. Englewood Cliffs: Prentice Hall.
- FEIX A., PHILIPPE D. (2020), "Unpacking the narrative decontestation of CSR: Aspiration for change or defense of the status quo?", *Business & Society*, vol. 59, n. 1, pp. 129-174.
- FOLTZ P.W., KINTSCH W., LANDAUER T.K. (1998), "The measurement of textual coherence with latent semantic analysis", *Discourse processes*, vol. 25, n. 2-3, pp. 285-307.
- FREEMAN R.E. (1984), *Stakeholder management: Framework and philosophy*, Mansfield, MA: Pitman.
- FRIEDMAN M. (1970), "The social responsibility of business is to increase its profits", *Corporate Ethics and Corporate Governance*, vol. 6, pp. 173-178.
- FRIEDMAN M. (1962) *Capitalism and freedom*, Chicago, IL: University of Chicago Press.
- GREENWOOD R., RAYNARD M., KODEIH F., MICELOTTA E. R., LOUNSBURY M. (2011), "Institutional complexity and organizational responses" *Academy of Management annals*, vol. 5, n. 1, pp. 317-371.
- GREWATSCH S., KENNEDY S., BANSAL P. (2021), "Tackling wicked problems in strategic management with systems thinking", *Strategic Organization*.
- HAACK P., SCHOENEBORN D., WICKERT C. (2012), "Talking the talk, moral entrapment, creeping commitment? Exploring narrative dynamics in corporate responsibility standardization", *Organization Studies*, vol. 33, n. 5-6, pp. 815-845.
- HAACK P., SCHOENEBORN D. (2015), "Is decoupling becoming decoupled from institutional theory? A commentary on Wijen. *Academy of Management Review*, 40: 307-313.
- HABERMAS J. (1984), *The theory of communicative action: Reason and the rationalization of society*, Boston, MA: Beacon.
- HARRISON J.S., PHILLIPS R.A., FREEMAN R.E. (2020), "On the 2019 business roundtable "statement on the purpose of a corporation". *Journal of Management*, vol. 46, n. 7, pp. 1223-1237.
- HART C. (2014), *Discourse, grammar and ideology: Functional and cognitive perspective*, Bloomsbury Publishing.
- HENDERSON R., VAN DEN STEEN E (2015), "Why do firms have "purpose"? The firm's role as a carrier of identity and reputation", *American Economic Review*, vol. 105, pp. 326-30.
- HENDERSON R.M. (2021), "Changing the purpose of the corporation to rebalance capitalism", *Oxford Review of Economic Policy*, vol. 37, n. 4, pp. 838-850.
- HOLLENSBE E., WOOKEY C., HICKEY L., GEORGE G., NICHOLS C.V. (2014), "Organizations with purpose", *Academy of Management Journal*, vol. 57, n. 5, pp. 1227-1234.
- HONNIBAL M., MONTANI I. (2017), *Natural language understanding with Bloom embeddings, convolutional neural networks and incremental parsing*, Unpublished software application.
- KETCHEN D.J., SHOOK C.L. (1996), "The application of cluster analysis in strategic management research: an analysis and critique", *Strategic management journal*, vol. 17, n. 6, pp. 441-458.
- KODINARIYA T.M., MAKWANA P.R. (2013) "Review on determining number of Cluster in K-Means Clustering", *International Journal*, vol. 1, n. 6, pp. 90-95.
- LANDAUER T.K., FOLTZ P.W., LAHAM D. (1998) "An introduction to latent semantic analysis", *Discourse processes*, vol. 25, n. 2-3, pp. 259-284.
- LANGACKER R.W. (2008), *Cognitive Grammar-A Basic Introduction*, Oxford University Press, New York.

- LAZZARINI S.G. (2021) "Capitalism and Management Research: The Worst of Times, The Best of Times", *Academy of Management Review*, vol. 46, n. 3, pp. 613-622.
- LYON T.P., MONTGOMERY A.W. (2015), "The means and end of greenwash" *Organization & Environment*, vol. 28, n. 2, pp. 223-249.
- MACQUEEN J. (1967) "Some methods for classification and analysis of multivariate observations", In Proceedings of the fifth Berkeley symposium on mathematical statistics and probability, Vol. 1, N., 14, pp. 281-297.
- MAYER C. (2021), "The Future of the Corporation and the Economics of Purpose", *Journal of Management Studies*, vol. 58, n. 3, pp. 887-901.
- PACHE A.C., SANTOS F. (2010) "When worlds collide: The internal dynamics of organizational responses to conflicting institutional demands", *Academy of management review*, vol. 35, n. 3, pp. 455-476.
- PALAZZO G., SCHERER A.G. (2006), "Corporate legitimacy as deliberation: A communicative framework", *Journal of Business Ethics*, n. 66, pp. 71-88.
- PEARSON K. (1901), LIII. "On lines and planes of closest fit to systems of points in space", *The London, Edinburgh, and Dublin philosophical magazine and journal of science*, vol. 2, n. 11, pp. 559-572.
- PENTTILÄ V. (2020), "Aspirational talk in strategy texts: A longitudinal case study of strategic episodes in corporate social responsibility communication", *Business & society*, vol. 59, n. 1, pp. 67-97.
- PETERS M.E., NEUMANN M., ZETTLEMOYER L., YIH W.T. (2018), "Dissecting contextual word embeddings: Architecture and representation", arXiv preprint arXiv, pp. 1808.08949.
- RAMUS C.A., MONTIEL I. (2005), "When are corporate environmental policies a form of greenwashing?", *Business & Society*, vol. 44, n. 4, pp. 377-414.
- REY C., BASTONS M., SOTOK P. (2019), *Purpose-driven organizations: Management ideas for a better world*, Springer Nature.
- ROCHA H., PIRSON M., SUDDABY R. (2021), "Business with Purpose and the Purpose of Business Schools: Re-Imagining Capitalism in a Post Pandemic World: A Conversation with Jay Coen Gilbert, Raymond Miles, Christian Felber, Raj Sisodia, Paul Adler, and Charles Wookey", *Journal of Management Inquiry*, vol. 30, n. 3, pp. 354-367.
- SCHOENEBOORN D., TRITTIN H. (2013) "Transcending transmission: Towards a constitutive perspective on CSR communication", *Corporate communications: An international journal*.
- SCHOENEBOORN D., MORSING M., CRANE A. (2020), "Formative perspectives on the relation between CSR communication and CSR practices: Pathways for walking, talking, and t (w) alking", *Business & Society*, vol. 59, n. 1, pp. 5-33.
- SCHERER A.G., PALAZZO G. (2007), "Toward a political conception of corporate responsibility: Business and society seen from a Habermasian perspective", *Academy of management review*, vol. 32, n. 4, pp. 1096-1120.
- SCHERER A.G., PALAZZO G., MATTEN D. (2014), "The business firm as a political actor: A new theory of the firm for a globalized world", *Business & society*, vol. 53, n. 2, pp. 143-156.
- SPEE P., JARZABKOWSKI P. (2017), "Agreeing on what? Creating joint accounts of strategic change" *Organization Science*, vol. 28, n. 1, pp. 152-176.
- TASHMAN P., MARANO V., KOSTOVA T. (2019), "Walking the walk or talking the talk? Corporate social responsibility decoupling in emerging market multinationals", *Journal of International Business Studies*, vol. 50, n. 2, pp. 153-171.
- TESTA F., BOIRAL O., IRALDO F. (2018), "Internalization of environmental practices and institutional complexity: Can stakeholders pressures encourage greenwashing?", *Journal of Business Ethics*, vol. 147, n. 2, pp. 287-307.
- VERMEULEN P., ZIETSMA C., GREENWOOD R., LANGLEY A. (2016), "Strategic responses to institutional complexity", *Strategic Organization*, vol. 14, n. 4, pp. 277-286.
- WICKERT C., SCHERER A.G., SPENCE L.J. (2016), "Walking and talking corporate social responsibility: Implications of firm size and organizational cost", *Journal of Management Studies*, vol. 53, n. 7, pp. 1169-1196.
- WINKLER P., ETTER M., CASTELLÓ I. (2020) "Vicious and virtuous circles of aspirational talk: From self-persuasive to agonistic CSR rhetoric", *Business & Society*, vol. 59, n. 1, pp. 98-128.
- ZYGLIDOPOULOS S.C., GEORGIADIS A.P., CARROLL C.E., SIEGEL D.S. (2012) "Does media attention drive corporate social responsibility?", *Journal of Business Research*, vol. 65, n. 11, pp. 1622-1627.

Public support and firm performance: A review and research agenda

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Framing of the research. *Public support encompasses a variety of programs and policy types aimed at supporting specific activities of firms. The literature on public support explores a variety of topics, including the antecedents and outcomes of public intervention. However, the debate so far has mainly focused on the antecedents and the reasons why public support is attributed to firms (Dvouletý et al. 2021). Moreover, different types of support exist depending to the desired goals, which can be e.g. to stimulate entrepreneurship (Dvouletý et al., 2021) or boost innovation (Jugend et al., 2020). Besides providing public financial and non-financial support to firms, it becomes important to assess its impact on the development, growth, and performance outcomes of the company. For this reason, there is a rising stream of research investigating the relationships existing among public support and firm performance outcomes (e.g. Aguiar & Gagnepain, 2017). This becomes a necessary step to understand the goodness and effectiveness of support measures and, eventually, adapt them to better fit the needs of companies, or increase their effectiveness.*

We developed a systematic literature review on 62 articles published in 36 journals between 1998 and 2021 (both included). We first described the state-of-the-art, by summarizing relevant characteristics of the literature in terms of number of publications, journal outlets, country of origin of sampled firms, preferred methodologies, sample features, units of analysis and public programs analyzed. Then, we analyzed and content-classified the empirical studies by developing a framework representing antecedents, outcomes and interacting variables. As a result, we provided a framework underlining the determinants, outcomes and interacting variables analyzed in the literature related to public support and firm performance. The analysis allowed to identify recurrent approaches to study this topic but also emerging trends and topics in this literature. Conclusions suggest future research directions and describe implications for policy makers. This research aims at contributing to the literature on public support and firm performance, by identifying macro-categories of determinants and outcomes recurrently analyzed in the literature and providing a summarizing determinant-outcome-interactions framework, which could serve as a summary and starting point for scholars interested in these topics.

Purpose of the paper. *As the literature has constantly evolved over the years, developing a systematic literature review becomes necessary to summarize the state-of-the-art of the knowledge in this research field and provide future recommendations. The purpose of this study is to systematically review 62 articles on public financial and non-financial support and firm performance published between 1998 and 2021 (both included). Through a thematic analysis, the review aims at describing the state-of-the-art of the literature on the topic and providing a framework on determinants, outcomes and interactions analyzed in the literature. In doing this, we aim at complementing existing reviews focused on public support for innovation (e.g. Jugend et al., 2020) and public SME support (Dvouletý et al., 2020).*

Methodology. *We developed a protocol to search and select the articles following the instructions of the preferred reported items for systematic reviews and meta-analysis (PRISMA) approach (Moher et al., 2015). The final selection of studies is the result of a methodological process that combined electronic means with manual search. At each step, the co-authors discussed to reach a consensus on the next steps. The initial search criteria comprised articles investigating public financial and non-financial support and firm performance published in business, management, economics and finance, without limits of scope and journal. As a first step, we conducted two keyword searches in Scopus using “financial support” AND “public” AND “firm performance” and “financial incentive” AND “performance” in business, management and economics and finance areas, limiting to articles and reviews published in English. Through the Scopus search, we obtained 439 articles. Then, we selected only the articles published in journals with rating equal or higher than 2 according to the official list of Association Business Schools (ABS) (United Kingdom, 2018), rejecting 130 articles. Through the manual reading of abstracts and papers, we excluded the articles considered out of topic (229 articles). In addition, other 18 articles were excluded because not specifically focused on the object of study. The final dataset included 62 articles comprising of 3 reviews and 59 empirical articles.*

Each article was given an identification number (1- 59). Following the structure of prior review articles (Romanello and Chiarvesio, 2019; Martineau and Pastoriza, 2016, Kumar et al., 2021), we content-analyzed each article to collect

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and codify the following data to support the thematic analysis: authors, title, year of publication, journal source, volume, issue, pages, purpose, main findings, empirical method, sample features, country of origin, dependent variable(s), independent variable(s), moderating variable(s).

We developed a thematic analysis and synthesis aimed at providing a description of the state-of-the-art of the literature on public support and firm performance (Paul and Rialp Criado, 2020). Then, the synthesis of results allowed the development of a framework consisting of determinants, outcomes and moderators in public support and firm performance literature.

Results. We first described the state-of-the-art, by summarizing relevant characteristics of the literature in terms of number of publications, journal outlets, country of origin of sampled firms, preferred methodologies, sample features, units of analysis and public programs analyzed.

State-of-the-art

Although the first article can be traced back to 2001, the interest for this topic increased after 2014, with an apical point between 2019 and 2020.

The most relevant journals in terms of publications on the topic are respectively *Journal of Small Business Management* (5), *Research Policy* (6), *Technovation* (4), *European Economic Review* (3), *Entrepreneurship and Regional Development* (3), *Journal of Business Research* (3), *Journal of Cleaner Production* (3) and *Technological Forecasting and Social Change* (3).

The articles on this topic are concentrated in Asia and Europe. The most represented countries are China (10), Italy (5), Korea, UK, the US (3). According to the classification of the International Monetary Fund (2019), 36.7 % of the studies relate to emerging and developing countries. In this sense, China (10), Vietnam (2), and Turkey (2) are the most investigated countries. In addition, eleven studies compare firms from multiple countries.

The analysis highlighted the recurrent methodological approaches adopted to study the relationship between public support and firm performance. Among the 59 empirical articles, 90% use a quantitative approach based on primary and secondary data. Qualitative studies mainly adopt a case study approach. Quantitative studies used different approaches mostly regression-based models, including Structural Equation Models (SEM), semi-parametric and non-parametric tests, Difference-in-Difference (DiD) and Propensity Score Matching (PSM) approaches, and factor analyses. Studies use survey-based primary data or secondary data drawn from international databases, such as the EU-EFIGE/Bruegel-Unicredit data set of companies from European countries or the Eurobarometer Special Survey, or firm-level datasets at the national level, such as the Innovation Survey data. Among the quantitative studies, most of them develop hypotheses, whereas 22 studies do not explicate the hypotheses nor the conceptual model. There is a prevalence of studies analyzing panel data or longitudinal datasets in order to assess the impact of public support on firm performance, typically through regression models. A group of works adopt a counterfactual approach by comparing two (or more) samples of companies presenting different features and test the differences. Comparisons mostly involve firms that received public support against a control group of firms that did not benefit from any support, or firms that received support from different public programs.

Results from content-analysis

The content-classification of empirical studies led us to develop a framework identifying determinants, outcomes and interacting variables in the public support and firm performance literature. The analysis also highlighted emerging trends and gaps in this literature.

As a first result of our review, the literature has mainly considered public support as a determinant of specific firm outcomes, while only a few articles have investigated its moderating effect on specific relationships between specific antecedents and firm performance.

Secondly, our analysis highlighted two main research streams respectively investigating the impact of public support on firm performance and innovation performance. Most studies have exclusively analyzed the impact of public support variables, whereas a relatively limited number of studies have tested models including other categories of determinants. In this respect, it is interesting to see that in relation to generic firm performance outcomes, studies have also analyzed individual, firm, and environmental determinants. Instead, in relation to innovation performance, determinants were investigated at the network level, rather than at the individual one.

Third, there is a rising research branch investigating firm outcomes that are not necessarily related to classical performance indicators. Also, the review has highlighted some regional studies and a very atypical, interesting article investigating the impact of support within the supply chain. These satellite studies could represent the beginning of new research streams.

Fourth, a reflection is deserved to the different measures used to assess public support. Most studies use dummy variables for identifying firms benefiting or not of a particular public support scheme (both financial or non-financial) or the amounts of resources committed to the firm, e.g. in terms of subsidies, loans, venture capital. Recent developments however call for innovations in financial incentive programs leveraging on public-private partnerships in order to stimulate multiplying effects on the total amount of funds invested. In Europe, both national and European-level programs are increasingly based on a co-investment rationale involving public bodies and private investors (e.g., business angels and venture capital). Such developments call for research investigating the impact of public-private co-investments (amounts committed, type of partners involved) on firm performance and access to finance.

The latest point deserves specific attention. While the broad research on the topic investigates financial public support within the conceptual framework of financial constraints and its impact on various performance measures (e.g., profitability, innovation performance), there is scant research investigating possible positive externalities in terms of

access to external finance. Anecdotal evidence supports the idea that firms receiving public support (or mixed public-private) are better placed to attract other market funding, although falling short of being a formally tested hypothesis in academic research. Such a research stream would allow to complement the literature on spillovers effects in terms of possible crowding-in or crowding-out effects of public support on R&D investments.

Our review also led to identify some future research directions:

- Public policy not necessarily has positive impacts on firm growth, labor productivity and value creation, suggesting that policy effects might strongly depend on the features of companies and policy tools. For these reasons, comparisons between subsidized and non-subsidized companies still represents a fruitful way to investigate this topic. More research is needed to clarify under which conditions the policy instruments are less effective. Also, it might be important to develop research assessing the policy capability to reach pre-established goals.
- Research must further investigate the impact of assessment and monitoring systems on firm outcomes, as it seems that different types of monitoring systems - such as decentralized or more-central - can have distinguished impacts on firm performance. This might be a relevant aspect to be considered in order to verify the program effectiveness and return useful information to policy-directors.
- The review highlights a strong influence due to the context of analysis, including the country effect and some geographical variables. In this respect, there is an increase in spatial and regional studies that could represent a relatively new, and interesting approach to the topic. For instance, Crass et al. (2019) have highlighted that geographical clustering can impact on program access and also moderate the relationship between participation and program effectiveness. There is room to further explore this topic. Also, at least in this review, there is an overrepresentation of some world areas (such as Asia), whereas America and Africa are less represented. As Europe is so diversified in terms of population and firm features, more studies would be needed on the missing countries in this review, such as Finland, Sweden and Slovenia.
- An increasing interest in innovation has clearly emerged. In this context, the network and collaborations with external and technical partners become relevant for success. Based on this, we suggest to exploring the topic of network financing, which could represent a suitable approach to provide effective support to network of enterprises. Another relevant, but missing topic in this research concerns public-private financing to innovation, which is now spreading across sectors. This might deserve interest for academic research.
- Another interesting approach is offered by Chalmardi and Camacho-Vallejo (2019), who investigated the impact of a government financial support strategy in terms of decrease of environmental impact within the supply chain. In consideration of global value and supply chains, it might be extremely interesting to see more studies adopting such perspective and showing the extent to which a specific public support (maybe a national one) might positively impact on the whole chain across countries.
- Another rising, but still limited, research stream concerns sustainability and environmental impact. More research should be devoted to investigating programs related to Corporate Social Responsibility, environmental and sustainability and their impacts on firm performance. Also, considering the skepticism and reluctancies of companies due to the idea that environmental care cannot be merged with profits, studies providing evidence (positive or negative) could offer more insights both to practitioners and policy makers.
- Internationalization policies and export performance have received limited attention. More research is needed in this area, particularly in the European context where despite the open cross-border trade non-exporting establishments account for about 50% (European Company Survey 2019, Eurofound).
- Several studies have highlighted the importance of training and non-financial support (e.g., Han et al., 2018). For this reason, we encourage studies considering the different types of support offered by programs, including non-financial aid and training, and evaluating the impact of all aspects on performance outcomes.
- Last but not least, companies might need different support types during their lifecycles. Thus, we encourage scholars to research the relationship between support and firm performance consciously considering the different growth stages of firm lifecycles, which pose different objectives accordingly. For instance, we call for studies investigating public venture capital and start-up support different from incubation, which might not necessarily represent the optimal and most effective strategy to support new ventures' growth.

Research limitations. We decided to exclude articles treating university-industry collaborations, as there are several recent reviews on this topic, and the articles treating individual financial incentives and employee performance, as this represents a different corpus of studies and reviews on this already exist. We acknowledge that our selection may not be free of omissions. To reduce related biases, we adopted strict selection procedures based on the PRISMA methodology (Moher et al., 2015) aimed at increasing the replicability of the study. Another limitation relates to the categorization of determinants and outcomes, as we recognize that our work offers just one of the possible interpretations of each article. Our approach is based on and proposes a reinterpretation of the framework developed by Martineau and Pastoriza (2016) in their review.

Managerial implications. Our review proposes some insights for policy makers. First, our results show that public support is not necessarily positive for firm performance. Effectiveness of policies depends on the firm size, support characteristics and context of application. That said, based on our results, policies features should be carefully designed depending on the desired outcome at firm level. Antecedents of innovation performance differ from the ones related to general firm performance, underlining for instance the importance of contamination of ideas and collaborations with other research actors.

A second implication relates to the fact that there are only a few articles considering international activities and export performance. This might be in part due to the fact that official registers of firm data do not have data related to internationalization. As the European Union claims the importance of international activities for SMEs and enterprises in general, we encourage policy makers of Member States to recognize the necessity to start collecting official data related to the extent of which European companies have international activities, in terms of scale and scope.

Originality of the paper. This research aims at making a major contribution to the literature on public support and firm performance, by providing a summarizing antecedent-outcome-interactions framework, which could serve as a summary and starting point for scholars interested in this topic. Based on the evidence emerged, a future research agenda is proposed.

Keywords: public support; firm performance; financial support; literature review.

References

- AGUIAR L., GAGNEPAIN P. (2017), “European cooperative R&D and firm performance: Evidence based on funding differences in key actions”, *International Journal of Industrial Organization*, vol. 53, pp. 1-31.
- CHALMARDI M.K., CHAMACHO-VALLEJO J.F. (2019), “A bi-level programming model for sustainable supply chain network design that considers incentives for using cleaner technologies”, *Journal of Cleaner Production*, vol. 213, pp. 1035-1050.
- CRASS D., RAMMER C., ASCHHOFF B. (2019), “Geographical clustering and the effectiveness of public innovation programs”, *The Journal of Technology Transfer*, vol. 44, n. 6, pp. 1784-1815.
- DVOULETÝ O., SRHOJ S., PANTEA S. (2021), “Public SME grants and firm performance in European Union: A systematic review of empirical evidence”, *Small Business Economics*, vol. 57, n. 1, pp. 243-263.
- EUROPEAN COMPANY SURVEY (2019), Eurofound Agency, Luxembourg, <https://www.eurofound.europa.eu/surveys/data-visualisation/european-company-survey-data-visualisation>.
- HAN X., LIU X., XIA T., GAO L. (2018), “Home-country government support, interstate relations and the subsidiary performance of emerging market multinational enterprises”, *Journal of Business Research*, vol. 93, pp. 160-172.
- JUGEND D., FIORINI P.D.C., ARMELLINI F., FERRARI A.G. (2020), “Public support for innovation: A systematic review of the literature and implications for open innovation”, *Technological Forecasting and Social Change*, vol. 156, pp. 119985.
- KUMAR M., PAUL J., MISHRA M., ROMANELLO R. (2021), “The creation and development of learning organizations: a review”, *Journal of Knowledge Management*, vol. ahead-of-print, n. ahead-of-print. <https://doi.org/10.1108/JKM-10-2020-0795>
- MARTINEAU C., PASTORIZA D. (2016), “International involvement of established SMEs: A systematic review of antecedents, outcomes and moderators”, *International Business Review*, vol. 25, n. 2, pp. 458-470.
- MOHER D., SHAMSEER L., CLARKE M., GHERSI D., LIBERATI A. PETTICREW M., STEWARD L.A. (2015), “Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement”, *Systematic reviews*, vol. 4, n. 1, pp. 1-9.
- PAUL J., CRIADO A.R. (2020), “The art of writing literature review: What do we know and what do we need to know?”, *International Business Review*, vol. 29, n. 4, pp. 101717.
- ROMANELLO R., CHIARVESIO M. (2019), “Early internationalizing firms: 2004-2018”, *Journal of International Entrepreneurship*, vol. 17, n. 2, pp. 172-219.

Can Artificial Intelligence support the creation of a circular business model? A systematic literature review

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Framing of the research. Recent trends have demonstrated that the traditional economic models are not yet sustainable in the long term and they need to be replaced by new approaches as the circular one. Circular economy (CE) has gained importance in recent years, with increasing interest from companies, governments, and academics toward the realization of a more sustainable world.

The Circular Economy (CE) represents the most recent attempt to conceptualize the integration of economic activity and environmental wellbeing in a sustainable way (Murray et al. 2017).

It rests on three principles: design out waste and pollution; keep products and materials at their highest value; and regenerate natural systems (Murray et al., 2017). The transition to a circular economy asks companies to develop new business models, following the six actions described by the so called RESOLVE framework: Regenerate, Share, Optimise, Loop, Virtualise, and Exchange (The Ellen MacArthur Foundation, 2015).

The adoption of this new business model is a real challenge for modern companies that can be faced also thanks to the application of new technologies. Circular Economy along with the digitalization, are considered complementary, and many studies demonstrated that synergistic effects can be established between them (Hoosain et al., 2020; Rocca et al., 2020).

Industry 4.0 technologies can enable the efficient allocation of resources such as materials, energy, water and products, by using real-time data from production systems and supply chain partners. In this perspective, Stock and Seliger (2016) highlight the importance of value creation networks in Industry 4.0 as enabler of efficient coordination of product, material, energy and water flows throughout the product life cycle and between different factories. Moreover, they emphasize the importance of implementing green business models. CE is difficult to pursue effectively without a comprehensive discussion of supporting mechanisms and enablers. Information and largescale data (LD) need to be an integral aspect of this discussion (Nobre and Tavares, 2017). Unlocking CE's potential depends on innovative large and complex dynamic data collection and analysis (Despeisse et al., 2017).

For these reasons, among the others I4.0 technologies, an important role is covered by Artificial Intelligence (Jabbour et al., 2019).

Artificial Intelligence (AI) is defined as “the science and engineering of making intelligent machines” (McCarthy, 1953) and it is considered one of most revolutionary technology of the latter years (Davenport and Ronanki, 2018). The rise of AI in recent years and its development in many knowledge fields is due to three key factors: significant volume of data, improved algorithms, and substantially better computational hardware (Brynjolfsson and McAfee, 2017). This evolution has attracted the attention of large technology-oriented organizations to AI tools. Thus, companies such as Google, Amazon, Microsoft, Salesforce and IBM started to provide infrastructure for machine learning in the cloud, facilitating the access and use of cognitive technologies (Brynjolfsson and McAfee, 2017; Davenport, 2018; Venkatraman, 2017). Therefore, the field of AI currently encompasses any techniques - such as machine learning, neural network, deep learning, fuzzy logic, etc.- which enable machines to act by simulating the human behaviour to achieve the best result or, in uncertainty scenarios, the best best-expected result (Russell and Norvig, 2010).

Currently, in organizational contexts, AI can be considered a technology that has been introduced as a means of emulating human performance with the potential to draw its own conclusions through learning, which can aid human cognition or even replace human in tasks that require cognition. In general, AI technologies can enable performance improvements in terms of speed, flexibility, customization, scale, innovation, and decision-making (Venkatraman, 2017; Wilson and Daugherty, 2018). In addition, companies can benefit from the use of AI to generate value in different business dimensions: process automation; gaining insight through data for decision-making; engaging customers and employees; designing and delivering new products and services (Davenport and Harris, 2017; Davenport and Ronanki, 2018; Davenport, 2018; Lyall et al., 2018; Mikalef et al., 2019; Ransbotham et al., 2018; Westerman et al., 2014)

Thanks to its ability to elaborate and obtain information from a large amount of data, AI is particular useful to unlock the companies CE's potential (Ban et al., 2021).

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AI technologies could boost the development and design of completely new circular products, support the realization of a circular business model and help to optimize circular process.

From a recent comprehensive literature review on the relationship between industry 4.0 technology and CE, Agrawal et al. (2021) recognize the pivotal role of Artificial Intelligent (AI) technologies into driving toward a CE society. Comparing to other technologies AI can support companies not only in specific application of CE activities but also in a real strategic definition of their whole business model (Borges et al., 2021).

For instance, AI technologies helps to differentiate different materials thanks to the image recognition or to improve manufacturing and product usage analysis.

Despite authors generally recognize the potentialities of AI in supporting CE transition, previous works (Bag et al., 2021) are mainly focused on the role covered by digital technologies in general, without considering the role of AI and how it can enable specific CE aspect, such as waste management or resource optimization.

Purpose of the paper. While both fields of study -AI and CE- have been widely discussed in disparate literature their integration has seen limited study. This study tries to fill this gap, by performing a systematic literature review on the implementation of AI technology to enhance CE. The analysis is shaped using to the Regenerate, Share, Optimize, Loop, Virtualize, Exchange (ReSOLVE) framework, identified as an important tool to operationally guide firms (Lopes de Sousa Jabbour et al., 2018) toward CE.

Methodology. In this paper, we used a systematic literature review approach to analyze the studies that from a different point of view and from different disciplines have examined the effect of AI on CE.

In systematic review the outcome of these decisions is captured through a review protocol, a plan that helps to protect objectivity by providing explicit descriptions of the steps to be taken (Tranfield et al., 2003). In line with several management researches, we adopted a well-respected evidence-based approach from medical science for our purposes: Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) Protocol (Moher et al. 2015).

The reason for the selection of this protocol among other standards and guidelines that explicitly address how literature reviews should be reported and structured (Snyder, 2019) is that it has a methodological and analytic approach that is quite clear and easy to understand (Moher et al. 2015). The protocol involves 4 different steps. The first step is the identification and selection of papers that have to be included in the review. We sourced the articles constructing a search query from SCOPUS and WOS because these databases provide a comprehensive portfolio of scientific journals as it is widely used in academic research (Álvarez Jaramillo et al., 2019). We identified a set of keywords that we searched in keywords, title or abstract of the papers. We limited our research on specific document type, such as Article or Review, excluding i.e. Book chapters, Editorial or Note and the Source type to scientific journal, excluding Conference proceedings or Books based on the fact that peer-reviewed academic journal articles are normally considered to be at the frontier of knowledge and, compared to these other sources. Search string comprises two parts: the first set of words limited results to the theme of Circular Economy, while the second expression limited results to Artificial Intelligence technology. In the second step of the PRISMA statement we defined raw criteria to screen the collected selection of papers and eventually exclude them by reading the abstract.

In the last steps (Eligibility and inclusion) we assess the fit of each paper that satisfy the eligibility criteria, after having carefully read and reviewed all full text articles. We assess the fit of each paper that satisfy the eligibility criteria, verified after having carefully read and reviewed all full text articles.

The final sample comprises 63 papers. We run descriptive statics and develop content analysis by using specific keywords' codification. In particular, we try to understand the use of AI technologies on different CE activities using RESOLVE framework. In addition, data were stratified and analyzed with Microsoft Excel and VOSviewer Software.

Results. The first set of findings of the review are related to descriptive analysis of 63 selected papers- respect to the year of publication, journal, field of study, country, citations, methodological approach - with the aim of identifying challenges and future trends on the topic.

Academic papers that link AI with CE starts on 2016 and are growing exponentially in the last years, considering that 2021 is still in progress (figure 1).

Fig. 1: Time distribution of publications and type of publications and citations

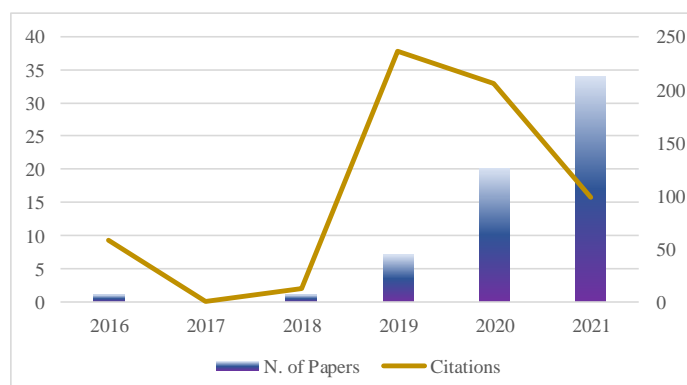
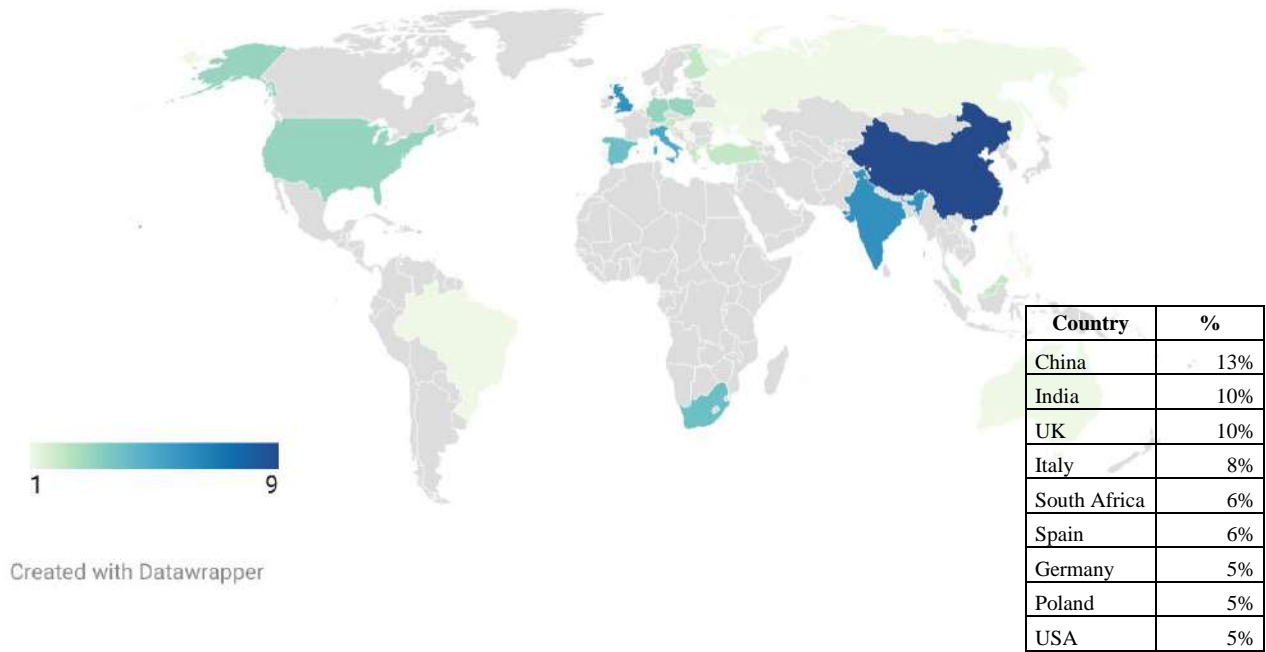


Fig. 2: Papers distribution per country



The country analysis is carried out by considering the distribution of papers by nationality of the corresponding author. As shown in figure 2, it emerges that the most active countries are China (13%), India (10%) and United Kingdom (10%).

Tab. 1: Scores and ranking of the top 10 most cited journals (source Scopus)

Journal	Publisher	Documents	Quartiles	SJR	CiteScore	H-Index
Sustainability (Switzerland)	MDPI	10	Q2	0,61	3,659	85
Journal of Cleaner Production	Elsevier	8	Q1	1,937	9,791	200
Business Strategy and the Environment	Wiley	2	Q1	2,12	10,659	105
International Journal of Production Research	Taylor & Francis	2	Q1	1,91	7,263	142

Scores and ranking of the top 10 most cited journals are shown in table 1. The number of documents, citations, SCImago Journal Rank (SJR), CiteScore and H-index of these journals are analyzed. It is essential to underline that SJR measures weighted citations received by the serial and CiteScore measures average citations received per document published in the serial.

All journals are considered in the top quartiles, thus it means that the topic under study is of interest to significant editors and publishers.

The journal with the higher number of citation is International Journal of Information Management. Several journals often publish papers on the topic, while others received an excellent appreciation despite just one paper deal on the issue mentioned earlier

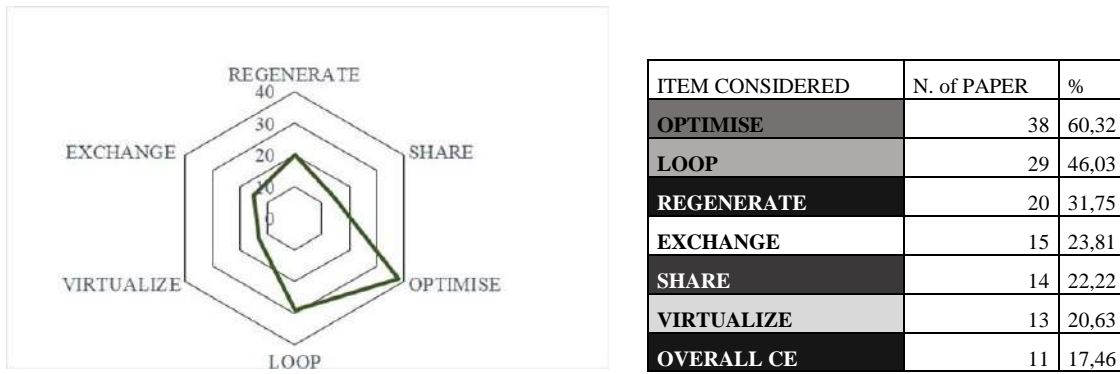
In a second step, we provide in-depth interpretation of content analysis, by exploring the different use of AI technologies in the context of RESOLVE framework.

We then developed a list of keywords that helped us into coding the presence of specific reference to ReSOLVE dimensions (Regenerate, Share, Optimise, Loop, Virtualization, Exchange) in each paper. The creation of the list has been necessary because each activity of the framework cover several. Specifically, we identify if a paper recalls directly or indirectly a specific dimension of the framework, putting the value 1 or 0 otherwise. Each paper can make reference to more than one ReSOLVE dimension.

The 60,32% of selected papers focus on the effect of AI technologies on the “Optimise” dimensions of RESOLVE framework. Thus, the primary issue of the technology is to improve resource efficiency and reduce waste.

The second activity of ReSOLVE framework on which AI technology exert effects is “Loop”, since it helps to remanufacture, recycle and digest resources. Around the 17,5% of the papers (11) do not specifically mention a dimension of ReSOLVE framework, rather refer to the whole concept of CE.

Fig. 3: Results of content analysis



The last part of the analysis is the interpretation of research trends, are elaborated with VOSviewer Software, that supported us in the definition of a theoretical framework that explains how the use of AI to support the different actions that guide the implementation of a circular business model.

In particular, VOSviewer software allow us to perform bibliographic coupling and co-occurrence analysis (Biggi and Giuliani, 2020). VOSviewer (<http://www.vosviewer.com>) has been used to construct for analyzing bibliometric networks (Van Eck and Waltman, 2010). Items (i.e. the objects of interest) in the networks have been connected by co-authorship, co-occurrence, citation, bibliographic coupling, or co-citation links. To construct a network, bibliographic database files (i.e. Scopus) has been provided as input to VOSviewer. VOSviewer has been developed in the Java programming language. Items have been grouped into clusters. Networks can be constructed for different units of analysis. In this study fractional counting has been used (Van Eck and Waltman, 2009).

In the network visualization, we identified a modular network, characterised by seven distinct, but interrelated clusters. A cluster is a set of items included in a map. An item may belong to only one cluster. Conventionally, in VOSviewer, clusters are labelled using cluster numbers and colours. Each point in the item density visualization has a colour that indicates the density of items at that point

In order to give a clearer characterization to each cluster in addition to the colour (assigned by default by VOS) we have assigned a label. We chose the name of the label with the aim of characterizing the items contained in each clusters.

Fig. 4: Co-Occurrence analysis (VOSViewer)

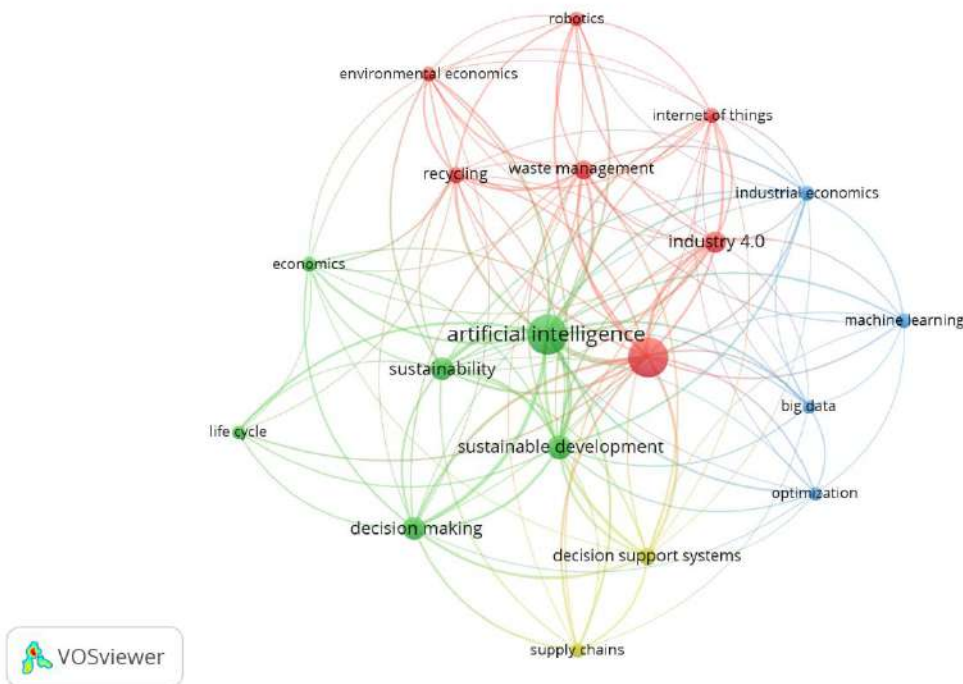


Figure 4 displays the mainstream of research keywords in “artificial intelligence” and “sustainability” and their co-occurrence relationships. Thus, a holistic intellectual landscape of AI research was obtained. Co-occurrences are used to understand the underlying patterns of the document set under study. Table 2 summaries significant items that are the result of the co-occurrence analysis shown in Figure 4.

Tab. 2: Clusters and Items and Authors (VOS viewer and author's elaboration)

Clusters	Color	N° Items	Details Items (VOS viewer)
1	Red	7	Circular economy, Environmental Economics, Industry 4.0, Internet of Things, Recycling, Robotics, Waste Management
2	Green	6	Artificial intelligence, Decision making, Economics, Life cycle, Sustainability, Sustainable Development
3	Blue	4	Big data, Industrial Economics, Machine learning, optimization
4	Yellow	2	Decision Support System, Supply chains

The previous analysis shows that while other technologies are mainly connected with specific aspect the term AI is linked to decision making. In other words while other I4.0 technologies can support the adoption of specific circular behavior and techniques (recycling, waste management, etc), AI can support the radical change toward a strategic definition of a circular business model.

Research limitations. The study presents some important limitation that can be considered a good starting point for future research. As a bibliometric analysis of a relative new topic, a deeper understanding of the connection among AI and Circular Economy requires a longer longitudinal observation. Secondly, in order to provide a greater validity of the results, an empirical analysis would be needed.

Managerial implications. The paper offers several implications. At theoretical level, the systematic literature review suggests the need for additional researches on the positive effect of Artificial Intelligence on Circular Economy transition. In particular, it highlights the need to provide a more integrated and holistic view on the topic, fostering the use of AI technologies to the different activities of Regenerate, Share, Optimize, Loop, Virtualize, Exchange (ReSOLVE) framework. At practical level it gives useful insights to both managers and policy makers giving a useful guideline to understand possible applications and potential benefits of AI for CE. In particular, our paper can help managers in understanding that that positive effect of AI technologies on CE is not just related to the resources optimisation, but regards all the strategic definition of the different phase of ReSOLVE framework

Originality of the paper. Starting from a systematic literature review, the paper aims at defining a theoretical framework that explain how the use of AI can support the different actions that guide the implementation of a circular business model. Previous contributions, still focus only on the role covered by digital technologies on specific CE aspects, such as recycling or resource efficiency (Cagno et al., 2021).

Our study wants to provide an overall, comprehensive and integrated approach towards the investigation of the role of AI as an enabler for CE, using the lens of ReSOLVE framework.

Keywords: Circular Economy; Artificial Intelligence; ReSOLVE framework; VOSViewer

References

- AGRAWAL R., WANKHEDE V.A., KUMAR A., LUTHRA S., MAJUMDAR A., KAZANCOGLU Y. (2021), "An exploratory state-of-the-art review of artificial intelligence applications in circular economy using structural topic modeling", *Operations Management Research*, pp. 1-18.
- ALVAREZ JARAMILLO J., ZARTHA SOSSA J.W., OROZCO MENDOZA G.L. (2019), "Barriers to sustainability for small and medium enterprises in the framework of sustainable development-Literature review", *Business Strategy and the Environment*, vol. 28, n. 4, pp 512-524.
- BAG S., PRETORIUS J.H.C., GUPTA S., DWIVEDI Y.K. (2021), "Role of institutional pressures and resources in the adoption of big data analytics powered artificial intelligence, sustainable manufacturing practices and circular economy capabilities", *Technological Forecasting and Social Change*, vol. 163, pp. 120420.
- BIGGI G., GIULIANI, E., (2020), "The noxious consequences of innovation: what do we know? *Industry and Innovation*, vol. 28, n. 1, pp. 19-41.
- BORGES A.F., LAURINDO F.J., SPÍNOLA M.M., GONÇALVES R.F., MATTOS C.A. (2021), "The strategic use of artificial intelligence in the digital era: Systematic literature review and future research directions", *International Journal of Information Management*, vol. 57, pp. 102225.
- BRYNJOLFSSON E., MCAFEE A. (2017), "Artificial intelligence, for real", *Harvard business review*, n. 1, pp. 1-31.
- CAGNO E., NERI A., NEGRI M., BASSANI C.A., LAMPERTICO T. (2021), "The role of digital technologies in operationalizing the circular economy transition: A systematic literature review", *Applied Sciences*, vol. 11, n. 8, pp. 3328.
- DAVENPORT T.H. (2018), "From analytics to artificial intelligence", *Journal of Business Analytics*, vol. 1, n. 2, pp. 73-80.
- DAVENPORT T., HARRIS J. (2017), "Competing on analytics: Updated, with a new introduction: The new science of winning." Harvard Business Press.
- DAVENPORT T.H., RONANKI R. (2018), "Artificial intelligence for the real world", *Harvard Business Review*, pp. 108-116.
- DESPEISSE M., BAUMERS M., BROWN P., CHARNLEY F., FORD S.J., GARMULEWICZ A., ROWLEY J.

- (2017), "Unlocking value for a circular economy through 3D printing: A research agenda", *Technological Forecasting and Social Change*, vol. 115, pp. 75-8
- HOOSAIN M.S., PAUL B.S., RAMAKRISHNA S. (2020), "The impact of 4ir digital technologies and circular thinking on the united nations sustainable development goals", *Sustainability* 2020, vol. 12, n. 23, pp. 10143
- JABBOUR C.J.C., DE SOUSA JABBOUR A.B.L., SARKIS J., GODINHO FILHO M. (2019), "Unlocking the circular economy through new business models based on large-scale data: an integrative framework and research agenda", *Technological Forecasting and Social Change*, vol. 144, pp. 546-552.
- LYALL A., MERCIER P., GSTETTNER S. (2018), "The death of supply chain management", *Harvard Business Review*, vol. 15, pp. 2-4.
- LOPES DE SOUSA JABBOUR A.B., JABBOUR C.J.C., GODINHO FILHO M., ROUBAUD D. (2018), "Industry 4.0 and the circular economy: a proposed research agenda and original roadmap for sustainable operations", *Annals of Operations Research*, vol. 270, n. 1, pp. 273-286.
- MCCARTHY J. (1958), *Programs with common sense* (pp. 77-84), Proceedings of the Symposium on Mechanisation, London.
- MIKALEF P., BOURA M., LEKAKOS G., KROGSTIE J. (2019), "Big data analytics and firm performance: Findings from a mixed-method approach", *Journal of Business Research*, vol. 98, pp. 261-276.
- MOHER D., SHAMSEER L., CLARKE M., GHERSI D., LIBERATI A., PETTICREW M., STEWART L.A. (2015), "Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement", *Systematic reviews*, vol. 4, n. 1, pp 1-9.
- MURRAY A., SKENE K., HAYNES K. (2017), "The circular economy: an interdisciplinary exploration of the concept and application in a global context", *Journal Of Business Ethics*, vol. 140, n. 3, pp. 369-380.
- MACARTHUR E., ZUMWINKEL K., STUCHTEY M.R. (2015), *Growth within: a circular economy vision for a competitive Europe*. Ellen MacArthur Foundation.
- NOBRE G.C., TAVARES E. (2017), "Scientific literature analysis on big data and internet of things applications on circular economy: a bibliometric study" *.Scientometrics*, vol. 111, n. 1, pp. 463-492.
- RANSBOTHAM S., GERBERT P., REEVES M., KIRON D., SPIRA M. (2018), "Artificial intelligence in business gets real" *MIT sloan management review*, 60280.
- ROCCA R., ROSA P., SASSANELLI C., FUMAGALLI L., TERZI S. (2020), Integrating virtual reality and digital twin in circular economy practices: A laboratory application case. *Sustainability*, vol. 12, n. 6, pp. 2286.
- RUSSELL S., NORVIG P. (2010), "Artificial intelligence: A modern approach", third edit. Upper Saddle River, New Jersey, 7458.
- SNYDER H. (2019), "Literature review as a research methodology: An overview and guidelines", *Journal of Business Research*, vol. 104, pp. 333-339.
- STOCK T., SELIGER G. (2016), "Opportunities of sustainable manufacturing in industry 4.0", *Procedia Cirp*, vol. 40, pp. 536-541.
- TRANFIELD D., DENYER D., SMART P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal Of Management*, vol. 14, n. 3, pp. 207-222.
- VAN ECK N.J., WALTMAN L. (2010), "Software survey: VOSviewer, a computer program for bibliometric mapping", *Scientometrics*, vol. 84, n. 2, pp. 523-538.
- VENKATRAMAN V. (2017, pp. *The digital matrix: New rules for business transformation through technology*. EUA: LifeTree Media Lt
- WESTERMAN G., BONNET D., MCAFEE A. (2014), "Leading digital: Turning technology into business transformation." Harvard Business Press.
- WILSON H.J., DAUGHERTY P.R. (2018), "Collaborative intelligence: Humans and AI are joining forces", *Harvard Business Review*, vol. 96, n. 4, pp. 114-123.

Redistribution of food surpluses through an innovative food sharing business model: the Case of Regusto Blockchain platform

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CATERINA TREVISAN** CARLO ALBERTO PRATESI*

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). The topic is at the center of the global debate and the halving food waste has been included within the 17 Sustainable Development Goals (SDGs) promoted by the UN.*

Worldwide Covid-19 pandemic exacerbated some social issues like poverty and food insecurity, affecting, above all, the most vulnerable part of the population. Indeed, in Italy the number of individuals in absolute poverty raised in 2020 by over one million (Istat, 2021). Concerning food poverty, according to a report by ActionAid (2020) the requests for food aid in Italy have increased by up to 40%, making it difficult for local administrations and local authorities to respond quickly and effectively to these needs. Alongside, the contraction in demand and the increase in food insecurity caused by Covid-19, has influenced and continues to modify consumer behavior (Principato et al., 2020; Jribi et al., 2020) and food supply chains, with particular reference to the capacity to produce and distribute food (FAO, 2020a; IPES-Food, 2020; FAO, 2020b).

Even before the pandemic, literature showed how food waste could be reduced or redistributed according to a circular economy approach (Principato et al., 2019; Garcia-Garcia et al., 2017; Ingraio et al., 2018; EMAF, 2015), through a strong integration among the entire food supply chain. Indeed, the importance of the food waste issue is highlighted by the European Commission's effort against food loss and waste as a part of the Circular Economy Package (European Commission, 2015), and in the recent edition of the Circular Economy Action Plan (CEAP) (European Commission, 2020), emphasizing the importance of measuring and managing food loss and waste under this framework.

In addition to this, in recent years, technology-enabled multi-sided platforms have been increasingly popular with the aim of reducing food loss and waste through surplus food sharing and redistribution (UNEP DTU, 2021; Micheline et al., 2018; Cane et al., 2020). Indeed, it is important to highlight the role of digital innovation and reinvention for preventing, monitoring, and reducing food loss and waste. Therefore, thanks to the development of digital platforms and the spread of the sharing economy, efforts are being made to find economically sustainable business models that are at the same time able to solve the problem of food waste through digital platforms. These are online food sharing tools that aim to redistribute excess food at the production, distribution, and catering level (Micheline et al., 2019)

In this context, an optimization of information flows and management of raw materials and stocks, involving various stakeholders - primarily local administrations - would make it possible to provide food to the neediest consumers and, at the same time, avoid the generation of further waste, contributing to the urgent transformation towards more resilient and sustainable food systems. Constant monitoring and communication of the various stages of the food supply chain would allow an improvement in production with a view to sustainability and effective intervention to reduce economic inequalities among final consumers. On the same lines, FAO (2019), identified that a lack of coordination between the actors of the supply chain is a factor that contribute to food waste. In this sense, the coordination of food supply chains with the specific support offered by digital technologies, such as blockchain, represents an important opportunity, which has received limited attention so far both in the academic community and in the industry.

Blockchain technology is frequently adopted in the agri-food sector since it allows the traceability of trusted

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information throughout the entire food supply chain (Tian, 2016). This characteristic appears perfectly suitable in the food industry, where it is necessary to guarantee the product safety, as well as transferring and sharing authentic data across multiple actors, reaching ultimately the final consumer (Tijan et al., 2019). Moreover, according to a recent study, the blockchain technology can "break" the food supply chain into smaller parts and help to manage in a better way the food flow control (Stroumpoulis et al., 2021), through an improvement in the stream of communications and information between the parties in the food supply chain (Legowski et al., 2019). In addition to this, the use of blockchain technology facilitates the sharing of information with food banks to facilitate the distribution of uneaten food, thus helping to reduce food waste (Stroumpoulis et al., 2021).

Food Loss and Waste under a circular economy approach. In the framework of circular economy, food waste represents an important challenge. The circular economy model, unlike the traditional linear economic model, promotes an economic growth with a cyclic flow model that ensures sustainable development of the Planet thanks to the reuse of food waste or by-products in different sectors and productions (European Commission, 2015, 2020; Schulze, 2016; Ruggieri et al., 2016; CIRAI, 2015; MacArthur et al., 2015). More specifically, according to Korhonen et al. (2018, p. 37), the circular economy concept "emphasizes product, component and material reuse, remanufacturing, refurbishment, repair, cascading and upgrading as well as solar, wind, biomass and waste-derived energy utilization throughout the product value chain and cradle-to-cradle life cycle". Therefore, the circular economy is a model of production and consumption that encompass all the activities aimed at reducing, recycling materials throughout the supply chain (Murray et al., 2017). Thus, as some types of food waste and loss are inevitable and cannot be avoided, food loss and waste management should not focus only on their prevention, but also, in line with the circular economy perspective, in their reuse and redistribution for other relevant purposes, like giving them for human consumption to people in need (Jimenez-Rivero and Garcia-Navarro, 2017; Valenti et al., 2017a, Valentini et al., 2017b).

Purpose of the paper. The present study will focus on the advantages of using blockchain technology to support the redistribution of food surpluses along the entire food supply chain, with the specific aim of tackling food waste while alleviating food poverty and understand in depth the implications for sustainability and the SDGs achievement.

To do so, the paper analyzes the Regusto platform, a brand of the start-up Recuperiamo s.r.l., born in 2016 with the aim of reducing food waste while alleviating food poverty in Italy. The platform facilitates companies in donating products to non-profit organizations and affiliated associations by leveraging blockchain as technological enabler to increase transparency in the redistribution process. While the initial business model was addressing the business to consumer (B2C) segment, Regusto rapidly evolved towards a B2NPO (business-to-non profit organization) business model, proposing a formula in which the local public administration analyze the food flows in its communities and encourage the donation and recovery of surpluses (Michellini et al., 2018). We aim at providing insights about the future developments of the platform's business model, which plans to achieve further sustainability and circularity goals.

Methodology. The study is based on an in-depth case study of Regusto platform, investigating the evolution of the platform and the related business model. Data collection is based on semi-structured interviews with key platform actors. We integrate interviews with secondary information (start-up and platform information, website, etc.) to develop a meaningful understanding of the context. Quantitative information such as redistribution data and key indicators are included to analyse sustainability implications from an economic, environmental, and social point of view. The chosen methodology is particularly suitable for our study, with the purpose of building on existing theory about blockchain-enabled multi-sided platforms business models (Trabucchi et al., 2020). Indeed, by analysing in depth the functioning principles of the platform, it is possible to widen the existing limited knowledge about blockchain technology and its impact on sustainability and food loss and waste reduction or prevention. Moreover, semi-structured interviews with platform's key users and developers enables to detect and discuss emerging signals of future evolution of the business model.

Preliminary results. The present research is still in progress. From the preliminary results it emerges that the business model adopted by the Regusto platform is in constant evolution due to the uncertainty of the moment and it will change on the basis of the stakeholders' requirements and resources, and the external contextual factors influenced by the pandemic.

The value proposition of the platform remains unchanged: it combines food surplus management and non-profit sectors through an innovative food sharing business model and its potential is to amplify and digitize the recovery of food surpluses in favor of the most vulnerable individuals. The combination of food surplus management with digital innovation will benefit all the three pillars of sustainable development: society, economy, and environment in line with the SDGs by the UN (Stroumpoulis et al., 2021; Saberi et al., 2019). The first data revealed that the food flows monitored in 2021 amounted to 106,741 kg of food donations which translated into figures equate to 212,000 meals distributed. Considering the environmental impacts, thanks to the redistribution of excess food that was recovered and not thrown away, it was possible to avoid the emission of 21,348 kg of CO₂ equivalent.

In addition to this, among the results it is possible to mention the case of Milan (municipal area) where the platform Regusto presents various companies and active entities, including Esselunga, Rovagnati, Gorillas.

Here, from 2020 to date 178,458 kg of food have been donated, equivalent to 356,917 meals distributed. From an environmental point of view thanks to the redistribution of excess food that was recovered and not thrown away, it was possible to avoid the emission of 35,692 kg of CO₂ and save 684,388 m³ of water.

Moreover, in this study we explore the evolution of the business models over time, understanding the role of each

side of the platform and the evolution of relationships between key actors and related governance mechanisms. An interesting future evolution of the platform is represented by the possibility of certifying, through the use of blockchain, the reduction of environmental impacts obtained through food donations of partner companies. In fact, donating or selling exceeding food or non-food items implies a reduced overall environmental impact with respect to landfilling (Papargyropoulou et al., 2014). Finally, thanks to the digitalization and sharing economy, it is possible to find interesting solutions that prevent and minimize food waste while tackling other sustainability challenges like poverty and food security (Michelini et al., 2018).

Research limitations. This study presents some limitations that need to be acknowledged. First, the exploratory nature of the research which consider just one case study, not allowing generalize the preliminary results. Therefore, more case studies are suggested to address the issue. However, considering the still limited existing literature concerning this topic, because of its newness, as well as the high level of innovation related to the use of digital tools to support social purposes, we believe that the preliminary results obtained - together with the possible use and implementation of digital solutions - can help stimulate further study on the topic. The exploration of digital solutions to manage food waste in a circular economy perspective, can represent an innovative research topic to be explored since it can help monitor the effectiveness of technologies in contributing to the reduction of food waste and therefore their capacity to activate a real circular economic process.

Managerial implications. The paper's novelty is both empirical and theoretical. From a managerial and food supply chain point of view contributions will be manifold: 1) the extension of integration and information exchange at supply chain level to cope with food waste and support redistribution for social purposes; 2) the study of new dynamics related to of the supply chain and the relationships between the different actors that make it up, following the implementation of new digital technologies; 3) a contribution to the literature on blockchain based multi-sided platforms (Trabucchi et al., 2020). Despite its potential, blockchain implementations are still lacking for enhancing food surplus redistribution practices, and in turn offering beneficial results in reducing losses and waste in the supply chains; 4) a contribution to the fields of Circular Economy, Responsible Research and Innovation and Sustainable Supply Chain Management, with particular attention to the social dimension, still in the development and expansion phase, in connection with the Literatures of Sustainability Transition and CSR; and a 5) reduction of management and warehouse costs. Practical implications concern the three areas of sustainability, in alignment with the triple bottom line and the Law 166/2016 "Gadda" on food waste: Social impact of support to non-profit entities and to categories of subjects in need; direct economic benefits of reducing the costs of managing the food emergency for public administrations and indirect losses resulting from the freezing of production chains; environmental in terms of prevention and reduction of FW, as well as planning of territorial fiscal policies based on the quantities donated, such as reduction of the waste tax. In sum, the project allows an approach to different SDGs #: 1, 2, 9, 10, 11, 12, 13. Finally, we believe that this study can contribute to the body of knowledge New Business Models in alignment with Sustainable Development Goal #12.

Moreover, among the managerial implications and potential benefits and drawbacks for supply chain actors involved, we are going to analyse the impact of blockchain on sustainability, trying to understand if the increased sustainability of food loss and waste reduction can be counterbalanced by the Blockchain associated increase of energy consumption (Sedlmeir et al., 2020).

Originality of the paper. Unlike other studies in which the implementation of new digital technologies, such as blockchain, are mainly analyzed in terms of information transparency and traceability (Rejeb et al., 2020; Behnke et al., 2020), this paper will show how the use of blockchain technology can support the transparent redistribution of food surplus for social purposes, developing a sustainable business model currently in evolution while achieving some of the UN sustainable development goals (like #2 Zero hunger and #12.3 Global food loss and waste). This aspect of our study facilitates inter- and transdisciplinary research on new business models, sharing and circular economy, contributing to sustainable development.

Keywords: circular economy; food waste; food loss and waste redistribution; blockchain technology; food waste management; food sharing models; sharing economy.

References

- ACTIONAID (2020), "La pandemia che affama l'Italia. Covid-19, povertà alimentare e diritto al cibo". Available at: https://actionaid-it.imgix.net/uploads/2020/10/AA_Report_Poverta_Alimentare_2020.pdf
- CANE, M., PARRA, C. (2020), "Digital platforms:mapping the territory of new technologies to fight food waste", *British Food Journal*, vol. 122, pp. 1647-1669.
- CIRAIG (International Reference Centre for the Life Cycle of Products, Processes and Services), (2015), "Circular Economy: A Critical Literature Review of Concepts", Polytechnique Montréal: Montreal, QC, Canada. Available at: https://www.ciraig.org/pdf/CIRAIG_Circular_Economy_Literature_Review_Oct2015.pdf
- ELLEN MACARTHUR FOUNDATION (EMAF), SUN, MCKINSEY & CO, (2015), "Growth Within: A Circular Economy Vision for a Competitive Europe". Available at: <https://unfccc.int/sites/default/files/resource/Circular%20economy%203.pdf>
- EUROPEAN COMMISSION (2015), Communication from the Commission to the European Parliament, the Council,

- the European Economic and Social Committee and the Committee of the Regions Closing the Loop—An EU Action Plan for the Circular Economy 2015, European Commission, Brussels, Belgium.
- EUROPEAN COMMISSION (2020), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A New Circular Economy Action Plan. For a Cleaner and More Competitive Europe, European Commission, Brussels, Belgium.
- FAO (2019), “The state of food and agriculture: Moving forward on food lost and waste reduction”. Available at: <https://www.fao.org/3/ca6030en/ca6030en.pdf>
- FAO (2020a), “Addressing the impacts of COVID-19 in food crises”, April-December 2020: FAO's component of the Global COVID-19 Humanitarian Response Plan.
- FAO, (2020 b), “Mitigating risks to food systems during COVID-19: Reducing food loss and waste”.
- FAO, IFAD, UNICEF, WFP and WHO (2021), “The State of Food Security and Nutrition in the World 2021. Transforming food systems for food security, improved nutrition and affordable healthy diets for all”. Available at: <https://www.fao.org/3/cb4474en/cb4474en.pdf>
- GARCIA-GARCIA G., WOOLLEY E., RAHIMIFARD S., COLWILL J., WHITE R., NEEDHAM L. (2017), “A methodology for sustainable management of food waste”, *Waste and Biomass Valorization*, vol. 8, n. 6, pp. 2209-2227.
- INGRAO C., FACCILONGO N., DI GIOIA L., MESSINEO A. (2018), “Food waste recovery into energy in a circular economy perspective: a comprehensive review of aspects related to plant operation and environmental assessment”, *J. Clean. Prod.* vol. 184, pp. 869-892.
- IPES-Food, (2020), “COVID-19 and the crisis in food systems: Symptoms, causes, and potential solution”.
- ISTITUTO NAZIONALE DI STATISTICA (2021), “La povertà in Italia/anno 2020”, Istat. Available at: https://www.istat.it/it/files/2021/06/REPORT_POVERTA_2020.pdf
- JIMENEZ-RIVERO A., GARCÍA-NAVARRO J. (2017), “Best practices for the management of end-of-life gypsum in a circular economy”, *J. Clean. Prod.*, vol.167, pp. 1335e1344.
- JRIBI S., BEN ISMAIL H., DOGGUI D., DEBBABI H. (2020), “COVID-19 virus outbreak lockdown: What impacts on household food wastage?”. Available at: <https://doi.org/10.1007/s10668-020-00740-y>
- KORHONEN J., HONKASALO A., SEPPÄLÄ J. (2018), “Circular economy: the concept and its limitations”, *Ecol. Econ.*, vol. 143, pp. 37-46
- LEGOWSKI M., BRZEZINA N., CIAIAN P., LIMA M., MONDELAERS K., VAN DE POL L., SANTINI F., STEIN A. (2019), “Cap specific objectives: Farmer position in value chain”, *European Commission*. Report number: 3.
- MACARTHUR E., ZUMWINKEL K., STUCHTEY M.R. (2015), “Growth within: A circular economy vision for a competitive Europe”.
- MICHELINI L., PRINCIPATO L., IASEVOLI G. (2018), “Understanding food sharing models to tackle sustainability challenges”, *Ecological Economics*, vol. 145, pp. 205-217.
- MICHELINI L., PRICIPATO L. (2019), “Food sharing: La nuova frontiera contro fame e sprechi”, *La repubblica affari e Finanza*.
- MURRAY A., SKENE K., HAYNES K. (2017), “The circular economy: an interdisciplinary exploration of the concept and application in a global context”, *Journal of Business Ethics*, vol. 140, n. 3, pp. 369-380
- PAPARGYROPOULOU E., LOZANO R., STEINBERGER J.K., WRIGHT N., BIN UJANG Z. (2014), “The food waste hierarchy as a framework for the management of food surplus and food waste”, *Journal of cleaner production*, vol. 76, pp. 106-115.
- PRICIPATO L., RUINI L., GUIDI M., SECONDI L. (2019), “Adopting the circular economy approach on food loss and waste: The case of Italian pasta production”, *Resources, Conservation & Recycling*, vol. 144, pp. 82-89
- PRINCIPATO L., SECONDI L., CICATIELLO C., MATTIA G. (2020), “Caring more about food: The unexpected positive effect of the Covid-19 lockdown on household food management and waste”, *Socio-Economic Planning Sciences*.
- RUGGIERI A., BRACCINI A.M., POPONI S., MOSCONI E.M. (2016), “A meta-model of inter-organizational cooperation for the transition to a circular economy”, *Sustainability*, vol.8, n.11, p. 1153
- SABERI S., KOUHIZADEH M., SARKIS J., SHEN L. (2019), “Blockchain technology and its relationships to sustainable supply chain management”, *International Journal of Production Research*, vol. 57, n. 7, pp. 2117-2135.
- SCHULZE G. (2016), “Growth within: A Circular Economy Vision for a Competitive Europe”, *Ellen MacArthur Foundation and the McKinsey Center for Business and Environment*, Chicago, pp. 1-22.
- SEDLMEIR J., BUHL H.U., FRIDGEN G., KELLER R. (2020), “The Energy Consumption of Blockchain Technology: Beyond Myth”, *Business and Information Systems Engineering*, vol. 62, n. 6, pp. 599-608.
- STROUMPOULIS A., KOPANAK, E., OIKONOMOU M. (2021), “The Impact of Blockchain Technology on Food Waste Management in the Hospitality Industry”, *ENTRENOVA - ENTERprise REsearch InNOVation*. Vol.7, n. 1, pp. 428-437.
- TIAN F. (2016), “An agri-food supply chain traceability system for China based on RFID & blockchain technology.”, *2016 13th International Conference on Service Systems and Service Management, ICSSSM 2016*.
- TIJAN E., AKSENTIJEVIĆ S., IVANIĆ K., JARDAS M. (2019), “Blockchain technology implementation in logistics”, *Sustainability*, vol. 11, p. 1185

- TRABUCCHI D., MORETTO A., BUGANZA T., MACCORMACK A. (2020), “Disrupting the Disruptors or Enhancing Them? How Blockchain Reshapes Two-Sided Platforms”, *Journal of Product Innovation Management*, vol. 37, n. 6, pp. 552-574.
- TRABUCCHI D., BUGANZA T. (2020), “Fostering digital platform innovation: From two to multi-sided platforms”, *Creativity and Innovation Management*, vol. 29, n. 2, pp. 345-358.
- UNEP DTU Partnership and United Nations Environment Programme (2021), “Reducing Consumer Food Waste Using Green and Digital Technologies”. Copenhagen and Nairobi.
- VALENTI F., PORTO S.M.C., CASCONI G., ARCIDIACONO C. (2017) a, “Potential biogas production from agricultural by-products in sicily: a case study of citrus pulp and Olive pomace”, *J. Agric. Eng*, vol. 48, n. 4, pp. 196e202.
- VALENTI F., PORTO S.M., CHINNICI G., CASCONI G., ARCIDIACONO C. (2017) b, “Assessment of citrus pulp availability for biogas production by using a GIS-based model the case study of an area in southern Italy”, *Chem. Eng. Trans*, vol. 58, pp. 529e534.

The Evolution of Circular Economy in Management: A Bibliometric Analysis

CHIARA PALAGONIA*

Framing of the research. *Zero climate impact is the ambitious aim to be reached by 2050, established by the European Union with the Green Deal, approved by the European Commission in January 2020 in Brussels.*

However, the current economic system adopted, which is in an evolving phase, mainly intended as a linear economic system, must be disappplied to ensure the transition of the European continent towards ecological goals.

The linear model, footprint of human generation, is responsible not only for reducing the amount of natural resources requested, but also for mitigating the value of natural heritage contaminated by human activity. (Murray et al.,2017)

In contrast, the circular economy is depicted as “an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers), and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations.”(Kirchherr et al., 2017, pp. 224-225)

The circular economy has become a tool of action of the European Green Deal, outlined in several regulatory policies, action plans and related implementation instruments.

In the new circular economy action plan, the goal of sustainability is expressed in the choice of adopting practices that extend the industrial cycle of products, through constant evaluations that aim to ascertain the circular approach in the individual company reality; by investing on bio-based field, through the adoption of the Bioeconomy Action Plan; via promoting companies to use technological systems necessary, to trace resources in order to avoid waste and ensure reuse. (Communication from the Commission to the Europe Parliament, the Council, the European Economic and Social committee and the committee of the regions - “A new Circular Economy Action Plan”, 2020).

Given the relevance of the circular economy phenomena, there has been a proliferation of studies on the subject and a significant number of literature reviews.

From its first declination by Boulding (1966), who used the circular model as loupe for observing the critical issues arising from the scarcity of resources the circular system has become a combination of the economic and environmental dimensions which characterize every activity (Merli et al., 2018).

Consequently, from Brundtland definition of sustainability - “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987)- in the research production emerges clearly how it relates, almost naturally, to the circular economic system envisaged, even though noting deficiencies of circular strategy in the social profile (Kristensen et al.,2019).

Analysis of literature has shown an evolution of the phenomenon over the years. In particular, an interesting insight into the circular strategy and the scientific debate is offered by Merli et al., (2018), which through a descriptive analysis, illustrate the evolution of the circular economy in the economic system, outlining the principles behind it and the limits it encounters in its implementation. The research question from which the literature review starts - “How does the academic word approach the study of CE?”, results in a review of 601 articles (placed from 2013 to 2017), where a clear predominance of Chinese literature is denoted, followed by European literature.

The production of research on the circular economy in China begins in the early 2000s, as opposed to the European continent, which has shown interest since 2012.

This is a clear consequence of how the Asian country, despite its well-known highly polluting economic policy, was the first to plan a sustainable public intervention plan, promoting the first studies on the circular economy.

However, the analysis offered by the Ellen Mc Foundation gives clarity and relevance to the circular economy and the strategies behind it, showing how the relevance of the issue has spread across Europe.

This awareness of the economic phenomenon on the continent was also confirmed by the subsequent publication of the Circular Economy Package, which led to an increase in research almost on a par with Asian scientific production. (Murray et al.,2017).

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Many contributions have been published over the years. Preliminary research of 10 studies based on the literature review shows that the circular economy phenomenon has been the subject of various analysis, with different approaches depending on the sector concerned (see table 1).

In detail, some works have adopted a generic approach. These include more general studies such as the one conducted by Merli et al., (2018) mentioned above. The study aims to reflect on the circular economy and how this economic strategy has evolved over the years and around the globe.

Of a similar nature is the literature review by Wasserbaaur et al., (2022), which offers an overview of the synergy between government policies and business models and their application on the context of the circular economy.

Differently, other works have adopted a specific approach. These include the literature review carried out by Rosa et al., (2019), which illustrate a correlation between two prominent research areas, i.e., industry 4.0 and circular economy. Of a similar approach is the research carried out by Fu et al. (2020), which focus on the implementation of circular economy strategies on the model of a sustainable supply chain, in the textile and apparel industry.

In the same direction lies also the study conducted by Farooque et al. (2019), which indagates on the phenomenon circular supply chain management through the literature review approach.

Tab. 1 Main literature reviews on the topic

AUTHORS	YEAR	KEYWORDS	TIMEFRAME	N. OF PAPERS	DB	RQ
Wasserbaaur R. et al.	2022	Business model; Interplay; governmental policy; Circular Economy; System perspective	Not set	130	Web of Science Core Collection	Analysis of the interplay between governmental policies and business model for a Circular Economy
Vinante C. et al.	2021	Circular Economy; Assessment; Metrics; Value; Chain; Ecodesign	2007-2015	130	Scopus and Web of Science	Metrics for comprehensively assessing Circular Economy; Organizational functions;
Fu J. et al.	2020	Circular Economy; Closed-loop supply chain; Literature Review; Sustainable Supply Chain; Textile and Apparel Industry	1979-January 2020	109	Scopus, Web of Science and Ebsco	Evaluate the existing researches associated with sustainable supply chain toward a Circular Economy in the Textile and Apparel Industry
Rosa P. et al.	2019	Circular Economy; Circular Industry 4.0; Digital Circular Economy; Industry 4.0; Systematic Literature Review	2000-2018	158	Scopus and Web of Science	Identify the relation between I4.0 and the Circular Economy
Farooque M.et al.	2019	Supply Chain management; Circular Economy; Circular Supply Chain; Circular Supply Chain Management; Sustainable Supply Chain; Sustainability.	Until 2018	261	Scopus	1. To conceptualize a new definition of Circular Supply Chain Management; 2. To map the current state of research on all the aspects and facets of Circular Supply Chain Management by use of a structured review of literature; 3. To identify important directions for future research in Circular Supply Chain Management.
Kühl C. et al.	2019	Supply chain management; Systematic Literature Review; Circular Economy; Servitization, Product-service system	2005-2018	67	Scopus, Web of Science; ABI/Proquest; EBSCO.	1. What is Supply Chain Management? 2. How do Product-service system business models affects Supply Chain Management? 3. What contextual factors affect the implementation of supply chain circularity?
Marrucci L. et al.	2019	Sustainability; Green Public Procurement; Ecolabel; Environmental management system; Eco-design; Energy Label	2001-2018	35	Scopus and Web of Science	What is the level of integration between Sustainable Production and Consumption tools and Circular Economy?
Sassanelli C. et al.	2019	Circular Economy; Performance measurement; Systematic Literature Review; Assessment methodology	2009 - 2018	45	Scopus and Science Direct	Which are so far the accepted manuscript performance assessment methods proposed to measure Circular Economy systems and how they can be characterized and classified?
Pinheiro M.A..P et al.	2018	Stakeholders; New Product Development; Barriers; Drivers; Sustainable design; Circular Design	2015-2018	49	Scopus	Which studies integrate New Product Development and Circular Economy? What are the practices of Circular Economy applied to New Product Development, what are the drivers, barriers as well as the stakeholders involved into the integration between Circular Economy and New Product Development?
Merli R. et al.	2018	Circular Economy; Sustainability; Industrial Ecology; Systematic Literature Review; Circular Business Model.	2004-2017	601	Scopus and Web of Science	How does the academic world approach the study of Circular Economy?

Purpose of the paper. Considering the climate and environmental emergency we are facing, as expressed by the governmental and economic policies of the European Union examined, and the relevance of the topic in the research framework, the objective of the paper is to contribute to research on the circular economy, which is presented as a possible solution to address the environmental emergency and implement an economic-ecological transition.

In detail, the paper aims to answer the following question: how has the circular economy concept evolved over the years?

In addition, the research aims to analyse the underlying dimensions of the circular economy phenomenon and simultaneously identifying the agenda for future research lines.

Methodology. In order to pursue the research objectives outlined above, bibliometric analysis is deemed to be the most appropriate methodology to adopt.

Indeed, it is a widespread tool "(...) for detecting the state of the art for a particular field. The method is capable of utilizing quantitative analysis and statistics to describe patterns of publications within a given period or body of literature" (Dereli et al., 2011, p.127).

The Scopus was the database used to search for the papers needed to carry out the bibliometric analysis.

The bibliometric research was carried out starting from the selection of the keyword circular economy, in order to achieve a general collection of literature for conducting research on such a vast and controversial topic.

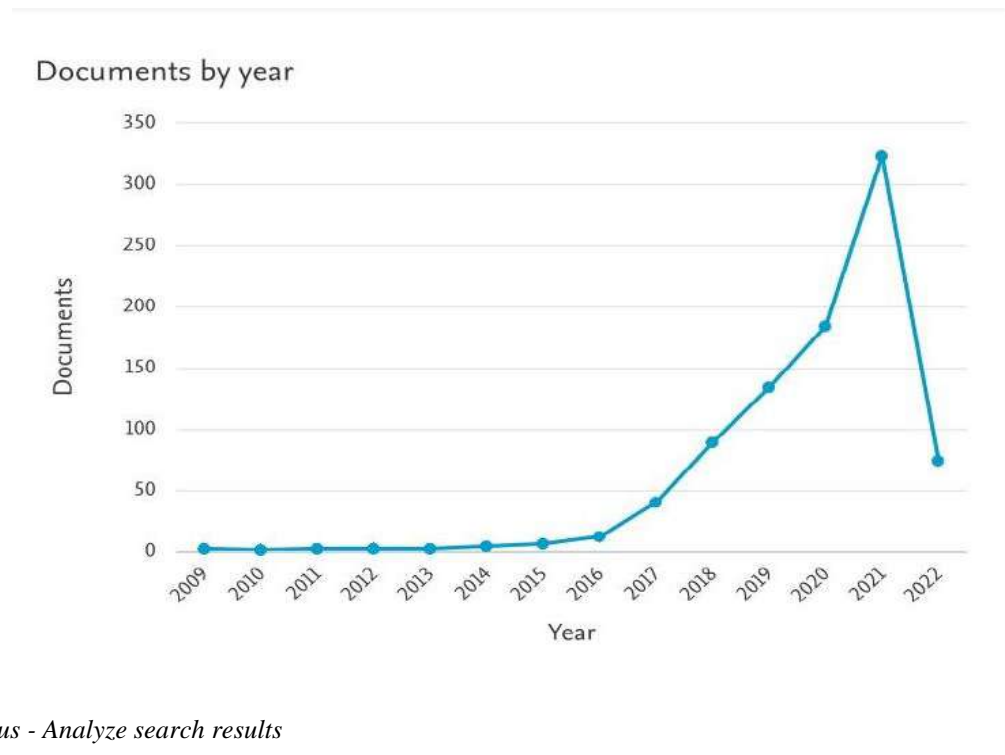
In detail, the bibliometric research was carried out according the following criteria:

- only article title;
- only articles in the "Business, management and accounting" subject area;
- only journal resource type;
- only articles written in English, in consideration of the fact that this is the most widespread language at academic level and a useful tool for comparing works from different locations in the world;
- the time frame considered for the analysis was 2009 to 2022.

In conclusion, 875 documents were used as the final dataset. Scopus and VOS viewer were adopted to perform the analysis.

Results. At first step of the analysis, the graphs provided by Scopus were analysed and used to obtain a general review of the results obtained.

Fig. 1: Documents by year

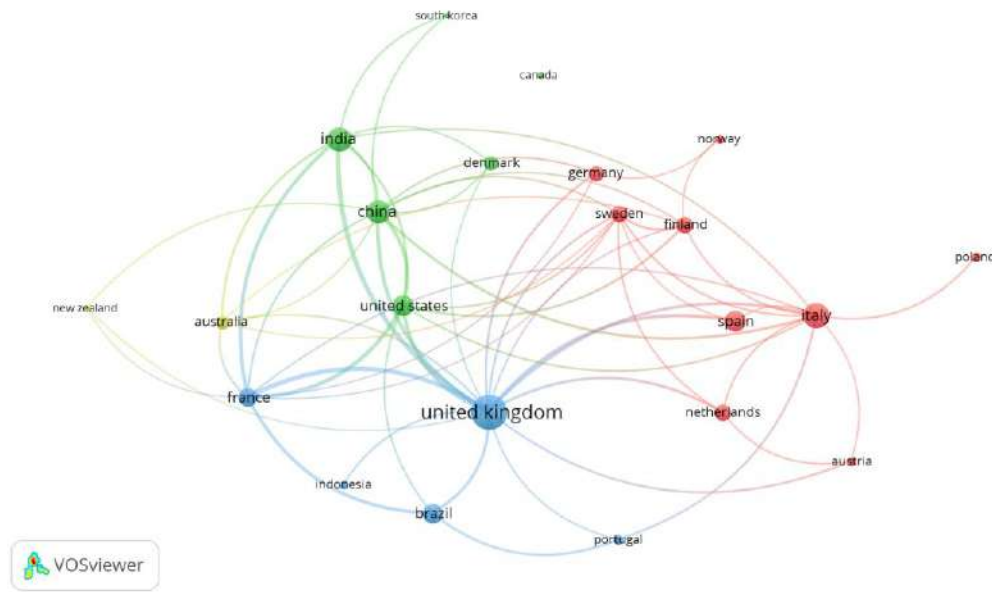


Source: Scopus - Analyze search results

As seen I figure 1, academic production related to the circular economy was almost absent until 2015.

Since 2015 there has been a significant and steady increase until 2021. The reduction in 2022 is attributable to the fact that the analysis is limited to articles published in the first two months of the year.

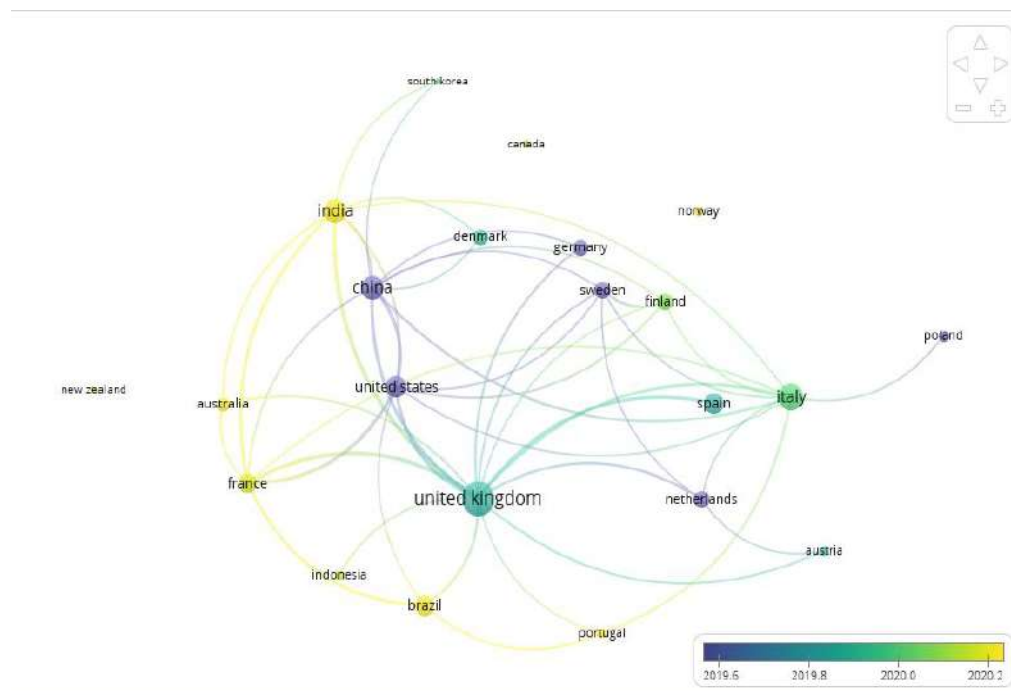
Fig. 2: Country cooperation



Source: Author's elaboration (VOSviewer)

Figure 2 illustrates a graphical representation of the documents produced in different countries. As we can observe, the graph confirms that the most productive countries are United Kingdom, Italy, India and China. Although, it is also noticeable a good cooperation between China, United States and India.

Fig. 3: Country cooperation over time



Source: Author's elaboration (VOSviewer)

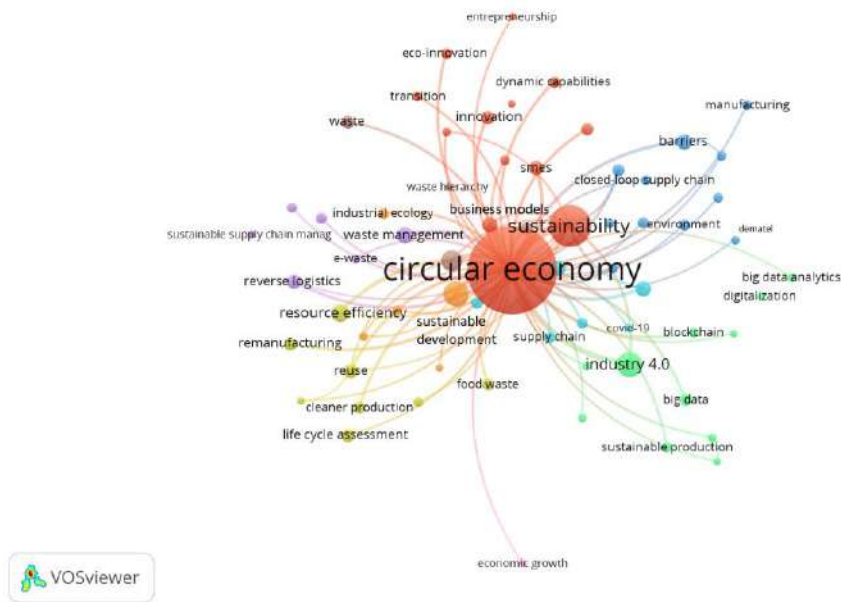
Figure 3 illustrates a graphical representation of the documents produced in different countries, analysing them over time.

Analysis of the figure confirms the above and shows that researchers in China were the first to take an interest in the study in question during the period analysed, i.e. in 2019. This is illustrated by the purple colouring of the China cluster, together with the United states, followed in order of relevance by Germany, Sweden, Netherlands and Poland.

From 2019 onwards, it is denoted by searches from the UK and Italy, as the main countries together with Spain, Finland and Denmark (identified by the colour green/light blue). The last searches, dating from the second half of 2020,

are from India as the relevant country, followed in order of relevance by France, Brazil, Australia and Indonesia (identified by the colour yellow).

Fig. 4: Keyword co- currence analysis.



Source: Author’s elaboration (VOSviewer)

Figure 4 shows the keywords recorded in the dataset, illustrated graphically. The logic of the graph is that if the terms recur frequently, they are situated close to each other; otherwise, if they recur less frequently, they are placed graphically with a reduced distance.

The circles are of different sizes depending on the number of papers found containing a specific keyword.

Clearly, a larger circle implies a larger number of papers containing the keyword in question.

Through the software VosViewer, authors keywords were analysed in co-occurrence. The minimum number of occurrences of a keyword corresponded to five; of the 2279 keywords, 72 meet the threshold.

The number of keywords selected were 72 but, after a screening of words considered not useful, the final output was 65.

The keywords were divided into nine key clusters, represented by the colours. According to the size of the circles, the main keywords are four: “circular economy”, “sustainability”, “sustainable development” and “industry 4.0”.

Although the software divides the keywords into nine clusters, a division of four areas is clearly observed.

- The first one is characterized by the prevalence of the keyword “circular economy”, which is linked with other 13 items, identified by red colour; innovation and entrepreneurship emerge as main elements.
- The second one shows the predominance of the technological element, characterised by the keyword “industry 4.0”, at the head of cluster 2 where there are a further 11 items, identified by the light green colour.
- The third one includes fourth and fifth clusters, combined by the colour yellow and purple, where the basic principles of the circular economy such as reuse, recycling, remanufacturing and reverse logistics are denoted. Particular mention should be made of the concept of waste, which opens up various connections with e-waste, food waste, waste hierarchy and waste management.
- The fourth one is characterized by the existence of keywords, belonging to cluster 3, which are linked to the circular business model and supply chain. In the field in subject, the keyword “dematel” emerges clearly.

DEMATEL approach is a technique used to value the impact of the implementation of circular economy pratique in the electronics and construction industry.

Based on the structural model technique, DEMATEL technique offers an important contribution to measure the criticalities and utilities of e-waste management, inspired to circular economy’s principles, and of green supply chain in the electronics Industry. (Chang et al., 2011).

concrete data on the evolution of the topic over time and around the world, on the possible implications of the phenomenon analyzed, especially in the field of business models.

Originality of the paper. To date, there have been literature reviews on these topics. However, unlike the other literature reviews that have been analyzed, it intends to add a bibliometric approach methodology to complement the traditional literature review approach.

In addition, with the compiled research it is intended to pursue the intention of showing the evolution that the topic of the circular economy has witnessed and how and on which topics scholars around the globe have been working in recent years.

Keywords: “Circular Economy”, “Sustainability”, “Sustainable Development” and “Industry 4.0”.

References

- BOULDING K.E. (1966), “The Economics of the Coming Spaceship Earth.”, *Environmental Quality in a Growing Economy, Resources for the Future/Johns Hopkins University Press, Baltimore*, pp. 3-14.
- CHANG A., CHANG C., WU C. (2011), “DEMATEL method for developing supplier selection criteria”, *Expert System with Application*, vol. 38, pp. 1850-1858.
- DERELI T., BAYKASOGLU A., ALTUN K., DURMUSOGLU A., BURHAN TURKSEN I. (2011), “Industrial applications of type-2 fuzzy sets and system: A concise review”, *Computers in Industry*, vol. 62, pp. 125-137.
- FAROOQUE M., ZHANG A., THURER M., QU T., HUISINGH D. (2019), “Circular supply chain management: A definition and structured literature review”, *Journal of Cleaner Production*, vol. 228, pp. 882-900.
- FU J., SHIYUAN Y., LUJIE C., XIAOWEI C. (2020), “Circular Economy in Textile and Apparel Industry: A systematic Literature review”, *Journal of Cleaner Production*, vol. 259.
- KIRCHHERR J., REIKE D., HEKKERT M. (2017), “Conceptualizing the circular economy: An analysis of 114 definitions”, *Resources, Conservation & Recycling*, vol. 127, pp. 221-232.
- KRISTENSEN H.S., MOSGAARD M.A. (2020), “A review of micro level indicators for a circular economy e moving away from the three dimensions of sustainability?”, *Journal of Cleaner Production*, vol. 243.
- KÜHL C., BOURLAKIS A., AKTAS E., SKIPWORTH H. (2019), “How does servitisation affect supply chain circularity? - A systematic literature review”, *Journal of Enterprise Information Management*, vol. 33, pp. 703-728.
- MARRUCCI L., DADDI T., IRALDO F. (2019), “The integration of circular economy with sustainable consumption and production tools: Systematic review and future research agenda”, *Journal of Cleaner Production*, vol. 240.
- MERLI R., PREZIOSI M., ACAMPORA A. (2018), “How do scholars approach the circular economy? A systematic literature review”, *Journal of Cleaner Production*, vol. 178, pp. 703-722.
- MURRAY A., SKENE K., HAYNES K. (2017), “The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context”, *Journal of Business Ethics*, vol. 140, pp. 369-380.
- PINHEIRO M.A.P., SELES B.M.R.P., DE CAMARGO FIORINI, P., JUGEND D., LOPES DE SOUSA JABBOUR, DA SILVA H.M.R., LATAN H. (2018), “The role of new product development in underpinning the circular economy: A systematic review and integrative framework”, *Management Decision*, vol. 57, pp. 840-862.
- ROSA P., SASSANELLI C., URBINATI A., CHIARONI D., TERZI S. (2019), “Assessing relations between Circular Economy and Industry 4.0: a systematic literature review”, *International Journal of Production Research*, vol. 58, pp. 1662-1687.
- SASSANELLI C., ROSA P., ROCCA R., TERZI S. (2019), “Circular economy performance assessment methods: A systematic literature review”, *Journal of Cleaner Production*, vol. 229, pp. 440-453.
- VINANTE C., SACCO P., ORZES G., BORGIANNI Y. (2021), “Circular economy metrics: Literature review and company-level classification framework”, *Journal of Cleaner Production*, vol. 288.
- WASSERBAUR R., SAKAO T., MILIOS L. (2022), “Interactions of governmental policies and business models for a circular economy: A systematic literature review”, *Journal of Cleaner Production*, vol. 337.

When collaborative consumption comes into action: exploring the motivations for fashion renting

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Framing of the research. *Over the last decade, collaborative consumption (CC) has become increasingly prominent as a research area. It can be defined as a socio-economic model (Lang and Armstrong, 2018) in which consumers can access products without gaining their ownership (Botsman, 2013; Chou et al., 2015) by paying a fixed fee or another reimbursement (Lang and Armstrong, 2018; Belk, 2014), as well as for free by sharing or gifting them with families and friends (Arrigo, 2021; Belk, 2014; Decoopman et al., 2010). Therefore, instead of buying new products, consumers access existing ones through other options as lending, resale, renting, gifting, and swapping (Iran and Schrader, 2017). CC is also considered a sharing economy practice, which is expected to alleviate social, environmental, and ecological issues such as excessive consumption of resources and environmental pollution (Armstrong et al., 2015). Indeed, CC has a focus on sustainability as the sharing of products allows life-cycle extension of existing items by improving their use frequency - which might otherwise be ended up after a limited use (Lang and Armstrong, 2018; Armstrong et al. 2015; Botsman and Rogers, 2010) - and reducing the overall new product purchasing (Lang and Armstrong, 2018).*

In the fashion industry, CC is usually defined as 'Collaborative Fashion Consumption'. It has born to contrast the negative impact of fashion industry on the environment (Henninger et al., 2021) and it includes both B2C models, like Fashion Renting (FR) and Peer-to-Peer (P2P) models, which are based on swapping/selling items between consumers (Arrigo, 2021; Lang and Armstrong, 2018).

As for FR, it is commonly referred to as paying for the use of fashion products (made available by a FR platform or by a company) for a fixed period, either online or offline. Customers can rent clothes through apps, websites, department stores, or rental clothes shops (Lang et al., 2020). FR, like a form of Collaborative Fashion Consumption, allows consumers to access items and clothes instead of buying new ones (Iran and Schrader, 2017), thus minimizing the importance of own products instead of their usage (Bardhi and Eckhardt, 2012).

FR, as a form of access-based consumption, is continuing to expand and gaining more attention in recent years (Lang and Armstrong, 2018) since it may hold substantial benefits for businesses and societies. Firstly, FR permits consumers to enjoy clothes that they cannot afford otherwise (Lang et al., 2020). Especially young people are interested in FR because it allows the access to luxury fashion brands with limited usage (Jain et al., 2022; Yuan and Shen, 2019). Thus, the diffusion of FR has been spread by the economic convenience of renting clothes (Arrigo, 2021; Jain et al., 2022). Secondly, FR might be a practice to be implemented in the next future to "achieve sustainable consumption by reducing fashion waste and increasing the life of the garments" (Jain et al., 2022: 1525). In this respect, scholars emphasized the FR's sustainability in its three dimensions. On the environmental side, the life cycle of garments is extended, even for the less used items. On the social side, FR allows consumers to gain access to high-quality clothes that otherwise they are not able to test and experience. Finally, from an economic perspective, there is a reduction of the excessive consumption of clothing (Lang et al., 2020). Overall, FR practices reduce the consumption of raw materials and carbon emissions by guarantying the longevity of clothes (Lang et al., 2020).

Of course, the promotion of sustainable consumption practices and the attention on the rental business have been forced by celebrities and influencers on social networks and e-marketing campaigns, as well as by the increasing environmental awareness of consumers (Lee and Huang, 2020; Pham et al., 2021; Shrivastava et al., 2021; Jain et al., 2022). Consequently, over the last years, there has been an increasing development of fashion renting platforms, especially online because of the digital transformation (Arrigo, 2021).

However, sustainable benefits are not enough to pull the demand of rental in the fashion industry, so the consumers are still resistant to adopt these access-based practices (Jain et al., 2022). Moreover, while in the past FR was limited to special occasion dresses, the current attempt to expand it through other categories, including everyday clothing still

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represents a challenging step to convince consumers not to have the ownership of their everyday items. Behaviors like these are holding back the development of FR due to the lack of consumer awareness (Lang and Armstrong, 2018).

Hence, there is a need to identify, analyze, and summarize the potential factors influencing consumers to adopt FR (Jain et al., 2022). Indeed, gaining satisfaction with FR is not due to only ethical, economic, and social advantages but also to the ease of use of FR (Shrivastava et al., 2021), its utilitarian (Lang et al., 2020), and experiential value (Arrigo, 2021) since FR allows a wider choice of garments, fits, and styles (McKinney and Shin, 2016).

Overall, the studies focused on this phenomenon are quite scarce, and the adoption of this concept in the fashion industry remains superficial, although it is gaining increasing attention among consumers (Lang et al., 2020; Jain et al., 2022). Maybe, this is due to the “unique features of fashion, especially the strong symbolic meaning to their owners” (Lang et al., 2020, p. 133), which makes the consumption without property as a new and unfamiliar practice (Pedersen and Netter, 2015). However, this suggests that studying the rental market within the fashion industry is worthy of interest since it is at a nascent stage of its development (Jain et al., 2022; Lang et al., 2020). Moreover, a number of scholars recently highlighted other specific gaps in the existing literature. First, it has been recognized the need for improving the analysis of factors influencing consumers’ adoption of FR. As previously said, consumers are still resistant to FR (Jain et al., 2022), and research into habit-forming around FR is quite limited (Mukendi et al., 2021). Hence, it could be important to examine the perception and motivations behind this practice (Lee and Chow, 2020; Clube and Tennant, 2020; Lang et al., 2020; Jain et al., 2022), which could affect the individual attitude or intention to rent fashion items. Second, as noted by Lang and Armstrong (2018), prior research exploring the antecedents of FR practice are often based on the Theory of planned behavior (TPB) framework, which focuses on psychological factors as attitude toward the behavior, subjective norms, and perception of behavioral control to explain the potential behavior towards FR. However, these studies do not consider how consumers use fashion to express their values and external identity. Hence, personality traits should be more analyzed since they can distinguish one individual from another. While Lang and Armstrong (2018) explored the relationships between personality traits and consumers’ intention to adopt CC, in particular renting and swapping, it could be interesting to investigate whether and how personality traits influence individuals’ attitude towards FR, which is a further antecedent of intention and behavior. This could provide new evidences about different profiles of consumers that are most inclined to adopt FR practices. Finally, very few studies have considered how demographic attributes, such as age, education, and income, affect the adoption of rental fashion models (Lang et al., 2016). In particular, in his literature review, Arrigo (2021) noted that further research could investigate whether differences exist among generational cohorts since younger people seem to be more inclined towards sustainable consumption patterns than older ones (Kang et al., 2013). However, it is also possible that rental trends go beyond age thus research considering differences in generational cohorts should be interesting.

Purpose of the paper. Starting from the above gaps, this study explores the potential of rental market in the fashion industry by investigating how personality traits influence the consumers’ attitude to use FR based on their motivations and values. Specifically, the focus is on consumers’ attitude since it can improve the overall knowledge about consumers’ perception of FR (Lee and Chow, 2020). Indeed, according to Schiff (1970), attitude and perception are related, with the former impacting on the latter one. Consequently, attitudes and perceptions can act as precursors of action (Creem-Regehr and Kunz, 2010), as proposed by the TPB (Ajzen, 2011) since they represent a person’s overall evaluation of performing a specific behavior. As for personal motivations and values, this study focuses on three variables, namely ‘sustainable motives’, ‘subjective norms’ and ‘FR benefits’. Sustainable motives are considered since FR is usually associated to sustainable practices (Jain et al., 2022), thus the sustainable orientation of the consumer can affect the individual attitude towards FR. Subjective norms have been included because they are one of the main factors considered by the TPB framework to explain behavioral intention. Finally, previous studies have identified relative advantages as major aspects of the functional performance of a behavior (Lee and Chow, 2020); thus, FR benefits have been considered as they can determine the individual attitude towards FR. Following Lang and Armstrong’ (2018) research, three personality traits have been chosen for the analysis (i.e., ‘fashion leadership’, ‘need for uniqueness’ and ‘materialism’) because they have been recognized as “highly relevant to apparel consumption and having the greatest potential for providing insights into consumer intentions toward sustainable consumption” like the FR practice is (Lang and Armstrong, 2018, p. 39).

The overall research question guiding the study is proposed as follows:

RQ1: How can personality traits influence motivations and values of the individuals and, consequently, their attitude towards FR?

Based on prior suggestions of Lang et al. (2016) and Arrigo (2021), specific attention in this study will be devoted to demographic attributes, especially age, to investigate whether and how different generations approach to FR. Therefore, a further research question is:

RQ2: Are there differences between the Gen-Z and the previous generations’ (i.e. Gen-Y and Gen-X) attitudes towards FR?

Methodology. To answer the research questions, an online survey based on a self-administered questionnaire has been adopted. In particular, the questionnaire has been divided into five sections: (i) shopping habits related to fashion

clothing; (ii) personality traits influencing fashion clothing consumption (and, indirectly, FR); (iii) the importance of sustainable fashion clothing for consumers; (iv) consumer attitudes and behaviors towards FR; (v) demographics of the respondents. Data have been collected from June to October 2021 by ending up with 298 valid responses.

More in detail, the respondents' sample is mainly composed of females (88,93%), belonging to Gen-Z (48,66%), and coming from Central Italy (67,45%). Concerning the occupation, the majority of respondents are students or student-workers (46,3%) or employees (37,25%), while with regards to education, a significant percentage of respondents (38,93%) has a high school diploma.

Data have been processed through a (i) descriptive statistical analysis based on frequencies, mean values, and standard deviations; (ii) structural equation modelling (SEM) based on PLS-PM approach in order to analyze the relationships among variables.

Results. The descriptive statistical analysis allowed detecting the following results. Firstly, for what concerns the shopping habits related to fashion clothing, the primary motivation (42,62%) leading customers to purchase clothing is of hedonic nature since respondents tend to buy clothing in a spontaneous way when something catches their eyes. Shop window, merchandising (53,4%), and social media (43,0%) represent the main communication channels influencing respondents when buying fashion clothes. With regard to the monthly average spending and frequency, a significant percentage of respondents (54,37%) spend up to 50 euros once or twice a month (47,31%). As for the purchase of second-hand clothes, more than half have responded that they have never bought them through websites/apps (76,85%) or second-hand markets and vintage shops (51,68%). In the post-purchasing phase, it emerges, from the results, how the majority of respondents (63,09%) tend to use their clothes 11-15 times before considering them as old, while the donation option is the most adopted solution for getting rid of their old clothes. Conversely, only a small percentage of respondents (17,79%) take into account to sell them through websites or apps.

Secondly, concerning the personality traits influencing fashion clothing consumption and indirectly FR, the higher mean is reached by the variable need for uniqueness.

Thirdly, with respect to the consumer attitudes towards sustainable fashion clothing, the price variable represents the most relevant element considered by respondents. Moreover, for almost half of the interviewees, the sustainability topic assumes a key role in their choice and purchase process to the point of being ready to pay a premium price in order to buy sustainable fashion clothes. Concerning the implementation of possible sustainable behaviors, the search for information about different ways of wearing old clothes (44,3%) or swapping them with other people (40,3%) represent the sustainable behaviors most adopted by the respondents.

With regards to the consumer attitudes towards fashion renting, this practice is usually considered as good (mean: 2,74; s.d.: 0,53), beneficial (mean: 2,62; s.d.: 0,64), and valuable (mean: 2,59; s.d.: 0,64). Despite this, a low intention towards FR emerges, with the majority of respondents (63,42%) not interested in renting fashion clothing during the next 12 months. However, in the case of adoption of this practice, almost all of the sample (91,61%) stated that they would prefer the physical rather than the online purchase channel. With respect to the perceived benefits related to FR, findings detect how the most important variable concerns the possibility of reducing environmental pollution (mean: 3,96; s.d.: 1,05), followed by other utilitarian values, such as the variety of available goods (mean: 3,47; s.d.: 1,18), economic convenience (mean: 3,43; s.d.: 1,09), and speed of rental (mean: 3,30; s.d.: 1,21).

To address the RQ1, a SEM analysis has been performed, including all the variables considered in this study (Tab. 1).

Tab. 1: Results of SEM analysis

	Estimate	Std. Err	z-value	P(> z)	Std.Iv.	Std.all
Attitude						
<i>Sustainable orientation</i>	0.069	0.029	2.382	0.017	0.154	0.154
<i>Subjective norms</i>	0.098	0.040	2.457	0.014	0.178	0.178
<i>Perceived benefits</i>	0.058	0.043	1.362	0.173	0.096	0.096
Sustainable orientation						
<i>Need for uniqueness</i>	0.062	0.083	0.748	0.454	0.063	0.063
<i>Leadership</i>	0.202	0.099	2.049	0.040	0.194	0.194
<i>Materialism</i>	-0.236	0.084	-2.820	0.005	-0.226	-0.226
Subjective norms						
<i>Need for uniqueness</i>	0.204	0.076	2.671	0.008	0.254	0.254
<i>Leadership</i>	0.085	0.089	0.958	0.338	0.099	0.099
<i>Materialism</i>	-0.158	0.075	-2.103	0.035	-0.186	-0.186
Perceived benefits						
<i>Need for uniqueness</i>	0.046	0.067	0.679	0.497	0.063	0.063
<i>Leadership</i>	-0.055	0.080	-0.695	0.487	-0.072	-0.072
<i>Materialism</i>	0.169	0.069	2.456	0.014	0.219	0.219

Results reveal that attitude towards FR is significantly influenced by the individuals' sustainable orientation ($\beta=0.069$, $p=0.017$) and subjective norms ($\beta=0.098$, $p=0.014$), while perceived benefits have a marginally significant

positive effect on FR attitudes ($\beta=0.058$, $p=0.173$). These antecedents, in turn, are affected by personality traits, namely 'need for uniqueness', 'fashion leadership', and 'materialism'. In particular, sustainable orientation is significantly influenced by 'fashion leadership' ($\beta=0.202$, $p=0.040$) and 'materialism' ($\beta=-0.236$, $p=0.005$); subjective norms are significantly influenced by 'need for uniqueness' ($\beta=0.204$, $p=0.008$) and 'materialism' ($\beta=-0.158$, $p=0.035$), while perceived benefits are positively related to 'materialism' ($\beta=0.169$, $p=0.014$). This reveals that 'materialism' is the personality trait that most affects the individual values and motives towards FR. Notably, it is negatively related to 'sustainable orientation' and 'subjective norms', while it positively affects the degree to which individuals take care of the FR objective benefits.

Overall, these results demonstrate that the indirect effect of personality traits on individual attitude towards FR is worthy of attention. Thus, the indirect effects have been studied (Tab. 2). Findings reveal that only the indirect relationship between 'materialism' and attitudes and 'need for uniqueness' and attitudes are statistically significant, hence such personality traits indirectly influence the attitude towards FR. Specifically, the indirect influence of 'materialism' is negative, while that of 'need for uniqueness' is positive, suggesting that the more the consumers are oriented towards materialistic aspects of fashion by desiring clothing for own possession and for impressing other people, the less they are attracted by FR practices. By contrast, their perception of FR improves when they buy fashion clothing mainly for creating and communicating their personality to other people.

Tab. 2: Indirect effects

	Estimate	Std. Err	z-value	P(> z)	Std.Iv.	Std.all
Leadership > Sustainable orientation > attitude	0.014	0.009	1.553	0.120	0.030	0.030
Total	0.083	0.036	2.338	0.019	0.184	0.184
Materialism > Sustainable orientation > Attitude	-0.016	0.009	-1.821	0.069	-0.035	-0.035
Total	0.053	0.023	2.305	0.021	0.119	0.119
Need for uniqueness > Subjective norms > Attitude	0.020	0.011	1.833	0.067	0.045	0.045
Total	0.118	0.049	2.438	0.015	0.223	0.223
Materialism > Subjective norms > Attitude	-0.016	0.010	-1.614	0.106	-0.033	-0.033
Total	0.083	0.035	2.389	0.017	0.145	0.145
Materialism > Perceived benefits > Attitude	0.010	0.008	1.203	0.229	0.021	0.021
Total	0.068	0.050	1.360	0.174	0.117	0.117

Despite the above indirect effects, a further running of the SEM model revealed that both sustainable orientation and subjective norms cannot be considered as mediator variables, according to the procedure suggested by Baron and Kenny (1986) for mediation analysis.

Finally, after having introduced in the model three demographic attributes, including gender, age, and education as control variables, the relationships among variables didn't change, thus leading to exclude that demographic differences, especially age differences, can influence the consumer attitude towards FR practice (RQ2).

Research limitations. The study presents some limitations especially related to the adopted sample and methodology. More in detail, given that the sample is mainly composed of female respondents belonging to Central Italy, this did not allow the generalizability of the results. Concerning the adopted measures, some questions have been formulated, giving the respondent the possibility of choosing between multiple answers. Therefore, this has made difficult the realization of the statistical processing, and above all, the possibility of including these variables in the structural model as latent ones. Furthermore, some measurement scales have been simplified, thus reducing the amount of information. For instance, according to Ajzen (2002), for measuring the consumer attitude, a semantic differential scale could be employed by evaluating each pair of adjectives with a 7-point Likert Scale. In the present study, taking into account the complexity and length of the questionnaire, we have adopted a 3-point Likert scale in order to reduce the overall respondent workload. Finally, it might be interesting to replicate this study once the COVID-19 emergency is over in order to understand if the results may have been influenced by the pandemic context in place during the collection of the questionnaires.

Managerial implications. Managerial implications can be drawn from the above results on a twofold level, including the communication and the delivering one.

From the communication perspective, starting from the positive and significant impact of sustainable orientation on the attitude toward FR, it becomes fundamental to increase the consumers' level of sensitivity towards environmental issues through communication initiatives specifically centered on the relevance of the FR practice in reducing fashion waste with a consequent positive impact on the environment. Such communicative contents could be conveyed both through offline channels (e.g., television, press, radio) and through online ones (e.g., social accounts, fashion blogs, sponsored posts on the different social media platforms). Results also underlined the positive impact of subjective norms and the positive indirect effect of need for uniqueness on FR attitude. This finding allows to confirm the

relevance, for the FR firms, of using communication channels mainly based on drivers such as word of mouth and persuasion practices. Therefore, it becomes valuable to use social media channels (especially visual ones such as Instagram and TikTok) in order to create a social context favorable to the FR practices. In this context, influencer marketing strategies can assume a key role since they allow not only to spread this practice (which is still little used by consumers) but also and above all to transform FR into a trendy, original, and self-expressive phenomenon. Moreover, considering the indirect negative impact of materialism on FR attitude, it could be useful to adopt communication strategies also for sensitizing consumers to a less materialistic inclination towards the purchase of clothes and accessories. Indeed, this consumer typology is characterized by a marked predisposition to own the clothes he/she wears. Consequently, only by reducing this attitude, firms will be able to bring this type of customer closer to the FR practices. Also in this case, the adoption of influencer marketing strategies could be valuable since materialistic customers are characterized by a high admiration toward people wearing fashionable clothes. As a result, seeing their favorite influencers wearing rented clothes could create the desire to emulate them.

For what concerns the delivering level, the positive impact of perceived benefits on FR attitude allowed to confirm how consumers recognize not only the sustainable value of FR but also the utilitarian one. For this reason, it becomes fundamental for firms to focus their attention on the rental products' distribution system. More in detail, both the physical points of sale and the virtual FR platforms should facilitate consumers in finding wide assortments with luxury products at low prices. For instance, concerning the virtual FR platforms, they should be user-friendly. From this perspective, it becomes indispensable to insert (i) clear photos of the products; (ii) comprehensive, relevant, and convincing descriptions of the clothing and accessories; (iii) reviews and ratings of other customers; (iv) precise and detailed information on the costs and methods of renting them.

Originality of the paper. By addressing RQ1 and RQ2, this study contributes to the extant literature by adding knowledge on the rental phenomenon applied to the fashion industry, which, to date, has been scarcely investigated as the idea of renting still lacks popularity and development in this setting (Lang and Armstrong, 2018). Moreover, by investigating the antecedents of individual attitude towards FR, it provides useful implications for fashion companies suggesting how to implement their rental service models in order to improve the FR adoption while satisfying consumers' needs and expectations. Indeed, the success of FR depends on consumer acceptance, and fashion companies should provide FR services that support value creation in consumers' lives.

Keywords: fashion renting; collaborative consumption; fashion market; TPB; personality traits; sustainable fashion.

References

- AJZEN I. (2011), "The theory of planned behaviour: Reactions and reflections", *Psychology & Health*, vol. 26, n. 9, pp. 1113-1127.
- AJZEN, I. (2002), "Constructing a TPB questionnaire: conceptual and methodological considerations (on-line)", available from: <http://www.unix.oit.umass.edu> (accessed 24.09.2021).
- ARMSTRONG C.M., NIINIMÄKI K., KUJALA S., KARELL E., LANG C. (2015), "Sustainable fashion product service systems: an exploration in consumer acceptance of new consumption models", *Journal of Cleaner Production*, vol. 97, n. 15, pp. 30-39.
- ARRIGO E. (2021), "Collaborative consumption in the fashion industry: A systematic literature review and conceptual framework", *Journal of Cleaner Production*, vol. 325, 129261.
- BARDHI F., ECKHARDT G.M. (2012), "Access-based consumption", *Journal of Consumer Research*, vol. 39, n. 4, pp. 881-898.
- BARON R.M., KENNY D.A. (1986), "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, vol. 51, pp. 1173-1182.
- BELK R. (2014), "You are what you can access: sharing and collaborative consumption online", *Journal of Business Research*, vol. 67, n. 8, pp. 1595-1600.
- BOTSMAN R. (2013), "The sharing economy lacks a shared definition", available from: <http://www.fastcoexist.com/3022028/thesharing-economy-lacks-a-shared-definition> (accessed 28.09.2021).
- BOTSMAN R., ROGERS R. (2010), *What'S Mine Is Yours: The Rise of Collaborative Consumption*, Harper Business.
- CHOU C.-J., CHEN C.-W., CONLEY C. (2015), "An approach to assessing sustainable product-service systems", *Journal of Cleaner Production*, vol. 86, pp. 277-284.
- CLUBE R.K.M., TENNANT M. (2020), "Exploring garment rental as a sustainable business model in the fashion industry: Does contamination impact the consumption experience?" *Journal of Consumer Behaviour*, vol. 19, n. 4, pp. 359-370.
- CREEM-REGEHR S.H., KUNZ B.R. (2010), "Perception and action", *Wiley Interdisciplinary Reviews: Cognitive Science*, vol. 1, n. 6, pp. 800-810.
- DECOOPMAN I., GENTINA E., FOSSE-GOMEZ M.H. (2010), "The generational confusion? Identity issues caused by clothes-sharing between mothers and their teenage daughters". *Recherche et Applications en Marketing (English Edition)*, vol. 25, n. 3, pp. 7-27.

- HENNINGER C.E., BRYDGES T., IRAN S., VLADIMIROVA, K. (2021), "Collaborative fashion consumption-A synthesis and future research agenda", *Journal of Cleaner Production*, vol. 319, 128648.
- IRAN S., SCHRADER U. (2017), "Collaborative fashion consumption and its environmental effects", *Journal of Fashion Marketing Management: International Journal*, vol. 21, n. 4, pp. 468-482.
- JAIN R., JAIN K., BEHL A., PEREIRA V., DEL GIUDICE M., VRONTIS D. (2022), "Mainstreaming fashion rental consumption: A systematic and thematic review of literature", *Journal of Business Research*, vol. 139, pp. 1525-1539.
- KANG J., LIU C., KIM S.-H. (2013), "Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness and perceived personal relevance", *International Journal of Consumer Studies*, vol. 37, n. 4, pp. 442-452.
- LANG C., ARMSTRONG C.M. J. (2018), "Collaborative consumption: The influence of fashion leadership, need for uniqueness, and materialism on female consumers' adoption of clothing renting and swapping", *Sustainable Production and Consumption*, vol. 13, pp. 37-47.
- LANG C., ARMSTRONG C.M., LIU C. (2016), "Creativity and sustainable apparel retail models: Does consumers' tendency for creative choice counter-conformity matter in sustainability?", *Fashion and Textiles*, vol. 3, n. 1, pp. 1-15.
- LANG C., LI M., ZHAO L. (2020), "Understanding consumers' online fashion renting experiences: A text-mining approach", *Sustainable Production and Consumption*, vol. 21, pp. 132-144.
- LEE S.H., CHOW P.S. (2020), "Investigating consumer attitudes and intentions toward online fashion renting retailing", *Journal of Retailing and Consumer Services*, vol. 52, 101892.
- LEE S.H., HUANG R. (2020), "Exploring the motives for online fashion renting: Insights from social retailing to sustainability", *Sustainability*, vol. 12, n. 18, pp. 1-16.
- MCKINNEY E., SHIN E. (2016), "Exploring Criteria Consumers Use in Evaluating Their Online Formal Wear Rental Experience: A Content Analysis of Online Reviews", *Clothing and Textiles Research Journal*, vol. 34, n. 4, pp. 272-286.
- MUKENDI A., DAVIES I., MCDONAGH P., GLOZER S. (2020), "Sustainable fashion: current and future research directions", *European Journal of Marketing*, vol. 54, n. 11, pp. 2873-2909.
- PEDERSEN E.R.G., NETTER S. (2015), "Collaborative consumption: business model opportunities and barriers for fashion libraries", *Journal of Fashion Marketing Management*, vol. 19, n. 3, pp. 258-273.
- PHAM H.T., HOANG K.T., NGUYEN T.T., DO P.H., MAR M.T.C. (2021), "Sharing Economy: Generation Z's Intention Toward Online Fashion Rental in Vietnam", *Journal of Asian Finance, Economics and Business*, vol. 8, n. 3, pp. 997-1007.
- SCHIFF M. (1970), *Some theoretical aspects of attitudes and perception*, Department of Geography, University of Toronto: Toronto, Ont.
- SHRIVASTAVA A., JAIN G., KAMBLE S.S., BELHADI A. (2021), "Sustainability through online renting clothing: Circular fashion fueled by instagram micro-celebrities", *Journal of Cleaner Production*, vol. 278, p. 123772.
- YUAN Q., SHEN B. (2019), "Renting fashion with strategic customers in the sharing economy", *International Journal of Production Economics*, vol. 218, pp. 185-195.

Openness' Role in Innovation Processes of Circular Business Models: A Systematic Literature Review

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Framing of the research. *In light of environmental corruption, climate change and compelling pressure on global resources, the current take-make-use-dispose production systems are no longer sustainable (European Commission, 2020; United Nations, 2021). In response, organizations are converging towards innovative circular approaches which are compatible with both sustainability and profitability (Ellen MacArthur Foundation, 2013; Geissdoerfer et al., 2017; Hina et al., 2022; Murray et al., 2017). The concept of circular economy (CE) is based on the awareness of planetary resources limits, as well as the vision of a world like a system in which different actors collaborate to reduce pollution and waste, by maximizing ecosystem functioning and human well-being in a “cradle-to-cradle” economy (Brown et al., 2021b; Kanda et al., 2021; McDonough and Braungart, 2010; Murray et al., 2017). Accordingly, circular practices (i.e., reduce, repair, reuse, recover, remanufacture, and recycle) concern acting in a loop, so that goods of today will be the resources of tomorrow, since produced waste can be reintegrated into companies' supply chains for a new use (Bocken et al., 2016; Lüdeke-Freund et al., 2019).*

Aware, more and more organizations are expressing a deep commitment in CE principles implementation through the adoption of managerial processes and tools (Bocken et al., 2019; Bressanelli et al., 2022; Ranta et al., 2018; Sohal and De Vass, 2022), which means translating sustainable purposes into business practices by giving rise to circular business models (CBMs) (Centobelli et al., 2020; Ferrasso et al., 2020; Geissdoerfer et al., 2020). The approach to sustainability offered by CE concerns the development of innovative business models that incorporate established circular economy principles in dynamics of value proposition, value capture, value creation and delivery (Bocken et al., 2016; Teece, 2010; Testa and Vigolo, 2015). As such, business models' role in the implementation of CE principles has been recognized as essential to move organizations from a linear to a circular approach, which is capable of meeting people's needs while respecting social and environmental, as well as economic, sustainability (Bocken and Ritala, 2021; Lüdeke-Freund et al., 2019; Ranta et al., 2018; Scipioni and Niccolini, 2021). Thus, economic organizations are called to evolve the way of doing business by introducing circularity conception into strategy and practice, through a systemic configuration able to connect actors' innovation activity in developing circular oriented innovations (Antikainen and Valkokari, 2016; Centobelli et al., 2020; Kanda et al., 2021; Rizzi et al., 2013).

Considering CBMs typical resource strategies (i.e., narrowing, closing, and slowing loops), Bocken and Ritala (2021) highlighted two different innovation approaches characterised by distinct strengths and weaknesses. On the one hand, a closed innovation approach ensures more control and coordination on the whole innovation process but, on the other hand, an open approach to circular oriented innovations allows organizations to gather and leverage more capabilities and resources (Bogers et al., 2020; Brown et al., 2020; Chesbrough and Appleyard, 2007; Enkel et al., 2009). In support of the second innovation path, studies suggest that collaboration between several organisations may be an enabling and stimulating factor for CBMs (Mishra et al., 2019; Rizzi et al., 2013; Sarja et al., 2021; Sohal and De Vass, 2022). Furthermore, some empirical studies testify how the development of circular systems or industrial symbiosis represent a solid base for the implementation circular businesses based on new circular oriented innovations, which can optimize ecosystem functioning and human well-being (Bressanelli et al., 2022; Kanda et al., 2021; Martina and Oskam, 2021; Murray et al., 2017; Pavan et al., 2021). However, despite events of collaborative innovations has been recognised in previous studies on the topic, no one specifically addressed the open innovation approach in CBMs innovation processes. We still ignore what is the best approach to foster the establishment of circular businesses, nor the antecedents that may condition such approaches to sustainability by companies.

Numerous interesting insights can come from the study of the open innovation approach in parallels to CBMs. In this regard, the open innovation paradigm takes shape around a disruptive concept about ideas origin and use in company's innovation process. The concept of a closed environment, in which R&D activities take place with limited opportunities for exchange and interaction, has been overshadowed in favour of an interactive network dynamics, where organizations go beyond their boundaries to gather ideas, projects and technologies that can be used to innovate

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(Armellini et al., 2016; Bogers et al., 2018; Chesbrough, 2003; Enkel et al., 2009). Thus, innovative act is configured as the result of a process of social interaction and collaboration among heterogeneous actors where different knowledge backgrounds, sharing and mutual learning play a fundamental role (Chesbrough, 2006; Ferraris et al., 2017; Santoro et al., 2019; Scipioni and Niccolini, 2021). In particular, when open innovation practices are implemented to carry out sustainable innovations, this approach is declined in the so called “sustainable open innovation” (Bogers et al., 2020). Considering open innovation paradigm in CBM refers to connecting different organizations, such as suppliers or clients and even competitors, in order to further and support circularity in business models (Bocken and Ritala, 2021; Martina and Oskam, 2021; Pavan et al., 2021). Since previous studies highlight as collaborative innovation is required within CE, open innovation may unfold our understanding on CBM strategic approach in innovation and resource management (Brown et al., 2020; Chesbrough and Appleyard, 2007; Linder and Williander, 2017; Sohal and De Vass, 2022). In fact, circular oriented innovations enclose a great amount of complementary innovation activities, across different levels of interaction within a system, to generate or facilitate value creation, delivery, and capture opportunities by connecting actor’s business models (Bogers et al., 2020; Brown et al., 2021a; Chesbrough, 2006; Kanda et al., 2021; Sarja et al., 2021). Considering such strategic approach to innovation, where several actors collaborate in interest networks by pooling resources and time, open innovation may represent a key process to better understand and achieve circularity in business models (Bocken and Ritala, 2021; Brown et al., 2020; Krmela et al., 2022; Mishra et al., 2019). In spite of researchers and practitioners’ growing interest towards CE and CBMs, as well as their efforts in better conceptualizing this sustainable approach, this issue still remains an unexplored face which offer important opportunities for further research.

Purpose of the paper. Based on this premise, the purpose of the present study is twofold. First, it sheds lights on the role played by organizations’ collaboration in developing circular oriented innovation, by considering strategic partnership, circular network, and industrial symbiosis. Secondly, this research is supposed to unveil the specific contribution of open innovation in CBM implementation, as a strategic approach capable of fostering alternative production systems. We believe that, as the topic of collaboration in CBMs’ innovation processes has become rather recurrent in business cases, it is necessary to offer a specific point of view that qualifies this approach and identifies its nature as an antecedent of circular systems.

Methodology. According to the purpose of this study, a systematic literature review was conducted to collect and analyse previous research related to CBMs’ collaborative approach in dealing with sustainable innovations. In order to identify the relevant and eligible lecture of the topic under investigation, we rely on scientific electronic databases, such as Scopus and Web of Science (Kraus et al., 2020; Snyder, 2019). The material search was conducted in February 2022, considering the following word combination: (“open*” OR “innovat*” OR “collaborat*” OR “network*” OR “R&D”) AND (“Circular economy” OR “CE” OR “bio-economy*” OR “bio economy*” OR “circular*”) AND (“business model*”). The Scopus search covered title, abstract and keyword (598 results), while the Web of Science one involved all manuscripts’ fields (853 results). Then, we selected only article published in peer reviewed journals, in English language, and relevant to CBM research areas (respectively, 399 and 646 exported results). In order to select the final sample and focus on studies close to our topic of investigation, we delineate a first exclusion criteria considering title and abstract and a second one related to the focus of the full text of the paper. In both cases, articles were read in parallel by three authors to ensure the presence of paper dealing with collaborative approach in innovation processes of CBMs. A cross-referencing snowballing process follows, aimed at including any relevant studies missed earlier. At the end of this process, 32 papers were subjected to the content analysis for the literature review.

Findings. As preliminary finding, the present research returns a better conceptualization and understanding of innovation processes in CBMs. From a comprehensive analysis of scientific peer-reviewed articles, it outlines some recurring pattern about organizations’ collaboration in developing sustainable innovations. Considering the current point of view of the literature, indeed, it was necessary to systematise the meaning of empirically identified collaborations, alongside the recognition of which directly impact the innovation process. In particular, we recognised three main thematic clusters around collaborative and open approaches to innovation in CBMs: a) complementary circular network, characterised by the interrelation of organizations on the same value chain and stakeholders (Bressanelli et al., 2022; Hansens and Revellio, 2020; Hultberg and Pal, 2021; Krmela et al., 2022); b) industrial symbiosis, a collective approach based on gaining a competitive advantage thanks to material and resource exchanges among typically separate companies (Baldassarre et al., 2019; Neves et al., 2020; Pavan et al., 2021); and c) circular oriented innovations, which can be described as open collaboration form based on the development of a new technology aimed at enabling or improving an alternative production system (Bocken and Ritala, 2021; Brown et al., 2020; Brown et al., 2021b; Konietzko et al., 2020). From these approaches to innovation in CBMs, this research offers interesting reflections on the role of open innovation in the establishment of circular systems, as well as in fostering the proliferation of existing networks. According to the main results of our systematic review some newly developed propositions are advanced, as a concrete support for further empirical studies.

Research limitations. The main limitations of this research can derive mostly from the employed methodology of our systematic literature review. In this sense, although the focus on peer-reviewed articles extracted from multiple scientific databases (i.e., Scopus, Web of Science) is based on quality and validity concerns, we do not consider other document types such as book’ chapters, conference proceedings, non-peer-reviewed paper and practice-based journals. On the other hand, even though we recurred to cross-referencing snowballing at the end of the paper selection process, this method suffers from poor randomised representativeness so, despite our effort, we may have missed some

interesting contributions because of different indexing on databases. Finally, the lack of empirical investigation to address our considerations can represent a limitation at this stage, but it also means a valuable suggestion for future research.

Implications. The present study makes two main contributions to CBMs literature. First, it strengthens the existing understanding of innovation processes in circular systems, thanks to the identification of three typical collaborative approaches (Brown et al., 2020; Kanda et al., 2021; Martina and Oskam, 2021; Mishra et al., 2019). Secondly, it further the conceptualization of the role played by openness in organizations' innovation processes considering open innovation as a critical success factor in developing circular businesses (Bocken et al., 2021; Brown et al., 2021b; Chesbrough and Appleyard, 2007; Enkel et al., 2009). On the other hand, we can outline some interesting's implications for practitioner and society. As for managerial implications, this study offers a valuable strategic approach to companies aspiring to undertake a circular economy path. Respectively, we outline the common traits of each approach to open innovation in CBMs, providing a roadmap for managers to address the path that best suits each business. Furthermore, we highlight how an open approach in organizations' innovation process can foster the transition toward circular models and favour the creation of solid and reliable circular networks. From the discussion of our analysis on CBMs literature, we intend to emphasise the relevance of collaborating with homogeneous and heterogeneous actors to amplify the scope of circular oriented innovations. Last but not least, promoting the awareness and adoption of CBMs, such studies are instrumental to the replacement of the natural earth's resources with positive repercussions for society and the well-being of humanity.

Originality of the paper. The literature on the topic of the CE and CBMs is growing exponentially in the last few years, alongside the efforts of practitioners and researchers in framing sustainable circular models. However, while the empirical investigation of CBMs is proliferating and their distinctive features are being outlined, few studies especially address and consider the potential of organizations' open innovation processes. To the best of our knowledge, we identified several studies that recognized the relevance of collaboration and open approaches in building circular business models, even though it has never been treated as a focal innovation driver for circular businesses. Indeed, this is the first systematic literature review entirely dedicated to observing open innovation processes in CBMs. Building on CE and open innovation literature, we believe that interorganizational collaboration can represent a critical factor in developing CBMs, which deserve a better contextualization and comprehension to effectively promote circular industrial systems for the collective well-being.

Keywords: circular business model; open innovation; collaboration; innovation; circular economy

References

- ARMELLINI F., BEAUDRY C., KAMINSKI P. C. (2016), "Open within a box: An analysis of open innovation patterns within Canadian aerospace companies", *Sinergie Italian Journal of Management*, vol. 34(Sep-Dec), pp. 15-36.
- ANTIKAINEN M., VALKOKARI K. (2016), "A framework for sustainable circular business model innovation", *Technology Innovation Management Review*, vol. 6, n. 7, pp. 5-12.
- BALDASSARRE B., SCHEPERS M., BOCKEN N., CUPPER E., KOREVAAR G., CALABRETTA G. (2019), "Industrial Symbiosis: towards a design process for eco-industrial clusters by integrating Circular Economy and Industrial Ecology perspectives", *Journal of cleaner production*, vol. 216, pp. 446-460.
- BOCKEN N.M.P., DE PAUW I., BAKKER C., VAN DER GRINTEN B. (2016). "Product design and business model strategies for a circular economy", *Journal of Industrial and Production Engineering*, vol. 33, n. 5, pp. 308-320.
- BOCKEN N.M.P., RITALA P. (2021), "Six ways to build circular business models", *Journal of Business Strategy*, ahead-of-print.
- BOCKEN N.M.P., STRUPEIT L., WHALEN K., NUBHOLZ J. (2019), "A review and evaluation of circular business model innovation tools", *Sustainability*, vol. 11, n. 8, 2210.
- BOGERS M., CHESBROUGH H.W., MOEDAS C. (2018), "Open innovation: Research, practices, and policies", *California management review*, vol. 60, n. 2, pp. 5-16.
- BOGERS M., CHESBROUGH H.W., STRAND R. (2020), "Sustainable open innovation to address a grand challenge", *British Food Journal*, vol. 122, n. 5, pp. 1505-1517.
- BOLDRINI J.C., ANTHEAUME N. (2021). Designing and testing a new sustainable business model tool for multi-actor, multi-level, circular, and collaborative contexts. *Journal of Cleaner Production*, vol. 309, p. 127209.
- BRESSANELLI G., VISINTIN F., SACCANI N. (2022), "Circular Economy and the evolution of industrial districts: A supply chain perspective", *International Journal of Production Economics*, vol. 243, 108348.
- BROWN P., BOCKEN N., BALKENENDE R. (2020), "How do companies collaborate for circular oriented innovation?", *Sustainability*, vol. 12, n. 4, 1648.
- BROWN P., BALDASSARRE B., KONIETZKO J., BOCKEN N.M.P., BALKENENDE R. (2021a), "A tool for collaborative circular proposition design", *Journal of Cleaner Production*, vol. 297, p. 126354.
- BROWN P., VON DANIELS C., BOCKEN N.M.P., BALKENENDE A.R. (2021b). "A process model for collaboration in circular oriented innovation", *Journal of Cleaner Production*, vol. 286, p. 125499.

- CENTOBELLI P., CERCHIONE R., CHIARONI D., DEL VECCHIO P., URBINATI A. (2020), “Designing business models in circular economy: A systematic literature review and research agenda”, *Business Strategy and the Environment*, vol. 29, n. 4, pp. 1734-1749.
- CHESBROUGH H.W., APPELYARD M.M. (2007), “Open innovation and strategy”, *California management review*, vol. 50, n. 1, pp. 57-76.
- CHESBROUGH H.W. (2003), *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.
- CHESBROUGH H.W. (2006), *Open business models: How to thrive in the new innovation landscape*. Harvard Business Press.
- ELLEN MACARTHUR FOUNDATION (2013), *Towards the circular economy: Economic and business rationale for an accelerated transition*.
- ENKEL E., GASSMANN O., CHESBROUGH H. (2009), “Open R&D and open innovation: exploring the phenomenon”, *R&D Management*, vol. 39, n. 4, pp. 311-316.
- EUROPEAN COMMISSION (2020), *Circular Economy Action Plan: For a cleaner and more competitive Europe*.
- FERASSO M., BELIAEVA T., KRAUS S., CLAUSS T., RIBEIRO-SORIANO D. (2020), “Circular economy business models: The state of research and avenues ahead”, *Business Strategy and the Environment*, vol. 29, n. 8, pp. 3006-3024.
- FERRARIS A., SANTORO G., BRESCIANI S. (2017), “Open innovation in multinational companies’ subsidiaries: the role of internal and external knowledge”, *European Journal of International Management*, vol. 11, n. 4, pp. 452-468.
- GEISSDOERFER M., PIERONI M.P., PIGROSSO D.C., SOUFANI K. (2020), “Circular business models: A review”, *Journal of Cleaner Production*, vol. 277, p. 123741.
- GEISSDOERFER M., SAVAGET P., BOCKEN N.M.P., HULTINK E.J. (2017), “The Circular Economy—A new sustainability paradigm?”, *Journal of Cleaner Production*, vol. 143, pp. 757-768.
- HANSEN E.G., REVELLIO F. (2020), “Circular value creation architectures: Make, ally, buy, or laissez-faire”, *Journal of Industrial Ecology*, vol. 24, n. 6, pp. 1250-1273.
- HINA M., CHAUHAN C., KAUR P., KRAUS S., DHIR A. (2022), “Drivers and barriers of circular economy business models: Where we are now, and where we are heading”, *Journal of Cleaner Production*, vol. 333, 130049.
- HULTBERG E., PAL R. (2021), “Lessons on business model scalability for circular economy in the fashion retail value chain: Towards a conceptual model”, *Sustainable Production and Consumption*, vol. 28, pp. 686-698.
- KANDA W., GEISSDOERFER M., HJELM O. (2021), “From circular business models to circular business ecosystems”, *Business Strategy and the Environment*, vol. 30, n. 6, pp. 2814-2829.
- KRAUS S., BREIER M., DASÍ-RODRIGUEZ S. (2020), “The art of crafting a systematic literature review in entrepreneurship research”, *International Entrepreneurship and Management Journal*, vol. 16, n. 3, pp. 1023-1042.
- KRMELA A., ŠIMBEROVÁ I., BABIČA V. (2022), “Dynamics of Business Models in Industry-Wide Collaborative Networks for Circularity”, *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, n. 1, pp. 1-24.
- KONIETZKO J., BOCKEN N.M.P., HULTINK E.J. (2020). “Circular ecosystem innovation: An initial set of principles”, *Journal of Cleaner Production*, vol. 253, p. 119942.
- LINDER M., WILLIANDER M. (2017), “Circular business model innovation: inherent uncertainties”, *Business strategy and the environment*, vol. 26, n. 2, pp. 182-196.
- LÜDEKE-FREUND F., GOLD S., BOCKEN N.M.P. (2019). A review and typology of circular economy business model patterns. *Journal of Industrial Ecology*, vol. 23, n. 1, pp. 36-61.
- MARTINA R.A., OSKAM I.F. (2021) “Practical guidelines for designing recycling, collaborative, and scalable business models: A case study of reusing textile fibers into biocomposite products”, *Journal of Cleaner Production*, vol. 318, p. 128542.
- MCDONOUGH W., BRAUNGART M. (2010), *Cradle to cradle: Remaking the way we make things*, North point press.
- MISHRA J.L., CHIWENGA K.D., ALI K. (2019), “Collaboration as an enabler for circular economy: A case study of a developing country”, *Management Decision*, vol. 59, n. 8, pp. 1784-1800.
- MURRAY A., SKENE K., HAYNES K. (2017), “The circular economy: an interdisciplinary exploration of the concept and application in a global context”, *Journal of business ethics*, vol. 140, n. 3, pp. 369-380.
- NEVES A., GODINA R., AZEVEDO S.G., MATIAS J.C. (2020), “A comprehensive review of industrial symbiosis”, *Journal of cleaner production*, vol. 247, p. 119113.
- PAVAN M.D.C.O., RAMOS D.S., SOARES M.Y., CARVALHO M.M. (2021), “Circular business models for bioelectricity: A value perspective for sugar-energy sector in Brazil”, *Journal of Cleaner Production*, vol. 311, p. 127615.
- RANTA V., AARIKKA-STENROOS L., MÄKINEN S.J. (2018). “Creating value in the circular economy: A structured multiple-case analysis of business models”, *Journal of cleaner production*, vol. 201, pp. 988-1000.
- RIZZI F., BARTOLOZZI I., BORGHINI A., FREY M. (2013), “Environmental management of end-of-life products: nine factors of sustainability in collaborative networks”, *Business Strategy and the Environment*, vol. 22, n. 8, pp. 561-572.

- SANTORO G., FERRARIS A., BRESCIANI S. (2019), "Assessing the breadth of open innovation practices: the impact on innovation performance", *Sinergie Italian Journal of Management*, vol. 37, n. 1, pp. 63-84.
- SARJA M., ONKILA T., MÄKELÄ M. (2021), "A systematic literature review of the transition to the circular economy in business organizations: Obstacles, catalysts and ambivalences", *Journal of Cleaner Production*, vol. 286, 125492.
- SCIPIONI S., NICCOLINI F. (2021), "How to close the loop? Organizational learning processes and contextual factors for small and medium enterprises' circular business models introduction", *Sinergie Italian Journal of Management*, vol. 39, n. 3, pp. 141-162.
- SNYDER H. (2019), "Literature review as a research methodology: An overview and guidelines", *Journal of business research*, vol. 104, pp. 333-339.
- SOHAL A., DE VASS T. (2022), "Australian SME's experience in transitioning to circular economy", *Journal of Business Research*, vol. 142, pp. 594-604.
- TEECE D.J. (2010), "Business models, business strategy and innovation", *Long range planning*, vol. 43, n. 2-3, pp. 172-194.
- TESTA F., VIGOLO V. (2015), "Sustainability through energy efficiency: an Italian perspective", *Sinergie Italian Journal of Management*, vol. 33 (Jan-Apr), pp. 93-111.
- UNITED NATIONS (2021), *The Sustainable Development Goals Report*.

Reward-based Crowdfunding: Where are we at?

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Framing of the research. *The quest for 'democratizing' the commercialization of innovations (Mollick and Robb, 2016), providing opportunities to entrepreneurs otherwise excluded from traditional forms of finance and together contributing to economic growth (Fleming and Sorenson, 2016) renders crowdfunding a managerially and socially relevant phenomenon. Crowdfunding refers to "the practice of soliciting financial contributions from a large number of people, generally via online community" (Soublière and Gheman, 2020: 473). In the last decades, studies have been flourishing around the topic, especially focusing on equity crowdfunding (Chung et al., 2021; Gleasure and Feller, 2016; Mollick, 2014; Mollick and Robb, 2016; Short et al., 2017). More recently, research (e.g., Giudici et al. 2018; Mollick, 2014; Dos Santos Felipe et al. 2022; Sewaid et al., 2021) has started to disentangle the main characteristics and mechanisms related to a different form of crowdfunding, i.e. reward crowdfunding, through which the backers of the projects receive a non-financial reward (e.g., credits, pre-selling product options, etc.) for their funding. The peculiarities of this form of external financing and the rapid increase in the number of studies focusing on reward crowdfunding over the last years (in 2021, our research on Scopus points to a 74% increase from the previous year), call for a systematic review of the literature to provide a clear picture of the state of the art around this phenomenon.*

Purpose of the paper. *This research project aims at developing a systematic literature review (SLR) about reward-based crowdfunding, whose importance and relevance as a source of alternative financing has been growing in recent years. Specifically, the goal is to: a) provide the overall state of the art about reward-based crowdfunding; b) identify key methodological and theoretical research directions developed around the topic (i.e., determinants of post-campaign performance, rationales and motivations to invest in a campaign); c) define key elements of each research stream, by creating overarching theoretical categories; d) point to promising and interesting research avenues for further research in this field.*

Methodology. *To capture the main scientific outputs and theories emerged around reward-based crowdfunding we performed a systematic literature review (Crossan and Apaydin, 2010; Hanelt et al., 2021), which represents a way to picture a field's state of the art by leveraging "a replicable, scientific and transparent process" (Tranfield et al., 2003: 209). We applied this methodology to the field of reward-based crowdfunding and, to capture its current state of the art, we implemented the following steps. First, we used Elsevier's Scopus database and in February 2022 we performed an advanced search for documents that included in their title, abstract or keywords the words "reward" and "crowdfunding" (i.e., "TITLE –ABS- KEY(reward* AND crowdfund*)"). Second, we filtered for language and field, thus including only articles in English belonging to the fields of business and management, economics or social sciences. As a result of this search, we found 316 documents (i.e., articles, book chapters, conference proceedings) in the period 2013-2022. Next, we proceeded by coding the documents and created overarching theoretical categories in which to group research about reward-based crowdfunding. To do so, we analyzed recent literature about the topic to get a sense of the main theoretical groundings of crowdfunding research. In the next section, we elaborate on the results of this preliminary phase.*

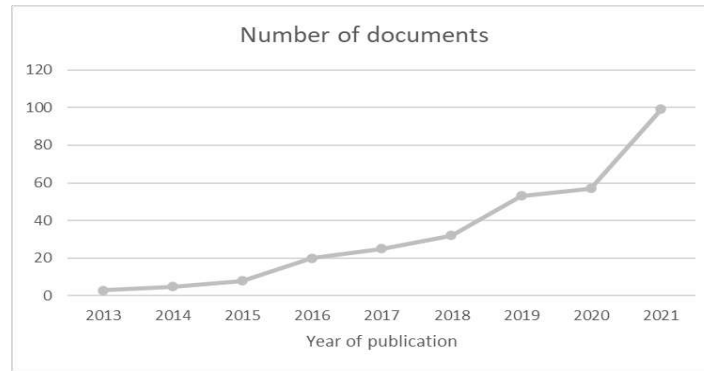
Results. *Figure 1 shows the increasing trend in the number of documents indexed in Scopus since 2013. The interest in the topic has increased exponentially. The top year is 2021 with 99 documents. In first two months of 2022 (not shown in the graph) Scopus registers already 14 new documents.*

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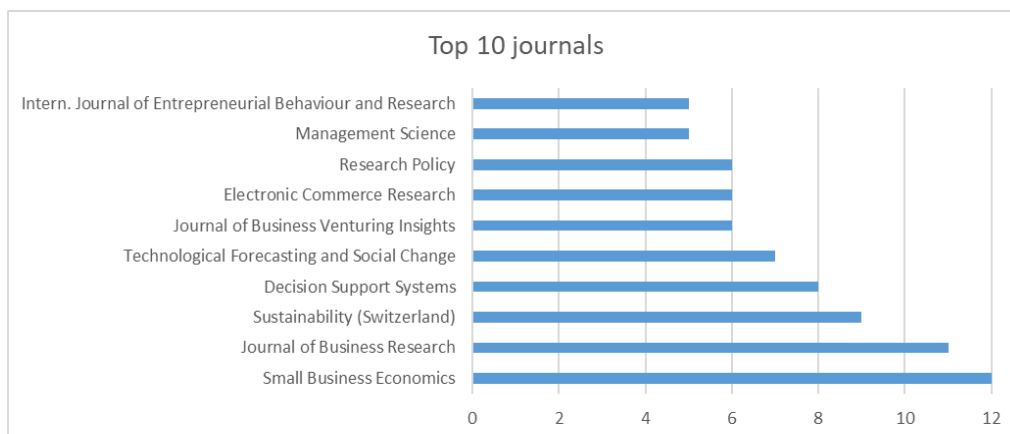
Fig. 1: Reward-based crowdfunding publications



Source: Authors' elaborations on Scopus data

By looking at the 273 journal articles of our sample, we can see that this topic is present in a wide range of journals. In total, we identify 161 different journals. Figure 2 lists the top ten journals and the relative number of articles. These journals account for 27% of total publications. *Small Business Economics* has published the most (12 articles), followed closely by the *Journal of Business Research*. This dispersion signals the relatively novelty of the topic, that has not found yet a clear collocation within the academic community; it also shows that the issue may be relevant to a variety of perspectives (e.g. entrepreneurship, innovation studies).

Fig. 2: Top 10 journals by number of articles (2013-2022)



Source: Authors' elaborations on Scopus data

Table 1 shows the top five cited articles. With 128 citations, the paper by Burtch, Carnahan and Greenwood in *Management Science* in 2018 is the most cited. Together with Roma et al. (2017) in *Research Policy*, these are the only two documents published in journals that also are included in Figure 2. This further confirms the dispersion of the topic across different types of journals, as only few among the most influential papers in the field are published where most papers are positioned.

Tab. 1: Top five cited articles (2013-2022)

Authors	Title	Year	Source title	Cited by
Burtch G., Carnahan S., Greenwood B.N.	Can you gig it? an empirical examination of the gig economy and entrepreneurial activity	2018	Management Science	128
Tomczak A., Brem A.	A conceptualized investment model of crowdfunding	2013	Venture Capital	116
Roma P., Messeni Petruzzelli A., Perrone G.	From the crowd to the market: The role of reward-based crowdfunding performance in attracting professional investors	2017	Research Policy	90
Dushnitsky G., Guerini M., Piva E., Rossi-Lamastra C.	Crowd funding in Europe: Determinants of platform creation across countries	2016	California Management Review	73
Meyskens M., Bird L.	Crowdfunding and value creation	2015	Entrepreneurship Research Journal	66

Source: Scopus database

We now turn to the analysis of the topic. Our investigation helped us realize that scholars have been mostly focusing around either the factors related to the success of a crowdfunding campaign (or campaign's performance and post-campaign performance) or the motivations and characteristics explaining why actors (i.e. backers) invest in specific campaigns. With such categories in mind, we carefully read the abstracts of the 316 documents included in our sample, in some cases reading the entire document. Based on this reading we assigned to each article the label of "success factors", "motivations to invest", "both" (in case the document covered both topics), or "other" (for the cases in which the document did not fall in the previous three categories). Once created these four distinct sets of articles, we moved to a second step and identified the main recurring subcategory or subthemes for each category. Some documents in each category were assigned to two or three subcategory or subtheme.

1. Studies on campaign success factors

- 1.1 *Characteristics of the entrepreneur.* This bulk of research has mainly attributed the success factors behind an initiated campaign of reward-based crowdfunding to different characteristics of the entrepreneur/s creating the campaign. These characteristics range from behavioral and personality traits (i.e. entrepreneurial orientation, emotional stability, level of commitment), to demographic or sociographic factors (i.e. gender and social capital accumulated). These characteristics are deemed key for the success of a campaign for several reasons: for example, gender and social capital do influence the willingness to invest in crowdfunding as, in absence of complete information regarding the quality of a potential new project or venture, backers usually rely on cues provided by the information available, such as the gender of the founder or his/her social support system (Elitzur and Solodoha, 2021; Kocollari et al., 2021). Also, scholars have shown that behavioral traits (such as entrepreneurial orientation in terms of autonomy, risk-taking or aggressiveness) may convey different signals to the crowd, which may in turn be more or less likely to invest in a project (Calic and Shevchenko, 2020).
- 1.2 *Campaign/project characteristics.* Scholars have significantly focused on the specifics of the reward-based campaign or project, claiming several characteristics to be influential in determining the success of a campaign. In particular, researchers have focused on characteristics such as entrepreneurial narrative, language used, communicative cues and rhetoric (Anglin and Pidduck, 2022; Calic et al., 2021; Cappa et al., 2021; De Crescenzo et al., 2022), campaign's design mechanisms (Guan et al., 2020a), reward and product characteristics (Sewaid et al., 2021; Testa et al., 2020), message and project framing (Defazio et al., 2021; Lin et al., 2019). Indeed, while framing is key as it helps the crowd making sense of a campaign, it also influences message's interpretation and eventually guides crowd behavior (Nielsen and Binder, 2021), the characteristics related to communication and narrative decreases the uncertainty potential backers may perceive about the project and thus may play a pivotal role in persuading them to invest in the campaign (Tafesse, 2021). Literature has posited that also the type of benefit or reward for backers may have an effect on a campaign success. Specifically, Yang and colleagues (2020), building on marketing theories of scarcity strategy effects, propose that setting reward limits overall determines a positive effect on the performance of the campaign, as it provides backers with the feeling they could get access to something exclusive and unique.
- 1.3 *Characteristics and number of backers.* Extant literature on reward crowdfunding posits that this funding mechanism entails different dynamics related to specific type of backers or the number of backers supporting a project. Indeed, financial theories of rational cascades and herding explain why the involvement of specific groups of backers in a project's funding influences other investors (Lin et al., 2014). For example, Petit and Wirtz (2021) provide a fine-grained understanding regarding the key role of serial backers in creating a positive "certification effect", which increases other backers' participation in a project, thus incrementing the likelihood of a successful campaign. Studies have also pointed out community engagement effects, by noting that the number of backers at a given point in time may impact on the behavior of potential backers and ultimately project's success (Mourao et al., 2018). Indeed, a large number of backers to a project signals the creation of a community other people want to engage into and belong to (Aygoren and Koch, 2021).
- 1.4 *Contextual factors.* Alongside the above mentioned characteristics, scholars have pointed to several contextual factors that do have a say in campaign's success and performance. These factors range, among others, from economic and political environment (Hsieh and Vu, 2021), to social framework (Di Pietro and Masciarelli, 2021; Di Pietro, 2021), market and competitive dynamics (Guan et al., 2020b; Janků and Kučerová, 2018) and geographical location (Carbonara, 2021; Dos Santos et al., 2022). Extant research has acknowledged how individuals' decision-making is affected by the characteristics of the context they live and experience in their everyday life (Gutsche, 2019) as social, economic, political, cultural and geographical factors inevitably impact on individuals' behaviors and strategies (Sutcliffe and McNamara, 2001). Hence, considering these factors is relevant to grasp some of the determinants of a crowdfunding campaign success and performance, as it may trigger certain responses in backers, who may hence be more or less willing to invest in a particular project.
- 1.5 *Other factors.* We considered as part of this group documents that were not included in the above-mentioned categories, and thus covered other areas of investigation related to the success factors of reward-based crowdfunding. Specifically, we included documents such as a systematic literature review of different forms of crowdfunding (Shneor and Vik, 2020) or research that has pointed to other factors that may have an effect on reward-based crowdfunding campaign success and performance. For example, Crosetto and Regner (2018) undertake a quantitative and qualitative investigation to understand the extent to which path dependency

contributes to project success and, contrary to previous research, find that this latter is not always path dependent, so that also projects receiving little funding at the beginning may be boosted to achieve success at different point in time.

2. Studies on motivation to invest

2.1 *Characteristics and behaviors of backers.* Scholars focusing on this subtheme have investigated investors' motivations related to the following factors: drivers that activate behavior (i.e., intrinsic and extrinsic motivation, values), behavioral traits (e.g., herding behavior, inertia behavior), social network, and gender. Literature has pointed to several reasons why these factors may influence motivation to invest. For example, gender may explain individualistic vs prosocial orientation, also based on the perceived 'sense of meaning'. In particular, Bezael and colleagues (2021) theorize that women are less sensitive to material costs when engaging into altruistic behaviors; rather than driven by the gift reward, they are prone to invest in view of the support they can offer to the founder. Also, we found that, while some research has dwelled on behavioral dynamics to explain campaign success and performance (as mentioned in the previous paragraph 1.3), other studies have focused on behavioral dynamics per sé, looking at how they affect backers' investment decisions. In particular, backers may rely on others' behaviors (i.e., herding behavior or reverse herding behavior, as in Zaggl and Block, 2019) to get information about a specific project and reduce the uncertainty around it, or may be influenced by their earlier behavior (i.e., inertia behavior as in Xiao and Yue, 2018) thus relying on their past experience in deciding which project to support and when. Other studies have focused on the role played by backers' social networks, highlighting the importance of peer-influence when undertaking investment decision. For example, Chung and colleagues (2021) theorize that the pool of friends and acquaintances can enable access to new campaigns, provide signals about the quality of a project and exert complying pressures, thus influencing backers' decision to pledge specific projects.

2.2. *Campaign/project characteristics.* Extant research examining the motivations that move individuals to invest in reward-based crowdfunding have explored how intrinsic characteristics of the campaign/project play a role in pledging decisions. These characteristics are in line with the ones investigated by extant research focusing on the 'success factors' behind a campaign (see paragraph 1.2). However, in this case, they are examined in depth as determinants of the decision to invest, and include, among others: communication techniques (i.e. framing, emotional appeal) and quality of the campaign (Bi et al., 2017; Kuo et al., 2022), pledge and reward options (Kuo et al., 2020; Wessel et al., 2019), product innovativeness (Wang and Yang, 2019). In particular, Wessel and colleagues (2019) examine the effect of sold-out reward options (i.e., phantom effect) on investment decisions and found that the former may nudge backers' choice to invest, as from the unavailability of these options backers can infer their value (as others would have previously invested in them). Also, Raab et al. (2020) highlight the pivotal role played by communicative techniques by showing that emotional expressions of the entrepreneur included in the pictures of the project may determine a U-shaped effect on the decision to invest, as after a certain threshold they may be perceived as less professional and trustworthy.

2.3 *Other factors.* Few research works related to reward-based crowdfunding have focused on other mechanisms that may act as a trigger of backers' motivation to invest. For example, we included in this category the interaction between backers and the entrepreneur (or the campaign), thus the mechanisms concerning the relationship between one side of the transaction (i.e. investors) and the other side (i.e. founders and their project). In particular, Kim and Hall (2019) examine how the possibility for the backers to co-create, alongside other factors, may play a key role in the decision to invest.

3. Both determinants of backers behavior and campaign success

We found that some of the documents analyzed focused on both the "success factors" of a reward-based crowdfunding campaign/project and the "motivations to invest". For example, Rose et al. (2021) build on construal level theory to predict how specific characteristics of the campaign or the product delivered will be more or less influential in moving backers support, thus also differently impact on project's success. Also, Ferreira & Pereira (2018) point on one side to the success factors such as quality signals, characteristics of the entrepreneur and of the campaign, and on the other to the different motivations (i.e., intrinsic and extrinsic, community-based benefits) driving backers' choice to invest.

4. Other studies

We included in this category several documents examining different topics. In particular, these documents focused, among others on: the impact of law, regulatory and institutional framework on crowdfunding (Schwartz, 2012; Sholoiko, 2017; Wessel et al., 2015); the effects on industry's value-creation triggered by crowdfunding (Gamble et al., 2017; Nucciarelli et al., 2017); the existing forms of crowdfunding in diverse geographical contexts (Funk, 2019; Mokhtarrudin et al., 2017); the rationale behind entrepreneurial relocation decision of a campaign (Noonan et al., 2021); the state of the art regarding the motives that drive both entrepreneurs and backers (Alegre and Moleskis, 2019; Boylan et al., 2018).

Considering the diversity of the topics covered with respect to the two theoretical categories identified in the upfront of our analysis we could not include these documents in our main subthemes (i.e. "success factors", "motivations to invest"). Also, in view of the significant breadth these documents covered, it was unfeasible to develop separate theoretical categories, as we would need to create many different subthemes to account for the variety of topics covered.

Research limitations. *Our work entails some limitations. First, it has to do with sample selection. As mentioned, the sample selected as the basis of our SLR only focuses on reward-based crowdfunding in the fields of business and management, economics or social sciences. However, studies in different fields may have investigated reward-based crowdfunding and its dynamics: thus, although we did not include them in our sample, future research may perform a broader SLR in fields other than business and management, economics and social science to provide management scholars with a comprehensive picture of this recently studied phenomenon, offering avenues for cross-fertilization. A second limitation is the use of a single database, which excludes academic journals not indexed in Scopus and working papers, as well as other non-academic documents (e.g. reports, policy documents, articles or blogs) that may contribute to the understanding of the phenomenon. Future research may hence enrich the understanding of reward-based crowdfunding by leveraging other databases and analyzing different kinds of documents (e.g. non-academic ones).*

Managerial implications. *Our work suggests several implications for entrepreneurs. First, it provides entrepreneurs with managerial guidelines about the different characteristics that may be worth to focus on when drafting and setting up a reward-based crowdfunding campaign. By pinpointing the main factors that – according to extant research - may determine the success for a campaign, we handle to entrepreneurs interested in raising fund for their business ideas useful recommendations to reach their targets. Second, by focusing on the other subtheme “motivation to invest”, we provide insightful tips to entrepreneurs about what backers value when evaluating a project and which factors matter the most in determining investment decision. Hence, knowing the drivers of investment, along with the success factors, gives entrepreneurs the opportunity to understand how to craft at best their reward-based crowdfunding campaign to reach their goals but also to satisfy their backers and community of reference. Finally, by reaching their targets, entrepreneurs may also help prevent the stigma associated with failure, thus avoiding the negative social and economic consequences that stigmatization processes may entail.*

Originality of the paper. *The preliminary findings of our review of the literature provides scholars and business practitioners interested in the field with novel insights coming from the most recent works related to reward-based crowdfunding. Indeed, as mentioned, research related to this phenomenon has been flourishing over the last years. However, understanding the level of knowledge reached by the literature about the dynamics and mechanisms of reward-based crowdfunding is pivotal to determine where and how to move next.*

Keywords: *reward-based crowdfunding; systematic literature review; success; motivations; alternative financing*

References

- ALEGRE I., MOLESKIS M. (2021), “Beyond financial motivations in crowdfunding: A systematic literature review of donations and rewards”, *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, vol. 32, n. 2, pp. 276-287.
- ANGLIN A.H., PIDDUCK R.J. (2022), “Choose your words carefully: Harnessing the language of crowdfunding for success”, *Business Horizons*, vol. 65, n. 1, pp. 43-58.
- AYGOREN O., KOCH S. (2021), “Community Support or Funding Amount: Actual Contribution of Reward-Based Crowdfunding to Market Success of Video Game Projects on Kickstarter”, *Sustainability*, vol. 13, n. 16, pp. 9195.
- BEZALEL J., MUGERMAN Y., WINTER E. (2021), “Meaning and gender differences”, *Journal of Behavioral and Experimental Economics*, n. 95, 101757.
- BI S., LIU Z., USMAN, K. (2017), “The influence of online information on investing decisions of reward-based crowdfunding”, *Journal of Business Research*, n. 71, pp. 10-18.
- BOYLAN D.H., NESSON D., PHILIPPS J. (2018), “Understanding crowdfunding for business funding—a legal and platform review”, *Journal of Accounting & Organizational Change*, vol. 14, n. 3, pp. 273-290.
- CALIC G., SHEVCHENKO A. (2020), “How signal intensity of behavioral orientations affects crowdfunding performance: The role of entrepreneurial orientation in crowdfunding business ventures”, *Journal of Business Research*, n. 115, pp. 204-220.
- CALIC G., ARSENEAULT R., GHASEMAGHAEI M. (2021), “The Dark Side of Machiavellian Rhetoric: Signaling in Reward-Based Crowdfunding Performance”, *Journal of Business Ethics*, pp. 1-22.
- CAPPA F., PINELLI M., MAIOLINI R., LEONE M.I. (2021), ““Pledge” me your ears! The role of narratives and narrator experience in explaining crowdfunding success”, *Small Business Economics*, vol. 57, n. 2, pp. 953-973.
- CARBONARA N. (2021), “The role of geographical clusters in the success of reward-based crowdfunding campaigns”, *The International Journal of Entrepreneurship and Innovation*, vol. 22, n. 1, pp. 18-32.
- CHUNG Y., LI Y., JIA J. (2021), “Exploring embeddedness, centrality, and social influence on backer behavior: the role of backer networks in crowdfunding”, *Journal of the Academy of Marketing Science*, vol. 49, n. 5, pp. 925-946.
- CROSETTO P., REGNER T. (2018), “It’s never too late: Funding dynamics and self pledges in reward-based crowdfunding”, *Research Policy*, vol. 47, n. 8, pp. 1463-1477.
- CROSSAN M.M., APAYDIN M. (2010), “A multi-dimensional framework of organizational innovation: A systematic review of the literature”, *Journal of Management Studies*, vol. 47, n. 6, pp. 1154-1191.

- DE CRESCENZO V., BONFANTI A., CASTELLANI P., VARGAS-SÁNCHEZ A. (2022), "Effective entrepreneurial narrative design in reward crowdfunding campaigns for social ventures", *International Entrepreneurship and Management Journal*, vol. 18, n. 2, pp. 773-800.
- DEFAZIO D., FRANZONI C., ROSSI-LAMASTRA C. (2021), "How pro-social framing affects the success of crowdfunding projects: The role of emphasis and information crowdedness", *Journal of Business Ethics*, vol. 171, n. 2, pp. 357-378.
- DI PIETRO F. (2021), "Leveraging regional immigration and immigration diversity for financing crowdfunding projects", *Regional Studies, Regional Science*, vol. 8, n. 1, pp. 291-301.
- DI PIETRO F., MASCIARELLI F. (2021), "The effect of local religiosity on financing cross-regional entrepreneurial projects via crowdfunding (Local religiosity and crowdfinancing)", *Journal of Business Ethics*, vol. 178, n. 2, pp. 429-443.
- DOS SANTOS FELIPE I.J., MENDES-DA-SILVA W., LEAL C.C., SANTOS D.B. (2022), "Reward crowdfunding campaigns: Time-to-success analysis", *Journal of Business Research*, n. 138, pp. 214-228.
- ELITZUR R., SOLODOHA E. (2021), "Does gender matter? Evidence from crowdfunding", *Journal of Business Venturing Insights*, n. 16, pp. e00268.
- FERREIRA F., PEREIRA L. (2018, June), "Success factors in a reward and equity based crowdfunding campaign. In 2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC) (pp. 1-8), IEEE.
- FLEMING L., SORENSON O. (2016), "Financing by and for the Masses: An Introduction to the Special Issue on Crowdfunding", *California Management Review*, vol. 58, n. 2, pp. 5-19.
- FUNK A.S. (2019), "The concept of crowdfunding in the west versus in China. In *Crowdfunding in China* (pp. 51-93), Springer, Cham.
- GAMBLE J.R., BRENNAN M., MCADAM R. (2017), "A rewarding experience? Exploring how crowdfunding is affecting music industry business models", *Journal of Business Research*, n. 70, pp. 25-36.
- GIUDICI G., GUERINI M., ROSSI-LAMASTRA C. (2018), "Reward-based crowdfunding of entrepreneurial projects: the effect of local altruism and localized social capital on proponents' success", *Small Business Economics*, vol. 50, n. 2, pp. 307-324.
- GLEASURE R., FELLER J. (2016), "Emerging technologies and the democratisation of financial services: A metatriangulation of crowdfunding research", *Information and Organization*, vol. 26, n. 4, pp. 101-115.
- GUAN L., MU Y., XU X., ZHANG L., ZHUANG J. (2020a), "Keep it or give back? Optimal pricing strategy of reward-based crowdfunding with a hybrid mechanism in the sharing economy", *International Journal of Production Research*, vol. 58, n. 22, pp. 6868-6889.
- GUAN X., DENG W.J., JIANG Z.Z., HUANG M. (2020b), "Pricing and advertising for reward-based crowdfunding products in E-commerce", *Decision Support Systems*, n. 131, pp.113231.
- GUTSCHE G. (2019), "Individual and regional Christian religion and the consideration of sustainable criteria in consumption and investment decisions: An exploratory econometric analysis", *Journal of Business Ethics*, vol. 157, n. 4, pp. 1155-1182.
- HANELT A., BOHNSACK R., MARZ D., ANTUNES MARANTE C. (2021), "A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change", *Journal of Management Studies*, vol. 58, n. 5, pp. 1159-1197.
- HSIEH H.C., VU T.H.C. (2021), "The impact of economic policy uncertainty on crowdfunding success", *Journal of International Financial Markets, Institutions and Money*, n. 75, pp.101418.
- JANKŮ J., KUČEROVÁ Z. (2018), "Successful Crowdfunding Campaigns: The Role of Project Specifics, Competition and Founders' Experience", *Finance a Uver: Czech Journal of Economics & Finance*, vol. 68, n. 4, pp. 351-373.
- KIM M.J., HALL C.M. (2019), "Can co-creation and crowdfunding types predict funder behavior? An extended model of goal-directed behavior", *Sustainability*, 11, n. 24, pp. 7061.
- KOCOLLARI U., PEDRAZZOLI A., CAVICCHIOLI M., GIRARDI A. (2021), "Too tied to fail: a multidimensional approach to social capital in crowdfunding campaigns. Evidences from Italian agri-food businesses", *Journal of Small Business and Enterprise Development*, vol. ahead-of-print, n. ahead-of-print.
- KUO Y.F., LIN C.H., HOU J.R. (2020), "The effects of anchoring on backers' pledge in reward-based crowdfunding: evidence from Taiwanese market", *Internet Research*, vol. 31, n. 2, pp. 635-653.
- KUO Y.F., LIN C.S., LIU L.T. (2022), "The effects of framing messages and cause-related marketing on backing intentions in reward-based crowdfunding", *Journal of Retailing and Consumer Services*, n. 64, pp. 102799.
- LIN Y.T., WANG W., DOONG H.S. (2019), "Is talking about the future a curse or a blessing? The effects of future-focused message framing on fundraising performance", *IEEE Transactions on Engineering Management*, vol. 68, n. 4, pp. 970-981.
- LIN Y., BOH W.F., GOH K.H. (2014), "How different are crowdfunders? Examining archetypes of crowdfunders and their choice of projects", In *Academy of Management Proceedings* (vol. 2014, n. 1, p. 13309), Briarcliff Manor, NY 10510: Academy of Management.
- MOKHTARRUDIN A., MASRURAH I.M.K., MUHAMAD S.C.R. (2017), "Crowdfunding as a Funding Opportunity for Youth Start-Ups in Malaysia", *Pertanika Journal of Social Sciences & Humanities*, n. 25, pp. 139-153.
- MOLLICK E. (2014), "The dynamics of crowdfunding: An exploratory study", *Journal of Business Venturing*, 29, n. 1, pp. 1-16.

- MOLLICK E., ROBB A. (2016), ““Democratizing innovation and capital access: The role of crowdfunding”, *California Management Review*, vol. 58, n. 2, pp. 72-87.
- MOURAO P., SILVEIRA M.A.P., DE MELO R.S. (2018), “Many are never too many: An analysis of crowdfunding projects in Brazil”, *International Journal of Financial Studies*, vol. 6, n. 4, pp. 95.
- NIELSEN K.R., BINDER J.K. (2021), “I am what I pledge: the importance of value alignment for mobilizing backers in reward-based crowdfunding”, *Entrepreneurship Theory and Practice*, vol. 45, n. 3, pp. 531-561.
- NOONAN D.S., BREZNITZ S.M., MAQBOOL S. (2021), “Looking for a change in scene: analyzing the mobility of crowdfunding entrepreneurs”, *Small Business Economics*, vol. 57, n. 2, pp. 685-703.
- NUCCIARELLI A., LI F., FERNANDES K.J., GOUMAGIAS N., CABRAS I., DEVLIN S., COWLING P. (2017), “From value chains to technological platforms: The effects of crowdfunding in the digital game industry”, *Journal of Business Research*, n. 78, pp. 341-352.
- PETIT A., WIRTZ P. (2021), “Experts in the crowd and their influence on herding in reward-based crowdfunding of cultural projects”, *Small Business Economics*, vol. 58, n. 1, pp. 419-449.
- RAAB M., SCHLAUDERER S., OVERHAGE S., FRIEDRICH T. (2020), “More than a feeling: Investigating the contagious effect of facial emotional expressions on investment decisions in reward-based crowdfunding”, *Decision Support Systems*, n. 135, 113326.
- ROSE S., WENTZEL D., HOPP C., KAMINSKI J. (2021), “Launching for success: The effects of psychological distance and mental simulation on funding decisions and crowdfunding performance. *Journal of Business Venturing*, vol. 36, n. 6, pp. 106021.
- SCHWARTZ A.A. (2012), “Crowdfunding securities. *Notre Dame L. Rev.* , n. 88, pp. ???1457.
- SEWAID A., GARCIA-CESTONA M., SILAGHI F. (2021), “Resolving information asymmetries in financing new product development: The case of reward-based crowdfunding”, *Research Policy*, vol. 50, n. 10, pp. 104345.
- SHNEOR R., VIK A.A. (2020), “Crowdfunding success: a systematic literature review 2010–2017”, *Baltic Journal of Management*, vol. 15, n. 2, pp. 149-182.
- SHOLOIKO A. (2017), “Financing losses from natural and man-made disasters by use of crowdfunding”, *Investment management and financial innovations*, vol. 14, n. 2.1, pp. 218-225.
- SHORT J.C., KETCHEN JR D.J., MCKENNY A.F., ALLISON T.H., IRELAND R.D. (2017), “Research on crowdfunding: Reviewing the (very recent) past and celebrating the present”, *Entrepreneurship Theory and Practice*, vol. 41, n. 2, pp. 149-160.
- SOUBLIÈRE J.F., GEHMAN J. (2020), “The legitimacy threshold revisited: How prior successes and failures spill over to other endeavors on Kickstarter”, *Academy of Management Journal*, vol. 63, n. 2, pp. 472-502.
- SUTCLIFFE K.M., MCNAMARA G. (2001), “Controlling decision-making practice in organizations”, *Organization Science*, vol. 12, n. 4, pp. 484-501.
- TAFESSE W. (2021), “Communicating crowdfunding campaigns: How message strategy, vivid media use and product type influence campaign success”, *Journal of Business Research*, n. 127, pp. 252-263.
- TESTA S., ROMA P., VASI M., CINCOTTI S. (2020), “Crowdfunding as a tool to support sustainability-oriented initiatives: Preliminary insights into the role of product/service attributes”, *Business Strategy and the Environment*, vol. 29, n. 2, pp. 530-546.
- TRANFIELD D., DENYER D., SMART P. (2003), “Towards a methodology for developing evidence-informed management knowledge by means of systematic review”, *British Journal of Management*, vol. 14, n. 3, pp. 207-222.
- WANG Z., YANG X. (2019), “Understanding backers’ funding intention in reward crowdfunding: An elaboration likelihood perspective”, *Technology in Society*, n. 58, pp. 101149.
- WESSEL M., ADAM M., BENLIAN A. (2019), “The impact of sold-out early birds on option selection in reward-based crowdfunding. *Decision Support Systems*, n. 117, pp. 48-61.
- WESSEL M., THIES F., BENLIAN A. (2015), The effects of relinquishing control in platform ecosystems: Implications from a policy change on Kickstarter, *International Conference on Information Systems (ICIS 2015)*, Fort Worth, TX.
- XIAO S., YUE Q. (2018), “Investors’ inertia behavior and their repeated decision-making in online reward-based crowdfunding market”, *Decision Support Systems*, n. 111, pp. 101-112.
- YANG L., WANG Z., HAHN J. (2020), “Scarcity strategy in crowdfunding: An empirical exploration of reward limits”, *Information Systems Research*, vol. 31, n. 4, pp. 1107-1131.
- ZAGGL M.A., BLOCK J. (2019), “Do small funding amounts lead to reverse herding? A field experiment in reward-based crowdfunding”, *Journal of Business Venturing Insights*, n. 12, pp. e00139.

Innovation from frailty: Creating value from purpose-based innovation

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Framing of the research. *The managerial literature has extensively discussed the process of creating value through innovative processes. Indeed, there are abundant theoretical and empirical contributions on how entrepreneurs and companies invent and innovate (Björk and Magnusson 2009; Salter et al. 2015; Schilling and Shakar, 2019) and how they profit from innovation. Over the years, most of these studies have interpreted the concept of value creation as economic profit (Ahn et al. 2019; Mele, 2009; Sjödin et al. 2020). However, significant changes have been observed in recent years in the strategic approaches of companies and entrepreneurs towards more inclusive and socially responsible behaviors (Mayer, 2021; Mayer and Roche, 2021; Mazzucato, 2018). Thus, an increasing number of companies have implemented a new concept of creating value in terms of "creating shared value" (Porter and Kramer, 2019). More recently, the quadruple value framework has given relevance to the value produced directly and indirectly also to the community and, more widely, to the whole population and society (Gray 2013, 2017). In this new research stream, several contributions have identified the role and the impact of companies that embrace this form of value creation. For example, according to Porter and Kramer (2019) "learning to create shared value is our best chance to legitimize business again"; other scholars have elaborated the concept of purpose-driven companies (Mayer, 2020; Rey et al., 2019; O'Brein et al., 2020), which offer products and services with the objective of solving societal problems and responding to concrete people's needs rather than with the objective of solely making (large) profits.*

To this respect, targeting and involving frail individuals in the community could produce value to frail individuals, their community and the society as a whole, for example by preventing their physical and mental deterioration (Vellas and Fleck, 2014), or improving their quality of life, productivity and active role in the society. The concept of frailty has always been associated with chronic conditions (Fried, 2001), and to the concept of vulnerability (Clegg et al., 2013), and to mental and physical functionalities' deteriorating conditions related with ageing, producing a growing decrease of the abilities to cope with everyday activities (Carretero et al., 2015). However, it is interesting to note how frailty can have several components: a biological basis, with a physical, social and psychological component (Uchmanowicz et al., 2015). Indeed, phenomena such as depression, anxiety and loneliness can also be a sign of frailty. In our study, we refer to a broader definition of frailty, which includes disability and dependency, at various levels (Uchmanowicz et al., 2015). Thus, in addition to physical frailty, we also consider psychological frailty, social frailty and other domains of frailty (Satake and Arai, 2020).

Purpose of the paper. *Within the broad research field which connects "purpose-driven innovation", we are particularly interested to provide a contribution by exploring the creation of value by purpose-driven companies which introduce innovations in the field of the care of frail people with a user-led, bottom-up approach using relatively simple technologies. Thus, drawing on the literature about purpose innovation management concerning innovation from frailty (Mongelli et al., 2018), we develop a conceptual framework for understanding how companies create social value for society in order to investigate the facilitating factors and the obstacles they have in implementing innovation from frailty.*

Concretely, we build upon the user-innovation definition by von Hippel (2007), where patients or caregivers are users of health-care services. In that sense, patient innovators are individuals (patients or caregivers) who have developed a new equipment, medical device, treatment, therapy, strategy, habit or behavior with the intention of using (as opposed to sell) to treat or better cope with their health condition (Shcherbatiuk, 2012).

There are successful examples of patient-led web platforms and communities, such as Patientslikeme, which empowered people, and revolutionized the research on treatments, devices and specific health conditions' care, by supporting both the academia and the pharmaceutical industries (Frost and Massagli, 2008; Gupta and Riis, 2011;

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Tempini, 2014), and resulting in a real value innovation (Bleicher and Stanley 2016). Then, to better understand how the innovation of frailty can contribute to the creation of value, we investigate cases of innovation by frail people or non-professional caregivers (e.g. parents, family members, spouses or partners).

Methodology. Given our research objectives, we identified a good empirical setting in the “Make to Care” initiative. Make to Care has been launched in 2016 by Sanofi-Genzyme. Sanofi-Genzyme is a large pharma company focused on rare diseases, rare blood disorders, neurology, immunology, and oncology and Make to Care has little or nothing to do with its core business. More concretely, we have selected Make to Care because it is a contest that allows innovators to exhibit their original solutions in the field of disability in front of a wide ecosystem of actors (e.g. makers, hospitals, patients) to develop their innovations also through their contribution. Thus, Make to Care lends itself to being a collector of fragile user-driven innovations.

The contest is developed as a call for ideas for projects developed by makers and innovators who have identified needs related to the daily life of patients, their families or caregivers and more generally have proposed innovative solutions that concretely improve the quality of life of people with disability. More specifically, Make to Care aims at creating a community among innovators which operate in the field of disability. Today, the informal Make to Care community includes actors and teams which have sent their project since the launch of the project, and more specifically all the 60 finalists.

The data collection process lasted from January to May 2021 and multiple sources were used to benefit from the synergistic effects of triangulation (Eisenhardt, 1989; Jick, 1979). First, we integrated press releases by collecting additional secondary data sources, including web interviews, speeches, and various other web sources. Second, secondary data were used to deepen our understanding of purpose-driven innovation within the context of fragility.

Then, we contacted the entrepreneurs /innovators and shared interviews’ questions to identify the suitable informants. In most cases we got in touch with the innovators/ founders and in a few cases with the CEOs. We conducted fifteen semi-structured interviews by Skype or phone. Interviews lasted about 60 minutes and were then transcribed.

Given the aim of this paper, we adopted a methodology that has a confirmatory aim (Casprini et al., 2013; Ferrigno and Cucino, 2021). More specifically, we based our interviews on the framework described and conducted an inductive and confirmatory approach in our empirical analysis (Lee et al., 1999). Confirmatory approaches tend to confirm a researcher's preconceived notions and they are well recognized in the literature (Ruddin, 2006; Yin, 2018). The evidence gathered has contributed to the theoretical development of the current framework, and results will be presented in the following section.

Results. Therefore, analyzing the innovation processes driven by frail users or individuals, we have introduced some changes to the value creation path identified by Gray (2017). More concretely, the activities of fragile user innovators that we interviewed do show the properties described for lead users by Von Hippel (1986) and Urban and Von Hippel (1988). In every case, in fact, the innovator user expressed either a strong individual need (eg, wants to walk or listen) to overcome a status quo or a strong desire to help those close to him (friends or relatives). From their in-depth user experience, they understood how it should be and used their personal skills (e.g. engineering, software programming, sewing and shirts) to invent a device that would offer the aspired improvement in the lives of frail people. Finally, with their strong personal needs, they have foreseen a sufficient market for their invention, as however the founding of a company indicates.

These observations therefore led us to modify the value creation process by focusing first on the creation of social value and then on the creation of personal value. Thus, following Grey, (2017) and EXPH (2019) we discuss the value creation from fragile innovations based on four dimensions: personal value, technical value, allocative value and societal value. The first dimension refers to “personal value”, which refers to producing a wider benefit for the community, for example in terms of participation and social connection. More concretely, frail user innovation aims to provide adequate care to achieve goals in terms of greater participation and independence of frail people. The second dimension refers to “technical value”, which refers to achieving the best possible results with the available resources. Although in the model identified by Gray (2017) the innovations generated in healthcare / frailty contexts have a technological component, in Make to Care some innovations do not have a technology, but are reworkings of commonly used concepts. In particular, not all innovations generated by fragile contexts have a technological component, but represent simple solutions to complex problems. The third dimension is the “allocative value”, which refers to the identification of an equitable distribution of resources among all patient groups. Indeed, one of the main problems related to helping fragile people is to allocate the resources available for the entire population to the different groups (Gray, 2017). Due to the bureaucratic difficulty of inserting their technologies within the national health system, the innovations of fragile users often fail to create an adequate allocative value. However, our analysis shows that fragile user innovations are often “generative” innovations.

The fourth dimension that we take into consideration is the “social value”, It is about producing a wider benefit for the community, for example in terms of participation and social connection (social value). More concretely, in our interviews it emerges clearly how fragile innovation generates social cohesion defined as collective assumption of responsibility by perceiving problems as common and not limited to individuals or groups.

Our study offers contributions to the academic literature. First, within the broad field of targeted innovation in this document, we focus on innovative processes driven by fragile users or by individuals who are alongside fragile users.

First, in line with Olivera (2012) our study shows how frail user-driven innovation occurs in three specific circumstances: rare conditions, (2) strong constraints on daily life, and (3) dead end. In particular, in these conditions

the closeness (empathic or physical) between the innovator and the fragile person (physical contact, direct experience, burden of care, etc.) allows to establish an empathic relationship between the two protagonists of innovation (innovator and fragile user) such as to identify the entrepreneur in the complex situation that the fragile / disabled user lives. Consequently, this study shows how frail user-driven innovations are amplified by the experience of fragility. Indeed, it is only through the proximity between the two actors that it is possible to create an innovation for the benefit not only of the frail / disabled user, but also for the benefit of the community. This is also shown by the behavior of innovative users who are not all interested in starting a business, but their only goal is to solve a social problem (Kruse, 2019).

Second, the involvement of frail people in the community could produce value not only for frail individuals, but also for their community and society as a whole, for example by preventing their physical and mental deterioration (Vellas & Fleck, 2014), or by improving their quality of life, productivity and active role in society. This is possible because frail user-driven innovations have a dual benefit. First, operators often do not have the opportunity to systematically acquire the skills for this particular rare condition because in their life they encounter few cases of fragile people. As a result, they may not have the right skills or may be in their first frail condition. However, the innovations driven by fragile users allow to help healthcare professionals in the better understanding of the disease, helping the development of new enabling skills. This is possible thanks also to the resonance that these applications have (e.g. contests, hospitals). Second, in the case of frail people, the number of people with the same problem is so small that there is no market incentive for profit-oriented companies to develop tailored healthcare products or services. However, in the case of devices developed by fragile users, an inverse situation occurs. Indeed, such innovations often find wider application for more common diseases. In other words, in the case of innovations driven by fragile users, we move from a market niche to a wider clientele.

Third, our study contributes to the literature on frail user-driven innovation, highlighting the barriers and facilitators to the development of user-driven fragile innovation. More concretely, from the analysis of cases of frail user-driven innovation it is possible to investigate the facilitating factors and the main obstacles to the realization of such innovations. In particular, in the context of facilitators, different types of community support emerge (e.g. crowdfunding, makers support). This shows that purpose-driven innovations meet not only the interests of interested users, but also the community.

Research limitations. First, we conducted our study in Italy, while we stay certain of the existence of similar experiences internationally. Findings can be context specific, and therefore we encourage researchers from other countries to undertake the same approach, report results, and discuss potential differences. Second, our study analysed visible innovations, as they took part in a significant competition at the national level. At the same time, our feeling is that there are several “hidden” innovations out there that remain veiled. They can be different with respect to the sample analyzed here, and identifying them would be useful for further research. Finally, we focused our attention on frailty, while there is a wide range of health and social services that can be investigated using a similar approach, and we invite scholars to explore them.

Managerial implications. First, it is useful to recognize that lead users are often the first to develop service innovations (e.g. Oliveira and von Hippel 2011, Shcherbatiuk and Oliveira 2012, van der Boor et al. 2014, Oliveira et al. 2014, Zejnilovic et al., 2016). Therefore, it seems to be very useful for service providers to seek more actively for actual user-generated service innovations.

Moreover, our research has shown that there is strong social value in discovering and disseminating user innovations. By systematically planning and orchestrating research to be carried out extensively, in depth and at a high intensity, we could improve the resilience of society especially in times of crisis. That is, the faster the solutions developed by those in need are found, evaluated and implemented available through platforms such as Make to Care, the faster alternatives to social problems would be found.

Finally, as for the frail user innovations presented here, and frail user innovator stories in particular, there are some clear managerial implications that can translate into a better quality of life and health outcomes. However, it often becomes difficult to integrate these innovations into the national health system. One way to intervene and reduce research costs is to develop a centralized inventory of the solution developed by patients and the use of online platforms could be a good model.

Originality of the paper. Although much has been discussed about creating value in the health and social care sector, there is still a knowledge gap to be filled in relation to how value is created (Grey, 2017; Habicht et al. 2013). A key focus has been devoted to the role of healthcare professionals in the field, but a shift is necessary towards the direct role that “common” people, including health and social care services’ users, can play in creating value (Batalden et al. 2015; Grönroos 2012; Osborne et al. 2016). In this perspective, people can directly participate in creating value for themselves and the community in various ways. However, the participation of users of healthcare services or of the general population is considered mostly mediated by the healthcare organizations or providers. Consequently, the focus usually remains on service providers, who are considered to be the only ones who can build the service proposals (Grönroos 2012). In this research, the focus is on the contribution of bottom-up processes - and more specifically, participatory innovation approaches - to the value creation process, by considering purpose-driven innovators who have had a direct contact or experience with unmet needs of disabled and frail people.

Keywords: purpose-driven innovation; frailty; user innovation; patient innovation; social innovation

References

- AHN J.M., ROIJAKKERS N., FINI R., MORTARA L. (2019), "Leveraging open innovation to improve society: past achievements and future trajectories", *R&D Management*, vol. 49, n. 3, pp. 267- 278.
- BATALDEN M., BATALDEN P., MARGOLIS P., SEID M., ARMSTRONG G., OPIPARI-ARRIGAN L., HARTUNG H. (2016), "Coproduction of healthcare service", *BMJ quality & safety*, vol. 25, n. 7, pp. 509-517.
- BJÖRK J., MAGNUSSON M. (2009), "Where do good innovation ideas come from? Exploring the influence of network connectivity on innovation idea quality", *Journal of Product Innovation Management*, vol. 26, n. 1, pp. 662-670.
- CARRETERO L., NAVARRO-PARDO E., CANO A. (2015), "Progression in healthy ageing: frailty, cognitive decline and gender in the European Innovation Partnership for Active and Healthy Ageing", *The European Journal of Psychiatry*, vol. 29, n. 4, pp. 231-237.
- CASPRINI E., PUCCI T., ZANNI L. (2014). "Business model shifts: a case study on firms that apply high technology to cultural goods", *Technology Analysis & Strategic Management*, vol. 26, n. 2, pp. 171-187.
- CLEGG A., YOUNG J., ILIFFE S., RIKKERT M. O., ROCKWOOD K. (2013), "Frailty in elderly people", *The lancet*, vol. 381, n. 9868, pp. 752-76.
- EXPH (2019), Expert panel on effective ways of investing in health. Opinion on defining value in value-based healthcare, European Commission, Publications Office of the European Union, Luxembourg, available at: <https://doi.org/10.2875/35471>.
- FERRIGNO G., CUCINO V. (2021), "Innovating and transforming during COVID-19: insights from Italian firms", *R&D Management*, vol. 51 n. 4, pp. 325-338.
- FRIED L.P., FERRUCCI L., DARER J., WILLIAMSON J.D., ANDERSON G. (2004), "Untangling the concepts of disability, frailty, and comorbidity: implications for improved targeting and care", *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, vol. 59, n. 3, pp. M255-M263.
- GRAY M. (2017), *How to get better value healthcare*, Vol. 3rd Edition, Oxford Press.
- GRÖNROOS C. (2012), "Conceptualising value co-creation: A journey to the 1970s and back to the future", *Journal of Marketing Management*, vol. 28, n. (13-14), pp. 1520-1534.
- HABICHT H., OLIVEIRA P., SHCHERBATIUK V. (2013), "User innovators: when patients set out to help themselves and end up helping many", *Die Unternehmung*, vol. 66, n. 3, pp. 277-294.
- KRUSE D.J., GOELDNER M., ELING K., HERSTATT C. (2019), "Looking for a Needle in a Haystack: How to Search for Bottom-up Social Innovations that Solve Complex Humanitarian Problems", *Journal of Product Innovation Management*, vol. 36, n. 6, pp. 671-694.
- MAYER C. (2021), "The Future of the Corporation and the Economics of Purpose", *Journal of Management Studies*, vol. 58, n. 3, pp. 887-901.
- MAYER C., ROCHE B. (2021), *Putting purpose into practice: The economics of mutuality*, Oxford University Press.
- MAZZUCATO M. (2018), *The value of everything: Making and taking in the global economy*. Hachette UK.
- MELE D. (2009), "Current Trends of Humanism in Business" In H. Spitzbeck, M. Pirson, W. Amann, S. Khan and E. von Kimakowitz (eds.), *Humanism in Business: Perspectives on the Development of a Responsible Business Society*, Cambridge University Press, Cambridge, UK.
- MONGELLI L., VERSARI P., RULLANI F., VACCARO A. (2018), "Made in carcere: Integral human development in extreme conditions", *Journal of business ethics*, vol. 152, n. 4, pp. 977-995
- OLIVEIRA P., VON HIPPEL E. (2011), "Users as service innovators: The case of banking services", *Research policy*, vol. 40, n. 6, pp. 806-818.
- OLIVEIRA P., ZEJNILOVIC L., CANHAO H. (2020), "Patients and Informal Caregivers as Healthcare User Innovators", In *Academy of Management Proceedings* (Vol. 2020, No. 1, p. 19747). Briarcliff Manor, NY 10510: Academy of Management.
- OSBORNE S.P., RADNOR Z.J., STROKOSCH K. (2016), "Co-Production and the Co-Creation of Value in Public Services: A suitable case for treatment?", *Public Management Review*, vol. 18, pp. 639-653.
- PORTER M.E., KRAMER M.R. (2019), *Creating shared value. In Managing sustainable business*, Springer, Dordrech
- REY C., VELASCO J.S.C., ALMANDOZ J. (2019), *The new logic of purpose within the organization*. In Purpose-driven Organizations. Palgrave Macmillan, Cham
- RUDDIN L. P. (2006), "You can generalize stupid! Social scientists, Bent Flyvbjerg, and case study methodology", *Qualitative inquiry*, vol. 12, n. 4, pp. 797-812.
- SALTER A., TER WAL A.L., CRISCUOLO P., ALEXY O. (2015), "Open for ideation: Individual-level openness and idea generation in RandD", *Journal of Product Innovation Management*, vol. 32, n. 4, pp. 488-504.
- SCHILLING M.A., SHANKAR R. (2019), *Strategic management of technological innovation*. McGraw-Hill Education.
- SJÖDIN D., PARIDA V., JOVANOVIĆ M., VISNJIC I. (2020), "Value creation and value capture alignment in business model innovation: A process view on outcome-based business models", *Journal of Product Innovation Management*, vol. 37, n. 2, pp. 158-183.
- UCHMANOWICZ I., WLEKLIK M., GOBBENS R.J. (2015), "Frailty syndrome and self-care ability in elderly patients with heart failure", *Clinical interventions in aging*, vol. 10, pp. 871.

- URBAN G.L., VON HIPPEL E. (1988), "Lead user analyses for the development of new industrial products", *Management science*, vol. 34, n. 5, pp. 569-582.
- VAN DER BOOR P., OLIVEIRA P., VELOSO F. (2014), "Users as innovators in developing countries: The global sources of innovation and diffusion in mobile banking services", *Research Policy*, vol. 43, n. 9, pp. 1594-1607.
- VELLAS B., FLECK F. (2014), "Most people can stay fit and healthy into old age", *Bulletin of the World Health Organization*, vol. 92, n. 9, pp. 628-629.
- VON HIPPEL E. (1986), "Lead users: a source of novel product concepts", *Management science*, vol. 32, n. 7, pp. 791-805.
- VON HIPPEL E. (2007), "Horizontal innovation networks-by and for users", *Industrial and corporate change*, vol. 16, n. 2, pp. 293-315.
- YIN R.K. (2018), *Case Study Research and Applications*, 6th edn. Los Angeles: SAGE Publications Inc.
- ZEJNILOVIĆ L., OLIVEIRA P., CANHÃO H. (2016), "Innovations by and for patients, and their place in the future health care system", In *Boundaryless hospital* (pp. 341-357). Springer, Berlin, Heidelberg.

Technology and innovation adoption in healthcare and management literature: a shared or different vision?

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Framing of the research. *In recent years, increasingly, the healthcare sector has undergone an intense and profound transformation that has generated rapid growth (Ahmadi et al., 2015; Chong and Chan, 2012; Curry and Sinclair, 2002; Hegde, 2008; Sherer et al., 2016) due to increasing technological innovation, rising healthcare demand, and a progressively aging population, thus representing a current and ever-relevant issue in the economic, political and legislative spheres.*

The experiences gained in the most industrialized and economically strong countries, such as America, in the field of eHealth, has highlighted how the introduction of technological innovations and digitalized information systems allows for greater development of healthcare and several cost-benefit advantages for both patients and the medical establishment (Iveroth et al, 2013; Zhivan and Diana, 2012).

It was from the early 2000s that a radical transformation in terms of clinical data recording took place: in fact, the Americans were the first to initiate the process of entering patient data on digital media such as computers, electronic medical records, etc., thus achieving greater efficiency (Williams et al., 2016; Selck and Decker, 2016) especially from an organizational point of view within the healthcare structure. Therefore, the analysis and study of the results obtained in these countries through e-Health have led all the other cascading countries to adopt such information systems benefiting from the time savings and organizational improvements obtained through their implementation (Adler-Milstein et al., 2015; Ford et al., 2013).

With the advent of digitalization in the healthcare sector, two of the world's most important sectors, medicine and technology, are coming together, creating new opportunities regarding the healthcare services provided and medical treatments offered (Kagermann, 2015). Digitalization is therefore becoming fundamental support for the innovation of healthcare processes, improving the cost-benefit ratio, and putting the patient at the heart of digital healthcare (Odone, 2019).

As the healthcare industry has grown in size and complexity, management and organizational theory scholars have devoted increasing attention to analyzing its traits and qualities. Specifically, those interested in innovation have highlighted that due to its size, differentiation, and articulation, healthcare most requires the development and implementation of technological transformations that can simplify operational processes, decrease costs and enhance performance (Naranjo-Gil, 2009; Sheng et al., 2013).

These arguments have been reinforced by the COVID-19 pandemic that has made it clear how the vulnerability of health systems in terms of innovation adoption and implementation might have profound implications for the health of citizens (OECD, 2020). The global pandemic has emphasized the fundamental role of technological innovation, such as telemedicine, video consultations, electronic medical records, and new medical devices that, thanks to the Internet of things (IoT) and artificial intelligence (AI), might raise the efficiency of health systems (Thakur et al., 2011). Several aspects are covered in the literature such as technology adoption, the determinants and barriers that influence or inhibit adoption choices (Berta et al., 2005), the impact that these technologies have on the healthcare organisation (Heinze and Heinze, 2020; Cucciniello and Nasi, 2014) quality of care, performance or costs, or how technologies are adopted. Two years after the start of the pandemic, it is now clear that the virus has accelerated the introduction of innovations in many areas of our lives and society. One of these is undoubtedly the health sector, which has had to manage the containment of the spread of the virus and, at the same time, has tried to continue the normal flow of care and assistance jeopardised by the health crisis.

For decades now, we have been witnessing innovation in the health sector as a direct result of infrastructural and technological advances, evolving research and models of patient care and treatment. In many ways, the crisis has accelerated this evolutionary process, highlighting the need to embrace digital technology in healthcare, not only in the

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management and containment of the virus, but also in the improvement and introduction of new ways of delivering care, treatment and medicines.

Although these issues related to technology adoption are extensively addressed in the management literature, it is only in recent years that management studies have focused on healthcare as the hospital was not previously seen as a business.

Purpose of the paper. The debate concerning the innovation adoption and implementation within the healthcare industry has interested both health-related and generic management journals. Based on these premises, this paper aims to understand the development of innovation studies in the two streams of literature through a bibliometric analysis. Our final intention is to compare and integrate them to provide researchers who wish to contribute to this scientific field with coalescent findings.

Although these issues related to technology adoption are extensively addressed in the management literature, it is only in recent years that management studies have focused on healthcare as the hospital was not previously seen as a business.

With our paper we intend to examine how these issues have been addressed in both the healthcare and management literature, shedding light on how these literatures have evolved.

We believe that although the topics are related to both scientific areas, with several common themes, the two streams of literature have developed in a distinct and separate way.

In short, therefore, health and digital are two areas that in recent years have seen a necessary integration for the sustainability and modernization of the health system and it is in this perspective that we intend to insert ourselves.

Methodology. In order to examine what has been said, in this paper, based on the methodology proposed by Eck and Waltman (2017), we perform paper extraction and bibliographic analyses, through the use of Vosviewer software, of the two literature streams over the last two decades, from 2000 to 2021. In particular, we used VOSviewer, a software tool developed by two researchers from the Centre for Science and Technology of Leuven University, Belgium, for constructing and visualizing bibliometric networks (Van Eck and Waltman, 2010).

This software package allows us, through its algorithm (visualisation of similarities, VOS, algorithm) created by Van Eck and Waltman (2010), to observe the connections between objects. The aim of VOS is to provide a low-dimensional visualisation in which objects are positioned in such a way that the distance between any couple of objects mirrors their similarity as accurately as possible (Van Eck and Waltman, 2010).

Following Van Eck and Waltman (2010), if there are n objects (e.g., co-occurrences and citations), denoted by $1, \dots, n$ and an $n \times n$ similarity matrix S , then the element s_{ij} of S indicates the similarity between objects i and j . Then if there is an $n \times m$ matrix X , where m denotes the number of dimensions of the space being used, containing the coordinates of objects $1, \dots, n$, the vector $(x_{i1}, \dots, x_{im}) \in \mathbb{R}^m$ denotes the i -th row of X and holds the coordinates of object i , the objective function to be minimized in VOS is given by:

$$E(X; S) = \sum_{i < j} s_{ij} \|x_i - x_j\|^2,$$

Where $\|\cdot\|$ represents the Euclidean norm. The minimization of the objective function is executed with the below bond, where the distances $\|x_i - x_j\|$ in the bond are not squared.

$$\sum_{i < j} \|x_i - x_j\| = 1$$

Through this methodology, we manage to identify the main thematic groups of the studied fields (in this case of the adoption of technology in health and management literature), bringing out the type and intensity of the connections existing between them allowing us to analyze, thus, the multiple paths that scholars have taken over time.

On the basis of the results obtained from this analysis, this article aims to highlight the differences found in the two literary areas, hoping that, from now on, scholars will be able to embark on a path that goes more and more towards the integration of the two literatures, rather than to a separate study. This paper contributes to the literature on health by presenting a wide-ranging examination of this increasingly growing field.

Particularly, the study analyzes the characteristics and relationships of all publications to provide a broader perspective on the sector.

We gathered data from Isi Web of Science by entering as author keywords “innovat* OR technolog*” in this way ISI WEB has provided us with a record of 286364 papers; we have set “2000-2021” as the time span, thus obtaining 276582 papers.

Subsequently, we have chosen only management journals dealing with health care: the selection of the journals was based on the classification made by the Chartered Association of business schools (year 2021). We have included the word “Health” under “Journal title” to delimit the search field. On examining the journals that came out of this first search, we decided to include only those belonging to the “PUB SEC” field with at least two stars in rank.

Thus, the journals we have selected are: “HEALTH SERVICES RESEARCH”, “HEALTH AND SOCIAL CARE IN THE COMMUNITY”, “HEALTH POLICY”, “HEALTH CARE MANAGEMENT SCIENCE”, “HEALTH SERVICES RESEARCH”, “HEALTH CARE MANAGEMENT REVIEW” and “JOURNAL OF HEALTH SERVICES RESEARCH AND POLICY”.

The research thus conducted, has produced 269 papers that represent our sample.

Firstly, we constructed, analyzed and visualized the bibliographic network of the sampled papers by using the Vosviewer software. Specifically, we used different techniques (namely, co-citation, bibliographic coupling, and keyword co-occurrence) and noted that most of the manuscripts were concerned with the “adopting innovation” theme.

Secondly, in order to find our final sample, making the analysis more objective through a content analysis, we examined one by one the 269 articles and we decided to use as search criterion the one of the key words: we included in the sample only those papers that contained in the title and/or in the abstract the words “adoption*” or “adopting”, as well as those that dealt with the topic in order to obtain a sample as inclusive and focused as possible.

At the end, out of 269 articles analysed, 86 articles dealt with the topic of innovation adoption within the healthcare sector.

Thirdly, we analyzed the issues related to the adoption of innovation in healthcare within the management literature. In line with the previous two steps, we constructed our sample by using the ISI Web of Science database and entering as keywords “(innovat* OR technolog*) AND (health* OR physician*) AND (adoption)”. Additionally, we used the same period of publication, i.e., 2000 to 2021, and to avoid having repeated papers, we excluded all those included in the previous search. We obtained a final sample of 394 articles to be treated through the co-citation, bibliographic coupling, and keyword co-occurrence analyses.

In this context of bibliometric research methods to define emerging fields, in line with the studies carried out by Liu et al. 2021, it is appropriate and desirable to compare results with those available in other studies. To do so, we performed a comparative analysis of search strategies with three other recent bibliometric studies on the adoption of innovations in healthcare.

A study by Varaboya et al. entitled “The determinants of medical technology adoption in different decisional systems: A systematic literature review” (2017); an analysis carried out by Maria Llunch in 2011, titled “Healthcare professionals’ organisational barriers to health information technologies—A literature review” and a paper published in the “Academy of management Annals” of Mayo A.T. et al. (2021).

In our study, we differ from the first two papers because (I) we analyse the determinants of innovation adoption in two different literatures, healthcare and management (II) we defined the last 20 years as a timespan in order to try to encompass the widest possible literature (a feature that also distinguishes us from the work of Mayo et al., 2021); while we differ from the study carried out by Mayo et al., in that (III) we consider streams of health and management literature (not organisational sciences), while (IV) as far as health care journals are concerned, we based our analysis on the journals in the IBS 2021 ranking, selecting those health journals that had at least 2 stars in the “PUB SEC” section (such as Health services research, Health and social care in the community, Health policy, Health care management science, Health services research, Health care management review and Journal of health services research and policy).

With the aim of deepening the study in more depth, we also carried out descriptive analyses of our two samples, highlighting the temporal evolution of the articles belonging to the two literature streams, the country of origin of the authors, the top journals in which the articles were published and the list of the 10 most influential authors in our health and management literature.

Results. As we have noticed in our analysis, confirming what we had assumed, “health”, however, has not been treated in depth in management studies.

In fact, what emerged from an initial temporal analysis is that, in the healthcare literature, there has always been an interest in technology adoption issues that has remained constant over time, while the management literature has begun to include this issue in its studies, more so, in the last ten years; in the management literature, in fact, we observe an increasing trend over time, starting in 2010, which suggests that these issues will continue to attract more research from management scholars.

We also carried out a geographical analysis of the articles to see where the authors came from in order to delineate their geographical boundaries. As can be imagined, the largest contributions in both the health and management literature come from American authors: in fact, we observe that in the health literature, more than half of the papers in our sample are written by American authors (48 papers), in the management literature almost half (152) articles, lead the field in terms of number. They are followed by the British with 11 publications in the health literature and 50 in the management literature. From the third position onwards we notice differences, in fact the authors who have dealt more with the adoption of technology in health care are the Canadians (9), the Italians (9) and the Germans (8), while in the management literature we find in third place the Chinese (31) followed by the Indians (29) and the Canadians (26). Considering the two samples together, we observe that out of 480 papers, 200 come from American authors, followed by the British (61 papers), underlining the interest in these issues.

Therefore, as far as the origin of the authors is concerned, in the first places we find in both literatures, American and British scholars, but also Canadians. In the health stream, in fourth place we find a component of Italian scholars.

The most important journals in the health literature are Health Management Review, Health Policy, Health Services Research and Health Care Management Science. While in the management literature there are a variety of journals.

In fact, according to our research parameters, we can see that when talking about technology and innovation, it is normal that the first journals are oriented towards a more IT oriented topic, in fact we find the journal “Technological Forecasting and Social Change” and the journal “European Journal of Information Systems”, followed by management oriented journals such as “Management Science” and “Information Management”, and then back to a technology oriented journal such as “Information Systems Research”.

Among the most important articles we found that, articles in the healthcare literature, analyze the impact that innovations have on hospital operations.

While in the managerial literature, the most important papers analyze the acceptance of technology from a managerial point of view, based on theories that are widespread in the literature such as the technology acceptance model (TAM), Diffusion of innovation model (DOI), or the unified theory of acceptance and use of technology (UTAUT) etc...

Our preliminary findings suggest that while management journals are focused mainly on developing generalizable innovation theories, research published in health care journals is primarily focused on solving contextualized problems of health care organizations.

More specifically, the bibliographic analysis reveals that several author keywords appear in both pieces of literature, first of all of course, "innovation" followed by "hospital", "health information technology", "adoption", "diffusion", "electronic health records", confirming the closeness of the themes of technology adoption in the two literatures analysed, but what differentiates them, is the pairing of these keywords. For instance "Decision making" present in cluster 1 in the healthcare literature is linked with "health policy", "health technology", "health technology assessment", "hospital", "priority setting", "regulation" and "uncertainty", while, the same keyword present in cluster 3 of the management literature, is linked with "Absorptive capacity", "covid-19", "innovation adoption", "institutional logics", "perceived usefulness", "social media", "technology acceptance model" and "telemedicine" demonstrating that, although the issues addressed are the same, what changes are the ways in which they are addressed and consequently the literature on which they are based.

Differences also exist among the theoretical roots upon which the two pieces of literature have developed. The co-citation analysis reveals that in the healthcare literature, the most cited papers are Hillestad et al. (2005) and Greenhalgh et al. (2004) which can also be found in the management literature among the most cited papers, another paper written by Kimberly et al., in 1981, and "Diffusion of innovation" (Rogers, 2003) (paper also found in management literature).

In the management literature we find among the most cited papers Davis, 1989, Venkatesh et al., 2003, then we find Fornell and Larcker (1981), Venkatesh and Davis (2000) and "Systematic review: impact of health information technology on quality, efficiency, and costs of medical care" (Chaudhry et al., 2006), also included in the healthcare literature.

So, examining more closely at these two samples, we can see that although most of the papers on which the two literature streams are based are different, there are some papers that are cited by both as:

- "Organizational innovation: The influence of individual, organizational, and contextual factors on hospital adoption of technological and administrative innovations." (Kimberly, John R. Evanisko, Michael J., 1981);
- "Diffusion of innovation" (Rogers);
- "Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations" (Greenhalgh T. et al., 2004);
- "Can electronic medical record systems transform health care? Potential health benefits, savings, and costs" from Hillestad R., Bigelow J., Bower A., Giroso F., Meili R., Scoville R., Taylor R. (2005);

which shows a certain closeness of the themes of the two respective streams of literature, which, however, as we can see from the small number of articles in common makes us realise that the roots are different.

We analyzed the two samples also through the bibliographic coupling.

Similar to co-citation analysis, bibliographic matching is also a measure of similarity that, through the use of citation analysis, establishes a similarity relationship between documents. Two documents are bibliographically paired when they simultaneously cite one or more documents

The rationale behind this analysis is that papers do not need to cite each other, but in order to be related, they need to cite the same paper(s). An advantage of this analysis is that it can also be applied to recently published articles that do not have sufficient citation numbers. This makes the analysis much more reliable.

Thus, what emerged from our analysis is that: while health literature has maintained a constant interest in the innovation adoption theme, management literature has contextualized innovation adoption theme into health settings only in the last ten years;

Both streams of research show strong interest in the same themes with different purposes: management literature is focused mainly on the development of generalizable theories of innovating, while healthcare literature is focused mainly on solving contextualized problems of healthcare organizations;

The managerial literature shows two theoretical roots, namely Rogers' Diffusion of Innovation (DOI), which has the organization as the unit of analysis, and Davis's Technology Acceptance Model (TAM), which has the individual as unit of analysis;

The healthcare literature has adopted the DOI model, as its main theoretical root, thus focusing on the organizational factors that determine or inhibit technology adoption.

Research limitations. Of course, our paper is not without its limitations. Firstly, the two samples are not proportional, this is because, in the health literature sample, we focused only on those papers dealing with the adoption of innovation. Secondly, there are limitations regarding the data source, as we selected papers by searching only the ISI Web of science database (our aim is to widen the search to include other databases such as Scopus, Pubmed and so on). Thirdly, our time span is from 2000 to 2021, excluding papers prior to this date, as we argue that, when it comes to the adoption of innovations, a major contribution has been made since the 2000s.

Managerial implications. *Through this analysis carried out on the different literature streams, we have realised how necessary it is to integrate the two literatures, which until now, apart from few if any efforts, have remained separate, in order to develop a new scientific “branch” that embraces the health and management sectors. With our paper we intend to offer a contribution in line with this idea, hoping that in the future studies will go more and more in this direction in order to provide managers and policy makers with useful ideas to be applied in the health sector.*

Originality of the paper. *The originality of our work can be seen in the attempt to analyse these two distinct streams of literature by trying to integrate them into a single scientific “branch”. Very few papers in the literature have attempted to integrate the managerial and health literature, as we believe that hospitals, not being seen as companies, have not received the attention they deserve from management scholars.*

Kew words: *Technology adoption; innovation; health; management; literature review*

References

- ADLER-MILSTEIN J., EVERSON J., SHOU-YIH D. (2015), “EHR Adoption and Hospital Performance: Time-Related Effects”, *Health Services Research*, vol. 50, n. 6, pp. 1751-1771.
- AHMADI H., NILASHI M., IBRAHIM O. (2015), “Organizational decision to adopt hospital information system: an empirical investigation in the case of Malaysian public hospitals”, *Int. J. Med. Inform.*, vol. 84, n. 3, pp. 166-188.
- BERTA W., TEARE G.F., GILBART E., GINSBURG L.S., LEMIEUX-CHARLES L., DAVIS D., RAPPOLT S. (2005), “The Contingencies of Organizational Learning in Long-Term Care Factors That Affect Innovation Adoption”, *Health Care Management Review*, vol. 30, n. 4, pp. 282-292.
- CHAUDHRY B., WANG J., WU S., MAGLIONE M., MOJICA W., ROTH E., MORTON, S.C., SHEKELLE P.G. (2006), “Systematic review: impact of health information technology on quality, efficiency, and costs of medical care”, *Annals of internal medicine*, n. 16, pp. 742-752.
- CHONG A.Y.L., CHAN F.T. (2012), “Structural equation modeling for multi-stage analysis on radio frequency identification (RFID) diffusion in the healthcare industry”, *Expert Syst. Appl.*, vol. 39, n. 10, pp. 8645-8654.
- CUCCINELLO M., NASI G. (2014), “Evaluation of the impacts of innovation in the health care sector”, *Public Management Review*, vol. 16, n. 1, pp. 90-116.
- CURRY A., SINCLAIR E. (2002), “Assessing the quality of physiotherapy services using SERVQUAL”, *Int. J. Healthc. Qual. Assur.*, vol. 15, n. 5, pp. 197-205.
- DAVIS F.D., BAGOZZI R., WARSHAW P.R. (1989), “User Acceptance of Computer Technology: A Comparison of Two Theoretical Models”, *Management Science*, vol. 35, n. 8, pp. 982.
- FORD E.W., HUERTA T.R., MENACHEMI N., THOMPSON M.A., YU F. (2013), “Health information technology vendor selection strategies and total factor productivity”, *Health Care Management*, vol. 38, n. 3, pp. 177-87. doi: 10.1097/HMR.0b013e3182572c7b.
- GREENHALGH T., ROBERT G., MACFARLANE F., BATE P., KYRIAKIDOU O. (2004), “Diffusion of innovations in service organizations: systematic review and recommendations”, *The Milbank Quarterly*, vol. 82, n. 4, pp. 581-629.
- HEGDE V. (2008), “Reliability in the medical device industry. In: Handbook of Performability Engineering”, *Springer*, pp. 997-1009.
- HEINZE K.L., HEINZE J.E. (2020), “Individual innovation adoption and the role of organizational culture”, *Rev Management Science*. n. 14, pp. 561-586.
- HILLESTAD R., BIGELOW J., BOWER A., GIROSI F. (2005), “Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings, And Costs”, *Health Affairs*. <https://www.researchgate.net/publication/7599567>.
- IVEROTH E., FRYK P., RAPP B. (2013), “Information technology strategy and alignment issues in health care organizations”, *Health Care Management Review*, vol. 38, n. 3, pp. 188-200.
- KAGERMANN H. (2015), “Change Through Digitization-Value Creation in the Age of Industry 4.0”, In: Albach H., Meffert H., Pinkwart A., Reichwald R. (eds) *Management of Permanent Change*. Springer Gabler, Wiesbaden, p.23-45.
- KIMBERLY J.R., EVANISKO M.J. (1981), “Organizational innovation: The influence of individual, organizational, and contextual factors on hospital adoption of technological and administrative innovations”, *Academy of Management Journal*, vol. 24, n. 4, pp. 689-713.
- LIU N., SHAPIRA P., YUE X. (2021), “Tracking developments in artificial intelligence research: constructing and applying a new search strategy”, *Scientometrics*, vol. 126, n. 3.
- LLUCH M. (2011), “Healthcare professionals’ organisational barriers to health information technologies-a literature review”, *Int J Med Inform.* Dec;80, n. 12, pp. 849-62.
- MAYO A.T., MYERS C.G., SUTCLIFFE K.M. (2021), “Organizational Science and Health Care”, *Academy of Management Annals*, vol. 15, n. 2.
- NARANJO GIL D. (2009), “Management information systems and strategic performances: The role of top team composition”, *International Journal of Information Management*, vol. 29, n. 2, pp. 104-110.

- ODONE A., BUTTIGIEG S., RICCIARDI W., AZZOPARDI-MUSCAT N., STAINES A. (2019), "Public health digitalization in Europe: EUPHA vision, action and role in digital public health", *European Journal of Public Health*, vol. 29, Issue Supplement_3, pp. 28-35.
- ROGERS E.M. (1995), *Diffusion of innovations* 4th ed.
- ROGERS E.M. (2003), *Diffusion of innovations* 5h ed.
- SELCK F.W., DECKER S.L. (2016), "Health Information Technology Adoption in the Emergency Department", *Health Service Research*, vol. 51, n. 1, pp. 32-47.
- SHENG S., ZHENG ZHOU K., LESSASSY L. (2013), "NPD speed vs. innovativeness: The contingent impact of institutional and market environments", *Journal of Business Research*, vol. 66, pp. 2355-2362.
- SHERER S.A., MEYERHOEFER C.D., PENG L. (2016), "Applying institutional theory to the adoption of electronic health records in the US", *Information Management*, vol. 53, n. 5, pp. 570-580.
- THAKUR, RAMENDRA & HSU, SONYA H.Y., FONTENOT, GWEN. (2012), "Innovation in healthcare: Issues and future trends", *Journal of Business Research*, vol. 65, n. 4, pp. P. 562-569.
- VAN ECK N.J., WALTMAN L. (2010), "Software survey: VOSviewer, a computer program for bibliometric mapping", *Scientometrics*, vol. 84, n. 2, pp. 523-538.
- VAN ECK N.J., WALTMAN L. (2017), "Citation-based clustering of publications using CitNetExplorer and VOSviewer", *Scientometrics*, vol. 111, n. 2, pp. 1053-1070.
- VENKATESH V., MORRIS M.G., DAVIS G.B., DAVIS F.D. (2003), "User acceptance of information technology: toward a unified view", *MIS Quarterly*, vol. 27, n. 3, pp. 425-478.
- VARABYOVA Y., BLANKART C.R., GREER A.L., SCHREYÖGG J. (2017), "The determinants of medical technology adoption in different decisional systems: A systematic literature review", *Health Policy*, vol. 121, n. 3, pp. 230-242.
- WILLIAMS C., ASI Y., RAFFENAUD A., BAGWELL M., ZEINI I. (2016), "The effect of information technology on hospital performance", *Health Care Management Science*, vol. 19, n. 4, pp. 338-346.
- ZHIVAN N.A., DIANA M.L. (2012), "U.S. hospital efficiency and adoption of health information technology", *Health Care Management Science*, vol. 5, n. 1, pp. 37-47.

Ecosystem logic: from the localization model to the motivated-based one

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Framing of the research. *The present work is aimed to highlight a scientific neglect both in the ecosystem creation motivation and their aims. These elements are, already, contributing to developing an era that could be defined as “neo-mutualism” characterised by heterogeneous profit and no profit actors that, in the relationship between them and engaged by a social motivation, develop and stimulate an ecosystem aimed to answer social, environmental and economic needs.*

This effort aims to contribute to developing the scientific and practice fields on the relations between ecosystem, crowdsourcing processes and collaborative and collective intelligence phenomenon, supporting also the scientific growth of business for-profit model in social commitments and new governance forms.

Therefore, in the past few decades, the literature in the ecosystem motivation building is prevalently focused on the structural elements and on the capacity of a territory to create a system of actors and infrastructures supporting the creation and development of innovative business projects (Alvedalen and Boschma, 2017; Spigel, 2017; Nicotra et al., 2018). In this regard, the most used example is Silicon Valley considered a place from which starting from the silicon raw material (structural element), was developed the modern ICT by means of the biggest players.

The aim of the present work was born from the current consideration about the society that is facing many pressing and wide-ranging local and global health care, and environmental sustainability challenges, including climate change, biodiversity loss, and air and water pollution, to name but a few (Steffen et al., 2018; Tittensor et al., 2014).

These issues are highly complex, frequently not context-dependent and often are not clear its focus, with their genesis and persistence involving multiple overlapping social and economic agents and drivers of change that operate within nested social-ecological systems (Sterner et al., 2019; Chávez-Ávila and Monzón-Campos, 2005). At the same time, there is the need to fight social exclusion and support an independent life, especially for the weakest social groups (Avelino et al., 2019).

Regarding the last point, the cut of the welfare expenses, especially in the previous decades in capitalist countries, is stimulating the heterogeneous agents' involvement to develop processes of social innovation that may help answer the existing and the new social needs COVID-19 pandemic has brought.

Therefore, the search for new solutions or improving existing ones, to manage the social and economic conditions caused by the pandemic crises provides unique opportunities for innovative, a cooperation approach, small businesses, social economy start-ups and NGOs at the local, regional, or national level.

Concerning these needs, the World Economic Forum (WEF) uses its “Great Reset” initiative to support global stakeholders in cooperating to manage the direct consequences of the COVID-19 crisis (see: <https://www.weforum.org/great-reset>), and, at the same time, the European Union has created a stimulus package, the NextGenerationEU, to support research and innovation, and to help digital transitions (see: https://ec.europa.eu/info/strategy/recovery-plan-europe_en).

In this scenario, the relationship between the actors involved in social, economic and environmental issues can be seen as an uncertain, often complex, and always collective endeavour involving both economic and social stakeholders, such as companies, scientists, NGOs, etc. As a collective or collaborative endeavour, all actors involved in these social innovation processes share the responsibilities and are co-responsible (Freeman et al., 2020; Blok et al., 2015).

The Covid-19, considered a critical event, has stimulated the knowledge mobilization from many different places, advancing our learning and fostering our progress against the issue at hand (Chesbrough, 2014; Chesbrough, 2020) in

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an open innovation context characterised by the resource-sharing process (Chesbrough, 2003; West and Gallagher, 2006).

The relationship becomes the source of an innovation and collaborative context, benefiting from engaging stakeholders to know their needs and interests, and helping create a mutual understanding between the innovation actors and favouring win-win solutions (Burchell and Cook, 2006; Greenwood, 2007).

In this stream, 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" machine 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 creating cars and planes. At the same time, in other countries, some universities, like MIT, contributed to launching a competition for the best open-source ventilator design.

In the authors' opinion, the pandemic taught that a social and/or economic ecosystem surfacing does not necessarily need a specific territory to support needs answer proposals. Therefore, these events bring the authors to consider the ecosystem not geographically or structurally driven but motivation-driven, related to a particular social, economic, and environmental need that stimulates, using ICT and AI evolutions, the ecosystem growth with a bottom-up process (Russell and Smorodinskaya, 2018).

Regarding to this ecosystem view, in the oncology stream, some researchers use blockchain platforms to allow millions of patients to upload their data to help Artificial Intelligence-based software fight against cancer.

These evolution forms were considered in the relevant literature, as in *Free Innovation* (2017), in which von Hippel further developed the idea of interacting with "large crowds" by highlighting the open and spontaneous nature of innovation-related activities among heterogeneous stakeholders (Gault, 2018). On the same page, Surowiecki (2004), in the "wisdom of crowds", argues that the agents in interconnection represent the collective intelligence that arises when our imperfect judgments are aggregated.

Regarding the collective term, Leimeister (2010) argued that 'collective' describes a group of heterogeneous individuals or stakeholders, who are not necessarily required to have the same attitudes or viewpoints but work together to find solutions to a given social and economic problem using the ability to learn, to understand and to adapt themselves.

This collective sharing of knowledge aimed to solve communal social and economic problems is increasingly characterising the thousands of individuals' involvement with the ultimate goal of solving or reducing a complex problem felt by numerous individuals.

The Massachusetts Institute of Technology (MIT) provided the following definition: "Collective intelligence is a group of individuals doing things collectively creating a communal intelligence that can be compared to a system genome" (Malone et al., 2010). Therefore, Malone et al. (2010) metaphorically compared the ecosystem component to a gene that, with its specificity, combined with other genes, creates a collective intelligence that represents the "genome" of the social and economic initiative.

In this regard, we can think Wikipedia experience, in which different and anonymous individuals write and edit an article; or another case showed by one of the most famous Italian automotive luxury brands, Lamborghini, that in the pandemic era adapted a part of its production chain to produce sanitary masks designed by young engineers and 3D printer industry entrepreneurs.

In this regard, Jacobides et al. (2018) argue that the ecosystem has not to be considered network synonymous, because in it the end-users can choose the goods and services on offer among those supplied by each inner or external participant and can also, in some cases, choose how to combine them.

Such modularity allows the no-standard production of interdependent system components by different suppliers, with only limited coordination required across the production (or production and consumption) chain.

For example, an end-user of the Linux software can decide which part or version to use and support to improve performance by sharing new developments with other companies, programmers and end-users.

Therefore, organisations within an ecosystem have a significant degree of autonomy in how they design, price, and operate their respective modules, as long as they interconnect with others in agreed and predefined ways (Baldwin, 2008; Kuan and West, 2021).

These kinds of collaborations show crowd members, represented both producers and end-users, working together to create something with dependencies existing between their contributions (Secundo et al., 2021).

At the same time, crowdsourcing allows a company to gain access to skills that are far removed from its core business activities reducing the innovation risks developed according to a stand-alone strategy.

The work object is to present the ecosystem motivation based as a virtual and/or real context fostered by a crowdsourcing process characterised by knowledge and intelligence sharing to answer, new ideas or adapt existing goods or services, to social and economic needs.

Purpose of the paper. Our paper aims to reduce a neglect regarding the ecosystem structural view, by proposing a conceptual framework according to which the ecosystem rises from social and economic needs that will be satisfied by heterogeneous agents (profit, no profit business, public institutions, end-users, etc.) applying models based on collaborative and collective efforts. This trend also shows a business model evolution that balances the social and economic entrepreneurial commitments.

Therefore, the authors argue that the innovation scenario, particularly in a complex moment, is characterised by numerous and heterogeneous social and economic agents, in relations between them, that, share their knowledge by

means of stakeholder engagement, and creating a crowdsourcing virtual or real processes, contribute to answering to social, environmental and economic needs.

Crowdsourcing can therefore be defined as a distributed, collective process aimed at problem-solving and pursuing innovation, in which members of communities, that compose an ecosystem, contribute to spillover knowledge and intelligence in a collaborative and collective way.

Methodology. The present work design is based on the assimilation and combination of evidence in the form of previously developed concepts and theories on the ecosystem, selected, acquired and analysed in the more relevant literature, considering the development and application of this approach in the pandemic era (Hirschheim, 2008).

So, the ecosystem development, and its application and emergent figures, is the focal theory (focus) by the authors argue that the ecosystem concept, in the pandemic era, developed considering the different applications that have been achieved in the last two years.

These studies are aimed to fulfil a conceptual framework to contextualize and match the ecosystem scientific knowledge with the socio-economic changing.

On these bases, the literature, dealing with policies to facilitate competitiveness and innovation-led growth, describes innovation ecosystems through the lens of their crucial function - to provide a smooth and continual exchange of knowledge flows in bringing innovations to answer social, environmental and economic needs. This approach focuses on what stimulates and produces the system rather than on the system's structure (Bergek et al., 2008; Dahlke et al., 2021).

Results. The paper has wanted to focus on the innovation ecosystems building and dynamics, highlighting that it is not necessarily built in a top-down way and by means of the existence of structural elements but, can develop spontaneously from deliberate, collaborative activities of social, economic and institutional agents, based on social and economic motivations.

In this regard, Powell et al. (2013) argued that an ecosystem is indeed a bridge between the social and the economic and that such a result is achieved through processes that were initially less structured. Therefore, it is possible to say that an ecosystem is based on processes of co-creation of activities, shared strategies, responsibilities and goals, and collective intelligence.

These considerations bring the authors to explain different conclusive cues about business and governance model changes.

Regarding the business model matter, the work shows how the traditional business models, influenced by the increasing social and environmental needs, are changing the company life more and more contextualised in planned or spontaneous ecosystems where they satisfy both their social commitment and their needs of know-how and knowledge.

These changes show a company as a "bifacial Giano" involved, on the one hand, to answer, in a recursive way, social needs within a social open innovation context and, on the other hand, to fight in a competitive scenario. These behaviours could belong to the same face or different faces but be functional between them.

This scenario highlights the existence of a trend moving toward an open, not localisable and democratic practice for the production of innovation that allows almost anyone to exploit their creative potential in pursuing new solutions in a collaborative context by means of the contribution of different stakeholders to create value both at individual and at context level.

Let's agree with the old saying, "necessity is the mother of invention". It becomes natural to read the ecosystem theory as methodological support for organisations in creating a steady set of stakeholder engagement practices, providing them tools aimed at facilitating access to external know-how sources, and identifying the actors that can be more effective in delivering new solutions (Porter and Kramer, 2011; von Hippel and Suddendorf, 2018).

Furthermore, the emerging crowdsourcing process trend, brought by Covid-19 and before the hurricane Katrina events, is further affecting business models and strategies and is changing the role and behaviour of end-users/consumers. This new condition, adequately supported by technological innovation, could represent the scenario in which for-profit and non-profit organisations, public institutions, consumers and communities will find solutions to their social, environmental and economic needs.

About the governance model issue in the "crowded" context, Ball (2009) argued that it is a growing modification trend from the hierarchical to heterarchical model. In which, it is replacing bureaucracy and administrative structures and relationships with a system of organisation replete with overlap, multiplicity, mixed ascendancy and/or divergent-but-coexistent patterns of relation.

In this scenario, the governance term modifies its significance from reaching leadership and control (Moore, 1998) to show abilities to conduct the ecosystems to react, adapt and answer to its social and economic environmental needs (Powell and Giannella, 2010; Mäkinen and Dedehayir, 2012).

On this page, the authors argue that the ecosystem governance could be considered as "the amount of decision making and control (or coordination) that ecosystem creator should recognise to the members of the same ecosystem on the basis of their capabilities aimed to reach the mutual objective" (Tiwana et al., 2010; Mäkinen and Dedehayir, 2012, p.5). This condition shows the ecosystem governance in moving from a hierarchical to a heterarchical model.

Research limitations. The work represents a theoretical view of conceptual papers that can strive to advance understanding of a concept or phenomenon in big leaps rather than incremental steps. To be taken seriously, any such leap must be grounded in thorough consideration and justification of an empirical appropriate research design.

Managerial implications. In the term of future research implications, in the authors' opinion, one of the essential considerations that emerge from the ecosystem trend is that will develop different forms of decentralised and

heterarchical governance models, increasingly diffused and dispersed along the innovative chain, and capable of managing social and economic relationships, norms, and trust values, fundamental for the innovative products, mainly when they don't occur in a specific environment.

Furthermore, when the business for profit participates spontaneously in the ecosystem could show social and environmental behaviours without reputational aims. If this trend was correct could empty the CSR planning role and to change the CSR role in the marketing and communication.

Finally, the collaborative, open innovation, context could also change the risk assessment. Therefore, this variable moves to the concepts of interdependence risk, the uncertainties of coordinating with complementary innovators, and integration risk, the uncertainties presented by the adoption process across the value chain.

Originality of the paper. *The work shows itself as a patchwork that focuses on a current matter, tracing the relationships between ecosystem, crowdsourcing and phenomenon as collective and collaborative intelligence, that have scarce attention in the scientific stream but could drive a new "knowledge economy" that we could define "care economy" characterising the "neo mutualism" era (Venturi and Zandonai, 2022).*

Keywords: *Ecosystem; Stakeholder Engagement Theory; Crowdsourcing; Collaborative and Collective Intelligence; Heterarchical Governance*

References

- ALVEDALEN J., BOSCHMA R. (2017), "A critical review of entrepreneurial ecosystems research: Towards a future research agenda", *European planning studies*, vol. 25, n. 6, pp. 887-903.
- AVELINO F., WITTMAYER J.M., PEL B., WEAVER P., DUMITRU A., HAXELTINE A., O'RIORDAN T. (2019), "Transformative social innovation and (dis) empowerment", *Technological Forecasting and Social Change*, n. 145, pp. 195-206.
- BALDWIN C.Y. (2008), "Where do transactions come from? Modularity, transactions, and the boundaries of firms", *Industrial and corporate change*, vol. 17, n. 1, pp. 155-195.
- BALL S. (2009), "The governance turn!", *Journal of Education Policy*, vol. 24, n. 5, September, pp. 537-538.
- BERGEK A., JACOBSSON S., CARLSSON B., LINDMARK S., RICKNE A. (2008), "Analysing the functional dynamics of technological innovation systems: A scheme of analysis", *Research policy*, vol. 37, n. 3, pp. 407-429.
- BLOK V., LEMMENS P. (2015), "The emerging concept of responsible innovation. Three reasons why it is questionable and calls for a radical transformation of the concept of innovation", In *Responsible innovation 2* (pp. 19-35). Springer, Cham.
- BURCHELL J., COOK J. (2006), "It's good to talk? Examining attitudes towards corporate social responsibility dialogue and engagement processes", *Business Ethics: A European Review*, vol. 15, n. 2, pp. 154-170.
- CHÁVEZ-ÁVILA R., MONZÓN-CAMPOS J.L. (2005), "The social economy in the European Union", *CIRIEC No. CESE/COMM/05/2005-EESC*.
- CHESBROUGH H. (2020), "To recover faster from Covid-19, open up: Managerial implications from an open innovation perspective", *Industrial Marketing Management*, vol. 88, pp. 410-413.
- CHESBROUGH H. W. (2003), *Open innovation: The new imperative for creating and profiting from technology*, Harvard Business Press.
- CHESBROUGH H., DI MININ A. (2014), "Open social innovation", *New frontiers in open innovation*, vol. 16, pp. 301-315.
- DAHLKE J., BOGNER K., BECKER M., SCHLAILE M.P., PYKA A., EBERSBERGER B. (2021), "Crisis-driven innovation and fundamental human needs: A typological framework of rapid-response COVID-19 innovations", *Technological Forecasting and Social Change*, n. 169, pp.1-23.
- FREEMAN R.E., PHILLIPS R., SISODIA R. (2020), "Tensions in stakeholder theory", *Business & Society*, vol. 59, n. 2, pp. 213-231.
- GREENWOOD M. (2007), "Stakeholder engagement: Beyond the myth of corporate responsibility", *Journal of Business ethics*, vol. 74n. 4, pp. 315-327.
- HIRSCHHEIM R. (2008), "Some guidelines for the critical reviewing of conceptual papers", *Journal of the Association for Information Systems*, vol. 9, n. 8, pp. 21-35.
- JACOBIDES M.G., CENNAMO C., GAWER A. (2018), "Towards a theory of ecosystems", *Strategic management journal*, vol. 39, n. 8, pp. 2255-2276.
- KUAN J., WEST J. (2021), "Interfaces, Modularity and Ecosystem Emergence: How DARPA Modularized the Semiconductor Ecosystem", In *Academy of Management Proceedings*, vol. 2021, n.1, p. 13900). Briarcliff Manor, NY 10510: Academy of Management.
- LEIMEISTER J.M. (2010), "Collective intelligence", *Business & Information Systems Engineering*, vol. 2, n. 4, pp. 245-248.
- MÄKINEN S.J., DEDEHAYIR O. (2012, June), "Business ecosystem evolution and strategic considerations: A literature review", *18th International ICE Conference on Engineering, Technology and Innovation*, pp. 1-10, IEEE.

- MALONE T.W., LAUBACHER R., DELLAROCAS C. (2010), “The collective intelligence genome”, *MIT Sloan management review*, vol. 51, n. 3, pp. 21-32.
- NICOTRA M., ROMANO M., DEL GIUDICE M., SCHILLACI C.E. (2018), “The causal relation between entrepreneurial ecosystem and productive entrepreneurship: A measurement framework”, *The Journal of Technology Transfer*, vol. 43, n. 3, pp. 640-673.
- PORTER M., KRAMER M.R. (2011), “Creare valore condiviso”, *Harvard Business Review Italia*, vol. 1, n. 2, pp. 68-84.
- POWELL J.J., FINGER C. (2013), “The Bologna Process's Model of Mobility in Europe: the relationship of its spatial and social dimensions”, *European Educational Research Journal*, vol. 12, n. 2, pp. 270-285.
- POWELL W.W., GIANNELLA E. (2010), “Collective invention and inventor networks”, In *Handbook of the Economics of Innovation*, vol. 1, pp. 575-605, North-Holland.
- RUSSELL M.G., SMORODINSKAYA N.V. (2018), “Leveraging complexity for ecosystemic innovation”, *Technological Forecasting and Social Change*, vol. 136, pp. 114-131.
- SECUNDO G., SHAMS S.R., NUCCI F. (2021), “Digital technologies and collective intelligence for healthcare ecosystem: Optimizing Internet of Things adoption for pandemic management”, *Journal of Business Research*, vol. 131, pp. 563-572.
- SPIGEL B. (2017), “The relational organisation of entrepreneurial ecosystems”, *Entrepreneurship theory and practice*, vol. 41, n. 1, pp. 49-72.
- STEFFEN W., ROCKSTRÖM J., RICHARDSON K., LENTON T.M., FOLKE C., LIVERMAN D., SCHELLNHUBER H.J. (2018), “Trajectories of the Earth System in the Anthropocene”, *Proceedings of the National Academy of Sciences*, vol. 115, n. 33, pp. 8252-8259.
- STERNER T., BARBIER E.B., BATEMAN I., VAN DEN BIJGAART I., CRÉPIN A.S., EDENHOFER O., ROBINSON A. (2019), “Policy design for the Anthropocene”, *Nature Sustainability*, vol. 2, n. 1, pp. 14-21.
- SUROWIECKI J. (2004), “The wisdom of crowds: Why the many are smarter than the few and how collective wisdom shapes business” *Economies, Societies and Nations*, vol. 296, n. 5, pp.32-51.
- TITTENSOR D.P., WALPOLE M., HILL S.L., BOYCE D.G., BRITTEN G.L., BURGESS N.D., YE Y. (2014), “A mid-term analysis of progress toward international biodiversity targets”, *Science*, vol. 346, n. 6206, pp. 241-244.
- TIWANA A., KONSZYNSKI B., BUSH A.A. (2010), “Research commentary-Platform evolution: Coevolution of platform architecture, governance, and environmental dynamics”, *Information systems research*, vol. 21, n. 4, pp. 675-687.
- VON HIPPEL E. (2017), “Free Innovation by Consumers-How Producers Can Benefit: Consumers’ free innovations represent a potentially valuable resource for industrial innovators”, *Research-Technology Management*, vol.60, n.1, pp. 39-42.
- VON HIPPEL, W., SUDDENDORF T. (2018), “Did humans evolve to innovate with a social rather than technical orientation?”, *New Ideas in Psychology*, n. 51, pp. 34-39.
- VENTURI P., ZANDONAI F. (2022) “Neomutualismo. Ridisegnare dal basso competitività e welfare”, Egea, Milano.
- WEST J., GALLAGHER S. (2006), “Challenges of open innovation: the paradox of firm investment in open-source software”, *R&d Management*, vol. 36, n. 3, pp. 319-331.

Websites

<https://www.weforum.org/great-reset>

https://ec.europa.eu/info/strategy/recovery-plan-europe_en

Gender diversity and corporate social engagement: Does critical mass matter?

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Framing of the research. *In recent years, gender parity has become a relevant and debated topic among academics and practitioners, as well as a global goal for ensuring the development of a sustainable future. In this regard, the United Nations (2017) promote the 5th Sustainable Development Goal - Gender Equality - in order to create a common vision among nations regarding women's inclusion rights and to reduce the gender gap. Recently, the COVID-19 pandemic has triggered an economic and social crisis that has amplified pre-existing gender gaps between men and women in all spheres (WEF, 2021). Indeed, the World Economic Forum (2021) estimated that due to the Covid-19 pandemic, the timing to fill the global gender gap has increased from 99.5 to 135.6 years (Global Gender Gap Report - GGGR, 2021).*

Shore et al. (2009) consider gender diversity as one of the six main dimensions identified by the earlier literature on diversity in organizations, among age, race, sexual orientation, disability, and culture. The economic disparity between men and women remains one of the main reasons to be addressed to mitigate the gender gap. This is reflected in the scant number of women currently in top positions (EWOB, 2020; WEF, 2021). At the same time, Corporate Social Responsibility (CSR)¹ scholars are gradually demonstrating the relevance of female representation to achieve better Corporate Social Performance (CSP) (Graafland, 2020; Orazalin and Baydauletov, 2020; Yasser et al., 2017; Landry et al., 2016; Post et al., 2011). From this perspective, since women have been found to be more stakeholder-oriented, acting more proactively than men in the promotion of socially-friendly practices (Matsa and Miller, 2013; Mungai et al., 2020), female presence on boards may represent a Corporate Governance (CG) driver of Corporate Social Performance (CSP) (Nadeem et al., 2017).

Moreover, currently, banks, that the object of our analysis, represent essential vehicle for their own social responsibility and the socially responsible initiatives of the financed companies. The choice to focus on banks has several reasons. First, banks are determinants of economic and social development (Schumpeter, 1934). Second, banks might influence the borrowers in terms of CSR sensitivity. Third, banks and financial institutions are showing a greater interest in social responsibility and its impact. For instance, the European Banking Authority (2021) identifies the social risk connected to landing procedures as “the risks of any negative financial impact on the institution stemming from the current or prospective impacts of social factors on its counterparties or invested assets...Social matters that may have a positive or negative impact on the financial performance or solvency of an entity, sovereign or individual.” Accordingly, the search for governance drivers of better CSP is welcome in order to fill the gap on the interactions among CSR pillars. At the same time, a socially responsible engagement means a greater involvement of women at high hierarchical levels. Indeed, this is an opportunity to develop a synergistic relationship, due to the greater female sensitivity towards social issues and the banks’ pivotal role for the community. From this perspective, a growing female presence on bank boards may push the adoption of corporate social activities, while filling the gender gap.

Thus, drawing on the critical mass theory (Kanter, 1977), the paper responds to the need for deeper empirical investigation on the relationship between a critical mass of women on boards and banks’ social engagement, in terms of both internal and external CSR performance (Gangi et al., 2019).

Based on a sample of 129 worldwide banks over the 2009-2020 study period, we employ a fixed-effect regression analysis. As a whole, findings indicate a positive impact of critical mass on the level of banks’ social performance. Furthermore, by disentangling the social pillar in its sub-dimensions, empirical evidences reveal that higher female participation within boards reach significant level of internal and external CSR, that is. toward internal (i.e. employees) and external (i.e., community) stakeholders. Finally, the current study advances the literature on the gender diversity on

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¹ Similar to Renneboog et al. (2008, p. 1723), we define CSRs as “corporate decisions fostering social, corporate governance, ethical and environmental issues.

board and the social engagement while providing additional indications for banks to strengthen their social engagement practices.

Purpose of the paper. *Following the Gendered Social Responsibility approach (GSR; Larrieta-Rubín de Celis et al., 2015; Velasco et al., 2014), the achievement of gender equality is part of the CSR practices. Consistent with earlier literature, CSR represents a relevant tool for reducing gender inequalities through the promotion of the female empowerment within and outside organizations (Graafland, 2020; Landry et al., 2016; Orazalin and Baydauletov, 2020; Post et al., 2011; Yasser et al., 2017; Larrieta-Rubín de Celis et al., 2015; Velasco et al., 2014).*

At the same time, financial intermediaries represent strategic driver for the sustainable growth in terms of social engagement. Specifically, coherently with the concept of Socially Responsible Banking (Scholtens, 2009), banks play a crucial role in accelerating the necessary global transition to sustainable and socially inclusive economies (UNEP FI, 2021). Indeed, banks can promote economic and social development by channeling financial resources to businesses proactively engaged in social responsibility (Gangi et al., 2021). Furthermore, greater involvement of banks in socially-friendly initiatives should both benefit the bank itself and promote the adoption of sustainable practices by potential borrowers, thus exerting a positive impact on sustainable growth as a whole (Dorasamy, 2013; Forcadell and Aracis, 2017). From this perspective, prior studies highlighted the relevance of women in the promotion of socially friendly initiatives. Specifically, Galletta et al., (2021) provide evidence that gender diversity (GD) in top management position may foster value creation and CSP of banks. Similarly, Birindelli et al. (2019) found that by including women to top positions, banks could provide motivation for their entire pool of female employees and strengthen the process of sustainable development in line with the SDGs framework.

In this context, Corporate Governance (CG) plays a key role since the issue of social commitment represents an important CSR topic that is significantly influenced by corporate leadership positions (Rao and Tilt, 2016; Naciti, 2019). Particularly, GD represents one of the main CG driver for socially responsible initiatives (Galletta et al., 2021). This occurs since gender differences exist in approaching corporate social issues. In accordance with the social role theory (Eagly, 1987), women and men may behave in line with their gender stereotype (i.e. female and male), thus women show higher sensitivity toward moral and ethical issues than men, by demonstrating more concern to corporate social and ethical responsibilities (Graafland, 2020; Landry et al., 2016; Orazalin and Baydauletov, 2020; Post et al., 2011; Yasser et al., 2017). Thus, at board level, this aspect can be reflected in group interaction since the women presence may increase group sensitivity towards socially friendly initiatives (Galletta et al., 2021; Gallego-sosa et al., 2020).

The critical mass theory (Kanter, 1977) provides a way to interpret the women behaviours in group dynamics and processes. Based on the assumption that women represent the minority, the theory predicts that when the size of the minority group reaches a certain threshold, the influence of the minorities increases. This suggest that if minorities of women are consistent (critical mass), they can bring new perspectives, experience and skills to the group that, in turn, may significantly impact on group culture, interactions and performance. Focusing on the board dynamics, when women constitute a cohesive and consistent minority, they can exert a social influence (Moscovici and Lage, 1976), thus encouraging the adoption of socially friendly behaviour (Eagly, 1987).

At board level, prior studies (e.g., Kramer et al., 2006; Konrad et al., 2008) posit that the critical mass of women is reached when the board includes “at least three women”. Indeed, when women's representation on boards reaches a critical mass, gender ceases to be a barrier to acceptance and communication. Joecks et al. (2013) identified a critical mass threshold of 30 % women on the board so that the mixture of board gender can be balanced and, in turn, induce successful discussions that may help to overcome gender bias that may impact group functioning (Shneid et al., 2015; van Dick et al., 2008).

Drawing on the stakeholder theory (Freeman, 1989), some authors argue that women are more stakeholder-oriented than men (Matsa and Miller, 2013; Mungai et al., 2020). More specifically, they may be more inclined to satisfy the goals of stakeholders' community (Brammer et al., 2007; Nadeem et al., 2020). Coherently, prior studies, evidence that the female presence in top management positions lead to higher level of CSR commitment and social engagement (Larrieta-Rubín de Celis et al., 2015; Galletta et al., 2021). In this regard, based on the stakeholder categories, Gangi et al., (2019) distinguish between internal and external CSR policies by disentangling the different dimensions of CSR and adopting a multilevel analytical approach. The internal CSR refers to employees' relations since it reflects an organization commitment in managing the people who are employed (Kim et al., 2010; Esteban-Sanchez et al., 2017). Conversely, external CSR relies to the relations with the external stakeholders, such as community, customers and human rights (Tang et al., 2012). By focusing on the European banking industry, from a knowledge-based perspective, Gangi et al. (2019) show that accrued internal CSR knowledge plays a key role in implementing effective CSR programs for external stakeholders (i.e. external CSR) that, in turn, predict better banks' financial performance. This suggest that banks can pursue financial and knowledge-based benefits by engaging both internal and external socially responsible practices. A result consistent with the conflict resolution hypothesis postulated by Jo and Harjoto (2012) at corporate governance level.

Accordingly, the current study aims to verify whether a critical mass of women in banks' board may imply higher social commitment in these organizations, both toward internal and external stakeholders. Indeed, given the female sensitiveness toward social engagement practices (Eagly, 1987), women may be determinant for promoting effective workforce policies (i.e. internal CSR), good corporate citizenship initiatives, the respect of human rights conventions and higher product responsibility (i.e. external CSR).

Moreover, since CSR is a multidimensional concept (Melo and Garrido-Morgado, 2012), we further investigate the link between GD in banks' board, by disentangling CSR construct in its single pillars, since the relationship between GD and the social pillar remains still less investigated in the banking industry. Thus, the current study aims to fill the aforementioned gaps by employing the theoretical framework of critical mass theory and by investigating different nuances of social engagement. More specifically, the purpose of the paper is to investigate whether and to what extent to a critical mass of women on board may lead to higher social performance, in terms of human rights respect, community relations, product responsibility and workforce effectiveness.

Hence, the current study aims to answer to the following research questions:

RQ1: Does a critical mass of women on banks' board predict higher social engagement?

RQ1a: Does a critical mass of women on banks' board predict higher internal CSR?

RQ1b: Does a critical mass of women on banks' board predict higher external CSR?

Methodology. To test the prediction that a critical mass of women in boards is a valuable resource for increasing levels of social engagement in banks, we start by collecting data on social engagement from Refinitiv Asset4, which has been widely used in previous CSR studies (Cheng et al., 2014; El Ghoul et al., 2017). To identify the sample, we matched the list of 147 worldwide banks with the Worldscope database for financial indicators and the Asset4 database for the social engagement and board characteristics measures. Consistent with the aim of the study, the analysis excluded banks for which the social score and financial information during the entire study period (2009-2020) were missing. Following these exclusion criteria, our final sample consists of 129 banks from 21 countries, for a total of more than 1,200 bank-year observations.

To answer to RQ1, as proxy of banks' social engagement, we adopt the social pillar score provided by Asset4 (SOC) as dependent variable. In addition to the social pillar score, we also adopt four different social sub-pillars to investigate whether the achievement of a critical mass of women on board impacts the socially-friendly practices of banks. In particular, coherently with the framework of internal CSR (RQ1a), we employ the workforce score (WF) to measure company's commitment towards job satisfaction, healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce. As proxy of external CSR (RQ1b), we first adopt the community score (COMM) that reflects good citizen performance, public health protection and business ethics' respect. Second, human rights (HRights) score is used to capture the effectiveness in respecting the fundamental human rights conventions. Finally, we adopt product responsibility score (PResp) that reflects a company's capacity to produce quality goods and services in terms of customer's health and safety, integrity and data privacy.

As independent variable, consistent with our theoretical framework (Kanter, 1977), we adopt the critical mass of women on the board (CritMass). In line with Joecks et al. (2013), this variable is set to 1 if the percentage of women on the board is higher than 30% and 0 otherwise.

As controls, we adopt other CG mechanisms such as the percentage of board independent directors (Bindep); the total number of directors on the board (Bsize). Additionally, we adopt banks size through the logarithmic transformation of total assets (logTA); the ratio between total debt and total equity (Leverage); the incidence of loan loss reserve to gross loans (Coverage); the loan-to-deposit ratio (LoanDep); the ratio between total expenditures and total assets (Capex). Finally, we consider the time effect (Year) with twelve (n-1) dummy variables and the gross domestic product per capita (GDPper) based on current price/population.

Consistent with the purpose of the study, we estimate whether a critical mass of women on board enhances the social performance of banks (RQ1; RQ1a; RQ1b) by performing a Fixed-Effect (FE) regression analysis. The Hausman test confirm that FE is more appropriate for our empirical analysis, since the p-values of the tests performed are lower than .05 (Baltagi, 2008). Specifically, the regression equation is formalized as follows:

$$SOC_{i,t} = \alpha + \beta CritMass_{i,t-1} + \psi X_{i,t-1} + \varepsilon_i \quad (1)$$

where SOC represents the social engagement of bank i at time t; CritMass is the critical mass of women of bank board i at time t-1; X is a vector of control variables, ε is the random error term. We estimate the Equation (1) four times, due to the adoption four different measures of social engagement (WF, COMM, HRights, PResp).

Results. Table 1 provides the sample descriptive statistics, and Table 2 displays the correlation and variance inflation factor (VIF) analysis. The study estimates are not biased by multicollinearity since all the variables have correlation coefficients below the conventional level of 0.70 (Ratner, 2009) and present average VIFs (1.40) far from the threshold of 10 (McDonald and Moffitt, 1980).

Table 3 reports the estimates of the FE regression analysis regarding the relationship between critical mass on board and banks social pillar and sub-pillars at a confidence level ranging from 1% to 10%. Accordingly, Models 1-2 present the overall social pillar score (SOC), while Models 3 to 10 use the social subpillar score (WF, COMM, PResp, HRights) as dependent variables. For robustness, we present the results with and without year fixed effects.

In the FE regression analysis, Models 1-2 indicate that critical mass positively affect the social performance of banks at a significance level of 5% or less. These findings confirm the first research question (RQ1) by indicating that the critical mass of women on banks' board may increase the level of social engagement.

With reference to the internal CSR, the results show that the critical mass of women on board positively influences banks' social engagement policies towards employees (Model 4) by confirming RQ1a. Regarding external CSR, Models 4-6-8-10 display that the achievement of critical mass on board is a positive driver of community relations (COMM), human rights (HRights) and product responsibility (PResp) dimensions. Hence, these results support RQ1b. As a whole,

by reaching the threshold of critical mass on board, banks reveal more socially engaged towards policies addressed to both external and internal stakeholders.

Regarding the control variables, CritMass negatively and significantly affects the banks' level of indebtedness (Model 1-2; 4-10), whereas it positively affects the logarithm of total assets (Models 1-4 and 6-10). Focusing on board characteristics, the SOC dimension and its subpillar are positively and significantly affected by the number of independent directors except for product responsibility score. Moreover, the level of capital expenditure (Capex) is positively impacted by producing goods and services in line with the social needs of customers (PResp) even controlling for the year fixed effect (significance level of 5%).

Research limitations. The current study presents some limitations. First, to proxy GD we referred to the critical mass conceptualization. Accordingly, to further strength results obtained, other GD measures might be used to check the robustness of the results obtained. Second, despite the study controls for several firm-specific and country-based characteristics, other contextual factors at country level can be considered (i.e., cultural features) Finally, social engagement of banks (both internal and external) is measured by gathering information provided by Asset4. Despite this source is largely adopted by academics and practitioners, future advancements can also consider additional measure of corporate social responsibility performance.

Managerial implications. The current study provides several insights advancing existing knowledge on gender diversity topic in top management teams. Our results show that GD on board is a significant driver of higher social performance of banks. In light of the increasing relevance of financial institutions towards sustainability issues, the current study encourages banks to increase female representation within corporate boards that leads to better internal and external CSR performance. Specifically, greater gender balance can help banks to better address workforce orientation toward sustainability, as well as strengthen product responsibility toward customers, and relationships with external communities. Moreover, by implementing socially engaged practices, banks may improve their image and strengthen the trust relationships with internal and external stakeholders Finally, a greater presence of women within the board may improve a "spillover effect" in terms of incentives for firms to invest in socially responsible initiatives, thus innovating the firm-bank relationship.

Originality of the paper. The current study presents different elements of originality. First, we expand the open debate on the link between female presence on board and CSR engagement in financial institutions, by focusing on a less investigated CSR dimension in banks, i.e. the social responsibility. Second, in order to assess the link between female presence within the board and banks' social performance, we further distinguish between internal and external CSR activities. Finally, an additional element of originality is related to the approach adopted toward the social pillar, since we consider both the overall social performance of banks, as well as specific sub-pillars reflecting the social stances expressed by different types of both internal and external stakeholders.

Keywords: gender diversity, critical mass, financial institution, internal and external CSR, social responsibility

Tab. 1: Descriptive statistics

Variables	Obs	Mean	Median	SD
SOC	1499	51.21	50.88	25.33
HR	1499	26.25	0.00	34.61
COMM	1499	59.76	66.98	30.88
PResp	1499	45.87	44.83	31.96
WF	1515	60.83	67.27	29.54
CritMass	1500	0.24	0.00	0.43
Bsize	1514	13.36	13.00	4.02
Bindep	1479	62.11	69.57	27.87
Leverage	1576	62.47	66.91	20.78
logTA	1578	8.66	8.53	1.12
Coverage	1440	187.87	157.80	180.92
LoanDep	1556	106.44	94.72	56.76
Capex	1568	1.43	300,265.0	6.47
GDPper	1563	47,221.09	47,099.98	13,250.22

Tab. 2: Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	VIF
CritMass	1.00									1.16
Bsize	0.01	1.00								1.70
Bindep	0.21	-0.17	1.00							1.16
Leverage	0.22	0.13	0.06	1.00						1.73
logTA	-0.07	0.08	-0.38	0.13	1.00					1.46
Coverage	0.13	-0.07	-0.09	0.11	-0.01	1.00				1.06
LoanDep	0.09	-0.03	-0.00	0.44	-0.09	0.08	1.00			1.35
Capex	-0.11	0.04	-0.04	0.10	0.51	-0.05	-0.03	1.00		1.37
GDPper	0.04	-0.33	0.45	-0.17	-0.37	-0.01	-0.11	-0.23	1.00	1.57

Tab. 3: FE regression analysis. This table presents the results of the fixed effect estimations including critical mass (CritMass) as the independent variable. *, ** and *** indicate statistical significance at the 10, 5 and 1% levels respectively.

Variables	(1) SOC (t)	(2) SOC (t)	(3) WF (t)	(4) WF (t)	(5) COMM (t)	(6) COMM (t)	(7) PResp (t)	(8) PResp (t)	(9) HRights (t)	(10) HRights (t)
CritMass (t-1)	1.94** (2.48)	5.20*** (6.38)	0.29 (0.26)	3.25** (3.01)	2.03* (1.67)	10.27*** (6.72)	1.99 (1.24)	6.73*** (4.20)	5.47*** (3.53)	10.27*** (6.72)
Bsize (t-1)	0.10 (0.95)	-0.04 (-0.30)	0.05 (0.32)	-0.08 (-0.47)	0.09 (0.53)	0.39* (1.72)	-0.27 (-1.18)	-0.48** (-2.06)	0.59** (2.70)	0.39* (1.72)
Bindep (t-1)	0.08** (2.88)	0.17*** (6.09)	0.13** (3.40)	0.22*** (5.62)	0.12** (2.79)	0.24*** (4.46)	-0.08 (-1.44)	0.06 (0.99)	0.09 (1.59)	0.24*** (4.46)
Leverage (t-1)	-0.13*** (-4.70)	-0.18*** (-6.16)	-0.04 (-1.19)	-0.10** (-2.51)	-1.17*** (-3.99)	-0.30*** (-5.37)	-0.14** (-2.58)	-0.25*** (-4.38)	-0.24*** (-4.49)	-0.29*** (-5.37)
logTA (t-1)	13.42*** (4.03)	37.61*** (12.20)	12.75** (0.23)	36.35*** (8.90)	4.62 (0.90)	51.98*** (9.01)	19.62** (2.88)	57.62*** (9.52)	19.95** (3.03)	51.98*** (9.01)
Coverage (t-1)	-0.00* (-1.83)	-0.00 (-0.25)	-0.00 (-0.99)	0.00 (0.11)	-0.00 (-1.22)	0.00 (0.38)	-0.01** (-2.04)	-0.00 (-0.56)	-0.00 (-0.24)	0.00 (0.38)
LoanDep (t-1)	0.01 (0.66)	0.00 (0.44)	0.02 (1.33)	0.01 (1.17)	-0.05*** (-3.69)	0.03 (1.55)	0.03* (1.78)	0.03 (1.36)	0.03* (1.68)	0.03 (1.55)
Capex (t-1)	1.25 (1.41)	2.42** (2.49)	1.78 (1.45)	2.98** (2.28)	-2.02 (-0.15)	1.21 (0.66)	3.74** (2.07)	5.43** (2.85)	-1.47 (-0.08)	1.21 (0.66)
GDPper (t-1)	0.00*** (3.83)	0.00*** (3.54)	0.00*** (4.10)	0.00** (3.25)	-0.00 (-0.54)	0.00* (1.74)	0.00*** (5.22)	0.00*** (4.60)	2.36 (0.02)	0.00* (1.74)
Year _cons	YES -66.21** (-2.34)	NO -281.35*** (-11.11)	YES -64.11 (-1.64)	NO -271.12 (-8.10)	YES 30.97 (0.71)	NO -435.22*** (-9.19)	YES -127.58** (-2.20)	NO -456.17 (-9.18)	YES -137.17** (-2.45)	NO -435.22 (-9.19)
No. of Obs.	1231	1231	1244	1244	1231	1231	1231	1231	1231	1231
R-squared	0.41	0.28	0.27	0.17	0.10	0.19	0.28	0.18	0.27	0.19

References

- BALTAGI, B. (2008), *Econometric analysis of panel data*, West Sussex, UK: John Wiley & Sons.
- BIRINDELLI G., IANNUZZI A.P., SAVIOLI M. (2019), "The impact of women leaders on environmental performance: Evidence on gender diversity in banks", *Corporate Social Responsibility and Environmental Management*, vol. 26, n. 6, pp. 1485-1499.
- BRAMMER S., MILLINGTON A., RAYTON B. (2007), "The contribution of corporate social responsibility to organizational commitment", *The International Journal of Human Resource Management*, vol. 18, n. 10, pp. 1701-1719.
- CHENG B., IOANNOU I., SERAFEIM G. (2014), "Corporate social responsibility and access to finance", *Strategic Management Journal*, vol. 35, n. 1, pp. 1-23.
- DORASAMY N. (2013), "Corporate Social Responsibility and Ethical Banking for Developing Economies", *Journal of Economics and Behavioral Studies*, pp. 777-785.
- EAGLY A. (1987), *Sex differences in social behaviour: A social role interpretation*, Hillsdale, NJ: Erlbaum.
- EL GHOUL S., GUEDHAMI O., KIM Y. (2017), "Country-level institutions, firm value, and the role of corporate social responsibility initiatives", *Journal of International Business Studies*, vol. 48, n. 3, pp. 360-385.
- ESTEBAN-SANCHEZ P., DE LA CUESTA-GONZALEZ M., PAREDES-GAZQUEZ J.D (2017), "Corporate social performance and its relation with corporate financial performance: International evidence in the banking industry", *Journal of cleaner production*, vol. 162, pp. 1102-1110.
- EUROPEAN BANKING AUTHORITY (2021), *EBA report on management and supervision of ESG risks for credit institutions and investment firms*.
- EWOB (2020), *European Women on Boards Gender Diversity Index 2020*.
- FORCADELL F.J., ARACIL E. (2017), "European banks' reputation for corporate social responsibility", *Corporate Social Responsibility and Environmental Management*, vol. 24, n. 1, pp. 1-14.
- FREEMAN I.L. (1984), *Strategic management: A stakeholder approach*, Boston, MA: Pitman.
- GALLETTA S., MAZZÙ S., NACITI V., VERMIGLIO C. (2021), "Gender diversity and sustainability performance in the banking industry", *Corporate Social Responsibility and Environmental Management*, pp. 1-14.
- GALLEGO-SOSA C., FERNÁNDEZ-TORRES Y., GUTIÉRREZ-FERNÁNDEZ M. (2020), "Does Gender Diversity Affect the Environmental Performance of Banks?", *Sustainability*, vol. 12, n. 23, pp. 10172.
- GANGI F., MUSTILLI M., VARRONE N. (2019), "The impact of corporate social responsibility (CSR) knowledge on corporate financial performance: evidence from the European banking industry", *Journal of Knowledge Management*, vol. 23, n. 1, pp. 110-134.
- GANGI F., VARRONE N., DANIELE L.M. (2021), *Socially Responsible Banking: Towards a New Firm-Bank Relationship*, In *The Evolution of Sustainable Investments and Finance*. Palgrave Macmillan, Cham, pp. 101-154.

- GRAAFLAND J. (2020), "Women in management and sustainable development of SMEs: Do relational environmental management instruments matter?", *Corporate Social Responsibility and Environmental Management*, vol. 27, pp. 2320-2328.
- JOECKS J., PULL K., VETTER K. (2013), "Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass?"", *Journal of Business Ethics*, vol. 118, pp. 61-72.
- JONES R.J., REILLY T.M., COX M.Z., COLE B.M. (2017), "Gender makes a difference: Investigating consumer purchasing behavior and attitudes toward corporate social responsibility policies", *Corporate Social Responsibility and Environmental Management*, vol. 24, n. 2, pp. 133-144.
- KANTER R. (1977). *Men and women of the organization*, New York, NY: Basic Books.
- KIM H.R., LEE M., LEE H.T., KIM N.M. (2010), "Corporate social responsibility and employee-company identification", *Journal of Business Ethics*, vol. 95, n. 4, pp. 557-569.
- KONRAD A.M., KRAMER V., ERKUT S. (2008), "Critical mass: The impact of three or more women on corporate boards", *Organizational Dynamics*, vol. 37, n. 2, pp. 145-164.
- KRAMER V.W., KONRAD A.M., ERKUT S., HOOPER M.J. (2006), *Critical mass on corporate boards: Why three or more women enhance governance*, Wellesley, MA: Wellesley Centers for Women.
- LANDRY E.E., BERNARDI R.A., BOSCO S.M. (2016), "Recognition for sustained corporate social responsibility: Female directors make a difference", *Corporate Social Responsibility and Environmental Management*, vol. 23, n. 1, pp. 27-36.
- LARRIETA-RUBÍN DE CELIS I., VELASCO-BALMASEDA E., FERNÁNDEZ DE BOBADILLA S., ALONSO-ALMEIDA M.D.M., INTXAURBURU-CLEMENTE G. (2015), "Does having women managers lead to increased gender equality practices in corporate social responsibility?", *Business Ethics: A European Review*, vol. 24, n. 1, pp. 91-110.
- MATSA D.A., MILLER A.R. (2013), "A female style in corporate leadership? Evidence from quotas", *American Economic Journal: Applied Economics*, vol. 5, n. 3, pp. 136-69.
- MCDONALD J.F., MOFFITT R.A. (1980), "The uses of Tobit analysis", *The Review of Economics and Statistics*, vol. 62, n. 2, pp. 318-321.
- MELO T., GARRIDO-MORGADO A. (2012), "Corporate reputation: A combination of social responsibility and industry", *Corporate Social Responsibility and Environmental Management*, vol. 19, pp. 11-31.
- MOSCOVICI S., LAGE E. (1976), "Studies in social influence III: Majority versus minority influence in a group", *European Journal of Social Psychology*, vol. 6, n. 2, pp. 149-174.
- MUNGAI E.M., NDIRITU S.W., RAJWANI T. (2020), "Raising the bar? Top management teams, gender diversity, and environmental sustainability", *Africa Journal of Management*, vol. 6, n. 4, pp. 269-294.
- NACIT, V. (2019), "Corporate governance and board of directors: The effect of a board composition on firm sustainability performance", *Journal of Cleaner Production*, vol. 237, pp. 117727.
- NADEEM M., ZAMAN R., SALEEM I. (2017). Boardroom gender diversity and corporate sustainability practices: Evidence from Australian Securities Exchange listed firms. *Journal of Cleaner Production* 149, 874-885.
- NADEEM M., BAHADAR S., GULL A.A., IQBAL U. (2020), "Are women ecofriendly? Board gender diversity and environmental innovation", *Business Strategy and the Environment*, vol. 29, n. 8, pp. 3146-3161.
- OIKONOMOU I., BROOKS C., PAVELIN S. (2012), "The impact of corporate social performance on financial risk and utility: A longitudinal analysis", *Financial Management*, vol. 41, n. 2, pp. 483-515.
- ORAZALIN N., BAYDAULETOV M. (2020), "Corporate social responsibility strategy and corporate environmental and social performance: The moderating role of board gender diversity", *Corporate Social Responsibility and Environmental Management*, vol. 27, pp. 1664-1676.
- POST C., RAHMAN N., RUBOW E. (2011), "Green governance: Boards of directors' composition and environmental corporate social responsibility", *Business & Society*, vol. 50, n. 1, pp. 189-223.
- RAO K., TILT C. (2016), "Board composition and corporate social responsibility: The role of diversity, gender, strategy and decision making", *Journal of Business Ethics*, vol. 138, n. 2, pp. 327-347.
- RATNER B. (2009), "The correlation coefficient: Its values range between +1/ - 1, or do they?", *Journal of Targeting, Measurement and Analysis for Marketing*, vol. 17, n. 2, pp. 139-142.
- RENNEBOOG L., TER HORST J., ZHANG C. (2008), "Socially responsible investments: Institutional aspects, performance, and investor behaviour", *Journal of banking & finance*, vol. 32, n. 9, pp. 1723-1742.
- SCHNEID M., ISIDOR R., LI C., KABST R. (2015), "The influence of cultural context on the relationship between gender diversity and team performance: A meta-analysis", *The International Journal of Human Resource Management*, vol. 26, n. 6, pp. 733-756.
- SCHOLTENS B. (2009), "Corporate social responsibility in the international banking industry", *Journal of Business Ethics*, vol. 86, n. 2, pp. 159-175.
- SHORE L.M., CHUNG-HERRERA B.G., DEAN KAREN M.A., HOLCOMBE EHRHART K., JUNG D.I., RANDE, A.E., SINGH G. (2009), "Diversity in organizations: Where are we now and where are we going?", *Human resource management review*, vol. 19, n. 2, pp. 117-133.
- SCHUMPETER J.A. (1934), *The theory of economic development*. Harvard: Economic Studies
- TANG Z., HULL C.E., ROTHENBERG S. (2012), "How corporate social responsibility engagement strategy moderates the CSR-financial performance relationship", *Journal of Management Studies*, vol. 49, n. 7, pp. 1274-1303.

- UNEP FI (2021), “Testing the application of the EU Taxonomy to core banking products: High level recommendations”.
- VAN DICK R., VAN KNIPPENBERG D., HAGELE S., GUILLAUME Y.R., BRODBECK F.C. (2008), “Group diversity and group identification: The moderating role of diversity beliefs”, *Human Relations*, vol. 61, pp. 1463-1492.
- VELASCO E., LARRIETA I., INTXAURBURU G., FERNANDEZ DE BOBADILLA S., ALONSO-ALMEIDA M.M. (2014), *A model for developing gendered social responsibility (GSR) at organizations: an exploratory study*, In Newell, A.P. (Ed.), *Corporate Social Responsibility: Challenges, Benefits and Impact of Business Performance*, 21-64. New York: Nova Science Publishers.
- WORLD ECONOMIC FORUM (2021), *Global Gender Gap Report 2021*.
- YASSER Q.R., AL MAMUN A., AHMED I. (2017), “Corporate social responsibility and gender diversity: Insights from Asia Pacific”, *Corporate Social Responsibility and Environmental Management*, vol. 24, n. 3, pp. 210-221.

The business of smuggling migrants: The central mediterranean route and the monetary stimulus from the sea patrol

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Framing of the research. *In the Mediterranean Area, there are three Routes for migrants towards Europe: the Western (towards Spain), the Central (towards the coasts of Southern Italy: Sicily, Calabria, and Apulia) and the Eastern (through the Balkans). The countries belonging to each Route change through time and usually overlap. Our focus is on the Central Mediterranean Route, which “is one of the most active and dangerous, currently accounting for the largest number of people crossing to Europe by sea.” (United Nations High Commissioner for Refugees 2018, p. 4). According to Frontex, this Route makes up roughly 60% of all illegal immigrants to Europe (Global Initiative Against Transnational Organised Crime 2015, p. 4). To give an idea of the numbers involved (United Nations High Commissioner for Refugees 2018, p. 4): 170,100 persons arrived to Italy by sea through this route in 2014 (while the dead or missing at sea were 3,093), 153,842 in 2015 (dead or missing: 2,913), 181,436 in 2016 (dead or missing: 4,578), and 119,369 in 2017 (dead or missing: 2873). This Route is considered to be the deadliest migration route in the world by the International Organization for Migration (IOM). The data consist of people disembarked on the Italian shores, we excluded nationals from Asian countries, only because in our calculations, we apply smuggling prices earned by an African network operating in Africa. In any case, non-African nationals arriving from Africa are in small number. In response to this flow of migrants, which appears to be the result of structural problems of a whole continent, and to assuage the public opinion, the European Union (and Frontex) and Italy have faced the urgency of the crisis by launching several operations to patrol the Mediterranean Sea, dubbed with names such as Aenas, Mare Nostrum, Triton, EUNAVFOR MED Sophia, and so on. We focus on the sea operations between January 2011 and March 2016, which represent the offshore border patrol. We consider the non-governmental organizations (NGOs) as contributors to this offshore patrol, even though theirs is not an official patrol activity. We also consider the coastal border patrol with particular attention to Libya, a country that has become the major hub of the Central Mediterranean Route.*

Purpose of the paper. *Many military operations have been patrolling the Mediterranean Sea in the attempt to stop the flow of migrants from Africa directed to the Southern coasts of Italy across the so-called Central Mediterranean Route. This paper considers the operations in force between January 2011 and March 2016 in order to isolate their causal effect on the supply of smuggling services. This paper is part of a research project on the economics and management of criminal organizations involved in smuggling humans from Africa. We have already published some results of this research in Amenta, Di Betta, Ferrara (2021a, 2021b).*

The possibility to isolate the causal effect was given by a policy-shift in the scope of the more recent search and rescue operations, after 368 migrants died in the shipwreck that occurred off the isle of Lampedusa on October 3, 2013. While earlier operations had the declared purpose of enforcing, the ones after this tragedy also stressed the humanitarian intent to search and to rescue. The change in scope of the sea operations allowed us to quantify a positive stimulus on departures, with the unintended effect of increasing the supply of the smuggling services provided by the criminal organizations, thereby monetarily stimulating the smuggling activity of those networks. It turns out that the sea operations set up, unwillingly, a maritime insurance policy that adds to the set of services offered by the smugglers. We estimated an extra monthly (annualized) monetary stimulus of around USD 8 (95) million between October 2013 and August 2014 and USD 13 (155) million between September 2014 and March 2016, when compared to the period before October 2013.

Methodology. *Our empirical strategy is based on time-series econometrics (Hamilton, 1994) and on dose-response estimation (Bia e Mattei, 2008; Guardabascio e Ventura 2014, Hirano e Imbens 2004). To be smuggled during one military operation or the other makes the difference for the migrants. Analogously, one military operation or the other can facilitate the work for the smugglers. The estimation therefore must account for the probability of activating the policy-switch and therefore for the probability of falling in one regime or the other. Splitting the two regimes is done in*

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the first step of the estimation through a Probit model. This is the endogenous treatment-assignment model. We run a regression of the indicator variable that denotes the activation of the search and rescue operations, on variables that should explain the probability of activating the new regime. The instrumental variables included in the regression to explain the change in regime are the (pre-determined variable) departures the month before and the weather conditions on the month of departure (wind force and sea force). The second step of the endogenous treatment effects model is the outcome model. Besides the intercept, there are two explanatory variables. The first is the variable of interest, the indicator variable for the search and rescue operations, predicted after the first step. The coefficient of the treatment variable is the coefficient we want to investigate upon, and is the estimated average treatment effect (ATE) that represents the causal effect of the policy shift. The other explanatory variable is a dummy that captures onshore patrol activity. As Libya is the major point of embarkment, we focus on that country in order to control for onshore patrol activity. Alas, data are not available for this activity, so we made up a variable that denotes the period after the death of the infamous dictator of Libya Colonel Muammar Gaddafi, killed on October 20, 2011. We created a dummy variable which is 1 starting on October 2011 and 0 before. This variable is meant to capture the impact of the turmoil in the country after the death of the tyrant and should allow us to make a comparison between what is considered a period of strict onshore patrol versus another period in which the patrol is considered less severe. We repeat the same procedure with a new variable that distinguished three levels of interventions of the search and rescue operations.

We also did a dose-response analysis of the money spent on the sea operations. The changing effort levels at sea, as shown by the deployment of vessels and personnel, suggest to further investigate the impact of money on departures. We estimate a dose-response model in which money is the continuous treatment (the dose) and departures is the response variable. This analysis is also useful to qualify what the effects of the change in the policy are, and how it ultimately works. Characterizing the effects of the policy as a continuous treatment variable allows us to present the working of the policy in a more nuanced way than just describing it as a zero-one lever that is either switched off or activated. This analysis will also prove decisive in setting our dilemma between whether we should consider the period after October 2013 as uniform or subdivided into two phases. Matching estimators based on propensity scores have become quite common in economics. Matching estimators are based on direct comparisons of outcomes for observationally equivalent (matched) units that nevertheless received different levels of a treatment. The propensity score, which is the conditional probability of receiving the treatment given pre-treatment variables, has been deployed to study the causal effects of a binary treatment variable. In many observational studies, however, the treatment is not binary, so one may be interested in estimating the dose-response function where the treatment takes on a continuum of values. As said, the treatment is a service rendered according to various levels of money expenditure, so the treatment is the result of the way the policy is administered. The matching is done across time periods (months) characterized by the amount of expenditure (which might be zero) on the sea patrols. Thus, in the month in which the migrants embark, they receive a certain dose of insurance as provided by the deployment of vessels at that time.

Results. The evidence amassed suggests that we ought not consider the period after the regime-switch as uniform. Rather, there seems to be two phases that can be distinguished after the shipwreck in Lampedusa (Italy) in October 2013. There are two facts that let us lean towards this option: (1) the presence of the innovation outlier that thrives on after the end of operation Mare Nostrum; (2) the relatively less import of the money expenditure at the higher level (which correspond to operation Mare Nostrum). We have therefore reasonable evidence that there is a lingering effect even after the end of operation Mare Nostrum, due to the joint effect of the perception that rescue is the only scope of the sea operations and the intervention of the NGOs, as we shall see soon. We proceed by considering both cases: (1) the time period after October 2013 is uniform and is denoted by the treatment variable indicating search and rescue operations; (2) the time period after October 2013 is subdivided into two phases, denoted by the appropriate ordinal treatment variable. Our main findings are that arrivals have increased the revenues and the profits so that the business of smuggling humans has flourished. There is a considerable effect of the SARs on the supply side: smugglers adjust their transport capacity in response to humanitarian efforts, as entrepreneurs do when they adapt their productive capacity to changing market conditions. This evidence corroborates studies that underline the smuggler's flexibility and capacity to respond to changing market conditions (Campana, 2017). Moving the line of patrol further South towards the coasts of North Africa has allowed the smugglers to deploy rubber dinghies and other depleted vessels, indeed 'unseaworthy boats' (Porsia, 2017); smugglers have shown the ability to immediately adapt their travel capacity to the changing market conditions (Deiana, Maheshri, Mastrobuoni, 2019). Results show that the policy-shift conveyed the idea of a safety net that worked as a maritime insurance policy for migrants and resulted in an increase in the supply of smuggling services. Keeping the smuggling prices constant, the unintended consequence of the policy-shift has been to pass on to the criminal organizations a monetary stimulus -when compared to the period before October 2013- of USD 87.5 million between October 2013 and August 2014 (95 on an annual basis) and of USD 245 million between September 2014 and March 2016 (annualized, 155), a total of USD 332.5 million. Had we not distinguished between the two sub-periods, the total annual profit would have been around 138.8 million USD (a total of 347 million for the entire period October 2013-March 2016).

Research limitations. However, this perspective from the supply-side provides only a partial view on the phenomenon under investigation, because one has to consider also the demand side of the market for the services of smuggling humans. A complete picture is provided in Amenta, Di Betta, Ferrara (2021a, 2021b): beware that the policy-shift induced a monetary stimulus, but in order to assess the true monetary subsidy, we must control for all the factors that stimulate the migrants' desire to leave their countries. In fact, this paper is accompanied by another one (2021b) in which we deal with the demand side, characterized by the socioeconomic and geopolitical factors, to assess

the people's motivations to migrate. Once these factors are taken into consideration, the monetary stimulus will turn into the true profit pocketed by the criminal rings. The results from the other paper give a total, in line with what we calculated here. If we considered a uniform period after October 2013 (no two subperiods as we did above), we would have obtained a total of USD 138.8 million per year. In the other paper we obtained USD 143 million.

A lot remains to be done in this research area. Once the migrants land and are taken into custody by the Italian authorities, they are put inside sheltering camps and facilities set up with the purpose to let the migrants wait to clear their refugee status. There is a lucrative industry that administers the services of room and board in these camps and facilities. In certain cases, criminal organizations infiltrated and crept into this industry, too. In this paper we did not estimate the impact of the sea operations for this industry, which is in any case legally managed for almost its entirety. There are other side-effects, on which we have only anecdotal evidence. For instance, many migrants leave those camps and facilities. Some enter the rank and file of criminal organizations, others become sexual or working slaves, but many migrants find their place in the host country and succeed in changing their life for the better. Some even become protagonists of heroic acts. Another side effect of interest concerns the impact of the migrants crisis on European politics; for instance, it remains to be appraised how it affected the so-called Brexit decision and the insurgence of the so-called sovereign movements that changed the European political landscape. Surely, we need more empirical research on the migrants crisis, which, on the one hand, will contribute to dissipate the many prejudices that haunt the crisis and generate irrational sentiments in the European public opinion, and on the other hand, should be used by politicians to make more informed decisions.

Managerial implications. The paper sheds a light on the economics and management of criminal organizations therefore providing useful insights to prosecutors that investigates the criminal activities across the borders in several countries. We would like to investigate the possibility to individuate a turning point at which the smugglers change their line of business and turn into traffickers. Realizing that the criminal networks are ambidextrous organizations (O'Reilly and Tushman, 2004, 2008, 2013) enriches the understanding of why they thrive and the strengths and the weaknesses in their *modus operandi*. In the illegal immigration industry, a fundamental distinction is between (non-exploitative) smugglers and traffickers (*viz.*, exploitative smugglers). Smugglers provide the service of delivering the migrant abroad, where the migrant is still in a situation of dire needs but is nonetheless free. The migrant does not owe the smuggler anything, because the smugglers collected advance payment. On the contrary, traffickers are in a more complicated line of business: they receive in advance only a percentage of the price and remain creditors for the remaining part, keeping the passports or similar documents of identification in custody as a guarantee. The traffickers control the debt-indentured migrants abroad and force them to repay their obligations (usually at loan-shark interest rates) by working as sex slaves or in the black market or enlisted in the ranks of the criminal network. Traffickers need extend their activity abroad, hiring affiliates to collect the credits and to provide shelters for the migrants where they can control them better.

The difference between a trafficker and a smuggler is fragile. First, in terms of psychopathic traits, they do not differ. Second, a criminal network may include in its node both smugglers and traffickers, so there is always the propensity of a smuggling ring to being involved in trafficking. Hence, the only difference rests on the scope of the activities to which the criminal is involved. We would like to find evidence to sustain that, rather than being based on the individual's criminal propensity (already paramount), what turns a criminal from smuggling into trafficking concerns whether it is convenient for them to expand the scope of their criminal activity. The decision is therefore about the line of business: if the profits are good enough on one line (smuggling), it might be not worthwhile to expand into a more costly line (trafficking) that needs more people (*e.g.*, guardians), more assets (*e.g.*, shelters, camps), and is overall riskier, because it increases the probability of being caught. There is ample evidence that smugglers are not stigmatized in the departing countries, where they are seen as facilitators towards a brighter future: smugglers are often friends of the family or known in the neighborhood. On the contrary, trafficking brings about more social alertness than smuggling: people stigmatize it and call for more law enforcement.

Each organization is structured as series of subunits, each focusing on what they do best -and at the local level-separated from the "parent organization," where the mastermind boss pursues his overriding purpose. High differentiation exists between the two levels, kept together through the shared predatory vision and targeted but limited integrative mechanisms. Integrative mechanisms guarantee the integration of the separated operational subunits and processes, aiming to keep a high level of differentiation by exploring and exploiting according to the occasional and transitory needs. Hence, the network as a whole is characterized by structural or simultaneous ambidexterity (O'Reilly and Tushman, 2008, 2013) because it balances the exploration/exploitation trade-off through the simultaneous pursuit of both, using those separate local subunits appropriately.

Originality of the paper. We contribute empirical evidence to the literature on the smuggling networks out of Africa (Campana, 2018; Coluccello and Massey 2007; United Nations Office on Drugs and Crime, 2011a, 2011b) by bringing first-hand data taken from a unique source, the documents of the investigations conducted by the Antimafia Department of the Procura della Repubblica of Palermo (Sicily, Italy) concerning the criminal networks that operated on the Central Mediterranean route that smuggle migrants from Libya to Europe.

We also present evidence of how ambidextrous organizations can thrive in a very uncertain environment using bricolage solutions to solve occasional and unpredictable events that could disrupt the organization.

Keywords: migrants, human smuggling, criminal organizations, program evaluation, dose-response.

References

- AMENTA C., DI BETTA P., CALOGERO "GERY" FERRARA (2021a), "La crisi dei migranti nel Mediterraneo Centrale: le operazioni Search and Rescue non sono un fattore di attrazione", *Diritto, Immigrazione e Cittadinanza*, fasc. 2, pp. 17-33.
- AMENTA C., DI BETTA P., CALOGERO "GERY" FERRARA (2021b), "The Migrant Crisis in the Mediterranean Sea: Empirical Evidence on Policy Interventions", *Socio-Economic Planning Sciences*, vol. 78, December, pp. 1-13, <https://doi.org/10.1016/j.seps.2021.101038>
- BIA M., MATTEI A. (2008), "A Stata package for the estimation of the dose-response function through adjustment for the generalized propensity score", *The Stata Journal*, vol. 8.3, pp. 354-373.
- CAMPANA P. (2017), "The Market for Human Smuggling into Europe: A Macro Perspective", *Policing: A Journal of Policy and Practice*, vol. 11, n. 4, pp. 448-456.
- COLUCCIELLO S., MASSEY S. (2007), "Out of Africa: The Human Trade Between Libya and Lampedusa", *Trends in Organized Crime*, vol. 10, n. 4, pp. 77-90.
- DEIANA C., MAHESHRI V., MASTROBUONI G. (2019), *Migration at Sea: Unintended Consequences of Search and Rescue Operations*, mimeo. Retrieved at: <https://vmaheshri.github.io/publication/migrants/>.
- GLOBAL INITIATIVE AGAINST TRANSNATIONAL ORGANISED CRIME (May 2015), *Libya: a growing hub for criminal economies and terrorist financing in the Trans-Sahara*, In: https://globalinitiative.net/wp-content/uploads/2015/05/TGIATOC-Libya_a-growing-hub-for-Criminal-Economies-and-Terrorist-Financing-in-the-Trans-Sahara-web.pdf.
- GUARDABASCIO B., VENTURA M. (2014), "Estimating the dose-response function through a generalized linear model approach", *Stata Journal*, vol. 14.1, pp. 141-158.
- HAMILTON J.D. (1994), *Time Series Analysis*. Princeton, NJ: Princeton University Press.
- HIRANO K., IMBENS G.W. (2004), "The propensity score with continuous treatments", In Gelman A., Meng X-L. (eds.) *Applied Bayesian Modeling and Causal Inference from Incomplete-Data Perspectives: An Essential Journey with Donald Rubin's Statistical Family*. Wiley, pp. 73-84.
- O'REILLY C.A., TUSHMAN M.L. (2004), "The Ambidextrous Organization", *Harvard Business Review*, April, available: <https://hbr.org/2004/04/the-ambidextrous-organization>.
- O'REILLY C.A., TUSHMAN M.L. (2008), Ambidexterity as a Dynamic Capability: Resolving the Innovator's Dilemma. *Research in Organizational Behavior*, n. 28, pp. 185-206.
- O'REILLY C.A., TUSHMAN M.L. (2013), "Organizational Ambidexterity: Past, Present, and Future", *Academy of Management Perspectives*, vol. 27, n. 4, pp. 324-338.
- UNITED NATIONS HIGH COMMISSIONER FOR REFUGEES (Jan. 2018), "Central Mediterranean Route Situation. Supplementary Appeal", In: [url: https://www.unhcr.org/5aa78775c.pdf](https://www.unhcr.org/5aa78775c.pdf).
- UNITED NATIONS OFFICE ON DRUGS AND CRIME - UNODC (2011a), (Drafted by Bouteillet-Paquet D.) *Smuggling of Migrants. A Global Review and Annotated Bibliography of Recent Publications*. Vienna, Austria. January.
- UNITED NATIONS OFFICE ON DRUGS AND CRIME - UNODC (2011b), *Smuggling of Migrants by Sea*. Issue paper. Vienna, Austria.

An exploratory analysis of the factors related to biotech patent oppositions at the European Patent Office

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Framing of the research. *This research project investigates the characteristics of biotech patents opposed at the European Patent Office (EPO). Biotechnologies have always accompanied human beings on their evolutionary path, guaranteeing them useful products and processes through the manipulation of living organisms. There exists a very large number of fields of application of biotechnologies: we talk about biotech when we deal with both millenary fermentation techniques and modern biotechnologies. The complexity and multiplicity of biotechnology applications are well summarized by the definition provided by Saviotti (1998, p.19): “biotechnology is not an industrial sector, but a set of techniques for the manipulation of living organisms which comprises several disciplines which provide the scientific foundations for such techniques. Both the techniques and the scientific disciplines are used for a wide variety of applications, ranging from pharmaceuticals and agriculture to the environment”. Biotechnology-based sectors include the medical and pharmaceutical sectors (i.e., the so-called red biotech), application areas where the conception and development of new products require a great deal of time and financial resources. Thus, in these sectors the protection of innovation is crucially important to guarantee a sustainable competitive advantage and patents in particular represent a relatively effective means of appropriability of the value generated by innovation. Patent protection of biotechnology innovations is the final step of a long and costly R&D process, where other means of protection (e.g., secrecy) are less effective (Harhoff and Reitzig, 2004). Innovation management studies are aware of the importance of patents in biotechnology-based sectors: “the collection of small and medium sized firms in the American biotechnology industry is, of course, a striking example of enterprises that would not have come into existence without the prospect of a patent, and which depend on patent protection to make their profits, and to attract capital, through one or another of these strategies” (Mazzoleni and Nelson, 1998, p. 276).*

In addition to their traditional function as a means of protection from imitation (Griliches et al. 1987), patents can be used strategically to block a rival by limiting its freedom to operate in the product market, to create a fence to prevent others from patenting similar inventions or as bargaining chip in the market for technology (Arora et al., 2001; Reitzig, 2004; Schneider, 2011; Torrissi et al. 2016). This strategic use often entails attacking rivals' patents, which gives rise to negotiations that may end up in costly litigation. Patent oppositions against the granting decision before a patent office are a mechanism for first-instance challenges to the validity of patents granted (Harhoff and Reitzig, 2004; Caviggioli et al. 2014). Oppositions are less costly than litigation on infringement or validity in courts. It is also considered a mechanism to correct errors that the patent office may encounter during the evaluation of a patent application (e.g., on the degree of novelty), hence it is encouraged and supported by the patent office (Graham et al., 2003; Harhoff and Reitzig 2004).

This paper focuses on biotech patents granted by the European Patent Office (EPO). The share of patents opposed before the EPO varies between 5.3% and 5.5% (Kuilen et al 2016); opposed biotech patents account for 8.6% of total grants (Harhoff and Reitzig, 2004). At EPO, any third party can file an opposition within 9 months from the granting date of the patent and the outcome of the patent opposition is binding for all designated states. As a means to contest the validity of a rival's patent, oppositions represent a competitive weapon as their outcome (especially the revocation and the amendment of a patent) can challenge the market position and vanish a rival's profits. In technology sectors where patents are an important means for protecting firms' competitive advantage, typically rivals meet the same rivals in multiple patent opposition cases over time. Therefore, we can assume patents oppositions as an indicator of competitive dynamics (Chen et al. 1994; 2012).

Purpose of the paper. *The aim of our research project is the study of the factors that can influence the outcome of the opposition procedures for biotechnological patents filed at the EPO. Extant literature has investigated the probability of oppositions (Calderini and Scellato, 2004; Hall et al., 2009; Harhoff and Reitzig, 2004; Schneider, 2011). The factors driving the outcomes of oppositions - patent revocation, patent amendment or opposition rejection/withdrawal, have been less examined (Caviggioli et al. 2014). Yet this aspect is crucial to patent holders*

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because a better knowledge of the factors correlated to the outcome of oppositions can help patent holders make more informed decisions and more effectively deal with a specific opposition. By adopting a competitive dynamics approach (Chen et al. 1994; 2012; Giachetti and Torrissi, 2018), we hypothesize that some factors traditionally linked to the probability of receiving an opposition could also affect the outcomes of the opposition. We focus on factor especially related to the competitive environment of the patent opposition.

Methodology. In order answer to our research question, firstly we search for biotech companies in the Bureau van Dijk's Amadeus database, which contains accounting data of European companies and non-European companies with a subsidiary in a European country. Following the previous literature (Cordazzo and Vergauwen, 2012; Rothaermel and Deeds, 2004), to be qualified as a company operating in the biotechnology, a firm's core business must be classified in the SIC class 2834 (pharmaceutical preparations) or in the SIC class 8731 (commercial physical and biological research). This search yielded 66,659 firms. To work with a more manageable sample, we focused on only firms that account for 60% of cumulative revenues of the two sectors mentioned before, thus ending up in a final sample of 97 biotech companies.

Secondly, we entered the names of the aforementioned 97 companies in the European Patent Register to check whether their patents have received oppositions in the period 2012-2019. We choose to start from 2012 as the breakthrough discovery of CRISPR-Cas9 took place in that year. Then, we checked whether the applicants of the opposed patents filed oppositions in the aforementioned time interval. Only oppositions concerning biotechnological patents, according to the technology classification elaborated by the OECD (2005)¹, were selected. Thus, we obtained 319 oppositions, 57 of which are defined as cross-oppositions because are filed by firms who have defended other patents against oppositions filed by the same owners of the opposed (focal) patent. Cross-oppositions thus are part of a series of "attacks" and "counterattacks" between two or more competing companies. We discarded oppositions filed against the same patent and those with an undefined outcome. Our final sample is made of 290 opposed patents.

Thirdly, we collected information on the characteristics of the opposed patents and the oppositions through the Questel's Orbit database. Information about the characteristics of the firms involved in the sample oppositions were obtained from Bureau van Dijk's Orbis database, Dun and Bradstreet, Bloomberg and Forbes websites. Our econometric analysis estimates the association between the outcomes of the oppositions and a set of characteristics of the patents and the firms involved in the opposition procedure. The possible outcomes of the opposition against patent grants are patent revocation, patent amendment, and opposition rejected or withdrawn. The key independent variables are about competitive interaction, i.e., whether the applicants and the opponents are based in the same home country, whether the opposed patent cites at least one patent owned by the opponent, and whether applicants and opponents compete in the same product markets. Based on previous literature that estimates the probability of opposition, we control for additional factors at the firm (e.g., countries of origin, patent portfolio size, firm size) and patent level (e.g., number of IPC classes, time lag between grants and opposition) (Matyushenko et al., 2016; Harhoff and Reitzig, 2004; Caviggioli et al. 2014).

Results. The most frequent outcome in the 290 oppositions is the revocation of the patent (151 cases), followed by the maintenance of the patent with amendments (87 cases). The rejection of the opposition (40 cases) and the abandonment of the opposition (12 cases) together are less frequent. Most of the opposed patents (87%) belong to red biotech (i.e., biotech applied to drug development) and the most common IPC class is A61K (preparation for medical, dental, or toilet purposes). The high incidence of patents in the red biotech area is explained by the choice of SIC codes used to create the sample of biotech companies.

Over 90% of oppositions take place between companies competing in the product market. This is partially due to the selection of firms, which constitute 60% of cumulative revenues in the relevant sectors. We expect that these firms use oppositions as a strategic means against competitors. As mentioned before, only 18% of our sample (53 out of 290 cases) are patents whose at least one opponent and one defendant are involved in multiple opposition actions. As expected, all these cases involve companies competing in final markets.

Geography may play an important role (Caviggioli et al., 2013), as firms from the same country probably have access to similar technologies and market knowledge. Hence, we generate a dummy that is equal to 1 when opponent and defendant have the same home country and we expect that firms belonging to the same home country have a better knowledge of their respective technology and market strategy. We should note that most of the oppositions in our sample take place between firms from different countries (72% of cases), which is explained by the fact that we are dealing with EPO patents and patent oppositions. Thus, most probably the European market, rather than the domestic market, is the relevant product market for firms involved in these oppositions. Indeed, 23% of firms are from the US, while 45% of firms are based in four European countries: France (14%), Germany (12%), UK (12%), and Switzerland (12%). However, among the sample patents where applicants and opponents are from the same country, there is a higher incidence of revoked patents (52 out of 81 of cases, which is 64%), compared with patents without shared home country (99 out of 209 or 47% of cases). This evidence suggests that firms from the same country have a better understanding of the underlying technology of a patent and are better equipped to identify flaws and errors in the

¹ According to this classification, the IPC classes that qualify a biotech patent are: A01H 1, A01H 4, A61K 38, A61K 39, A61K 48, C02F 3/34, C07G 11, C07G 13, C07G 15, C07K 4, C07K 14, C07K 16, C07K 17, C07K 19, C12M, C12N, C12P, C12Q, C12S, G01N 27, G01N 33/53*, G01N 33/54*, G01N 33/55*, G01N 33/57*, G01N 33/68, G01N 33/74, G01N 33/76, G01N 33/78, G01N 33/88, G01N 33/92.

grants. The correlation between the outcome of the opposition and the dummy for the same home country is statistically significant at the 5% confidence level.

More than 80% of the patents in our sample are opposed by firms with no citation links with the focal patent. To account for citation links we generate a dummy variable that indicates whether the opposed patent cites at least one patent owned by the opponent. Backward citations measure the knowledge background of the focal patents. Thus, the owners of the cited patents are supposed to better understand the technology of the opposed, citing patent (Harhoff and Reitzig, 2004). Not only they are more likely to identify flaws in the patent, but they have also higher incentives to challenge the validity of the citing patent, especially if the latter protects an improved or a substitute technology of the cited patent. Since embarking in opposition proceeding is costly for all actors involved (Levin and Levin, 2003), opponents will invest time and resources in filing effective opposition when the perceived threat is high (Chen and Miller 1994; 2012). Looking at the 52 patents with a citation link, 34 (65%) are revoked. Although the correlation between citation link and the opposition outcome is not very significant (p -value <0.10), it corroborates the idea that the owner of a cited patent has a deeper knowledge of the opposed patent as compared with other opponents.

We run preliminary estimations of different outcomes of oppositions to corroborate the evidence emerging from descriptive analysis. We estimate the probability of a successful defense of a patent against an opposition (which is, the outcome of opposition is either patent amendment or opposition rejected/withdrawn). The defense fails (i.e., the dependent variable is equal to zero) when the patent is revoked. The preliminary results underline the importance of competitive factors in influencing the outcome of opposition processes. In particular, we found out that the probability of a successful defense is lower when the counterparts belong to the same country and when opponents' patents are cited by the focal patent. So, we can assume that a weak defense is correlated with a greater knowledge of patent technology and its area of application. In addition, we found out that a successful defense (i.e., patent amended, and opposition rejected/withdrawn) is associated with the technology similarity while operating in the same sector is less important.

Research limitations. Our research project has a series of limitations that can be summarized as follows.

1. *Composition of the sample.* While our sample includes mostly large companies, the biotechnology-based sectors is populated by many small companies that innovate, patent and contribute to the competitive dynamics of these sectors. Future research should consider a larger sample of actors operating within the biotechnology-based sectors in such a way as to capture even small and medium-sized companies.
2. *Time interval of the analysis.* In future steps of this research we will collect data before 2012, the year of the CRISPR-Cas9 discovery, to see whether how this breakthrough has changed the patent competition and oppositions compared to the pre-discovery period.
3. *Background of the oppositions.* In our analysis of opposition outcomes, the determinants of oppositions were not taken into consideration, which leaves the room for future research on the relationships between the determinants and the outcome of oppositions.
4. Finally, the quality of the patent opposed and how it influences the outcome of the oppositions would need a richer and deeper analysis that we will pursue in future research.

Managerial implications. Our work contributes to the managerial literature as it fills a gap in the studies concerning patent oppositions. In the past, attention has often been paid to identifying the determinants of an opposition, while our research is aimed at investigating the factors that lead to an opposition outcome (revocation, amendment, and opposition rejection/withdrawal). As mentioned in the previous sections, the outcome of an opposition proceeding action can have a large effect on the applicant's profits, growth strategies and ability to appropriate the rents from the investment in R&D. Knowing the drivers of opposition outcomes may help firms respond to an opposition attack by competitors. Our preliminary results suggest that applicants should feel more threatened by opponents of the same country and by opponents whose patents are cited in the opposed patents because in these cases applicants are more likely to see their patents revoked. In order to avoid this outcome, applicants could seek for an agreement before an opposition is filed to the EPO. Another implication for applicants could be to decide not to invest further resources to defend its patent when the risk of revocation is too high. In addition, applicants should reconsider their strategies connected to the opposed patents with higher risk of revocation, for example in terms of further investments in similar technologies, or in terms of innovative products based on the opposed patent.

Our results provide interesting implications from the opponents' perspective. Assuming that the primary purpose of opposition is to revoke a patent of a rival at a lower cost than a lawsuit in court, opponents of the same country of the applicants, and opponents holding patents cited in the focal patent should perceive a lower risk of failing opposition. Hence, once filing an opposition, they may be more willing to invest resources into the opposition procedure, may be less willing to agree with the patent holder or may be in a stronger bargaining position for obtaining more favorable conditions (e.g., patent licensing). Instead, opponents that compete in the same final markets are less likely to see patent revocation.

Originality of the paper. This paper contributes to the extant literature on patent oppositions by adopting a novel perspective and by providing preliminary empirical evidence of the factors related to opposition outcomes. As far as the first aspect is concerned, we adopt the perspective of competitive dynamics (Chen and Miller 1994; 2012; Giachetti Torrisi, 2018), according to which patent oppositions would be a response to an action taken by a rival or a preventive action (Harhoff and Reitzig, 2004). As already mentioned above, in our analysis cross oppositions capture the strategic interaction between companies that can be seen as a series of attacks and counterattacks launched by rival companies.

Moreover, we highlight the effect of competition-related factors (i.e., same home country between opponents and applicant, citation links, and competition in the product market) on opposition outcomes.

As regards the second aspect, while previous works (e.g., Harhoff and Reitzig, 2004) mostly focused on the study of the determinants of the oppositions of biotech patents, our study tried to understand the factors that could lead to the outcomes of oppositions. Caviggioli et al. (2013) study the determinants of both opposition likelihood and opposition outcome of EPO biotech patents. They consider only a binary outcome (i.e., revocation against other outcomes), and their analysis is mostly centered on the geographical origin of patents (i.e., US, Japan, and other countries). Unlike Caviggioli et al. (2013), we examine different outcomes of the opposition process and turn our attention to the role of competition between the parties at the geographical, technological and product market level.

Keywords: Patent Oppositions; Biotechnology; Competitive Dynamics; Red Biotech; EPO; CRISPR-Cas9

References

- ARORA A., FOSFURI A., GAMBARDELLA A. (2001), *Markets for Technology: The Economics of Innovation and Corporate Strategy*, MIT Press, Cambridge, MA.
- CALDERINI M., SCELLATO G. (2004), *Intellectual Property Rights as Strategic Assets: the Case of European Patent Opposition in the Telecommunication Industry*, CESPRI working paper <ftp://dlib.info/opt/ReDIF/RePEc/cri/papers/WP158CalderiniScellato.pdf>
- CAVIGGIOLI F., SCELLATO G., UGHETTO E. (2013), "International patent disputes: Evidence from oppositions at the European Patent Office", *Research Policy*, vol. 42, n. 9, pp. 1634-1646.
- CHEN M.J., MILLER D. (1994), "Competitive Attack, Retaliation and Performance: An Expectancy-Valence Framework", *Strategic Management Journal*, vol. 15, pp. 85-102.
- CHEN M.J., MILLER D. (2012), "Competitive Dynamics: Themes, Trends, and a Prospective Research Platform", *The Academy of Management Annals*, vol. 6, n. 1, pp. 135-210.
- CORDAZZO M., VERGAUWEN P.G.M.C. (2012), "Intellectual capital disclosure in the UK biotechnology IPO prospectuses", *Journal of Human Resource Costing & Accounting*, vol. 16, n. 1, pp. 4-19.
- GIACHETTI C., TORRISI S. (2018), "Following or Running Away from the Market Leader? The Influences of Environmental Uncertainty and Market Leadership", *European Management Review*, vol. 15, n. 3, pp. 445-463.
- GRILICHES Z., PAKES A., HALL B.H. (1987), *The Value of Patents as Indicators of Inventive Activity*, *Economic Policy and Technical Performance*, Dasgupta P., Stoneman P. (eds.), pp. 97-124, Cambridge University Press, Cambridge.
- GRAHAM S., HALL B., HARHOFF D., MOWERY D. (2003), "Patent quality control: A comparative study of US patent re-examinations and European patent oppositions", in Cohen W., Merrill S. (eds.), *Patents in the knowledge-based economy*, The National Academic Press, Washington, DC.
- HARHOFF D., REITZIG M. (2004), "Determinants of oppositions against EPO patent grants-the case of biotechnology and pharmaceuticals", *International journal of Industrial Organization*, vol. 22, n. 4, pp. 443-480.
- HALL B.H., THOMA G., TORRISI S. (2009), Financial Patenting in Europe, *European Management Review*, vol. 6 No 1, pp. 45-63.
- LEVIN J., LEVIN R. (2003), "Benefits and costs of an opposition process", in Cohen W., Merrill S. (eds.), *Patents in the knowledge-based economy*, The National Academic Press, Washington, DC.
- MATYUSHENKO I., SVIATUKHA I., GRIGOROVA-BERENDA L. (2016), "Modern Approaches to Classification of Biotechnology as a Part of NBIC-Technologies for Bioeconomy", *British Journal of Economics, Management & Trade*, vol. 14, n. 4, pp. 1-14.
- MAZZOLENI R., NELSON RR. (1998), "The Benefits and Costs of Strong Patent Protection: A Contribution to the Current Debate", *Research Policy*, vol. 27, n. 3, pp. 273-284.
- MORAN P., GHOSHAL S. (1996), "Bad for Practice: A critique of the Transaction Cost Theory", *Academy of Management Review*, vol. 21, n. 1, pp. 13-47.
- REITZIG M. (2004), "The Private Values of "Thickets" and "Fences": Towards an Updated Picture of the Use of Patent across Industries", *Economic of Innovation and New Technology*, vol. 13, n. 5, pp. 457-476.
- ROTHAERMEL F.T., DAVID L.D. (2004), "Exploration and Exploitation Alliances in Biotechnology: A System of New Product Development", *Strategic Management Journal*, vol. 25, n. 3, pp. 201-221.
- SAVIOTTI P.P. (1998), "Industrial Structure and the Dynamics of Knowledge Generation in Biotechnology", Senker J. (eds.), *Biotechnology and Competitive Advantage: Europe's Firms and the US Challenge*, Edward Elgar, Cheltenham.
- SCHNEIDER C. (2011), "The battle for patent rights in plant biotechnology: evidence from opposition filings", *Journal of Technology Transfer*, vol. 36, n. 5, pp. 565-579.
- TORRISI S., GAMBARDELLA A., GIURI P., HARHOFF D., HOISL K., MARIANI M. (2016), "Used, blocking and sleeping patents: Empirical evidence from a large-scale inventor survey", *Research Policy*, vol. 45, n. 7, pp. 1374-1385.

Websites

<https://amadeus.bvdinfo.com/version-20211214/Home.serv?product=amadeusneo>

<https://www.bvdinfo.com/it-it/le-nostre-soluzioni/dati/internazionali/orbis>

<https://www.dnb.com/>

<https://www.epo.org/>

<https://www.epo.org/searching-for-patents/legal/register.html>

<https://www.forbes.com/?sh=6e702cac2254>

<https://www.orbit.com/>

<https://www3.wipo.int/ipstats/>

Boosting Knowledge Through Collaborations Within the Industry 4.0 Paradigm

MAURO CAPESTRO* MARCO BETTIOL* ELEONORA DI MARIA* ROBERTO GRANDINETTI**

Framing of the research. *The fourth industrial revolution related to Industry 4.0 (I4.0) technologies has put the attention on the potentialities in terms of innovation opportunities rooted on the huge amount of data and new processes that the same technologies allow to achieve (Schwab 2017). Similarly to the previous technological waves that allowed firms to get knowledge from a wider set of sources within and beyond the organizational boundaries (Higón, 2012; Reypens et al., 2016), the new set of technologies promises to increase the knowledge available at the firm level in relation to the potentialities of data as well as thorough intensified interactions among different actors (Bettiol et al., 2020).*

The new wave of digital technologies - from 3D printing to robotics, from big data to the Internet of Things (IoT) and artificial intelligence - has opened up new opportunities for growth. This new technological revolution is changing the way firms acquire and use knowledge, allowing the acquisition of a huge amount of data within a short time, and instantaneous use of them (Ustundag and Cevikkan 2018). The variety (breadth I4.0) of I4.0 technologies suggests different technological features and characteristics with alternative advantages in terms of business domain of applications within the firm (Büchi et al., 2020). This new technological revolution highlights the radical shift from stand-alone to interconnected technologies at the factory level (Culot et al., 2020). Nevertheless, it becomes important to evaluate how such variety affects the different activities of the value chain (depth I4.0) and on the related knowledge management outcomes (Bettiol et al., 2021).

The variety of peculiarities in the I4.0 technologies allows satisfying the requests and needs of the different activities within the value chain, where the specificities in terms of data and business goals may drive the technological adoption within each function but also can expand also beyond the single functional boundaries (Nagy et al. 2018). Scholars have in fact suggested that horizontal integrations within the value chain is one of the benefits provided by many I4.0 technologies (Saucedo-Martínez et al. 2018) characterizing the digital transformation in the context of I4.0 (Ustundag and Cevikkan 2018). However, the opportunity within the Industry 4.0 paradigm also the intra-firm collaborations, through the interconnection among the different business functions (e.g., operations, marketing, sales, logistics), become relevant in order to support new knowledge creation driven by the technological investments (Paschen et al., 2019). In the fourth industrial revolution, for firms it becomes relevant not only to adopt single I4.0 technologies, but to further exploit their advantages in terms of fitting with the business requirements of the functions within the firm's value chain.

The digital transformation aims at automating the manufacturing processes, to improve productivity and production efficiency (Holmström et al., 2016), but also foster the decision-making processes based on data (Davenport 2018). The rise of the smart factory has opened issues on the consequences related to the contribution of the manufacturing department on innovation outcomes and on the broad new knowledge creation dynamics (Ballestar et al., 2020). Nevertheless, past research has also suggested the relevance of inter-functional collaboration as a driver for knowledge creation (Ulrich and Eppinger 2000) and few scholars have suggested how collaboration may be rooted on I4.0 technologies within the firm (and beyond) (Schuh et al. 2014). In this respect, research must further investigate the knowledge management consequences of an intra-firm collaboration driven by I4.0 technologies. More specifically, research must analyze how the possibility of the firm's functions (or value chain activities as highlighted by Porter, 1985) to collaborate in a digital setting may drive new knowledge creation based on the multiple cognitive perspectives of these functions (Dalenogare et al., 2018), besides the direct link between technology and knowledge creation.

Similarly, past research has emphasized the contribution of knowledge-intensive business services (KIBS) in the knowledge management dynamics of the firm (Di Maria et al., 2012), and as important drivers for innovation in manufacturing firms (Ciriaci et al., 2015; Muller and Doloreux, 2009). The adoption process of I4.0 technologies is

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considered to be particularly complex for firms, particularly in case small- and medium-sized enterprises (SMEs) are concerned (Moeuf et al., 2020; Roblek et al., 2016). KIBS may play a key role in facilitating the transfer of complex knowledge between their clients and external sources of knowledge that are not directly related or that rarely interact with them, obtaining innovative solutions. According to Bustinza et al. (2021), collaboration with KIBS enhances the potentialities of product-service innovation enabled by I4.0 technologies (new product development within a smart manufacturing technological scenario). In this respect, the possibility of firms to rely on KIBS for their digital transformation could be a relevant factor in increasing the likelihood of success of such process. Nevertheless, there is still not empirical research that has devoted attention to the role of KIBS in the implementation of I4.0 technologies and the consequences in terms of knowledge creation and innovation.

Through collaboration among the different business functions and with KIBS, firms can create new knowledge to innovate products as well as processes. Regarding relationships, I4.0 technologies allow firms to enhance their internal and external interconnections. Despite the recent emphasis on an I4.0 technological scenario, additional research must be conducted to provide a better understanding of the consequences for the knowledge domain of the adoption of these new technologies, and the relation investigated from a wider perspective (Obradović et al., 2021).

Purpose of the paper. The paper aims at analyzing the results in terms of knowledge creation for innovation of a manufacturing firm's adoption process of I4.0 technologies by investigating the firm's strategy of adoption in terms of variety of technologies, its applications in the different value chain activities, and the role of intra- and inter-organizational collaboration in such a framework. On the one hand, we aim at assessing the relationship between the variety of I4.0 technologies a firm adopted and the penetration of I4.0 technologies on the different value chain stages. On the other hand, we aim at assessing if the use of I4.0 technologies in the different activities of firm's value chain (depth I4.0) allows a firm creating new knowledge in terms of product and process innovation. In this latter case, we also aim at understanding the possible relevance of inter-functional collaboration and the relationships with KIBS, activated by the technologies adopted, as mediators in this relationship.

Through the empirical analysis of 137 adopting firms, the paper contributes to outline the relevance of internal and external collaboration for knowledge creation rooted on I4.0 technologies, to overcoming the simplistic view of technological drivers for knowledge management at the firm level and stressing how the combination of inputs coming from multiple and different actors affect new knowledge creation within the fourth industrial revolution.

Methodology. To test the research hypotheses, we carried out a survey submitting a structured questionnaire through computer-assisted web interview (CAWI) methodology to entrepreneurs, chief operation officers, or managers in charge of manufacturing and technological processes. Grounding on literature, through the questionnaire we assessed (binary variable, Yes = 1; No = 0) the adoption of the following I4.0 technologies: (1) autonomous robots, (2) additive manufacturing, (3) big data/cloud, (4) augmented reality (AR), (5) IoT and smart products, (6) laser cutting and (7) 3D scanner. The first five technologies refer to the most mentioned ones investigated in the Italian production context (Zheng et al. 2019) also because supported by Italian Ministry of Economic Development regulation launched in 2016 (Agostini and Filippini 2019). In addition, we have also considered the adoption of digital laser cutting and 3D scanner for two main reasons. Firstly, such intelligent machine tools are included in the I4.0 paradigm because of their relevance for smart manufacturing (Tong et al. 2020), supporting the evolution of the customization processes of specific industries (e.g., automotive). Secondly, they are very important for the digital transformation of the Made-in-Italy sectors investigated (Bonfanti et al., 2018) that frequently require specific technologies to produce "tailoring goods" (Di Roma 2017).

To estimate the effect of I4.0 on the value chain activities, we assessed (binary variable, Yes = 1; No = 0) also where (in which activities/processes) a firm used the technologies adopted, considering the following value chain activities: (1) new products development, (2) prototyping, (3), manufacturing activities, (4) production process management, (5) logistic and supply chain management, (6) sales/marketing activities, (7) post-sales services (including spare parts). For our research purposes, grounding on recent literature (Büchi et al. 2020; Cugno et al., 2021), we assessed both the breadth of I4.0 technologies (breadth I4.0), creating a variable as sum of the different technologies adopted, and the depth of I4.0 technologies (depth I4.0), creating a variable as sum of the value chain activities in which I4.0 technologies have been adopted. Both variables that work as independent variables range from 1 to 7 (technologies adopted, value chain activities involved).

In addition to the evaluation of I4.0 investment, as mediator variables we have also considered the role of relationships and collaborations inside the firm as well as with external actors (specifically, KIBS) linked to I4.0 investment. As far as the intra-firm relationships are concerned (Brodeur et al., 2021), we assessed, through a 5-point Likert scale (Not at all = 1; Too much = 5), if the technologies adopted allowed increasing the inter-functional collaboration, specifically between production and other business functions. As far as the external relationships are concerned (Bustinza et al. 2021), we assessed through a binary variable (Yes = 1; No = 0) the external actors that supported the firm in the adoption and implementation of technologies adopted, considering the following actors: (1) I4.0 suppliers, (2) system integrators, (3) machinery suppliers, (4), consultants, (5) universities/research centres, (6) technology transfer centres, (7) others. Then, we created the variable KIBS, as sum of the seven items.

As dependent variable, we have considered the new knowledge creation as mean of two items (5-point Likert scale, Not at all = 1; Too much = 5) that assess if the technologies adopted allowed the firm to create new knowledge for the improvement and innovation of (1) production processes and of (2) products (Hughes et al. 2020). Finally, as control variables, we have considered a set of firm's characteristics that may affect the I4.0 implementation process (Mittal et al. 2018): firm size in terms of employees; industry, clustering the firms into two main technological groups following

both the NACE code and EU classification (Low or Medium-low tech industry = 0; Medium-high or High tech industry = 1), R&D expenditure; export as percentage on annual turnover; and the firm's type of market served (Business-to-Business = 0; Business-to-Consumer = 1).

Through the survey, we were able to collect 1,400 questionnaires and 206 firms stated that they had adopted at least one of the seven I4.0 technologies. After cleaning the sample based on completed answers, we obtained a cleaned sample of 137 adopting firms. Table 1 shows the sample characteristics, including the firm's size (EU turnover classes), industry and type of market.

Tab. 1: Items and measures of strategic variables

Descriptive	Frequency	Percentage
Firm size		
Micro	44	32.1
Small	59	43.1
Medium	26	19.0
Large	8	5.8
Industry		
Textile and clothing	27	19.7
Furniture	26	19.0
Fashion	26	19.0
Automotive	19	13.9
Lighting	14	10.2
Leather/Footwear	11	8.0
Electrical motors and parts	8	5.8
Rubber and plastic goods	6	4.4
Industry by technology intensity level		
Low/Medium-low	96	70.1
Medium-high/High	41	29.9
Market		
B2B	84	61.3
B2C	53	38.7

Notes: N = 137.

Source: Authors' elaboration

Results. Due to the research purposes, we performed a two-steps regression analysis. Firstly, we assessed the direct relationship between breadth and the depth of I4.0 technologies; then, we assessed the role of mediators run by the increased inter-functional collaboration (first analysis) and the collaboration with KIBS (second analysis).

The main goal of the study is to assess I4.0 technologies as enabling the creation of new knowledge and the process that leads to this outcome. In so doing, we performed a two-steps regression analysis. Firstly, we assessed the direct relationship between breadth and the depth of I4.0 technologies; then, we assessed the role of mediators run by the increased inter-functional collaboration (first analysis) and the collaboration with KIBS (second analysis).

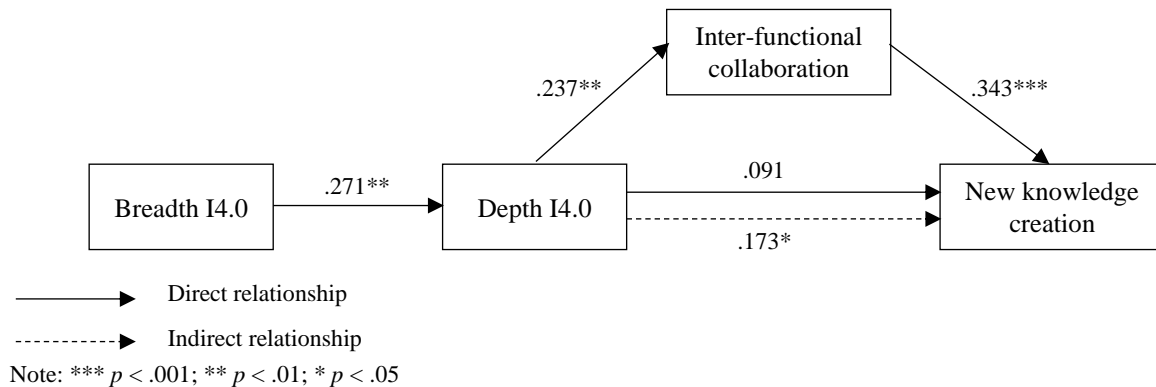
The first step of regression analysis shows (see Figure 1 and 2) that the number of I4.0 technologies adopted positively affects the penetration of these technologies into the different firm's value chain activities, and thus that the breadth I4.0 is positively related to the depth I4.0 ($\beta = 0.271, t = 3.168, p = 0.002$). As far as this first relationship is concerned, two firm characteristics seem to play a positive role: the market served, where B2B firms are positively linked to the depth I4.0 ($\beta = 0.206, t = 2.517, p = 0.021$) and the firm's R&D activity, which is positively related to the depth I4.0 ($\beta = 0.189, t = 2.436, p = 0.020$).

Concerning the regression analyses with mediation (see Figure 1 and 2) depth I4.0 is positively associated with both the increased inter-functional collaboration ($\beta = 0.237, t = 3.144, p = 0.002$) activated through the technologies adopted as well as with the number of different types of KIBS ($\beta = 0.274, t = 4.443, p = 0.000$) that a firm relates with to support the implementation of the technologies adopted. In addition, both the increased inter-functional collaboration as well the KIBS variable are positively associated with the new knowledge about the improvements of products and production processes that a firm created through the new technologies adopted, as indicated by the significant unstandardized regression coefficients (the former: $\beta = 0.343, t = 5.365, p = 0.000$; the latter: $\beta = 0.261, t = 3.142, p = 0.002$).

Finally, the depth I4.0 has a (same) positive indirect effect on new knowledge creation by mean of both the increased inter-functional collaboration ($\beta = 0.173, t = 2.849, p = 0.005$) and KIBS ($\beta = 0.173, t = 2.849, p = 0.005$). The formal two-tailed significance test (assuming a normal distribution) demonstrated that both indirect effects were significant (IF collaboration: Sobel $z = 2.678, p = 0.007$; KIBS: Sobel $z = 2.521, p = 0.012$). The bootstrap results confirmed the Sobel test, with a bootstrapped 95% CI around the indirect effect not containing zero. Thus, the hypotheses 4a and 4b are supported. Moreover, it is also interesting to note that - both as far as increased inter-

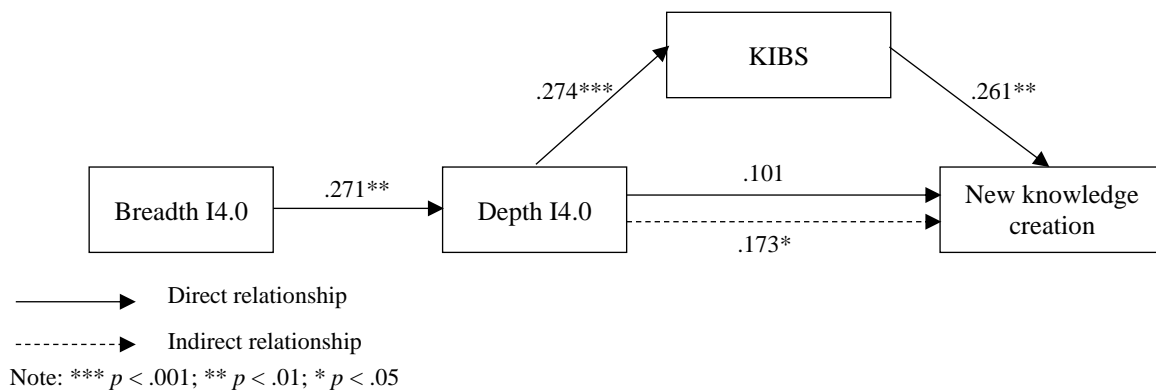
functional collaboration and KIBS are concerned - the results of mediation analysis show a full-mediation of the two mediators because of the missing of a significantly direct effect between the depth I4.0 and the new knowledge creation.

Fig. 1: Mediation analysis with Inter-functional collaboration



Source: Authors' elaboration

Fig. 2: Mediation analysis with KIBS



Source: Authors' elaboration

Concerning the mediation analyses based on formal significance tests of the indirect effects, of which the Sobel test is preferred as this approach is more powerful than the stepwise procedure proposed by Baron and Kenny (1986) because it addresses mediation directly best known (Preacher and Hayes 2004). However, the Sobel test has its own limitations because it rests on the assumption that the indirect effects ab are normally distributed, which is a tenuous assumption because the distribution of ab is known to be non-normal, even when the variables constituting the product ab are normally distributed. Therefore, bootstrapping is recommended. Based on the application of bootstrapped confidence intervals (CIs), it is possible to avoid power problems introduced by asymmetric and other non-normal sampling distributions of an indirect effects model (MacKinnon et al. 2004). Therefore, the mediation hypotheses (4a and 4b) were tested using the SPSS macro-PROCESS developed by Hayes (2013), which includes both a normal theory approach (i.e., the Sobel test) and a bootstrap approach to obtain CIs, which facilitated the estimation of the indirect effects ab .

Finally, from the viewpoint of control variables in the mediation analysis, only firm size plays a positive role in the relationships between depth I4.0 and both increased inter-functional collaboration as well as collaboration with KIBS. This result shows that, essentially, the creation of new knowledge linked to the use of I4.0 technologies adopted is not linked to the firm's characteristics per se.

Research limitations. The study has some limitations. Firstly, the size of the sample and secondly the consideration of only Italian manufacturing SMEs located in Northern Italy. In this sense, an international sample could allow to generalize results. Another limitation is related to the types of technologies investigated. Including other technologies could evaluate if a direct relationship between depth I4.0 and new knowledge creation exists. In addition, we considered the breadth I4.0 without checking the linkages between the single technologies and the new knowledge creation. One more limitation refers to the type of knowledge creation investigated that refers to only knowledge for process/product innovation. Finally, one more limitation regards the mediators and the absence of the analysis of the link between the internal network and the external one (Ganotakis et al., 2013).

Managerial implications. *Our study has several managerial implications. Firstly, the adoption of different I4.0 technologies allows a firm to deeply penetrate the technological investment into its value chain stages. Firms should think about I4.0 as a strategic choice that changes different business areas and activities, requiring the adoption of different technologies to be successful. As emphasized in previous research (Moëuf et al. 2020), I4.0 is an organizational transformation; therefore, the creation of new knowledge related to new technologies is a complex process. Our study shows that to get benefits in terms of new knowledge for innovating manufacturing processes and products, firms should encourage internal and external collaboration when Industry 4.0 technologies are adopted. Teams composed of managers coming from different functions of the firm should be in charge of the adoption in order to fully grasp the potential of the implementation of a new technology. As our results pointed out, the complexity of the fourth revolution requires more than a narrow functional focus. Its consequences crosscut several areas of the firm. In addition, managers should favor the collaboration with valuable partners that could help the firm redesign their processes and product. The selection and dialogue with those partners seem to be strategic skills firms have to master. Implementing the new technologies with the support of knowledge—intensive actors, such as KIBS, enable knowledge innovation processes useful to better exploit the potentials of Industry 4.0.*

In terms of policy, our study suggests that in order to embrace the fourth industrial revolution rooted in the Industry 4.0 paradigm, policy makers should not only take into account fiscal incentives for the adoption of those technologies but should also encourage the building of networks between adopting firms and external actors. The quality of this network has very important consequences on the outcomes of the adoption of new technologies. From this perspective, policy makers should also facilitate the development of KIBS at the local level in order to support the upgrading of firms.

Originality of the paper. *The study offers an original contribution on the role of knowledge management in the fourth industrial revolution. Results suggest some important considerations about what are the conditions in which the adoption of I4.0 technologies could lead to the creation of new knowledge associated with the development of process or product innovation. The study stresses the absence of a direct relationship between I4.0 technologies (in terms of depth) and the creation of new knowledge. The creation of new knowledge for manufacturing innovation purposes, linked to the use of I4.0 technologies, are related to a specific set of relationships the firm has developed inside and outside its boundaries. This is perfectly consistent with the open innovation paradigm (Chesbrough 2003; Laursen and Salter 2006) that our work is contributing to extend to the I4.0 landscape (Obradović et al. 2021).*

Keywords: *Industry 4.0; knowledge; innovation; digital transformation; inter-functional collaboration, KIBS*

References

- AGOSTINI L., FILIPPINI R. (2019), “Organizational and Managerial Challenges in the Path toward Industry 4.0”, *European Journal of Innovation Management*, vol. 22, n. 3, pp. 406-421.
- BALLESTAR M.T., DÍAZ-CHAO Á., SAINZ J., TORRENT-SELLENS J. (2020), “Knowledge, Robots and Productivity in SMEs: Explaining the Second Digital Wave”, *Journal of Business Research*, vol. 108, pp. 119-131.
- BARON R.M., KENNY, D.A. (1986), “The Moderator-mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations”, *Journal of Personality and Social Psychology*, vol. 51, n. 6, pp. 1173-1182.
- BETTIOL M., CAPESTRO M., DI MARIA E., MICELLI S. (2021), “Disentangling the Link between ICT and Industry 4.0: Impacts on Knowledge-related Performance”, *International Journal of Productivity and Performance Management*. doi: 10.1108/IJPPM-10-2020-0573.
- BETTIOL M., DI MARIA E., MICELLI S. (2020), *Knowledge Management and Industry 4.0: New Paradigms for Value Creation*. Springer, Cham.
- BONFANTI A., DEL GIUDICE M., PAPA A. (2018), “Italian craft firms between digital manufacturing, open innovation, and servitization”, *Journal of the Knowledge Economy*, vol. 9, n. 1, pp. 136-149.
- BRODEUR J., PELLERIN R., DESCHAMPS I. (2021), “Collaborative Approach to Digital Transformation (CADT) Model for Manufacturing SMEs”, *Journal of Manufacturing Technology Management*, vol. 33, n.1, pp. 61-83.
- BÜCHI G., CUGNO M., CASTAGNOLI R. (2020), “Smart Factory Performance and Industry 4.0”, *Technological Forecasting & Social Change*, Vol. 150. doi: 10.1016/j.techfore.2019.119790.
- BUSTINZA O.F., OPAZO-BASAEZ M., TARBA S. (2021), “Exploring the Interplay between Smart Manufacturing and KIBS Firms in Configuring Product-service Innovation Performance”, *Technovation*. doi: 10.1016/j.technovation.2021.102258
- CHESBROUGH H.W. (2003), “The Era of Open Innovation”, *MIT Sloan Management Review*, vol. 44, n. 3, pp. 35-41.
- CIRIACI D., MONTRESOR S., PALMA D. (2015), “Do KIBS Make Manufacturing More Innovative? An Empirical Investigation of Four European Countries”, *Technological Forecasting and Social Change*, vol. 95, pp. 135-151.
- CUGNO M., CASTAGNOLI R., BÜCHI G. (2021), “Openness to Industry 4.0 and Performance: The Impact of Barriers and Incentives”, *Technological Forecasting and Social Change*, vol. 168: doi: 10.1016/j.techfore.2021.120756.

- CULOT G., NASSIMBENI G., ORZES G., SARTOR, M. (2020), "Behind the Definition of Industry 4.0: Analysis and Open Questions", *International Journal of Production Economics* vol. 226. doi: 10.1016/j.ijpe.2020.107617.
- DALENOGARE L.S., BENITEZ G.B., AYALA N.F., FRANK A.G. (2018), "The Expected Contribution of Industry 4.0 Technologies for Industrial Performance", *International Journal of Production Economics*, vol. 204, pp. 383-394.
- DAVENPORT T.H. (2018), "From Analytics to Artificial Intelligence", *Journal of Business Analytics*, vol. 1, n. 2, pp. 73-80.
- DI MARIA E. GRANDINETTI R., DI BERNARDO B. (Eds.) (2012), *Exploring Knowledge-intensive Business Services: Knowledge Management Strategies*, Palgrave Macmillan, Basingstoke.
- DI ROMA A. (2017), "Footwear Design. The paradox of 'tailored shoe' in the contemporary digital manufacturing systems", *The Design Journal*, vol. 20 n. 1, pp. 2689-2699.
- GANOTAKIS P., HSIEH W.L., LOVE J.H. (2013), "Information Systems, Inter-functional Collaboration and Innovation in Taiwanese High-tech Manufacturing Firms", *Production Planning & Control*, vol. 24, n. 8-9, pp. 837-850.
- HAYES A.F. (2013), *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-based Approach*, The Guilford Press, New York.
- HIGÓN D.A. (2012), "The Impact of ICT on Innovation Activities: Evidence for UK SMEs", *International Small Business Journal*, vol. 30, n. 6, pp. 684-699.
- HOLMSTRÖM J., HOLWEG M., KHAJAVI S.H., PARTANEN J., (2016), "The Direct Digital Manufacturing (R)evolution: Definition of a Research Agenda", *Operations Management Research*, vol. 9, n. 1, pp. 1-10.
- HUGHES L., DWIVEDI Y.K., RANA N.P., WILLIAMS M.D., RAGHAVAN V. (2022), Perspectives on the Future of Manufacturing within the Industry 4.0 Era", *Production Planning & Control*, vol. 33, n. 2-3, pp. 138-158.
- LAURSEN K., SALTER A. (2006), "Open for Innovation: The Role of Openness in Explaining Innovation Performance among U. K. Manufacturing Firms", *Strategic Management Journal*, vol. 27 n. 2, pp. 131-150.
- MACKINNON D.P., LOCKWOOD C.M., HOFFMAN J.M., WEST S.G., SHEETS V. (2002), "A Comparison of Methods to Test Mediation and Other Intervening Variable Effects", *Psychological Methods*, vol. 7 n. 1, pp. 83-104.
- MITTAL S., KHAN M.A., ROMERO D., WUEST T. (2018), "A Critical Review of Smart Manufacturing & Industry 4.0 Maturity Models: Implications for Small and Medium-sized Enterprises (SMEs)", *Journal of Manufacturing Systems*, vol. 49, pp. 194-214.
- MOEUF A., LAMOURI S., PELLERIN R., TAMAYO-GIRALDO S., TOBON-VALENCIA E., EBURDY R. (2020), "Identification of Critical Success Factors, Risks and Opportunities of Industry 4.0 in SMEs", *International Journal of Production Research*, vol. 58 n. 5, pp. 1384-1400.
- MULLER E., DOLOREUX D. (2009), "What We Should Know about Knowledge-intensive Business Services", *Technology in Society*, vol. 31 n. 1, pp. 64-72.
- OBRADOVIĆ T., VLAČIĆ B., DABIĆ M. (2021), "Open Innovation in the Manufacturing Industry: A Review and Research Agenda", *Technovation*, vol. 102, pp. 1-16.
- PASCHEN J., KIETZMANN J., KIETZMANN T.C. (2019), "Artificial Intelligence (AI) and Its Implications for Market Knowledge in B2B Marketing", *Journal of Business and Industrial Marketing*, vol. 34 n. 7, pp. 1410-1419.
- PORTER M. (1985), *Competitive Advantage*, Free Press, New York.
- PREACHER K.J., HAYES A.F. (2004), "SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models", *Behavior Research Methods, Instruments, & Computers*, vol. 36, n.4, pp. 717-731.
- REYFENS C., LIEVENS A., BLAZEVIĆ V. (2016), "Leveraging Value in Multi-stakeholder Innovation Networks: A Process Framework for Value Co-Creation and Capture", *Industrial Marketing Management*, vol. 56, pp. 40-50.
- ROBLEK V., MEŠKO, M., KRAPEŽ A. (2016), "A Complex View of Industry 4.0", *SAGE Open*, vol. 6 n. 2, pp. 1-11.
- SCHUH G., POTENTE T., WESCH-POTENTE C., WEBER A.R., PROTE J.P. (2014), "Collaboration Mechanisms to Increase Productivity in the Context of Industrie 4.0", *Procedia CIRP*, vol. 19, pp. 51-56.
- SCHWAB K. (2017), *The Fourth Industrial Revolution*, Crown Business, New York.
- TONG X., LIU Q., PI S., XIAO Y. (2020), "Real-time Machining Data Application and Service Based on IMT Digital Twin", *Journal of Intelligent Manufacturing*, vol. 31, pp. 1113-1132.
- USTUNDAG A., CEVIKCAN E. (2018), *Industry 4.0: Managing The Digital Transformation*, Springer, Chan.
- ULRICH K., EPPINGER, S.D. (2000), *Product Design and Development*, McGraw-Hill, New York.
- ZHENG T., ARDOLINO M., BACCHELLI A., PERONA M., ZANARDINI M. (2019), "The Impacts of Industry 4.0: A Descriptive Survey in the Italian Manufacturing Sector", *Journal of Manufacturing Technology Management*, vol. 31 n. 5, pp. 1085-1115.

The reconfiguration of the indirect marketing channel: The SMEs' perspective

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Framing of the research. *The Covid-19 pandemic is probably one of the most significant crises that Italian companies have experienced in the last 50 years, both in terms of its global reach and of its impact at numerous and different levels (Papagiannidis et al., 2020). In 2020, the global health emergency has accelerated the digital transformation process of SMEs (small and medium-sized enterprises) that led to the reconfiguration of the marketing channels relating to distribution, communication and sales. Through this process, SMEs have discovered the importance of the digital channel to manage the relationship with their customers and stakeholders.*

Peterson et al (1997) identified marketing channels in distribution channels (dealing with various activities including stock and assortment management), transactional channels (facilitating an economic exchange between buyers and sellers) and communication channels (informing the buyer about the availability and features of a product / service). Nowadays marketing channels tend to assume the three functions simultaneously (Cui et al., 2021).

A marketing channel has been described as “a set of interdependent organizations involved in the process of making a product or service available for use or consumption” (Palmatier et al., 2014, p. 3). Other scholars defined the marketing channel as “an organized system of marketing relationships between producers, intermediaries, and end customers” (Dimitrova et al., 2020, p. 68). The marketing channel has the task of connecting sellers and buyers and contributes to the achievement of a sustainable competitive advantage (Rosembloom, 2012). In particular, the relationships in the channel refer to the flows of product, information, negotiation, payment and ownership.

Over the years, the evolution of marketing channels resulted from their adaptation to the changes characterizing the marketing environment. Some changes related to the actors of the channels, functions, length and offer, in order to increase the value for producers and customers / end users.

Digital transformation has influenced companies in their boundaries, processes, structures and interactions, affecting them totally. In fact, companies have been called to redefine strategies, innovation, entrepreneurial processes and governance mechanisms (Cennamo et al., 2020). In particular, new technologies and the digitalization process have an impact even on marketing channels that allow business-customer interaction (Dimitrova et al., 2020). The digital channel is now considered to communicate, share information, provide services, sell products, share content and, more generally, interact with customers to create a win-win relationship.

Digitalization has led to an interaction between the company and customers through online, mobile, offline media channels. Heterogeneous touchpoints allow interaction between buyer and seller, with direct, face to face or digital contact (Payne et al., 2017). This aspect is particularly relevant even because new information technologies can generate possibilities for marketing actions that reshape the competitive landscape (De Luca et al., 2020).

Considering the evolution of marketing channels generated by digitalization innovation process, in a first phase two types of parallel marketing channels were presented (brick and mortar store and online channel). Neslin et al. (2006) define multi-channel management as “the design, deployment, coordination, and evaluation of channels to enhance customer value through effective customer acquisition, retention, and development” (p. 96). From a multi-channel marketing perspective, firms use two channels, online and offline, to sell a product. The channels were managed independently with a limited level of integration and coordination (Vianello and Ferrandina, 2017).

In an intermediate cross-channel perspective, an initial coordination and interaction between the different channels occurred. There are several benefits and constrains. The advantages include the possibility for a company to increase brand awareness, and the knowledge of its customers. The constrains include cannibalization and desynchronization of channels, inefficient use of physical resources, vertical downstream integration (Vianello and Ferrandina, 2017).

The transition from a multi-channel perspective to an omnichannel perspective is based on a seamless experience considering different sales and communication touchpoints, or rather “synergistic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the

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performance over channels is optimized” (Verhoef et al., 2015, p. 176). In detail, omnichannel marketing is “an experience which will diminish the distinction between online and offline channels and turn the world into a showroom without walls” (Hossein et al., 2020, p. 226). Specifically, special attention has to be focused on the correct implementation and readiness of new technologies by SMEs - eg. Artificial Intelligence- that can positively influence the international performance of companies (Denicolai et al., 2022).

In particular, the marketing channels have been influenced by the digitalization process that led to a process of hybridization of the heterogeneous channels. The emergence of digital channel requires to integrate (multi/cross-channels perspective) and co-ordinate (omnichannel perspective) digital and physical channels. Firms had to focus on the synergistic and integrated management of the variety of online and offline channels, direct and indirect, to optimize the relationship with customers.

In this digital innovation process, digital channel can play an important role supporting firms in strengthening the relationship with customers in a long-term perspective.

Purpose of the paper. The research aims to explore digital innovation and its impact on marketing channels. In particular, the study wants to investigate how Italian SMEs have reconfigured the indirect marketing channel in light of the digital innovation.

Methodology. Due to the paucity of contributions on this specific topic, an explorative approach is adopted in this research. In detail, a qualitative approach was considered as the most suitable method for the purpose of this study. Interviews are used as the primary source for data collection.

In order to gain multiple source of information and provide different point of views and levels of analysis, the research process was divided in two steps. The first step regards the collection of information coming from key informants about the research topic; while the second step concerns the exploration of an emblematic case study for obtaining a deeper analysis on the field.

The first step of the research process was then based on the identification of potential key informants and validation of a set of selection criteria (Eisenhardt and Graebner, 2007). In order to ensure the validity of the results, a panel of key informants was identified with knowledge on the research topic and representing a variety of viewpoints (Denzin and Lincoln, 2008). Each participant was selected according to some criteria (Creswell and Miller, 2000): a) willingness to be interviewed; b) note on the survey topic with particular focus on Italian SMEs operating in the Made in Italy manufacturing sectors; c) knowledge of the topic demonstrated in terms of current and previous work experience on the topics analyzed. Based on these criteria, potential informants were identified for the interviews: 13 key informants were selected based on this purposive sampling. Among them, three are expert consultants with long experience in marketing and digitalization strategies in large companies. Two are general managers of associations. Two members of associations of companies. Two association presidents. One network manager responsible for the creation, development and coordination of network of companies. One innovation manager for the enhancement of the social, cultural and entrepreneurial fabric. One CEO of a team of experts with experience in supporting start-ups, small and large companies. One director of external and international relations of association. The availability of key informants was fundamental to the selection process owing to the sensitivity of the topic under investigation. After the identification of the key informants, the research process progressed with data collection through interviews (Runfola et al., 2021). Respondents’ characteristics, in particular long experience on the field and broad overview of Italian SMEs operating in the Made in Italy manufacturing sectors, guaranteed multiple perspectives on the topic. This specific aspect enables a deeper understanding of the phenomenon and limited self-reported biases that may compromise the reliability of the study. The number of respondents was appropriate because, even if the research process is an ongoing process, the discussion reached saturation (Guest et al., 2006). The semi-structured interview was composed by key questions designed to investigate the point of view of the key informants on the marketing channel reconfiguration in Italian SMEs.

In order to gain additional data, an emblematic case study was analyzed (Yin, 2003). The selected case study respects some inclusion criteria: it is a new player born to support the implementation of digital strategies, which (a) work on the Italian market, (b) operate in a B2B context and (c) carry out activities in support of small and medium-sized Italian companies. The investigated company is BrandOn Group. BrandOn Group is an expert and online digital consultant for brands and retailers. Customers are mainly brands, distributors, wholesalers, retailers, whose catalogues are uploaded to a proprietary platform created in 2015. BrandOn supports companies in the digital sales process and optimizes their visibility on multi-brand e-commerce platforms.

The data reported was collected through direct interviews with key informants of the company and integrated with secondary data from articles, reports and company sites.

In addition, we decided to focus the attention on the Italian SMEs as Italy provides an interesting context to explore SMEs. In fact, in Italy SMEs represent 99.9% of the total number of companies, generating over 70% of the turnover of the country and helping to employ over 81% of workers (PMI.it, 2021), representing an interesting research laboratory for our study.

Results. The results show the potentialities of digital channels to improve the customer orientation of SMEs.

Considering the first step of the research process, the feedback provided by the key informants emphasized that the digital innovation has an impact on the indirect channel, traditionally related to retailers (short indirect) and wholesalers (long indirect). In fact, digitalization has led to the emergence of marketplaces, reconfiguring the indirect marketing channel.

In traditional indirect channels, such as the relationship with wholesalers and retailers, the impact of digitalization process has brought the benefits to Italian SMEs that are found in strengthening the relationship with the end customer by increasing brand awareness. On the other hand, however, some critical issues emerge such as the limited control by the firm of the traditional indirect channel supported by digital and the resistance to change by Italian SMEs operating in the Made in Italy.

As regards to vertical marketplaces, that offer services to firms belonging to a specific industry, digital transformation has allowed Italian SMEs to obtain advantages such as the optimization of investments and an increase in competitiveness. Notwithstanding, this indirect channel is still in a preliminary phase of development and the implications of digital integration require new skills. This could also lead to the activation of relationships with new digital actors that can facilitate the management of the relationship between SMEs and the marketplace.

Concerning horizontal marketplaces, which define an offer system aimed at customers belonging to different industries, digital transformation has brought benefits to them in terms of positioning that can be reached by SMEs that integrate them into their distribution and communication, growth in brand awareness, quick returns and greater opportunity to enter new markets. The criticalities encountered are attributable to a limited control of these channels, the need to clarify the objectives of their use given the vast opportunities they create, the complexity of digital that must be rationalized and integrated into the pre-existing activities of SMEs. In addition, competitiveness becomes extreme since marketplaces are a showcase for many competing firms, the resources must be optimized, the information obtained through these channels must be collected and organized in order to be useful for decision-making purposes, limited differentiation, costs they are high in terms of participation and use fees and the request for new skills.

A relevant feedback provided by key informants concerns the constraints related to the competences and resources gap. SMEs, that are unable to face digital challenges, have to access to external competences, resources, activating a demand for new digital services. The new digital services are provided by new digital actors. These new digital actors can be of different types. Some of them may deal with specific service applications, which can integrate a series of additional services that can be used remotely in a private and secure way to a basic platform, such as a traditional e-marketplace in a “pay-per-use” perspective. Other digital actors can make available e-sourcing activities. Others monitor and collaborate in the digital supply chain and guarantee supply chain execution. There are digital actors who deal with e-catalogue activities, supporting the recursive purchasing process of products and services based on web catalogues when the commercial conditions have already been agreed.

The second step of the research process, related to BrandOn Group, outlines that among the digital organizations, a new actor emerged– that we called Digital Sales Enabler. The Digital Sales Enabler provides specific support in terms of new activities and services to respond to a change that has emerged in the business environment. SMEs can take advantage of this actor as the Digital Sales Enabler can ensure internal flexibility, managing creation and negotiation of contracts with stakeholders. In this way, companies can get on-demand access to external talent of Digital Sales Enabler anywhere in the world without having to introduce specific internal skills from scratch. In particular, the Digital Sales Enabler helps SMEs in strategizing in digital context. In this vein, SMEs are supported in the reconfiguration of their indirect marketing channels.

Research limitations. *The research is still in a preliminary stage. Even if the study creates the basis for subsequent studies, there are some limitations. In fact, the second explorative phase can benefit from the integration of other case studies that could exploit the same typology of Digital Sales Enabler or that can identify other actors by considering the dynamics of interconnected relationships in a network perspective. In addition, further lines of research can include quantitative research on SMEs in order to ensure the generalizability of the results. Future studies could include comparative analysis with other countries in order to investigate differences between SMEs.*

Managerial implications. *Shifting the attention from a general point of view to SME's point of view, this research present the advantages and critical points discovered by SMEs in their process of channels digitalization. The Digital Sales Enabler appears to be a fundamental actor to support companies' customer relationships, market positioning and sales management process.*

In this vein, SMEs can consider the Digital Sales Enabler as a key partner in the process of reconfiguration of their channels in order to explore and exploit the opportunities related to digital innovation.

On the basis of collaboration with Digital Sales Enabler, SMEs can enhance the functions of the channels that are distribution, communication and sales. SMEs are supported in specific activities such as catalog creation and optimization, advertising and marketing budget management, brand/account protection, customer service, report and data analytics, market evolution, definition of a personalized sales plan. The main aim of the channel is the long term relationships founded on customer centrality and a data driven approach. The Digital Sales Enabler appears to be strategic for SMEs, allowing them to also implement an internationalization and diversification strategy in order to better address the economic crisis.

Originality of the paper. *The results of the study implement and enrich the literature on the reconfiguration of marketing channels and provide important insights for Italian SMEs on the role and function of new digital actors. As described in previous researches these actors integrate a series of additional services that can be used remotely in a private and secure way to a basic platform, such as a traditional e-marketplace in a “pay-per-use” perspective. Other digital enablers can make available e-sourcing activities, for examples tools to support the search for new suppliers, the definition of their status, online negotiation through electronic auctions, the request for proposals or the request for quotes (Balocco et al., 2010). There are actors who deal with e-catalogue activities, supporting the recursive purchasing process of products and services based on web catalogues when the commercial conditions have already*

been agreed. Other actors, on the other hand, guarantee supply chain execution, that is, the cycle from order to payment including logistic and administrative activities, integrated and digitized (Petersen et al., 2007). Finally, some actors monitor and collaborate in the digital supply chain. This aspect refers to the collaboration activities between buyers and suppliers, including production and procurement planning, development of new products, monitoring and control of the supply chain (Kaplan and Sawhney, 2000).

In particular, we identified a new digital sales enabler considered as digital consultant that sustains the development of new marketing strategies and marketing policies for Italian SMEs. Our case emphasizes the key role of this new actor in the process of indirect marketing channel reconfiguration. BrandOn offers a broad range of digital services to sustain SMEs in the strategizing in digital context. BrandOn is considered for its “bridge” function as the company facilitates the interaction within brand owner, marketplace, logistics partners, technology partners.

Keywords: Marketing channels, digital innovation, SMEs, digital sales enabler, channels reconfiguration

References

- BALOCCO R., PEREGO A. PEROTTI S. (2010), “B2b eMarketplaces: A classification framework to analyse business models and critical success factors”, *Industrial Management & Data Systems*, vol. 110, n. 8, pp. 1117-1137.
- CENNAMO C., DAGNINO G.B., DI MININ A., LANZOLLA G. (2020), “Managing digital transformation: Scope of transformation and modalities of value co-generation and delivery”, *California Management Review*, vol. 62, n. 4, pp. 5-16.
- CRESWELL J.W., MILLER D.L. (2000), “Determining validity in qualitative inquiry”, *Theory into Practice*, vol. 39, n. 3, pp. 124-130.
- CUI T.H., GHOSE A., HALABURDA H., IYENGAR R., PAUWELS K., SRIRAM S., VENKATARAMAN S. (2021), “Informational challenges in omnichannel marketing: Remedies and future research”, *Journal of Marketing*, vol. 85, n. 1, pp. 103-120.
- DE LUCA L.M., HERHAUSEN D., TROILO G., ROSSI A. (2020), “How and When Do Big Data Investments Pay Off? The Role of Marketing Affordances and Service Innovation”, *Journal of the Academy of Marketing Science*, vol. 49, n. 4, pp. 790-810.
- DENICOLAI S., ZUCHELLA A., MAGNANI G. (2022), “Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths”, *Technological Forecasting and Social Change*, vol. 166, may.
- DENZIN N.K., LINCOLN Y.S. (2008), *Collecting and Interpreting Qualitative Materials*, vol. 3, Sage.
- DIMITROVA B.V., SMITH B., ANDRAS T.L. (2020), “Marketing channel evolution: From contactual efficiency to brand value co-creation and appropriation within the platform enterprise”, *Journal of Marketing Channels*, vol. 26, n. 1, pp. 60-71.
- EISENHARDT K.M. GRAEBNER M.E. (2007), “Theory building from cases: opportunities and challenges”, *Academy of Management Journal*, vol. 50, n. 1, pp. 25-32.
- GUEST G., BUNCE A., JOHNSON L. (2006), “How many interviews are enough? An experiment with data saturation and variability”, *Field Methods*, vol. 18, n. 1, pp. 59-82.
- KAPLAN S., SAWHNEY M. (2000), “E-hubs: the new B2B marketplaces”, *Harvard Business Review*, vol. 78, pp. 97-103.
- NESLIN S.A., GREWAL D., LEGHORN R., SHANKAR V., TEERLING M.L., THOMAS J.S., VERHOEF P.C. (2006), “Challenges and opportunities in multichannel customer management”, *Journal of service research*, vol. 9, n. 2, pp. 95-112.
- PALMATIER R.W., LOUIS W. STERN, ADEL I. EL-ANSARY, ERIN A. (2014), *Marketing Channel Strategy*, 8th ed. Upper Saddle River, NJ: PearsonPrentice Hall.
- PAPAGIANNIDIS S., HARRIS J., MORTON D. (2020), “WHO led the digital transformation of your company? A reflection of IT related challenges during the pandemic”, *International Journal of Information Management*, vol. 55, n. December 2020, 102166.
- PAYNE E.M., PELTIER J.W., BARGER V.A. (2017), “Omni-channel marketing, integrated marketing communications and consumer engagement: A research agenda”, *Journal of Research in Interactive Marketing*, vol. 11, n. 2, pp. 185-197.
- PETERSEN K.J., OGDEN J.A., CARTER P.L. (2007), “B2B e-marketplaces: a typology by functionality”, *International Journal of Physical Distribution & Logistics Management*, vol. 37, n. 1, pp. 4-18.
- PETERSON R.A., BALASUBRAMANIAN S., BRONNENBERG B.J. (1997), “Exploring the implications of the Internet for consumer marketing”, *Journal of the Academy of Marketing science*, vol. 25, n. 4, pp. 329-346.
- PMI.IT. (2021), *Le Piccole e Medie Imprese in Italia* [online] <https://www.pmi.it/economia/mercati/372150/le-piccole-e-medie-imprese-in-italia.html> (accessed 15 January 2022)
- ROSENBLOOM B. (2012), *Marketing channels*, Cengage Learning, South-Western, OH, USA.
- RUNFOLA A., GUERCINI S., MILANESI M. (2021), “Network interactions for pharmaceutical market access: findings from an explorative research”, *Journal of Business & Industrial Marketing*, vol. 36, n. 13, pp. 174-186.

- VERHOEF P.C., KANNAN P.K., INMAN J.J. (2015), "From multi-channel retailing to omni-channel retailing: Introduction to the special issue on multi-channel retailing" *Journal of Retailing*, vol. 91, n. 2, pp. 174-181.
- VIANELLO S., FERRANDINA A. (2017), *Il marketing omnicanale: tecnologia e marketing a supporto delle vendite*, FrancoAngeli, Milano.
- YIN R.K. (2003), *Designing case studies*, *Qualitative Research Methods*, pp. 359-386.

The interface of ethics and authenticity via second-hand luxury platforms: insights into the dual buyer-seller role

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Framing of the research. Literature has generally acknowledged the complex and multidimensional nature of ethical consumption and hence the difficulty in defining it (Bray et al., 2011). Ethical consumption can be defined as actions, decisions, and choices shaped by concerns for the well-being of others (e.g., fairtrade coffee), the natural environment (e.g., organic product) and oneself (e.g., overeating or less red meat) in the consumption process.

As Carrigan and Bosangit (2016) state, ethical consumers can adopt two interrelated but distinctive approaches to consumption: refinement and reduction. In the first, consumers refine their choices by choosing brands operated by well-performing businesses that exhibit corporate social responsibility, or by buying and using products that harm the environment less. In consumption reduction, consumers purposely reduce the current consumption levels through shifting to simple lifestyles or becoming more frugal in their consumption. Thus, both consuming better and consuming less are considered approaches to ethical consumption.

In terms of consumer behaviour, individuals can acquire, consume and dispose of ethical objects and practices that reflect who they are and who they want to be (Belk, 1988). As a result, the ethical consumers self-create through will and make consumption choices that meet their needs for a meaningful or authentic identity. They use ethical consumption practices in pursuit of their identity goal. However, the experience of ethical consumption reflects a behaviour that is socially considered as ethical. The individual experience is not only individual, but also social (Carù and Cova, 2003). Consuming ethically links consumers to family members, friends, the state, and the markets.

Within a collectively ethical consumption it is possible to investigate an individually ethical consumption. This is something in which the consumer is authentic. As such, it takes on the appearance of authentic consumption. Behind authentic brands there are brands as a “form of expressive culture no different in principle from films or television programmes or rock bands” (Holt, 2002, p.87): consumers dialogue with them, establishing an almost intimate personal relationship “as useful ingredients to produce the self as one chooses” (Holt, 2002, p. 81). Authenticity as a socially and personally based construct stems from self-negotiating acts consumers enact to reveal their true self (Arnould et al., 2002). Consumptions that foster these acts are found in brands which, as Beverland (2006, 2009) point out, distinguish themselves for quality commitment, pedigree, stylistic consistency, heritage, relationship with traditional production practices and territories. While quality and pedigree are indexical cues, offering guarantees in terms of product genuineness (2006), the other attributes are also iconic cues, fostering a consumer’s self-authentication through connections with place and time. Among the traditional production practices, handcrafted productions are characterized by feeding a consumer’s self-authentication via connections to moral personal values.

Just like ethical consumption, the business also reflects individual values and is the result of self-authentication acts. The ethics of business are the ethics of the individuals making up the business, and who recognise themselves in it. “A discussion of business ethics becomes a discussion of the ethics of the individuals who make business” (Fritzsche, 1991, p.842). Ethical values are perceptive beliefs about what is “right” and “wrong”. Ethics therefore become the vehicle for developing one’s own business.

Purpose of the paper. In our study we intend to investigate ethical consumption resulting from self-authenticating acts through which the business can be nurtured. By exploiting the area of intersection between ethical consumption and business in these terms, we aim to explore an individual dimension of collectively ethical consumption. This translates into studying how authentic consumption interacts with collectively ethical consumption. In this way we make a contribution to studies investigating the relationship between individual and collective ethical motivations. Moreover, we will investigate self-authentication acts as triggers of economic goals and therefore the dialectic between ethical consumption and authentic business triggers. Our research will focus on the luxury industry. In recent years, sustainable luxury, especially in the fashion domain, has become increasingly valued and demanded by consumers (Amatulli et al., 2018), as well as one of the drivers for the long-term success of brands (de Angelis et al., 2017). Sustainable luxury comprises “the scope of design, production and consumption that is environmentally or ethically conscious (...) and oriented towards correcting various perceived wrongs within the luxury industry” (Athwal et al.

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2019, p.406). *Our focus will be on sustainable consumption in luxury studied through second-hand platforms as expressions of a collective luxury.*

Second-hand purchasing behaviour in the Online Collaborative Redistribution Platforms (CRPs)

Second-hand shopping refers to buying goods that are previously owned by others (Roux and Guiot, 2008). To correctly defines second-cycle goods it is important to make a distinction on the term “second-hand”, that include goods that have already been used, regardless of the age of the product, to the term “vintage” that is related to previously owned - but not necessarily used - garments from a specific period (Cassidy and Bennet, 2012; Turunen and Leipaamaa-Leskinen, 2015). Cervellon et al. (2012) describe the difference with respect to consumer motivation, clarifying that vintage goods are often purchased as part of a treasure hunt, while the purchase of second-hand goods is motivated by bargain hunting.

The second-hand shopping behaviour has been mainly studied in the context of the offline markets (Roux and Guiot's, 2008, Ferraro et al, 2016; Ertz et al., 2015) with a particular emphasis on buying reasons. In terms of the online second-hand shopping motivation (OSSM) a relevant study (Padmavathy, 2019) identify four main categories: “economic motivations” those based on price orientation and value for money; “Convenience motivations”, when information seeking, easy of use, and usefulness are dominant reasons, “Ideological/Hedonic and utilitarian” motivation when social interaction, nostalgic pleasure, need for uniqueness, functional, task oriented and trust are the main reasons and “fashion motivation” based on originality, authenticity and uniqueness.

Recently, when focus on luxury second-hand it has also become a way of embracing sustainability and ethical consumption (Reiley and DeLong, 2011; Carrigan et al., 2013), finding rare and unique pieces (Cervellon et al., 2015) and accessing luxury brands normally out financially (Amatulli et al., 2018). Even if sustainability is emphasised as one of the most important critical motivations a link between environmental awareness and the desire to purchase second hand goods is still to be explored (Cervellon et al., 2012; McNeill & Moore, 2015; Yan, Bae and Xu, 2015) and very little is known about the relation between second hand luxury buying behaviour and individual ethical values. Moreover, researchers have only investigated consumer as purchaser of previously-owned goods and have completely neglected his/her role as market seller.

The collaborative consumption market (Abbes et al., 2020) is a place wherein “people coordinate the acquisition and distribution of a resource in exchange for a fee or other compensation” (Belk, 2014). It is divided in three different types: product service systems, redistribution markets and collaborative lifestyles (Bootsman and Rogers, 2010). The second-hand market is the most important part of the redistribution markets that has recently increased tremendously thanks to the advent of peer-to-peer online trading platforms (De Rivera et al., 2017). Several contributions in literature focused on the online collaborative redistribution platforms (CRPs) role and both the intrinsic characteristics like functionality, ease of use (Davis et al., 1989), entertainment (Kim and Stoel, 2004), size and reputation (Hsu et al., 2014), than the extrinsic features like sense of belonging to a community (Mohlmann, 2015), seller creativity, reciprocity between consumers (Shiau and Luo, 2012) have been analysed. In a recent work Abbes et al, (2020) demonstrate the direct impact of CRPs characteristics on platform loyalty intention and also on the loyalty intention towards brand sold in that platform. The growing development of online collaborative redistribution platforms such as Vinted or Depop, where second-hand goods are sold by users to their peers, has allowed consumers to also take on the role of “seller”. The process surrounding the sale of luxury second-hand products by peers has recently been the focus of scholars who have highlighted how it can be fuelled by the search for financial transactions empowering and a perceived higher social status, in addition to the need to boost individual sustainable responsibility.

Second-hand luxury platforms therefore make it possible to study sustainable buying and selling together, and thereby combine the consumer and business logic behind ethical behaviour so that new research questions arise:

Rq1. *What are and to what extent do the self-authentication acts (SAA) express the individual ethical values in the second-hand purchasing behaviour in the Online CRPs?*

Rq2. *Do these self-authentication acts (SAA) change when a consumer of second-hand goods is also a seller in online CRPs*

Methodology. *A qualitative approach was resorted to examine our research questions as it is a powerful method for studies where the phenomenon of interest is complex, has not been well described, is socially constructed (Corbin et al., 2014) and based on individual interactions (Belk, Fisher, & Kozinets, 2012). Participants were recruited via second-hand platforms and through personal relationships. They were screened on a number of criteria. All participants selected were buyer and seller of second-hand luxury fashion goods and their reselling activity involved personal items that had not been sources initially for resale but mainly been purchased for self-use. Twenty-two interviews were necessary to reach the saturation point. The interviews were conducted by the authors, along semi-structured guidelines. Topics included (1) informants' consumption and possession of luxury goods; the meaning attached to luxury goods (2) the goods that the informants had bought and disposed of; the reasons for the buying and for disposal; the history, symbolic meaning and feelings associated with the goods (3) the selling process; the benefits and barriers to selling (4) the purchasing process; the benefits and barriers to purchasing second hand luxury. Informants were willing to go deeper in their answer mirroring a soft-laddering approach (Grunert and Grunert, 1995), unravel the subjective meaning attached to both luxury reselling on the second-hand market and luxury purchasing. Interviews were taped and transcribed into English. The average length of the interviews was one hour. Through analysis of the data, different themes emerged, were coded, recoded and grouped again (Belk, Fisher, &*

Kozinets, 2012). The authors, from different cultural backgrounds, helped triangulate the data and introduce a level of “cultural distance” to the interpretation of the themes.

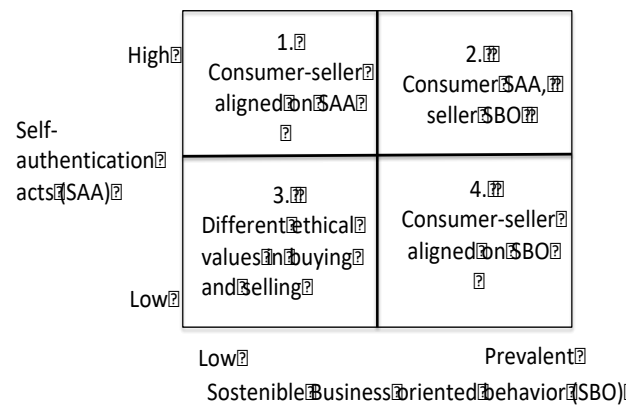
Preliminary Results. What we present here are preliminary results since the research is still in progress and not yet concluded.

All our respondents were involved in both fashion luxury purchase and resell activities on second-hand online platforms regularly. Yet, the focus of the analysis was to discover the meaning in terms of self-authentication values they attach to buying and selling fashion luxury goods. On this basis, several themes emerged from the analysis and were grouped along two dimensions:

1. Self-authentication acts (SAA) as a way to express individual (instead of collective) ethical behaviour in consumption and in selling activities;
2. Sustainable business-oriented motivation (SBO) as reason to the ethical consumer and seller behaviour.

As we can see from the fig. 1, some preliminary results emerge along these two dimensions and in particular we found 4 different situations:

Fig. 1: Self-authenticity and ethical values interface in consumer-seller second-hand luxury behaviour



- consumer-seller alignment in terms of self-authentication acts (quadrant 1 of the matrix). This is the situation where the motivation attached to the buying and selling acts of second-hand fashion luxury items is completely related to the research of a self-authentication act able to express the individual more than collective ethical values. Authenticity is “to be true to oneself” that means that a person “should lead a life that is expressive what a person takes herself to be, or wants herself to be” (Varga, 2011, p. 113). Both attributes - autonomy as well as authenticity - underline that is the person (both during buying and selling acts) who has the capacity to form her personality, her identity and to follow her own style of life in a self-directed way and actions. Buying and selling second-hand fashion luxury items is the way to express all its own convictions, beliefs, ideals, life-plans and projects; “being truthful toward oneself and about oneself in word and deed” (Bauer, 2017).
- In the quadrant 2 we find situations where exists a dis-alignment in the individual ethical values when buying compared to the selling actions. Self-authentication actions exist when buying and they are a way to express the individual ethical values but in the selling activity the economic opportunity to have a profit is prevalent.
- In the quadrant 3 we find a situation where ethical values are mainly related to a collective meaning. Be and act in a sustainable way is important both in buying and in selling actions but it not related to an “individual way to be” or to a “business opportunity” but mainly to respect collective ethical values such as social norms of the community of belonging.
- Finally, in the quadrant 4 we position all situations where individuals both during buying and seller actions express a business-oriented behaviour as dominant in their choices. They care about sustainability but mainly as a collective ethical value. The economic opportunity to have a deal in buying and in selling the items is the main reasons to use second-hand platforms.

Research limitations. This research is explorative in nature and is still ongoing, therefore, all the considerations and the expected results still have to be confirmed. However, some limits are already evident. First of all, it only focuses on a specific category of luxury goods: fashion, so that future researchers should consider various product categories such as different P2P platforms, and in different nations to capture homogeneity or heterogeneity. Comparing the seller-buyer ethical motives across different product categories would be a fruitful research agenda.

Managerial implications. The findings suggest that contemporary luxury consumers do not necessarily regard themselves as end-customers, but instead as moveable owners during the product’s lifecycle. Luxury brands should acknowledge this and turn it into a benefit. They could endeavour to manage the product’s whole lifecycle to give it value during all the consumption phases - not just in the initial “first-time” purchasing situation, but instead, by also bringing value through additional services for further users and possessors during its lifecycle.

First, building a long-term relationship with clients, recognizing first-hand luxury clients, providing an experience that is not product-centred, confers prestige to the client and value to the brand. Luxury brands should now embrace the opportunity to recognize the status of second-hand sellers, providing them with an exclusive shopping experience.

Second, find alternative avenues of representing their way of being ethical. The identified authenticating acts could inspire new ways of expressing sustainability and can explain and let company to overcome the traditional attitude gap: people declare themselves sustainable (explicit attitude) and then buy non-sustainable (implicit attitude). A possible overlap between declaring oneself sustainable and behaviour can be stimulated when understood the role of authenticity in the ethical consumer behaviour.

Originality of the paper. Three main theoretical conclusions arise from our study.

First, the study provides a new perspective in approaching second-hand luxury - that of the buyer-seller - which supplements the current literature on second-hand luxury consumption. Whilst there exists a growing body of literature concerning the buying and consuming of second-hand luxury goods (Cervellon et al., 2012; Turunen & Leipämaa-Leskinen, 2015), the transformation of the second-hand luxury consumer into a seller has been neglected in previous literature. Thus, by suggesting the diverse dynamics driving the decisions to sell luxury goods, we aim to contribute theoretically towards bridging this research gap. By studying the buying and selling process-related meanings, we identified an evolution in the underlying drivers attached to luxury consumption, first of all, in the personal value of luxury goods. A new economic value, a speculative value, can be considered in the perspective of reselling the good for money that is a means of consumer empowerment, through the growth of expertise and potential financial resources.

Second, the paper allows for investigating the interaction between ethics and authenticity. The basics of dialectics are to define the ethically authentic behaviour that can be a useful contribution to the literature on ethical consumption and to the literature on ethical business. If in fact we consider that authenticity encompasses collective ethics, this study shows how the dialectic between the two can act as a business driver. The literature separates the ethical values of the ethical consumer from the ethical values of the business man; here we identify common ethical values by analysing all the authenticating acts that make the business perform.

Keywords: self-authenticity; ethical consumption; second-hand; fashion; luxury; online collaborative redistribution platforms.

References

- ABBES I., HALLEM Y., TAGA N. (2020), "Second-hand shopping and brand loyalty: The role of online collaborative redistribution platforms", *Journal of Retailing and consumer Services*, n. 52, pp. 101885.
- AMATULLI C., DE ANGELIS M., KORSCHUN D., ROMANI S. (2018), "Consumers' perceptions of luxury brands' CSR initiatives: An investigation of the role of status and conspicuous consumption", *Journal of Cleaner Production*, vol. 194, pp. 277-287.
- ARNOULD E., PRICE L., ZINKHAN G. (2002), *Consumers*. McGraw-Hill/Irwin.
- BAUER K. (2017) "To be or not to be authentic. In defence of authenticity as an ethical ideal", *Ethical Theory and Moral Practice*, vol. 20, n. 3, pp. 567-580.
- BELK R. (2014), "You are what you can access: sharing and collaborative consumption online", *Journal of Business Research*, vol. 67, n. 8, pp. 1595-1600.
- BELK R., FISHER E., KOZINETS R. (2012), *Qualitative consumer and marketing research*. Sage.
- BEVERLAND M.B. (2006), "The "real thing": branding authenticity in the luxury wine trade", *Journal of Business Research*, vol. 59, n. 2, pp. 251- 258.
- BEVERLAND M.B. (2009), *Building Brand Authenticity? 7 Habit of Iconic Brands*. Palgrave MacMillan: Basingstoke.
- BOOTSMAN R., ROGERS R. (2010), *What's Min Is Yours*. Harper Business, New York.
- CARRIGAN M., MORAES C., MCEACHERN M. (2013), "From conspicuous to considered fashion: A harm-chain approach to the responsibilities of luxury-fashion businesses", *Journal of Marketing Management*, vol. 29, n. 11-12, pp. 1277-1307.
- CARRIGAN M., BOSANGIT C. (2016), The challenges of responsible marketing and consumption. In: *Ethics and Morality in Consumption*. Routledge, pp. 107-126.
- CARU' A., COVA B. (2003), "Revisiting consumption experience: a more humble but complete view of the concept", *Marketing Theory*, vol. 3, n. 2, pp. 267- 286.
- CASSIDY T.D., BENNETT H.R. (2012), "The rise of vintage fashion and the vintage consumer", *Fashion Practice*, vol. 4, n.2, pp. 239-261.
- CERVELLON M.C., CAREY L., HARMS T. (2012), "Something old, something used: Determinants of women's purchase of vintage fashion vs second-hand fashion", *International Journal of Retail and Distribution Management*, vol. 40, n. 12, pp. 956-974.
- DAVIS F., BAGOZZI R.D., WARSHAW P. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management Science*, n. 35, pp. 982-100.
- DE RIVERA J., GORDO A., CASSIDY P., APESTEGUÍA A. (2017), "A netnographic study of P2P collaborative consumption platforms' user interface and design", *Environmental Innovation and Societal Transitions*, n. 23, pp. 11-27.
- ERTZ M., DURIF F., ARCAND M. (2015), "Online product disposition on the rise-the specific case of online resale", *Marketing Review St. Gallen*, vol. 32, n. 5, pp. 66-76.

- FERRARO C., SANDS S., BRACE-GOVAN J. (2016), "The role of fashionability in second-hand shopping motivations", *Journal of Retailing and Consumer Services*, n. 32, pp. 262-268.
- FRITZSCHE D.J. (1991), "A model of decision-making incorporating ethical values", *Journal of business ethics*, vol. 10, n.11, pp. 841-852.
- GRUNERT K.G., GRUNERT S.C. (1995), "Measuring subjective meaning structures by the laddering method: Theoretical considerations and methodological problems", *International journal of research in marketing*, vol. 12, n. 3, pp. 209-225.
- GUIOT D., ROUX D. (2010), "A second-hand shoppers' motivation scale: Antecedents, consequences, and implications for retailers", *Journal of Retailing*, vol. 86, n. 4, pp. 355-371.
- HANSEN K.T. (2010), "Second-hand clothing", in Eicher, J. (eds.) *Berg Encyclopaedia of World Dress and Fashion*, vol. 10, pp. 232-237, Oxford University Press, Oxford.
- HOLT D.B. (2002), "Why do brands cause trouble? A dialectical theory of consumer culture and branding", *Journal of Consumer Research* vol. 29, n. 1, pp. 70- 90.
- KIM S., STOEL L. (2004), "Apparel retailers: website quality dimensions and satisfaction", *Journal of Retailing and Consumer Service*, vol. 11, n. 2, pp.109-117.
- LUNDBLAD L., DAVIES I.A. (2015), "The values and motivations behind sustainable fashion consumption", *Journal of Consumer Behaviour*, vol. 15, n. 2, pp. 149-152.
- MCNEILL L., MOORE R. (2015), "Sustainable fashion consumption and the fast fashion conundrum: fashionable consumers and attitudes to sustainability in clothing choice", *International Journal of Consumer Studies*, vol. 39, n. 3, pp. 212-222.
- MOHLMANN M. (2015), "Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again", *Journal of Consumer Behaviour*, vol. 14, n. 3, pp. 193-207.
- PADMAVATHY C., SWAPANA M., PAUL J. (2019) "Online second-hand shopping motivation-Conceptualization, scale development, and validation", *Journal of Retailing and Consumer Services*, n. 51, pp. 19-32.
- REILEY K., DELONG M. (2011), "A consumer vision for sustainable fashion practice", *Fashion Practice*, vol. 3, n. 1, pp. 63-83.
- ROUX D., GUIOT D. (2008), "Measuring second-hand shopping motives, antecedents and consequences" *Recherche et Applications En Marketing (English Edition)*, vol. 23, n. 4, pp. 63-91.
- ROUX D., KORCHIA M. (2006), "Am I what I wear? An exploratory study of symbolic meanings associated with secondhand clothing", *Advances in Consumer Research*, n. 33, pp. 29-35.
- SHIAU W.S., LUO M.M. (2012), "Factors affecting online group buying intention and satisfaction: a social exchange theory perspective", *Computers in Human Behavior*, vol. 28, n. 6, pp.2431-2444.
- SIHVONEN J., TURUNEN L.L.M. (2016), "As good as new-valuing fashion brands in the online second-hand markets", *Journal of Product and Brand Management*, vol. 25, n. 3, pp. 285-295.
- THOMAS S. (2008), "From "green blur" to ecofashion: Fashioning an eco-lexicon", *Fashion Theory: The Journal of Dress, Body and Culture*, vol. 12, n. 4, pp. 525-539.
- TURUNEN L.L.M., LEIPÄMAA-LESKINEN H. (2015), "Pre-loved luxury: identifying the meanings of second-hand luxury possessions", *Journal of Product and Brand Management*, vol. 24, n. 1, pp. 57-65.
- VARGA, S. (2011), "The paradox of authenticity", *Telos-New York*, vol. 156, p. 113-131.
- YAN R.N., BAE S.Y., XU H. (2015), "Second-hand clothing shopping among college students: the role of psychographic characteristics", *Young Consumers*, vol. 16, n. 1, pp. 85-98.

Save the planet, but do not leave people behind: an interdisciplinary data-driven approach to Social Sustainable Operations and HR Management

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Framing of the research. *After a long period of sustained economic growth, the concern about wealth disparity and natural resource depletion has been escalating in the last decades (Dao et al., 2011; Abbasi et al., 2021). In order to cope with dynamic market changes, firms have to use and manage their resources in a sustainable manner (Singh and El-Kassar 2019), as addressing environmental and social sustainability issues to attract, satisfy, and retain customers is becoming always more challenging (Longoni and Cagliano 2016; Christopher, Martin and Gaudenzi, Barbara 2018).*

Back in 2008, Jabbour and Santos highlighted that a standard of development equally favouring economic, social and environmental sustainability was needed. In fact, the three of them constitutes essential aspects of the business (Raut et al., 2019) which have been demonstrated to extend beyond organizational boundaries, denoting that sustainability initiatives across the supply chain are of great relevance (Mani et al., 2016). However, even if economic and environmental sustainability of the supply chain have largely been considered by scholars and practitioners (Massaroni et al., 2015), its social aspect has mostly been neglected (Mani et al., 2016). According to Carter and Rogers (2008) the reason behind this phenomenon lies in the fact that the 1987 Brundtland Commission's definition of sustainability (World Commission on Environment and Development 1987, p.8) («development that meets the needs of the present without compromising the ability of future generations to meet their needs»), the most widespread one, is rather broad, making it hard for companies to understand and concretely apply it. Contextualizing this definition in order to apply it to supply chain sustainability, Mani et al., (2016) define corporate sustainability as meeting the needs of today's direct and indirect stakeholders without compromising the ability to meet the needs of future stakeholders. This entails that social sustainability allows the managing of social issues regarding the supply chain in a way that ensures the survival of the company in the long-term.

Nevertheless, sustainability research and practice have mostly focused on the environment, neglecting people-related aspects, particularly employee well-being. This is a relevant social issue, as adopting socially sustainable practices minimises workers' agitation and increases suppliers' production quality and ability to meet buyers' requirements (Mani et al., 2016). In particular, most companies disregarded social sustainable operations practices, which are usually aimed at improving employees' working conditions, health, and safety (Gimenez et al., 2012). These are of particular relevance as they may influence human resources (HR) benefits, namely «the mechanisms through which a workforce contributing to the firm's goals and strategy is developed» (Longoni and Cagliano 2016, p.1728). This is particularly true for employee motivation and retention, which many research empirically demonstrated to be positively related to organizational performance (e.g. Dobre 2013). The reason behind this situation is that companies usually do not consider the HR department when dealing with sustainable operations, as it is often isolated from other departments due to externalization (Bissola and Imperatori 2014) or to its scarce strategic relevance and influence (Dahlbom et al., 2019). Furthermore, it is still common belief that HR managers base their decisions on gut feelings and sensations (van den Heuvel and Bondarouk 2017; Chalutz Ben-Gal 2019), despite the trend of organizations to increasingly rely on a data-driven decision-making process (Holsapple et al., 2014; Polese et al., 2019) and to increasingly use big data and analytics in their activities (Chong and Shi 2015). On the contrary, HRs are now broadly adopting a data-based approach and they rely always more on new digital technologies (Minbaeva 2017; Chalutz Ben-Gal 2019; DiClaudio 2019). Among these lasts, one of the most promising seems to be HR analytics, which Falletta and Combs (2021, p. 54) define 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». This is especially relevant, as recent research found that HR departments can exploit some HR activities - including communication, employee engagement, training and development, hiring and selection and reward systems - in order to implement corporate sustainability (Langwell and Heaton 2016). As several previous studies found that all mentioned activities can be carried out and improved on the basis of HR analytics (Patre 2016; van den Heuvel and Bondarouk

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2017; Tursunbayeva et al., 2018; Chalutz Ben-Gal 2019; Falletta and Combs 2021), it is reasonable to assume that HR analytics may enable the adoption of a more data-driven approach in relation to social operations practices.

Moreover, the studies on the relationship between digital transformation and environmental sustainability are growing (Feroz et al., 2021) and organizations are increasingly deploying digital technologies such as big data analytics (BDA) and Internet of Things to cope with environmental sustainability, a trend which is likely to continue (Feroz et al., 2021). However, a major research gap can be found regarding the adoption of a data-driven approach in relation to social sustainable operations management. This has often been considered as relevant for companies' sustainable strategies (Dao et al., 2011; Massaroni et al., 2015; Longoni and Cagliano 2016; Raut et al., 2019; Mani et al., 2020; Del Giudice et al., 2021; Feroz et al., 2021) but, practically, almost totally neglected in the literature. In fact, the impact of digital transformation in other related sustainability fields - apart from the environmental one - has to be further explored in order to identify a common research agenda (Feroz et al., 2021). In addition, many researchers highlighted the necessity of a more holistic understanding of the consequences of the use of big data in the decision-making process (e.g. Del Giudice et al., 2021). Although several research found a positive association between organizational performance and BDA, just a few papers examined BDA potential contribution to sustainable operations management (Raut et al., 2019), as organizations still struggle to assimilate big data when implementing sustainable practices both internally or externally with their supply chain partners (Singh and El-Kassar, 2019).

Purpose of the paper. In accordance with the outlined research framing, the objective of this paper is to empirically investigate the effect of an HR analytics data-driven approach guiding the adoption of social sustainable operations practices on the employees of an organization. In particular, this will be done by investigating the effect of social sustainable operations practices on HR benefits, namely employees' motivation and retention, and by assessing the effect of these last on organizational performance. Furthermore, and more interestingly, we will investigate the moderating effect of HR analytics on the relationship between social sustainable operations practices and HR benefits. Drawing on instrumental stakeholder theory (Jones 1995), which claims that both parties are benefited when the organization takes into account the interests of its employees, and on the contingency theory (Harney 2016), which implies that HR management activities will obtain better results if they are tailored on the specific context of the organization, we hypothesize that:

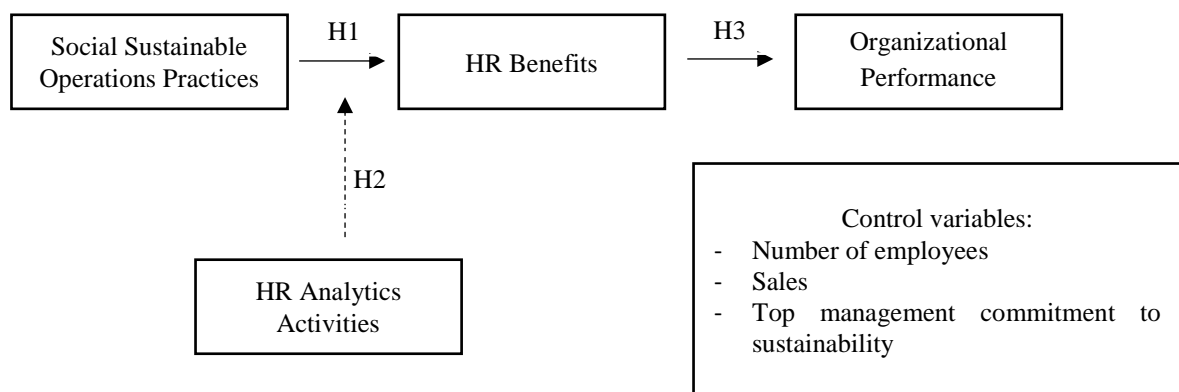
H1 (baseline): The adoption of social sustainable operations practices is positively related to HR benefits;

H2: HR analytics activities moderate the relationship between social sustainable operations practices and HR benefits;

H3: HR benefits are positively related to organizational performance.

Our model and hypothesis are summarized in figure 1.

Fig. 1: Research model and hypotheses



Methodology. A quantitative approach will be used, as this will be an empirical, survey-based research. Questionnaires will be completed by operations managers, supply chain managers or senior managers with responsibility for sustainability development of European organizations which have been implementing HR analytics activities in the last 3 years. Companies will be selected using the Orbis Database, by looking for companies with an active status, with at least 10.000 employees, a production value of at least €100 million, of very large dimension, constituted before 2018 and having an e-mail address. The main variables included in our model will be social sustainable operations practices, HR benefits, HR analytics activities and organizational performance.

Social sustainable operations practices will be our independent variable. It will be measured by using a total of 20 items belonging to 9 main dimensions, namely organizations' equity, health and safety, ethics, labour rights, human rights, wages, education, society and regulatory responsibility. All items will be taken by Mani et al., (2016) and will be measured through a 5-points Likert scale ranging from 1 = not at all to 5= very much.

HR benefits will be our mediator. It will be composed by two items, employees retention and motivation, taken by Longoni and Cagliano (2016). Respondents will be asked to assess changes in the two items after the implementation of social sustainable operations practices based on 5-points Likert scale ranging from 1 = much worse to 5 = much better.

HR analytics will be used as a moderator of the relationship between the independent variable and the mediator. It will be constituted of 13 items belonging to 3 dimensions, namely high quality data, analytical competency and strategic ability to act, all taken by McCartney and Fu (2022). All items will be measured based on a 5-points Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Organizational performance will be our dependent variable. It will be analysed based on two dimensions. The first one, operational performance, will be composed of two sub-dimension, service and product quality, which will in turn be composed by three items each, all taken by Akhtar et al., (2019); the second one, financial performance, will include three items taken by Kyrgidou and Spyropoulou (2013) and Real et al., (2014). All items will be measured based on a 5-points Likert scale ranging from 1 = much worse to 5= much better.

Finally, our 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), top management commitment to sustainability (Longoni and Cagliano 2016; Singh and El-Kassar 2019), and the number of employees of the organization (Akhtar et al., 2019).

Results. *The research is still in the preliminary phase, as data still have to be collected. However, we can discuss about our expected results.*

First of all, we expect the adoption of social sustainable operations practices by organizations to be positively related to HR benefits. In fact, several previous studies demonstrated this to be true (e.g. Wagner 2013; Longoni and Cagliano 2016), particularly with regard to employees' motivation. Conversely, Wagner (2013) could not obtain the same results with respect to employee retention. According to the author, the reason behind this lies in the fact that these practices are perceived always more as something necessary, as most firms now implement them. However, instrumental stakeholder theory (Jones 1995) claims that an advantage can be obtained for both companies and their employees when the formers take latter's interests into consideration. Furthermore, according to Longoni and Cagliano (2016) the external benefits obtained by sustainable operations may improve the relationship between an organization and its stakeholders, making it reasonable to assume that social sustainable operations practices will be positively related to HR benefits (Kobayashi et al., 2018).

Secondly, we expect that the use of HR analytics activities by organizations will positively moderate the relationship between social sustainable operations practices and HR benefits. As a matter of fact, the contingency theory (Harney 2016) argues that the effectiveness of HR management activities depends on their degree of consistency with the significant characteristics of the company and of the context in which it operates. Consequently, to be effective, social sustainable operations practices have to be brought into line with the environmental conditions faced by the organization (Harney 2016). As HR analytics is able to provide wide-ranging insight from an organizational point of view, it will enhance the decision-making process. This will consequently enable a more data-driven approach in relation to social sustainable operations practices, thus improving their effect on HR benefits.

Finally, several studies demonstrated the positive effect produced on organizational performance by the use of a big data-driven approach (Del Giudice et al., 2021; Zhu and Yang 2021) and of HR analytics (Tursunbayeva et al., 2018; DiClaudio 2019) from several perspectives (productional, financial, social and environmental) (Akhtar et al., 2019). As various studies demonstrated that the same can be stated for HR benefits (Iwu et al., 2016; van der Togt and Rasmussen 2017), as organizations can obtain a competitive advantage by increasing the effectiveness of their workforce (Longoni and Cagliano 2016), we believe that HR benefits will be positively related to organizational performance.

Research limitations. *This research has some limitations which could be used as hints for future studies. First of all, we decided to focus our attention on European companies. It may be useful to apply our research also in other contexts, as the United States, or the Asian market. Secondly, we decided to take into considerations only organizations of great dimension, in terms of both number of employees and production value. It could be interesting to replicate our investigation in small and medium enterprises to verify if any difference exists. It may also be interesting to investigate if some difference exists in terms of sectors, as we did not apply any distinction. Future studies may also address questionnaires to the employees of the organizations, including their perspective to provide a more comprehensive framework regarding social sustainability.*

Managerial implications. *This research will support managers and practitioners from two main perspectives. First, it will provide useful insights regarding the adoption of social sustainable practices, giving relevant information to organizations that already are or are willing to implement these solutions. As a matter of fact, most organizations claim sustainability to be among their priorities; still, social sustainability is mostly being neglected (Mani et al., 2016). However, by demonstrating that social sustainable activities can start a virtuous cycle, we will increase the awareness and the reputation of these solutions. In fact, they are beneficial for both the organization, as they may improve the organizational performance, and the employees, which will show increased motivation and retention. Secondly, we will contribute to further increase the acceptance of HR analytics both within HR departments and in the rest of the company. In fact, even if the reputation of this practice among practitioners has been constantly growing (Minbaeva 2017), it remains relatively unknown in most organizations (van den Heuvel and Bondarouk 2017). By demonstrating its impact on organizational sustainability and thus, indirectly, on organizational performance, we will further increase its adoption, as it will be demonstrated its impact not only within the HR department, but on the whole organization.*

Originality of the paper. *The originality of this paper is threefold. First, we will contribute to sustainable operations management literature by adopting a multidisciplinary approach, including evidence from HR management literature. This will enable us to concentrate on the social side of sustainability, which has largely been regarded as important, but still mostly disregarded by previous research (e.g. Amrutha and Geetha 2020). Secondly, we will supply further insight on the contribution of a data-driven decision-making approach guiding the adoption of social*

sustainable operations. In particular, we will assess HR analytics' moderating effect on the relationship between social sustainable operations practices and HR benefits. To the best of our knowledge, no previous studies on the topic were conducted. Lastly, we will contribute to HR management literature related to HR analytics in a recently new domain, e.g. supply chain and sustainability. As a matter of fact, previous studies regarding HR analytics typically adopted a theoretical approach, not taking into account empirical evidence (Peeters et al., 2020) or relying just on authors' own opinion and experiences, not presenting a systematic approach (Andersen 2017). Furthermore, these studies usually focused exclusively on the HR point of view (Falletta and Combs 2021), neglecting the opinions of other stakeholders which could benefit from HR analytics as, in this particular case, supply chain or operations managers.

Keywords: social sustainable operations management; HR analytics; HR benefits; data-driven approach

References

- ABBASI K.R., HUSSAIN K., REDULESCU M., OZTURK I. (2021), "Does natural resources depletion and economic growth achieve the carbon neutrality target of the UK? A way forward towards sustainable development", *Resources Policy*, vol. 74, p. 102341.
- AKHTAR P., FRYNAS J.G., MELLAHI K., ULLAH S. (2019), "Big Data-Savvy Teams' Skills, Big Data-Driven Actions and Business Performance", *British Journal of Management*, vol. 30, n. 2, pp. 252-271.
- AMRUTHA V.N., GEETHA S.N. (2020), "A systematic review on green human resource management: Implications for social sustainability", *Journal of Cleaner Production*, vol. 247, p. 119131.
- ANDERSEN M.K. (2017), "Human capital analytics: the winding road", *Journal of Organizational Effectiveness: People and Performance*, vol. 4, n. 2, pp. 133-136.
- BISSOLA R., IMPERATORI B. (2014), "The unexpected side of relational e-HRM: Developing trust in the HR department", *Employee Relations*, vol. 36, n. 4, pp. 376-397.
- CARTER C.R., ROGERS D.S. (2008), "A framework of sustainable supply chain management: moving toward new theory", *International Journal of Physical Distribution & Logistics Management*, vol. 38, n. 5, pp. 360-387.
- CHALUTZ BEN-GAL H. (2019), "An ROI-based review of HR analytics: practical implementation tools", *Personnel Review*, vol. 48, n. 6, pp. 1429-1448.
- CHONG D., SHI H. (2015), "Big data analytics: a literature review", *Journal of Management Analytics*, vol. 2, n. 3, pp. 175-201.
- CHRISTOPHER, MARTIN, GAUDENZI, BARBARA (2018), "Managing risks in sustainable supply chains", *Sinergie Italian Journal of Management*, n. 96, pp. 57-74.
- DAHLBOM P., SIIKANEN N., SAJASALO P., JARVENPÄÄ M. (2019), "Big data and HR analytics in the digital era", *Baltic Journal of Management*, vol. 15, n. 1, pp. 120-138.
- DAO V., LANGELLA I., CARBO J. (2011), "From green to sustainability: Information Technology and an integrated sustainability framework", *The Journal of Strategic Information Systems*, vol. 20, n. 1, pp. 63-79.
- DEL GIUDICE M., CHERICI R., MAZZUCHELLI A., FIANO F. (2021), "Supply chain management in the era of circular economy: the moderating effect of big data", *The International Journal of Logistics Management*, vol. 32, n. 2, pp. 337-356.
- DICLAUDIO M. (2019), "People analytics and the rise of HR: how data, analytics and emerging technology can transform human resources (HR) into a profit center", *Strategic HR Review*, vol. 18, n. 2, pp. 42-46.
- DOBRE O.-I. (2013), "Employee motivation and organizational performance", *Review of applied socio-economic research*, vol. 5, n. 1, pp. 53-60.
- FALLETTA S.V., COMBS W.L. (2021), "The HR analytics cycle: a seven-step process for building evidence-based and ethical HR analytics capabilities", *Journal of Work-Applied Management*, vol. 13, n. 1, pp. 51-68.
- FEROZ A.K., ZO H., CHIRAVURI A. (2021), "Digital Transformation and Environmental Sustainability: A Review and Research Agenda", *Sustainability*, vol. 13, n. 3, p. 1530.
- GIMENEZ C., SIERRA V., RODON J. (2012), "Sustainable operations: Their impact on the triple bottom line", *International Journal of Production Economics*, vol. 140, n. 1, pp. 149-159.
- HARNEY B. (2016), "Contingency Theory", *Encyclopedia of Human Resource Management*, pp. 72-73.
- VAN DEN HEUVEL S., BONDAROUK T. (2017), "The rise (and fall?) of HR analytics: A study into the future application, value, structure, and system support", *Journal of Organizational Effectiveness: People and Performance*, vol. 4, n. 2, pp. 157-178.
- HOLSAPPLE C., LEE-POST A., PAKATH R. (2014), "A unified foundation for business analytics", *Decision Support Systems*, vol. 64, pp. 130-141.
- IWU C.G., KAPONDORO L., TWUM-DARKO M., LOSE T. (2016), "Strategic Human Resource metrics: a perspective of the General Systems Theory", *Acta Universitatis Danubius Economica*, vol. 12, n. 2, p. 20.
- JABBOUR C.J.C., SANTOS F.C.A. (2008), "The central role of human resource management in the search for sustainable organizations", *The International Journal of Human Resource Management*, vol. 19, n. 12, pp. 2133-2154.
- JONES T.M. (1995), "Instrumental Stakeholder Theory: A Synthesis of Ethics and Economics", *The Academy of Management Review*, vol. 20, n. 2, pp. 404-437.

- KOBAYASHI K., EWEJE G., TAPPIN D. (2018), "Employee wellbeing and human sustainability: Perspectives of managers in large Japanese corporations", *Business Strategy and the Environment*, vol. 27, n. 7, pp. 801-810.
- KYRGIDOU L.P., SPYROPOULOU S. (2013), "Drivers and Performance Outcomes of Innovativeness: An Empirical Study: Drivers and Performance Outcomes of Innovativeness", *British Journal of Management*, vol. 24, n. 3, pp. 281-298.
- LANGWELL C., HEATON D. (2016), "Using human resource activities to implement sustainability in SMEs", *Journal of Small Business and Enterprise Development*, vol. 23, n. 3, pp. 652-670.
- LONGONI A., CAGLIANO R. (2016), "Human resource and customer benefits through sustainable operations", *International Journal of Operations & Production Management*, vol. 36, n. 12, pp. 1719-1740.
- MANI V., GUNASEKARAN A., PAPADOPOULOS T., HAZEN B., DUBEY R. (2016), "Supply chain social sustainability for developing nations: Evidence from India", *Resources, Conservation and Recycling*, vol. 111, pp. 42-52.
- MANI V., JABBOUR C.J.C., MANI K.T.N. (2020), "Supply chain social sustainability in small and medium manufacturing enterprises and firms' performance: Empirical evidence from an emerging Asian economy", *International Journal of Production Economics*, vol. 227, p. 107656.
- MASSARONI E., COZZOLINO A., WANKOWICZ, E. (2015), "Sustainability in supply chain management - a literature review", *Sinergie Italian Journal of Management*, vol. 33, n. sep-dec, pp. 331-355.
- MCCARTNEY S., FU N. (2022), "Bridging the gap: why, how and when HR analytics can impact organizational performance", *Management Decision*, vol. 60, n. 13, pp. 25-47.
- MINBAEVA D. (2017), "Human capital analytics: why aren't we there? Introduction to the special issue", *Journal of Organizational Effectiveness: People and Performance*, vol. 4, n. 2, pp. 110-118.
- PATRE S. (2016), "Six Thinking Hats Approach to HR Analytics", *South Asian Journal of Human Resources Management*, vol. 3, n. 2, pp. 191-199.
- PEETERS T., PAAUWE J., VAN DE VOORDE K. (2020), "People analytics effectiveness: developing a framework", *Journal of Organizational Effectiveness: People and Performance*, vol. 7, n. 2, pp. 203-219.
- POLESE F., CIASULLO M.V., TROISI O., MAIONE G. (2019), "Sustainability in footwear industry: a big data analysis", *Sinergie Italian Journal of Management*, vol. 37, n. 1, pp. 149-170.
- RAUT R.D., MANGLA S.K., NARWANE V.S., GARDAS B.B., PRIYADARSHINEE P., NARKHEDE B.E. (2019), "Linking big data analytics and operational sustainability practices for sustainable business management", *Journal of Cleaner Production*, vol. 224, pp. 10-24.
- REAL J.C., ROLDÁN J.L., LEAL A. (2014), "From Entrepreneurial Orientation and Learning Orientation to Business Performance: Analysing the Mediating Role of Organizational Learning and the Moderating Effects of Organizational Size: Entrepreneurial and Learning Orientation and Performance", *British Journal of Management*, vol. 25, n. 2, pp. 186-208.
- SINGH S.K., EL-KASSAR A.-N. (2019), "Role of big data analytics in developing sustainable capabilities", *Journal of Cleaner Production*, vol. 213, pp. 1264-1273.
- VAN DER TOGT J., RASMUSSEN T.H. (2017), "Toward evidence-based HR", *Journal of Organizational Effectiveness: People and Performance*, vol. 4, n. 2, pp. 127-132.
- TURSUNBAYEVA A., DI LAURO S., PAGLIARI C. (2018), "People analytics-A scoping review of conceptual boundaries and value propositions", *International Journal of Information Management*, vol. 43, pp. 224-247.
- WAGNER M. (2013), "'Green' Human Resource Benefits: Do they Matter as Determinants of Environmental Management System Implementation?", *Journal of Business Ethics*, vol. 114, n. 3, pp. 443-456.
- WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (1987), *Our common future*, Oxford University Press.
- ZHU X., YANG Y. (2021), "Big Data Analytics for Improving Financial Performance and Sustainability", *Journal of Systems Science and Information*, vol. 9, n. 2, pp. 175-191.

Cruising intention during the COVID-19 pandemic: the role of vaccines

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Purpose of the paper. *Within the hospitality industry, cruising is one of the most vulnerable industries to the current COVID-19 health crisis because associated with amplified safety and security risks for its passengers and crewmembers (Gössling et al., 2020). When COVID-19 first manifested itself, cruise ships turned into traps, with thousands of passengers quarantined in their cabins and facing the challenge of returning home. Owing to the wide media coverage of the COVID-19 issues related to cruise ships and the high number of deaths on board, consumers' general perception of cruise health risk has probably increased. When it became clear that cruise ships were an optimal field for infectious diseases due to the closed environment and the contacts between cruisers and the crew members, who are normally transferred between ships (Gössling et al., 2020), cruises became global tourists' worst scenario.*

Based on this premise, COVID-19's influence on potential cruisers' travel behaviors should be investigated in order to understand the potential demand and create a discussion about cruise services' reorganization (Pan et al., 2021). Safety is emerging as an important issue, especially in the COVID-19 era, since it might influence customers' attitudes regarding purchasing cruises and even their decision-making process (Cleeren et al., 2008; Souiden and Pons, 2009; Pappas et al., 2021). Cruisers might modify their travel behaviors in the COVID-19 era, including travelling to a safer destination, cancelling their cruise, and shortening their vacation (Park et al., 2021). On the other hand, they might confirm their intention to cruise. Hence, our grasp of the complexities of consumers' intention to cruise may be incomplete and should therefore be investigated in greater depth, especially now after the massive vaccination campaigns around the world.

According to the protection motivation theory (Rogers, 1975), future intentions to cruise in risky situations are related to individuals' perceptions of the threat intensity, the likelihood that a threat might occur, and the estimation of their ability to cope with the threat. This theory suggests that in risky situations, such as a health crisis like the COVID-19 pandemic, the likelihood of having to engage in protective behaviors will increase and consumers' intention to buy will therefore diminish. Hence, in the present pandemic situation, consumers' intention to cruise may be influenced by many factors which can have an impact on the perceptions of seriousness of the threat or can help consumers to cope with the danger, like vaccines.

Thus, this study attempts to contribute to extant literature by analyzing the impact of COVID-19 vaccination on cruisers' perceived health risk and intention to cruise in the future, aiming to answer the following questions: Which factors have a greater influence on the intention to cruise in this pandemic period? Is the COVID-19 vaccination a factor that might influence consumers' intention to cruise?

In particular, based on crisis management literature and trust and risk theories, the present paper tries to investigate if, in the COVID-19 era, there are specific variables (crowding, social motivation, self-confidence, trust, prior corporate reputation, perceived health risk and familiarity) that may impact consumer intention to cruise and if massive COVID-19 vaccination may have a moderating effect.

We decided to develop a "three-steps research".

The first and the second steps of the research are based on the development of a structured questionnaire submitted at two time points on two sub-samples of Italian cruisers and potential cruisers: one recruited before the vaccination day in Italy (Step 1: from May to 27th December 2020) and the second during the current "vaccine era" (Step 2: from 28 December 2020 to September 2021), in order to assess the differences related to the increasing consumers' confidence in the vaccination campaigns. In particular, we investigated the influence of different drivers on the intention to cruise in the two sub-samples, dividing also for cruise experience (0 - no previous cruises; 1 - first time cruisers; 2 - repeaters). Overall, 1359 cruiser opinions have been used to test the research hypotheses: 563 before the vaccines and 796 in the "vaccine era".

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The third step of research is aimed at investigating which is the role of trust and distrust in vaccine on the perceived health risk and on the intention to cruise (Step 3).

Methodology. The research follows a quantitative research approach, using a structured questionnaire conducted on-line, via Google Forms. The items for the constructs in the questionnaire were used in Castaldo et al. (2021) and derived from relevant previous studies to ensure content validity. We adapted the measurement items related to the intention to cruise from Hung and Petrick (2011). The scales that Machleit et al. (2000) and Hyun and Kim (2015) developed were used to measure the perception of crowding. The health risk perception scale was created by considering previous literature focused on tourism during a pandemic period into account (Castaldo et al., 2021; Novelli et al., 2018), while we used the items that Bart et al. (2005) and Guenzi et al. (2009) adopted to measure the trust construct. The same procedure was followed with familiarity (Nepomuceno et al., 2014) and self-confidence (Valencia and Crouch, 2008). The questionnaire was developed in May 2020 (Castaldo et al., 2021) following rigorous paths in order to ensure readability and clarity and it was published online via Google Forms until the 27th of December 2020, the Vaccination Day in Italy. We collected at this stage 563 valid compiled questionnaires.

After performing a confirmatory factor analysis (CFA) on all the questionnaire's construct, to examine the validity of the used scales, we used the extracted factors to understand their impact on the intention to cruise, using several regression models.

In the second wave of the research, the questionnaire was instead shared through an online panel organized by a professional company, during spring and summer 2021, and in this case the number of respondents was N=796. Overall, we collected 1,359 questionnaires. After the collection, two groups of respondents were formed based on when the data was collected. Group 1 is formed by the subsample that provided data before the starting of COVID-19 vaccination (before COVID-19 vaccination campaigns). Group 2 is made up of the subsample who provided data after the starting of the vaccination campaign (after COVID-19 vaccination campaigns).

Both groups have similar demographics profiles. For the interviews, we used the same questionnaire, with the same items, that allow us to compare the two groups. In particular, we investigated the influence of the studied drivers on the intention to cruise in the two sub-samples. Moreover, we created subsamples based on the cruise experience (0 - no previous cruises; 1 -first time cruisers; 2 - repeaters).

Also in this case, after a confirmatory factor analysis (CFA), the extracted factors were used to understand their impact on the intention to cruise through different multiple regression models.

The empirical research is focused on the Italian cruise market, which represents an ideal empirical field for investigations. Italy has become the first country in the European Union to register more than 30,000 coronavirus-related deaths and it was the first country in Europe to impose a lockdown when coronavirus cases began to surface in northern regions in February 2020. In Italy, MSC Grandiosa was the first cruise ship to set sail after the pandemic on August 16, 2020. During the 2020 summer, cruise lines created "bubble" holidays, imposing the swab for all passengers before departure and creating bubbles on the mainland to avoid contagion. With the increasing of contagions during the late fall and winter, the cruise activities were blocked again, and the cruise companies were forced to postpone the scheduled departures. Thanks to the vaccinations, cruises in Italy restarted in March 2021, before that in other countries. In US, cruise lines decided to postpone the departure to 1 June 2021 in order to guarantee the respect of Conditional Sailing Order, which includes travel tests that demonstrate the possibility of guaranteeing safety and hygiene for passengers.

For the third step of research, we added in the questionnaire released in the "vaccine era" few scales for measuring trust and distrust in vaccination or vaccine certification (e.g., green pass).

Results. The results of the Step 1 of the research indicated that the perceived crowding (CROW) does not seem to influence people's intention to cruise (Castaldo et al. 2021). Instead, trust in the cruise company (TRUST), corporate reputation (REP), cruisers' self-confidence (CONFID) and research of social motivation (MOTSOC) were positive predictors of the intention to cruise, thus reducing the perceived risk's (RISK) deterring impact. The importance of such factors is different considering repeat and not repeat cruisers, revealing that trust is a strong predictor of the intention to cruise in novice cruisers, while reputation affects positively the repeaters because of the intimate knowledge of the industry and of the "target company".

In Step 2 of the research, we analyzed if (and how) the factors that might influence the intention to cruise have changed because of the vaccines and vaccine certifications (e.g., green pass). In particular, we investigated the influence of the studied drivers on the intention to cruise in the two sub-samples, divided also on the basis of the cruise experience (0 - no previous cruises; 1 -first time cruisers; 2 - repeaters). Results of this second step (Table 1) demonstrate that the impact of the risk perception on the intention to cruise in the post vaccine era is not significant, while it presents a negative influence before the vaccination period. The presence of the vaccine has probably reduced the perception of risk of cruisers. The role of trust in the cruise company is always important in each sub sample, both in the pre-vaccine period and the post vaccine. Interestingly, familiarity (FAM) and social motivation (MOTSOC) are becoming very impactful driver, especially in the post vaccine period. Corporate reputation is instead an important factor only for expert cruises.

Tab. 1: Regression models

Variable	Before the vaccine			After the vaccine		
	0	1	2	0	1	2
CROW	-0.014 (-0.159)	0.009 (0.128)	-0.012 (-0.271)	0.066 (1.413)	-0.092 (-1.522)	0.028 (0.785)
RISK	-0.256*** (-3.498)	-0.076 (-1.109)	-0.264*** (-7.170)	0.021 (0.460)	-0.080 (-1.325)	-0.035 (-0.986)
TRUST	0.482*** (5.325)	0.322*** (2.848)	0.147** (2.042)	0.215*** (2.989)	0.276*** (2.897)	0.222*** (2.832)
REP	0.065 (0.490)	0.319*** (3.040)	0.331*** (4.427)	-0.078 (-0.867)	0.104 (0.937)	0.268*** (3.521)
MOTSOC	0.319*** (3.558)	0.084 (0.810)	0.190*** (3.447)	0.406*** (5.882)	0.230** (2.519)	0.152** (2.381)
CONFID	0.093 (0.994)	0.053 (0.490)	0.069 (1.001)	0.112 (1.486)	0.112 (1.316)	0.007 (0.113)
FAM	0.133 (1.687)	0.274*** (3.354)	0.111** (2.330)	0.280*** (5.486)	0.296*** (4.242)	0.171*** (3.528)
Constant	-0.305 (-3.987)	-2.296 (0.024)	-0.041 (-0.906)	0.089 (1.648)	0.311 (0.756)	0.097 (3.112)
Observations	93	81	382	225	169	402
Adjusted R-Squared	.536	.610	.522	.603	.485	.542
F-Statistics	34.207***	43.869***	81.961***	111.950***	51.828***	117.425***

T statistics are shown in brackets

* p< .1; ** p< .05; *** p<.01

Further research. *Considering the wide debate about the COVID-19 vaccine and the related certification, we are currently carrying out the third step of the research, aimed at investigating which is the role of trust and distrust in vaccine on the perceived health risk and on the intention to cruise (Step 3). Also interpersonal trust's role will be evaluated, because it may be one of the drivers that influence concerns about crowding and social distancing behavior (Kim and Liu, 2022).*

On the basis of these premises the following hypotheses are proposed (Figure 1):

H1. The overall human crowding is positively related to the risk perception;

H2. The overall spatial crowding is positively related to the risk perception;

H3: Perceived risk is negatively related to the intention to take a cruise;

H4 a: Trust in cruise companies is positively related to the intention to take a cruise;

H4b: Trust in cruise companies positively moderates the relationship between the risk perception and the intention to take a cruise;

H5a: Trust in vaccine/vaccine certification is positively related to the intention to take a cruise;

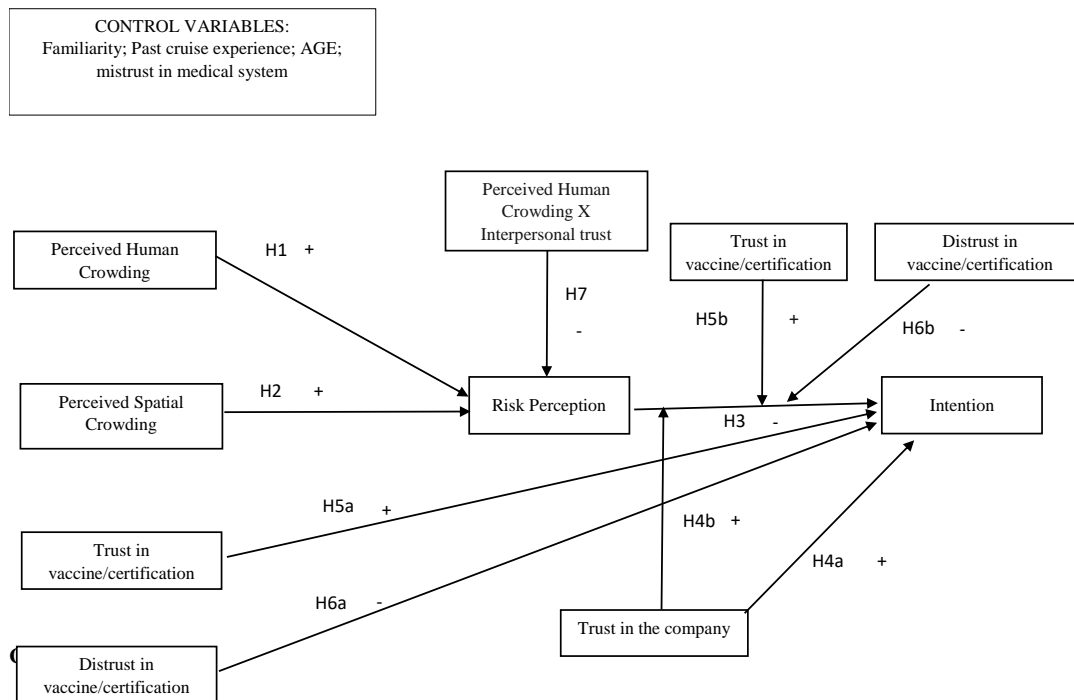
H5b: Trust in vaccine/vaccine certification positively moderates the relationship between the risk perception and the intention to take a cruise;

H6a: Distrust in vaccine/vaccine certification is positively related to the intention to take a cruise;

H6b: Distrust in vaccine/vaccine certification negatively moderates the relationship between the risk perception and the intention to take a cruise;

H7: Perceived human crowding x the interpersonal trust is negatively related to the intention to take a cruise;

Fig. 1: Conceptual model



We will also evaluate four control variables: familiarity, past cruise experience, age and mistrust in the medical system. Given that these variables have already been identified as predictors of intention to cruise, some differences in consumers' intention might result from the mentioned variables. The empirical research is based on a survey on a sample of cruisers (first time and repeaters) and the applied method should be a structural equation model (SEM) that helps to detect latent variables and more complex relationships.

Research limitations. This study presents some limitations. Firstly, the sample is formed only by Italian respondents, whose socio-cultural characteristics are recognized to be oriented to social contacts. As the COVID-19 has affected differently each country, future research might replicate the study in other national contexts characterized by different cultural models and different situations in the contagions. Secondly, the data collection method was internet-based. Data collected for this study illustrate people's attitude towards intention to cruise during the present COVID-19 outbreak, without any comparison with previous scenarios without pandemic situations. Finally, this study has only focused on the demand and does not analyze corporate communication's role in shaping consumers' attitudes or local destinations' possible restrictions on mega-ships and cruise tourism in general. Since perceived crowding perceptions might also be relevant for crewmembers; future studies should also focus on them, to understand the effect of crowding, trust and the company's reputation on their risk perception. Additionally, future studies could include an observational component to measure actual behaviors, since observational studies could help reduce the risk of self-reporting bias because self-reporting measures do not always reflect actual protection motivation behavior. .

Managerial implications. The study results have significant practical implications for the cruise industry by highlighting how crowding perceptions are related to the intention to cruise, thus helping cruise companies manage the space and the social interaction on their ships as well as cruisers' risk perceptions and trust, which could be useful in the communication strategies in the pandemic period. Moreover, considering that cruise package is a mix of several services e.g. (restaurant, hotellerie, entertainment, retailing, excursions) this study can help the service organizations to understand the most important factors that facilitate or inhibit the intention to take a service during the COVID-19.

Since crowding's direct impact on intention to cruise does not appear to be significant, perceived crowding and social distancing are a problem for cruise companies if they are to avoid future quarantined ships, damage in terms of their legal responsibility and a negative image. Cruise lines need to implement a number of health and safety procedures in order to reduce the chances of COVID-19 spreading through a ship by following the CDC's and National Ministries' recommendations. Cruise companies must reinvent how their passengers move on their ships and interact with other cruisers and crew, creating new logistic paths and substituting their recreational services with other forms of relaxation. Moreover, cruise lines must plan architectural interventions to revamp all highly trafficked area not orientated to maintaining social distancing (e.g., restaurants and buffets, pubs, discos). Before undertaking these interventions, cruise managers need to involve cruisers to identify the proper tools to use for education on the

pandemic, thus preventing the risk of future quarantines, without creating a higher risk perception or fear, which might have a negative impact on their future intention to cruise.

Our research demonstrates also that vaccination contributes to reduce the negative impact of perceived risk on the intention. And this topic could be inserted in the communication strategies in order to demonstrate the safety of this type of vacancy. Since the model has identified the most important influencing factors on the intention to cruise, companies should shape the content of their crisis communication by emphasizing those factors and should specifically invest to increase and maintain trust, such as instilling the idea of familiarity with the cruise vacation in the public. Considering the relevance of trust, in particular, cruise companies could try to connect with potential new consumers who do not have cruise experience and convey detailed information to build trust.

From a broader perspective, this paper has implications for the entire society. Given that a cruise package is a mix of several services (e.g. restaurant, hotellerie, entertainment, retailing), it could serve as a laboratory for other sectors, helping service organisations understand the most important factors that facilitate or inhibit the intention to use a service during the COVID-19 pandemic and the more useful solutions aimed at reducing social distancing and contagions. Finally, the focus on the cruise industry sheds light on the global mass-tourism problem, since mass-tourism has proved to be fragile and unreliable, leading to a debate on a more responsible tourism and on the development of more economically equitable as well as more socially and more environmentally sustainable hospitality services.

Originality of the paper. The original point of the study is the contribution to the theoretical knowledge about the role of COVID-19 vaccination. To the best of our knowledge, this is the first study that uses the context created by vaccination against the COVID-19 as a moderating factor for the intention to take a cruise. COVID-19 has created a new context for cruise and vaccination has shaped the attitude towards the intention and the risk; our purpose is to look at the differences between the two contexts, pre-vaccination and post-vaccination. Furthermore, the intention to cruise is different between no cruisers, new and repeat cruisers. The results advance previous findings that tourists' behaviors are strongly influenced by the past cruise experience (Liu-Lastres et al., 2019), but in this case, we have crossed the past cruise experience with the context, before and after the massive vaccination campaigns. In terms of theoretical implications, this study overcomes several research gaps. Firstly, pandemic events (e.g. SARS, bird flu, Ebola) have been studied in crisis management and tourism literature, but there is only a rather limited specific focus on the cruise industry (Mileski et al., 2014), especially regarding analyses of such events' consequences for consumers and the company (Liu-Lastres et al., 2019; Castaldo et al., 2021). From an academic perspective, the study also expands tourism management studies by analyzing the antecedents of the likelihood of future cruise decisions during the pandemic era and the role of vaccination in shaping the intention to cruise. Our contribution reinforces the role of trust and corporate reputation during a crisis and underlines that the two constructs are useful tools for decreasing a critical event's negative pressure on the intention to cruise (Siomkos and Kurzbard, 1994; Coombs and Holladay, 2007; Penco et al., 2019; Castaldo et al., 2021). Moreover, the study enriches tourism management literature focused on cruisers' familiarity, which seems to reinforce the intention to cruise in the COVID-19 era (Castaldo et al., 2021). In the "vaccine era", the perceived risk has no significant impact on the intentions to cruise, since cruises are considered, thanks to the vaccine, one of the safest forms of holiday. The third step of the study will instead create a new framework, inserting the trust in vaccination and COVID-19 certification.

Keywords: COVID-19, cruise, crowding, reputation, risk, trust, vaccines

References

- BART Y., SHANKAR V., SULTAN F., URBAN G.L. (2005), "Are the drivers and role of online trust the same for all web sites and consumers? A large-scale exploratory empirical study", *Journal of Marketing*, vol. 69, n. 4, pp. 133-152.
- CASTALDO S. (2007), *Trust in Market Relationships*, Edward Elgar Publishing, Cheltenham, UK.
- CASTALDO S., PENCO L., PROFUMO G. (2021). "Cruising in the COVID-19 pandemic era: Does perceived crowding really matter?", *International Journal of Contemporary Hospitality Management*, vol. 33, n. 8, pp. 2586-2612.
- CLEEREN K., DEKIMPE M.G., HELSEN K. (2008), "Weathering product-harm crises", *Journal of the Academy of Marketing Science*, vol. 36, n. 2, pp. 262-270.
- COOMBS W.T., HOLLADAY S.J. (2007), "The negative communication dynamic", *Journal of Communication Management*, vol. 11, n. 4, pp. 300-312.
- GÖSSLING S., SCOTT D., HALL C.M. (2020), "Pandemics, tourism and global change: a rapid assessment of COVID-19", *Journal of Sustainable Tourism*, pp. 1-20. DOI: <https://doi.org/10.1080/09669582.2020.1758708>
- GUENZI P., JOHNSON M.D., CASTALDO S. (2009), "A comprehensive model of customer trust in two retail stores", *Journal of Service Management*, vol. 20, n. 3, pp. 290-316.
- HUNG K., PETRICK J.F. (2011), "Why do you cruise? Exploring the motivations for taking cruise holidays and the construction of a cruising motivation scale", *Tourism Management*, vol. 32, n. 2, pp. 386-393.
- HYUN S.S., KIM M.G. (2015), "Negative effects of perceived crowding on travelers' identification with cruise brand", *Journal of Travel & Tourism Marketing*, vol. 32, n. 3, pp. 241-259.

- KIM Y.R., LIU A. (2022), "Social distancing, trust and post-COVID-19 recovery", *Tourism Management*, vol. 88, pp. 104416.
- LIU-LASTRES B., SCHROEDER A., PENNINGTON-GRAY L. (2019), "Cruise line customers' responses to risk and crisis communication messages: An application of the risk perception attitude framework", *Journal of Travel Research*, vol. 58, n. 5, pp. 849-865.
- MACHLEIT K.A., EROGLU S.A., MANTEL S.P. (2000), "Perceived retail crowding and shopping satisfaction: what modifies this relationship?", *Journal of Consumer Psychology*, vol. 9, n. 1, pp. 29-42.
- MILESKI J.P., WANG G., BEACHAM L. (2014), "Understanding the causes of recent cruise ship mishaps and disasters", *Research in Transportation Business and Management*, vol. 13, pp. 65-70.
- NEPOMUCENO M.V., LAROCHE M., RICHERD M.O. (2014), "How to reduce perceived risk when buying online: the interactions between intangibility, product knowledge, brand familiarity, privacy and security concerns", *Journal of Retailing and Consumer Services*, vol. 21, n. 4, pp. 619-629.
- NOVELLI M., BURGESS L.G., JONES A., RITCHIE B.W. (2018), "No Ebola... still doomed'-the Ebola-induced tourism crisis", *Annals of Tourism Research*, vol. 70, pp. 76-87.
- PAN T., SHU F., KITTERLIN-LYNCH M., BECKMAN E. (2021), "Perceptions of cruise travel during the COVID-19 pandemic: Market recovery strategies for cruise businesses in North America", *Tourism Management*, vol. 85, pp. 104275.
- PAPPAS N. (2021), "COVID19: Holiday intentions during a pandemic", *Tourism Management*, Vol. 84, pp. 104287.
- PARK I.J., KIM J., KIM S.S., LEE J.C., GIROUX M. (2021), "Impact of the COVID-19 pandemic on travelers' preference for crowded versus non-crowded options", *Tourism Management*, vol. 87, pp. 104398.
- PENCO L., PROFUMO G., REMONDINO M., BRUZZI C. (2019), "Critical events in the tourism industry: Factors affecting the future intention to take a cruise", *International Journal of Contemporary Hospitality Management*, vol. 31, n. 9, pp. 3547-3566.
- ROGERS R.W. (1975), "A protection motivation theory of fear appeals and attitude change", *The Journal of Psychology*, vol. 91, n. 1, pp. 93-114.
- SIOMKOS G.J., KURKBARD G. (1994), "The hidden crisis in product-harm crisis management", *European Journal of Marketing*, vol. 28, n. 2, pp. 30-41.
- SOUIDEN N., PONS F. (2009), "Product recall crisis management: the impact on manufacturer's image, consumer loyalty and purchase intention", *Journal of Product & Brand Management*, vol. 18, n. 2, pp. 106-114.
- TARLOW P., KORSTANJE M.E., AMORIN E., GANDARA J.M.G. (2012), "Cruise risks, threats and dangers: A theory", *American Journal of Tourism Research*, vol. 1, n. 1, pp. 16-25.
- VALENCIA J., CROUCH G.I. (2008), "Travel behavior in troubled times: The role of consumer self-confidence", *Journal of Travel & Tourism Marketing*, vol. 25, n. 1, pp. 25-42.

Consumer Insights to Recover from Covid: Obstacles of Young Adults' Cultural Experiences

MICHELA ADDIS *

Framing of the research. Arts organizations have been subject to the strong disruptive impact of the global pandemic. The Johns Hopkins Center for Civil Society Studies (2021) has estimated that American arts organizations have lost \$17.97 billion, and in general, the recent lockdowns have generated huge financial losses. At the same time, a dreadful employment loss has been recorded: according to Florida and Seman (2020) at the Brookings Institution between April and July 2020 the cumulative losses in creative occupations were higher than 2.3 million jobs in the USA. A safe resumption of activities in the cultural and creative sectors is a priority also across the EU, for which the Commission has published the EU guidelines in June 2021. Supporting Arts and Cultural Organizations (ACOs) is mandatory for every policymaker, but to be successful they must leverage key consumer insights. Indeed, public policies should stimulate and sustain appropriate individual behaviors while limiting and overcoming their obstacles. Towards that end, the initial step of every policy is always a comprehensive and updated understanding of consumers' preferences and behaviors, and nowadays, consumer insights are well-known precious inputs in the design and delivery of public policies (OECD 2017). Despite such a recognition, the range of jurisdictions that have incorporated behavioral insights in policymaking is still scant. This research project aims at gathering new consumer insights to provide policymakers with useful knowledge when designing their policy to support artistic and cultural organizations recovering from Covid-19. A deeper understanding of consumers' interactions and relationships with artworks provides insights that are very useful for the development of an immersive and transformative discourse (Goulding 2000; Stavraki 2016). This research project builds on three key pillars, as follows:

- 1) *The experiential perspective is the conceptual framework. The actual research project assumes an experiential perspective on cultural consumption. Specifically, it leverages the customer experience (Addis and Holbrook 2001), whose cognitive and emotional values should be understood to develop an immersive discourse (Carù and Cova 2006). When individuals interact with artworks, they engage in a very complex relationship that needs to be carefully explored to identify the broad range of desires and value perceptions. Our research project leverages the customer experience model, which proposes customer experience as a complex construct resulting from two main dimensions, namely, (a) a continuous interaction brand-individual using senses through any direct and indirect touchpoints that dot the customer journey over time in the technological, physical, and social platforms, and (b) affective and cognitive processes by which individuals interpret these interactions (Addis 2020).*
- 2) *The ACOs as the focus. In addition to their huge value from the economic, social, and cultural points of view, there are two more reasons why supporting ACOs in recovery from Covid-19 is a top priority: (a) they urgently need to revise their business models regardless of the Covid-19; and (b) their benefits from the wise use of technologies are incredibly promising. Indeed, ACOs are underdeveloped from both managerial and technological points of view (Addis and Rurale 2020). The world has entered the digital imperative, with companies largely digitally immature (Fitzgerald et al. 2014). Digital technologies can help ACOs in becoming more competitive regarding their business/production processes, products, or services, and through them in increasing individual and societal wellbeing, while rethinking their business models. The intersection of technology and arts has long been debated and the impact of technology on arts is regarded as disruptive (Thomson, Purcell, and Rainie 2013).*
- 3) *Young adults as the target. This research focuses on young adults and the obstacles that prevent consumption. Young adults are a critical yet far target for ACOs in Italy. Young adults represent a key segment for both volume and profile in the tourism market, since they show high levels of interest in traveling abroad, with greater spending power, looking for immersive and unique experiences (Barton, Haywood, Jhunjhunwala, and Bhatia 2013; UNWTO 2016). Young people consume arts searching for intimacy/new relationships, meeting with new people, improvement of their awareness/self-actualization, food for thought/to learn something, a better balance in work-life/education-entertainment, and finally, to relax/have fun (Halliday and Astafyeva 2014). If they shape the future of ACOs and the future of the entire society, their present behaviors are quite distant from being close to arts: young people are generally less attracted by the global category of arts (The Audience Agency 2018; Office of National Statistics 2016). They are a difficult segment to understand and deal with (Noble et al., 2009): they do not only expect quality, but also social, emotional, and epistemological value (Prebensen and Xie 2017). This segment is especially interested in building their identities (Davies and Fitchett 2010; Gonzalez-Fuentes 2019). Further, despite its high*

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heterogeneity, this segment is retrained from cultural consumption by any factual or perceived expression of unfamiliarity, irrelevance, meaningless, distance, and disinformation (Tait et al. 2019). Building and maintaining such a complex relationship is challenging for ACOs yet fundamental for recovering from the pandemic.

Purpose of the paper. We assume that Covid-19 represents a turning point for ACOs: the crisis asks, especially the most fragile and smaller ACOs, to completely rethink their business model to find innovative ways to serve their public (UNESCO 2020). In this project, we aim at understanding how the recent Covid pandemic has affected young adults' attitudes towards cultural consumption, and whether it has built further barriers. By adopting an experiential perspective, this study explores the perceived obstacles that might prevent young individuals from consuming arts and the expected and desired benefits. Thus, we address the customer value of cultural consumption by devoting great attention to its technological dimension.

Methodology. In this exploratory project, we aim at investigating the impact of the pandemic on young adults' attitudes towards cultural experiences, with a special focus on the perceived obstacles. To reach this goal and gather consumer insights, a semi-structured in-depth interview has been chosen. This methodology is especially able to allow the interviewees to express their ideas and judgments and to develop their opinions with no external influence (Kvale 1996; Rubin and Rubin 1995). Students from a European University were invited to participate in the study. In total 130 participants aged 18-30 were recruited. Apart from their age, they were heterogeneous in gender, interest, and familiarity with cultural experiences. Thus, different cultural experiences have been investigated. These interviews lasted approximately 1 hour each, and were recorded and integrally transcribed. Each interview, then, was summarized using the technique of laddering (Gutman 1982).

Results. By analyzing the impact of Covid-19 on young adults' attitudes toward cultural consumption, our research project highlights some key features of the customer experience that have been investigated. Some relate to the general cultural experience, as previously highlighted regardless of the recent pandemic. In this sense, our research confirms previous results: The cultural consumptions of young adults are typically dependent on a low level of interest, a high level of perceived difficulty, a high level of unfamiliarity, and in general on a high level of distance. These features disorient the young visitors increasing their cognitive efforts to take advantage of the experience. Thus, ACOs have to overcome these aspects. However, this would not be enough since Covid-19 has built additional obstacles that prevent young adults from consuming culture. Specifically, four key obstacles emerge which innovate previous knowledge of the cultural experiences of young adults in the post-Covid scenario.

First, the cultural experience appears isolating while it should be communion. Covid has raised important barriers between people, significantly increasing their isolation. Young people have suffered heavily from isolation and social distance. The recovery of cultural consumption starts by facing and overcoming these social barriers. According to the young people interviewed, if cultural experiences are designed without paying attention to these social elements, they will maintain barriers and will raise barricades that prevent their consumption. During Covid, young adults learned to consume digital experiences, which however now appear as fictitious, unable to replace the real ones. Cultural organizations must focus their attention on the social dimension of their designed experiences, as the only way to stimulate social exchanges, generate collective experiences, and build their sense of identity. Exchange is an essential element of the cultural experience for young adults: "The museum is sharing; if I don't discuss with anyone, what am I going to do?" (Giorgia, 23 years old). Even the mechanism appears to young adults: "When I visit museums, I go to a place that stimulates my reflection if it is beautiful. And if it happens to me, it happens to many - or maybe all - other visitors. This is why I always visit a museum with companions: I look for comparison. Since beauty is subjective, it can say something different to everyone. It is useful to discuss. And by discussing we can share an experience that would have been impossible in the case of a solitary visit" (Gianluca, 20 years old). The relevance of sharing is not limited to museums and exhibitions. When interviewed regarding his cinematic consumption, a young adult highlights the common goal of everyone in the theater: "All the people watching the screen have the same goal: to see the film. Everyone wants to get something out of the film. They are there to find the answers to the questions you also asked yourself in previous films" (Edoardo, 21 years old). The social dimension of cinematic consumption has emerged as the key driver of widely common Apps among young adults such as Rave, which allows them to chat and interact while watching videos. The young people interviewed see cultural consumption as a great opportunity to create interactions with people, to get closer to others, and to be approached by others, thus overcoming the social distance they had to endure during the lockdown, the effects of which are still feared today. For instance, when talking about theaters Anna said: "The theater is the contact you have with the other people who are there, who attend it. It does not matter if they are unknown. They are there, and they applaud with you, laugh with you, and cry with you. The theater offers you a different thing. It allows you to experience something in common with others. It is an emotion different from all the others. It is a pity that the theater does not leverage on this emotion" (Anna, 23 years old). Thus, successful customer experiences are the ones in which the social platform constitutes the core of the cultural offerings, playing a major role even higher than the traditional utilitarian visit of the works of art. The social platform of cultural experiences is so relevant for young adults that even the design of the physical environment should be designed to foster social exchanges.

Second, the cultural experience is passive while it should be co-created together with the consumers. The isolation suffered by young people is an important stimulus to require the AOCs to make greater efforts to get closer and to pay attention to consumers' personalities and preferences. Indeed, our study confirms that culture is experienced by young people as distant. Distant places are regarded as often unable to relate to their world. As Giulia says: "The great museums, the historical ones, have not approached young people and perhaps they do not need them" (Giulia, 24 years

old). Camilla reinforces: “It is always the youth who goes to the museum, never the museum that goes to the youth, here in Italy at least” (Camilla, 20 years old). From the research, it emerged that this perceived distance is attributed to the responsibilities of the AOCs because they design experiences that intimidate young people. This fear of approach comes from several factors: the awareness of an AOC or the importance of its works of art put the young person in a position of subjection, arousing emotions such as embarrassment and apprehension. These emotions do not help in generating a memorable experience. To solve this issue, young adults propose co-creation as the solution. The ease of interaction supports the reduction of distance and the appropriation of the experience. Young adults would like interactive cultural experiences capable of making the individual consumer contribute, allowing him to play an active role. As Enrico says: “An interactive experience involves you, activates you. On the contrary, when visiting a museum passively you might get nothing” (Enrico, 25 years old). The main risk associated with a passively lived cultural experience is boredom.

Third, the cultural experience is perceived as depressing while it should be joyful. Covid-19 has traumatized the lives of young people. The resulting sense of fear and precariousness has pushed young people to take a negative attitude towards life. The desire for leisure, fun, and lightness now seems to be an important driver of the preferences of young people, more than they were in the past: “We young people have recently got our lives back in our hands. After nearly two years of not going out and seeing friends, of talking only about death, of seeing only pictures of coffins and hospitals, now we want to spend more time having fun. I think that for us young people going to visit a museum is not a priority now. We want to live our lives in a carefree way. We are short of time; we want to use it to the fullest. In this sense, visiting a museum as we did before is no longer our priority” (Alessio, 22 years old).

Cultural consumption can potentially offer a full range of stimuli to help young people get out of the oppressive environment in which they have found themselves. On the contrary, cultural experiences often do not pay attention to these aspects and the AOCs present themselves as old-fashioned places. If in museums “everything is broken, everything is dead” (Daniele, 22 years old), theaters “are old, stale” (Giovanni, 21 years old). On the contrary, today young people are asking AOCs to let them interact and express themselves. Through interaction, any distance can be reduced and the experience can be appropriated, as well expressed by Alessandra (22 years old): “The best thing about culture is the process of mediation of things. I see something and I transform it, for example by way of social posts. I watch the image and I recreate it. I take part in the creation process.”

Forth, the cultural experience is interpreted as educational while it should be transformative. Never as in these times have young people denounced a partial and reductive positioning of cultural experiences. The interviewees would like to find in cultural experiences an opportunity to transform their life: “You are in front of a piece of art and it is like being in front of a magical door to go into a special world, a world with no borders. You experience eternity” (Cristina, 20 years old).

Young people ask museums to enrich their personality, as Francesca (18 years old) well summarizes: “When I decide to go to a museum I do it because I want to enrich myself. Yes, I think it is my curiosity to know and to see something new, but not just to know more. I want to get more: I want to change.” Living a transformative experience is what pushes young people to leave home. Covid has made the home a formidable competitor for AOCs: comfort, tranquility, and flexibility of their homes push young people to stay here and even get lazy, as Livia complains: “I have noticed that there is much more pleasure in stay home. While we used to be more hectic and went out more, in my opinion, we found all our comforts during the lockdown. We have seen that you can do everything at home, train, work, study, take lessons and now even go to the museum thanks to the new virtual exhibitions. We got very lazy. Why should we abound all this for an experience that gives me nothing more?” (Livia, 24 years old). Indeed, young people complain often about the fact that the experiences designed by AOCs are unable to offer what they desire. AOCs appear to propose simpler and more traditional experiences, that can be of knowledge or fun but are hardly capable of being transformative. According to Emanuele (27 years old), transformative cultural experiences generate balance: “Internal balance is almost an obligation towards oneself, and art enriches and contributes to personal balance in an important way.” And balance leads to experiencing the infinite, the sublime.

Research limitations. Like any research project, also this study is subject to a few limitations. First, the chosen methodology investigates the cultural experiences mainly from a cognitive point of view. The more emotional processes might remain less explored. Second, since young adults are a very heterogeneous segment searching for different values and benefits (Tait et al. 2019), some moderating variables could play a role in our nomological network.

Managerial implications. Several managerial implications emerge from our study that could drive the next generation’s cultural experiences for young adults. First, AOCs should design cultural experiences by investing in social stimuli. The social dimension of the cultural experience emerges as a key driver and should be explored in many ways. Compared to the classic phases of the customer journey map, the stimuli for sharing can be placed before, during, and after the cultural visit. Before the visit, the social platforms that allow the sharing of a trailer and individual comments of a film or a theater - think of YouTube, Instagram, or Facebook - are a priority information source for young adults. Even digital exhibitions act as previews of the real experience, capable of attracting attention and stimulating interest in visiting the exhibition in reality, just like trailers for films do. Careful and appropriate uses of social media could also help AOCs in gaining young adults’ attention. Several times in our interviews, digitization has emerged as a booster of the preferences of young adults. Seeing things, in reality, is another matter entirely. Seeing a work of art, in reality, is different from studying it in a book: “It satisfies you to a greater extent” (Luca, 18 years old). Socialization during cultural consumption is a critical aspect, especially for that consumption for which it is traditionally prevented. Think of cinema, for example, as a form of consumption in which interaction and sharing during viewing are impossible, to the advantage of streaming platforms which, on the other hand, allow and stimulate

them by transforming the viewing of a film into a collective experience. Finally, post-consumer sharing typically goes through Instagram. The creation of instagrammable physical environments, created ad hoc to allow the creation of a shareable memory, represents an essential element of the cultural offer for young people. For example, according to Davide “some museums in the world are famous only for being instagrammable, not because they have unique works of art” (Davide, 24 years old). According to the young people interviewed, the creation and sharing of unique memories linked to cultural consumption would allow not only increase the value of the experience and its memorability but also approach clusters of consumers that are traditionally not interested in arts. Second, co-creation represents the next future of cultural experiences. Interactive stimuli should offer young adults the opportunities to contribute to creating cultural value. ACOs should therefore pay attention to the touchpoints across the customer journey map so that customers with different levels of familiarity could perceive a welcoming environment. Indeed, the high level of energy and motivation required in the cultural experience (Caldwell 2000; Chen 2009; Stavrakı 2016) might be mitigated when the individual participates in the co-creation of the value of arts and plays an active role in the learning environment (Venäläinen 2012). Third, positive emotions represent a key driver of a joyful and inclusive cultural experience. ACOs should pay great attention to adopting languages that can communicate with young adults, even if that means a more informal debate. Finally, ACOs should adopt well-being as their point of reference. Well-being represents the ultimate goal of any cultural experience, but young adults ask now for something more. They are very favorable towards transformative experiences, that is experiences that can increase their sense of life, and them a purpose in life. The study of individual and collective well-being is no more than fifteen years old but in this short time, it has nevertheless attracted general attention. Although it is difficult to define it precisely, today well-being is a multidimensional concept comprising three main aspects (OECD 2013): (1) satisfaction with one’s life; the effect that captures the emotional states (negative and positive) of a person at a given moment; eudaimonia, that is, the extent to which the individual achieves his or her purpose in life. Placing well-being as the ultimate goal broadens the spectrum of cultural experiences for ACOs, their customers, and the entire society.

The originality of the paper. Our study contributes to advancing the cultural experience knowledge. By investigating the effect of the recent pandemic on the cultural experiences from the young adults’ perspective, our study identifies four additional obstacles that ACOs face to recover from Covid-19. By designing social, co-created, joyful, and transformative cultural experiences ACOs can enhance their heritage, arts, and culture and attract and engage young adults. Our results are innovative because they shed light on strategies and policies to attract a specific target - i.e. young adults - which is critical for the future of our society. By exploring deeper the cultural experience of young adults in the post-Covid scenario, our study also contributes to a better understanding of the customer experience construct.

Keywords: cultural experiences; Covid-19; young adults; marketing; arts and cultural organizations

References

- ADDIS M. (2020), *Engaging Brands: A Customer-centric Approach for Superior Experiences*, Routledge, London.
- ADDIS M., HOLBROOK M.B. (2001), “On the conceptual link between mass customization and experiential consumption: an explosion of subjectivity,” *Journal of Consumer Behaviour: An International Research Review*, vol. 1, n. 1, pp. 50-66.
- ADDIS M., RURALE A. (Eds.), (2020), *Managing the Cultural Business: Avoiding Mistakes, Finding Success*, Routledge, London.
- BARTON C., HAYWOOD J., JHUNJHUNWALA P., BHATIA V. (2013), *Traveling with Millennials*. Retrieved from <https://www.bcg.com/publications/2013/transportation-tourism-marketing-sales-traveling-millennials>.
- CARU’ A., COVA B. (2006), “How to facilitate immersion in a consumption experience: Appropriation operations and service elements,” *Journal of Consumer Behaviour: An International Research Review*, vol. 5, n. 1, pp. 4-14.
- CALDWELL N.G. (2000), “The emergence of museum brands,” *International Journal of Arts Management*, vol. 2, n. 3, pp. 28-34.
- CHEN Y. (2009), “Possession and access: consumer desires and value perceptions regarding contemporary art collection and exhibit visits,” *Journal of Consumer Research*, vol. 35, n. 6, pp. 925-940.
- DAVIES A., FITCHETT J.A. (2010), “Material man is not an island: Coping with cultural fracture,” *Journal of Marketing Management*, vol. 26, n. 11-12, pp. 1005-1020.
- FITZGERALD M., KRUSCHWITZ N., BONNET D., WELCH, M. (2014), “Embracing digital technology: A new strategic imperative,” *MIT Sloan Management Review*, vol. 55, n. 2, pp. 1.
- FLORIDA R., SEMAN M. (2020), *Lost art: Measuring COVID-19’s devastating impact on America’s creative economy*. Retrieved from https://www.brookings.edu/wp-content/uploads/2020/08/20200810_Brookingsmetro_Covid19-and-creative-economy_Final.pdf.
- GONZALEZ-FUENTES M. (2019), “Millennials’ national and global identities as drivers of materialism and consumer ethnocentrism,” *The Journal of Social Psychology*, vol. 159, n. 2, pp. 170-189.
- GOULDING C. (2000), “The museum environment and the visitor experience,” *European Journal of Marketing*, vol. 34, n. 3-4, pp. 261-278.

- GUTMAN J. (1982), "A means-end chain model based on consumer categorization processes," *Journal of Marketing*, vol. 46, n. 2, pp. 60-72.
- HALLIDAY S., ASTAFYEVA A. (2014), "Millennial cultural consumers: co-creating value through brand communities," *Arts Marketing: An International Journal*, vol. 4, pp. 119-135.
- KYALE S. (1996), *Interviews: An Introduction to Qualitative Research Interviewing*, London, Sage Publications.
- NOBLE S.M., HAYTKO D.L., PHILIPPS J. (2009), "What drives college-age Generation Y consumers?" *Journal of Business Research*, vol. 62, n. 6, pp. 617-628.
- OECD (2013), *OECD Guidelines on Measuring Subjective Well-being*, OECD Publishing.
- OECD (2017), "Use of Behavioural Insights in Consumer Policy," *OECD Science, Technology and Industry Policy Papers*, n. 36, OECD Publishing, Paris.
- OFFICE OF NATIONAL STATISTICS (2016), *Taking Part Survey 2015/16*. Retrieved from <https://www.gov.uk/guidance/taking-part-survey>.
- PREBENSEN N.K., XIE J. (2017), "Efficacy of co-creation and mastering on perceived value and satisfaction in tourists' consumption," *Tourism Management*, n. 60, pp. 166-176.
- RUBIN H.J., RUBIN I.S. (1995), *Qualitative Interviewing: The Art of Hearing Data*, London, Sage Publications.
- STAVRAKI G. (2016), "Understanding consumers' relationships with contemporary artworks through identity narratives," *Journal of Service Theory and Practice*, vol. 26, n. 6, pp. 811-836.
- TAIT R., KAIL A., SHEA J., MCLEOD R., PRITCHARD N., ASIF F. (2019), *How can we engage more young people in arts and culture? A guide to what works for funders and arts organizations*. Retrieved from <https://www.thinknpc.org/wp-content/uploads/2019/08/Arts-Engagement-Report-2019-web.pdf>.
- THE AUDIENCE AGENCY (2018), *Museums Audience Report*. Retrieved from <https://www.theaudienceagency.org/asset/1995>.
- JOHNS HOPKINS CENTER FOR CIVIL SOCIETY STUDIES (2021), *COVID-19 Pandemic Impact on The Arts. Research Update: November 16, 2021*. Retrieved from <http://ccss.jhu.edu/wp-content/uploads/2021/11/NEWS-RELEASE-October-2021-Nonprofit-Jobs-Report.pdf>.
- THOMSON K., PURCELL K., RAINIE L. (2013), "Arts organizations and digital technologies", *Pew Research Center*, 4.
- UNESCO (2020), *Museums facing COVID-19 challenges remain engaged with communities*. Retrieved from <https://en.unesco.org/news/museums-facing-COVID-19-challenges-remain-engaged-communities>.
- UNWTO (2016), *Global Report on The Power of Youth Travel*. Retrieved from https://www.wysetc.org/wp-content/uploads/2016/03/Global-Report_Power-of-Youth-Travel_2016.pdf.
- VENÄLÄINEN P. (2012), "Contemporary art as a learning experience," *Procedia-Social and Behavioral Sciences*, 45, 457-465.

Thematic Niche-Tourism Ecosystems: Orchestrators and Orchestration Mechanisms in Olive-Oil Tourism

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Framing of the research. *Niche-tourism based on special travel interests strengthens tourism products and the market profile of destinations through specialization and improvements in sustainable development (Robinson and Novelli, 2007). Slow and transformative travel - an emerging niche theme that is environmentally friendly, promotes conservation, and values nature and cultural heritage - will drive major changes (Research and Markets, 2021). The resources and cultural heritage of rural areas fit modern trends and have the potential for a new rural paradigm (OECD, 2006) based on sectoral integration.*

Olive-oil tourism, or oleotourism, is a niche tourism market flourishing in rural areas (Pulido-Fernández et al., 2019). In the experience economy (Pine and Gilmore, 1999), the fragmented and heterogeneous business ecosystem focused on the olive-oil value chain inspires new tourism motives (Folgado-Fernández et al., 2019; Campón-Cerro et al., 2017) and creative experiences (Della Lucia, 2015). This ecosystem is linked to a set of small enterprises and actors related to olive groves and olive oil products (such as land, water, climate), producer places and communities (landscape, culture, and intangible heritage), the regulation of origin (protected designation and geographical indication) (Alonso and Northcote, 2010; Hernández-Mogollón et al., 2019), and complementarities in the enogastronomy and cultural sectors.

In fragmented contexts, as is the case with olive oil business ecosystems, infrastructure building is a factor that enables linkages between niche tourism offerings and niche markets (Čehić et al., 2020): creating a recognizable niche tourism product requires a critical mass of businesses, extensive networks, a pool of skills, and knowledge flows (Lew, 2008). The heterogeneity of stakeholders and sectoral diversification require orchestrators that enable the collective creation of value through participation and interaction. An orchestrator can facilitate the building of the business ecosystem and the collaboration processes for collective value creation (Björk and Virtanen, 2005).

Orchestrators are independent third parties - voluntary or appointed - that have not emerged from the ecosystem but are “historically separate and distinct in terms of resources and personnel” (Westley and Vredenburg, 1991, p. 68). Their role is primarily to develop linkages between fragmented, independent, and heterogeneous stakeholders that are unwilling or unable to work together directly, or that are poorly organized, or that one entity cannot manage alone (Westley and Vredenburg, 1991). Orchestrators support the development of both horizontal and vertical linkages (Brown, 1991) by bringing together disconnected actors and enabling new relationships between already connected actors (Kirkels and Duysters, 2010). Building these connections is challenged by the network’s openness: members can join the network on a voluntary and ad hoc basis according to their needs, and participation is not contractually required (Giudici et al., 2018).

Creating a cohesive network of stakeholders is the precondition for the orchestration of a variety of processes of collective value creation linked to a specific niche tourism theme. These include integrating distributed resources, scouting ideas and emerging projects, facilitating knowledge sharing, and learning and innovation processes (Berkes, 2009; Olsson et al., 2004; Westley and Vredenburg 1991). From the dynamic capabilities perspective (Teece, 2007; Teece et al., 1997), collective value arises from the novel recombination of a complementary set of knowledge, resources, and capabilities distributed across different actors (Teece, 2012).

Due to resistance and reluctance to change, building legitimacy and trust (Dagnino et al., 2016) and engagement (Järvensivu and Möller, 2009) between heterogeneous and fragmented actors (Håkansson and Eriksson, 1993) are crucial to fostering interaction and knowledge sharing. Successful orchestration needs to leverage all dimensions of social capital (structural, cognitive, and relational) inherent in the network (Inkpen and Tsang, 2005) to build a critical mass of stakeholders and develop a knowledge infrastructure. It is not only about convincing the network members with rational arguments but also about using trustworthy relationships and reciprocal behaviour, or even taking advantage of direct, informal, and long-term social ties. The orchestration mechanism is the overarching set of observable and routinized practices (Perks et al., 2017) that create a collective value that does not reside in any one of the practices alone. Orchestrators can benefit greatly from using digital platforms to promote shared value creation within the business ecosystem (Thomas et al., 2014). Digital platforms place networked stakeholders in a virtual environment,

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repositioning collective value creation on the physical-virtual continuum (Gawer, 2009; Palo and Tähtinen, 2011). Technology infrastructures and software applications and processes become an orchestration structure per se, enabling offline orchestration practices (Altman and Tushman, 2017; Iansiti and Levien, 2004; Moore, 1996; Trunfio and Della Lucia, 2019). Connections between stakeholders can be multiplied, diversified, simplified, and easily managed, having a positive impact on knowledge sharing and fair value creation (Barrett et al., 2016). Adopting a digital platform requires the orchestrator to develop a clear “protovision” of the digital business ecosystem to convince stakeholders to join and create a set of online bridging practices (Perks et al., 2017).

Purpose of the paper. Despite the growing interest in thematic niche tourism (Alonso and Northcote, 2010), research in this field is still in its infancy (Parrilla-González et al., 2020) and studies to date are very general and fragmented (Pulido-Fernández et al., 2019). In particular, the strategic bridging role that orchestrators perform remains under-theorized (Park and Kohler, 2019), including creating digital business ecosystems (Park and Kohler, 2019) that can enable their orchestration function. research aims to understand the role of the orchestrator and the orchestration mechanisms to promote the emergence and consolidation of a distinguishable ecosystem for olive-oil tourism and valuable experiences. The research aims to answer this question: How do nonprofit public organizations mobilize dispersed resources to create and implement an ecosystem for thematic niche-tourism? What orchestration mechanisms do they employ? What is the role of digital platforms?

Methodology. The analysis focuses on the Italian context of olive-oil, where the phenomenon is already flourishing as olive oil plays a vital role in Italian agriculture and the Mediterranean diet. The communities and places involved in the olive-oil value chain can easily provide creative experiences based on skills, knowledge, rituals, symbols, and traditions that make up their cultural identity, emphasising the values of hospitality, neighbourliness, intercultural dialogue, and creativity. The trend is promising: in 2020, the Italian Parliament recognised oleotourism as special interest tourism, adding a layer of certification and protection that reinforces the Protected Designation of Origin and Protected Geographical Indication.

A holistic single case study is used to analyse the role of orchestrators and orchestration mechanisms in olive-oil tourism. The Italian National Association of Oil Cities is the pivot for the valorisation of the Italian olive-oil value chain and the driver of intersectorality with tourism. Its role as an orchestrator is analysed using primary data collected through semi-structured in-depth online interviews. Primary data on the role of orchestration and the Association’s orchestration mechanisms were collected in February 2022 through two semi-structured in-depth online interviews with primary stakeholders - the director of the Association and the project manager of the oleotourism platform. Each interview lasted approximately 1 hour and 30 minutes. The coordination role (i.e., destination management) that destination management organizations play in collaborative destinations (Prezenza and Cipollina, 2010) and the tools used for stakeholder engagement - both on the supply and demand side - on digital platforms and offline (Trunfio and Della Lucia, 2019) have been used to define the interview content. This content was also complemented with network orchestration mechanisms in the value platform development context (Perks et al., 2017) adapted to the early stages of the oleotourism platform. The information recorded during the interviews was analysed manually. Key questions were triangulated with secondary data, including newspaper articles and online articles dealing with the role and objectives of the Italian National Association of Oil Cities.

Results. The Italian National Association of Olive Cities was founded almost 30 years ago (1994) with the mission to “spread the culture of the olive tree and quality olive oil; protect and promote the environment and the olive landscape; disseminate the history of olive cultivation; offer security to the consumer through the valorisation of designations of origin, the organisation of events, the implementation of communication and marketing strategies aimed at getting to know the great Italian olive heritage”, as the director explained. Its long tradition of valorising and promoting Italian olive oil culture at different levels makes it recognisable and legitimises it among different stakeholders, sectors, geographical areas, and markets. Today there are almost 400 associated towns.

The orchestration role and mechanisms of the Association span the institutional realm, the business ecosystem, and the market. Through public and institutional relations, the Association has constantly lobbied national and regional political and technical bodies to raise awareness of the importance of the sector and its tourism value. Lobbying the Italian Parliament’s legislation led to recognizing the oleotourism ecosystem in the broader economic and social context. The project manager explained that “oleotourism has been equated with wine tourism and included in the country’s 2020 budget, extending the incentives created for wine producers to oil producers”. However, the recognition of oleotourism encompasses the entire olive-oil supply chain: “knowledge and culture of olive oil embedded in the place of cultivation and production and presented through visits, learning, and active experiences - from the places and tools of cultivation and production to the tasting of olive oil, including in combination with other foods, and the marketing of farms and olive oil mills together with geographical indications and products”, the director explained.

The lobbying of the Association and the recognition of oleotourism went hand in hand with the creation, consolidation, and protection of the identity of the olive-oil business ecosystem. The identity is multi-faceted; it encompasses selected features of the entire olive oil value chain: tree, olive groves, oil production techniques and oil varieties, climate, environmental elements, natural and built landscapes, local culture, and traditions. It also represents the social and economic value of high-quality and healthy products (the Italian extra virgin olive) and their conscious consumption, which is widely communicated and promoted, primarily through the Association’s websites.

The creation and official recognition of this identity has led to gathering a critical mass of actors in the olive-oil supply chain who recognise themselves in this identity, creating a business ecosystem. The meta-management measures that the association has implemented to promote cooperation within and between the different categories of actors in

the olive-oil value chain include capacity building and knowledge sharing. Capacity building is needed, first, to raise awareness about the tourist potential of the olive-oil business ecosystem and the virtuous inter-sectoral link between agriculture-tourism-sustainable development; second, to make collective actions and projects feasible; third, to empower stakeholders to develop and implement them or to become project leaders. As stakeholders are fragmented and heterogeneous, capacity building also develops skills and encourages dialogue and partnerships and roots actions of the sense of place, culture, and identity. Both the director and the project manager pointed out that the major challenge of the Association's training initiatives is to foster the transition from product-driven culture and business models (farmers and olive oil mills) to service-driven ones asked to become oleotourism operators.

The Association's knowledge-sharing actions aim to provide integrated information on a wide range of topics to stakeholders in the Italian olive-oil value chain. Knowledge sharing actions include offline tools such as workshops and thematic events, discussion forums, and stakeholder dialogues organised with the support of the affiliated oil towns and cooperation with local action groups, olive oil producer associations, or trade associations. However, digital platforms are playing an increasingly important role, and the pandemic COVID-19 has encouraged the transition of the traditional socio-economic community of olive oil stakeholders into a virtual environment. The official website of the association (www.cittadellolio.it) is a meta-management tool that allows stakeholders to keep up to date, share knowledge and collaborate on joint planning projects.

Finally, the orchestration role of the association concerns the development of a mixed market and service orientation. The actions are varied (intermediaries, special events, competition). The development of collaborations with intermediaries offering travel and tourism-related services makes it possible to enrich the ecosystem with specialised tour operators and target national and international segments better than going it alone. This is the case with the association MAAVI (Autonomous Movement of Italian Travel Agents).

In a thematic niche-tourism ecosystem such as oleotourism, special events have become strategic tools for place and tourism marketing and strengthening cooperation between value chain actors. The Association's annual event, the National Day of the Walk among the Olive Trees, encourages communities to choose a unique cultural or environmental route among the olive trees, ending in an oil mill, olive farm, or historic building where participants can experience a tasting of bread, oil, and typical products. The Oil Mills Open is an event that connects oil mills and their surroundings, offering micro-oil-olive experiences and encouraging participants to participate in the olive oil landscape on foot or by bike.

More recently, the association has launched a competition aimed at the network of affiliated oil cities (the first edition was in 2020) to identify and award the excellence of Italian oleotourism. The www.turismodellolio.com platform was launched in 2021 to bring together the stakeholders participating in the competitions, to manage the competition better, and showcase the excellence of Italian oleotourism to other stakeholders operating (or wishing to operate) in the sector and travellers/tourists. The platform is currently an e-information mechanism, but intending to become "the agora of the best practices of Italian oleotourism, the virtual space and tribal community of oil lovers and a marketplace for booking unique experiences based on a strategic resource of Italian heritage", as the director explains.

Research limitations. The paper analyses only a single case study and examines only the orchestrator's perspective.

Managerial implications. Building capacity, trust, and networks within the value chains (olive oil and tourism) and between them is the biggest challenge for the orchestrator.

Originality of the paper. Oleotourism is a topic of particular interest in the debate on cultural and creative industries and tourism as drivers for local development and innovation. However, it shows a fragile ecosystem composed of a plethora of stakeholders and proposals that are still in an infant stage. Unveiling the main orchestration mechanisms that support the development of such an ecosystem will be of great importance in boosting the sustainable growth of the oleotourism business ecosystem.

References

- ALONSO A.D., NORTHCOTE J. (2010), "The development of olive tourism in Western Australia: A case study of an emerging tourism industry", *International Journal of Tourism Research*, vol. 12, n. 6, pp. 696-708.
- ALTMAN E.J., TUSHMAN M.L. (2017), "Platforms, open/user innovation, and ecosystems: A strategic leadership perspective", in: FURMAN J., GAWER A., SILVERMAN B., STERN S. (Eds), *Advances in Strategic Management, Entrepreneurship, Innovation, and Platforms*, Vol. 37, Emerald Group Publishing, Bingley, UK (pp. 177-207).
- BARRETT M., OBORN E., ORLIKOWSKI W. (2016), "Creating value in online communities: The sociomaterial configuring of strategy, platform, and stakeholder engagement", *Information Systems Research*, vol. 27, n. 4, pp. 704-723.
- BERKES F. (2009), "Evolution of co-management: role of knowledge generation, bridging organizations and social learning", *Journal of environmental management*, vol. 90, n. 5, pp. 1692-1702.
- BJÖRK P., VIRTANEN H. (2005), "What tourism project managers need to know about co-operation facilitators", *Scandinavian journal of hospitality and tourism*, vol. 5, n. 3, pp. 212-230.

- BROWN L.D. (1991), "Bridging organizations and sustainable development", *Human relations*, vol. 44, n. 8, pp. 807-831.
- CAMPÓN-CERRO A.M., HERNÁNDEZ-MOGOLLÓN J.M., ALVES H. (2017), "Sustainable improvement of competitiveness in rural tourism destinations: The quest for tourist loyalty in Spain", *Journal of Destination Marketing & Management*, vol. 6, n. 3, pp. 252-266.
- CARBONE A., CACCHIARELLI L., SABBATINI V. (2018), "Exploring quality and its value in the Italian olive oil market: a panel data analysis", *Agricultural and food economics*, vol. 6, n. 1, pp. 1-15.
- ČEHIĆ A., MESIĆ Ž., OPLANIC M. (2020), "Requirements for development of olive tourism: The case of Croatia", *Tourism and hospitality management*, vol. 26, n. 1, pp. 1-14.
- DAGNINO G.B., LEVANTI G., MOCCIARO LI DESTRI A. (2016), "Structural dynamics and intentional governance in strategic interorganizational network evolution: A multilevel approach", *Organization Studies*, vol. 37, n. 3, pp. 349-373.
- DELLA LUCIA M. (2015), "Creative cities: experimental urban labs", *International Journal of Management Cases*, vol. 17, n. 4, pp. 156-172.
- DELLA LUCIA M., SEGRE G. (2017a), "Il perimetro di industrie culturali, creative e turismo: specializzazioni e implicazioni di policy in Italia", *Sinergie-Italian Journal of Management*, vol. 35, n. 104, pp. 115-134.
- DELLA LUCIA M., SEGRE G. (2017b), "Intersectoral local development in Italy: the cultural, creative and tourism industries", *International journal of culture, tourism and hospitality research*, vol. 11, n. 3, pp. 450-462.
- FOLGADO-FERNÁNDEZ J.A., CAMPÓN-CERRO A.M., HERNÁNDEZ-MOGOLLÓN J.M. (2019), "Potential of olive oil tourism in promoting local quality food products: A case study of the region of Extremadura, Spain", *Heliyon*, vol. 5, n. 10, e02653.
- GAWER A. (2009), "Platforms dynamics and strategies: from products to services", in GAWER A. (Ed.), *Platforms, Markets and Innovation*, Edward Elgar, Cheltenham, UK (pp. 45-76).
- GIUDICI G., GUERINI M., ROSSI-LAMASTRA C. (2018), "Reward-based crowdfunding of entrepreneurial projects: the effect of local altruism and localized social capital on proponents' success", *Small Business Economics*, vol. 50, n. 2, pp. 307-324.
- HAKANSSON H., ERIKSSON A.K. (1993), "Getting innovations out of the supplier networks", *Journal of business-to-business marketing*, vol. 1, n. 3, 3-34.
- HERNÁNDEZ-MOGOLLÓN J.M., DI-CLEMENTE E., FOLGADO-FERNÁNDEZ J.A., CAMPÓN-CERRO A.M. (2019), "Olive oil tourism: state of the art", *Tourism and hospitality management*, vol. 25, n. 1, pp. 179-207.
- IANSTITI M., LEVIEN, R. (2004), *The keystone advantage: what the new dynamics of business ecosystems mean for strategy, innovation, and sustainability*, Harvard Business Press, Massachusetts.
- INKPEN A.C., TSANG E.W. (2005), "Social capital, networks, and knowledge transfer", *Academy of management review*, vol. 30, n. 1, pp. 146-165.
- JÄRVENSIVU T., MÖLLER K. (2009), "Metatheory of network management: A contingency perspective", *Industrial Marketing Management*, vol. 38, n. 6, pp. 654-661.
- KIRKELS, DUYSTERS G. (2010), "Brokerage in SME networks", *Research Policy*, vol. 39, n. 3, pp. 375-385.
- LEW A.A. (2008), "Long tail tourism: New geographies for marketing niche tourism products", *Journal of Travel & Tourism Marketing*, vol. 25, n. 3-4, pp. 409-419.
- MOORE J.F. (1996), *The Death of Competition: Leadership and Strategy in the Age of Business Ecosystem*, Harper Business, New York.
- OECD (2006), *Cities and Regions in the New Learning Economy*, OECD, Paris
- OLSSON P., FOLKE C., HAHN T. (2004), "Social-ecological transformation for ecosystem management: the development of adaptive co-management of a wetland landscape in southern Sweden", *Ecology and society*, vol. 9, n. 4, pp. 2-28.
- PALO T., TÄHTINEN J. (2011), "A network perspective on business models for emerging technology-based services", *Journal of Business & Industrial Marketing*, vol. 26, n. 5, pp. 377-388.
- PARK S.Y., KOHLER T. (2019), "Collaboration for sustainable tourism through strategic bridging: A case of travel2change", *Journal of Vacation Marketing*, vol. 25, n. 1, pp. 99-110.
- PARRILLA-GONZÁLEZ J.A., MURGADO-ARMENTEROS E.M., TORRES-RUIZ, F.J. (2020). "Characterization of olive oil tourism as a type of special interest tourism: An analysis from the tourist experience perspective", *Sustainability*, vol. 12, n. 15, pp. 6008.
- PERKS H., KOWALKOWSKI C., WITTELL L., GUSTAFSSON A. (2017), "Network orchestration for value platform development", *Industrial marketing management*, vol. 67, pp. 106-121.
- PINE J., GILMORE J.H. (1999), *The experience economy: work is theatre & every business a stage*, Harvard Business Press, Massachusetts.
- PRESENZA A., CIPOLLINA M. (2010), "Analyzing tourism stakeholders networks", *Tourism Review*, vol. 65, n. 4, pp. 17-30.
- PULIDO-FERNÁNDEZ J.I., CASADO-MONTILLA J., CARRILLO-HIDALGO I. (2019), "Introducing olive-oil tourism as a special interest tourism", *Heliyon*, vol. 5, n. 12, pp. e02975.
- RESEARCH AND MARKETS (2021), "Niche tourism", www.researchandmarkets.com/reports/5238856/niche-tourism-2021-update-thematic-research
- ROBINSON M., NOVELLI M. (2007), *Niche tourism*, Routledge, London.

- SANTAGATA W. (2009), *Libro bianco sulla creatività*, Egea, Milano.
- SANTOSA M., ABDI H., GUINARD J.X. (2010), "A modified sorting task to investigate consumer perceptions of extra virgin olive oils", *Food Quality and Preference*, vol. 21, n. 7, pp. 881-892.
- SAPSED J., GRANTHAM A., DEFILLIPPI R. (2007), "A bridge over troubled waters: Bridging organisations and entrepreneurial opportunities in emerging sectors", *Research Policy*, vol. 36, n. 9, pp. 1314-1334.
- SCARPA R., DEL GIUDICE T. (2004), "Market segmentation via mixed logit: extra-virgin olive oil in urban Italy", *Journal of agricultural & food industrial organization*, vol. 2, n. 1, doi.org/10.2202/1542-0485.1080.
- SCOTT A.J. (2006), "Creative cities: Conceptual issues and policy questions", *Journal of urban affairs*, vol. 28, n. 1, pp. 1-17.
- TEECE D. J. (2012), "Dynamic capabilities: Routines versus entrepreneurial action", *Journal of management studies*, vol. 49, n. 8, pp. 1395-1401.
- TEECE D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic management journal*, vol. 28, 13, pp. 1319-1350.
- TEECE D.J., PISANO G., SHUEN A. (1997), "Dynamic capabilities and strategic management", *Strategic management journal*, vol. 18, n. 7, pp. 509-533.
- THOMAS L.D., AUTIO E., GANN D.M. (2014), "Architectural leverage: Putting platforms in context", *Academy of management perspectives*, vol. 28, n. 2, pp. 198-219.
- TRUNFIO M., DELLA LUCIA M. (2019), "Engaging destination stakeholders in the digital era: The best practice of Italian regional DMOs", *Journal of Hospitality & Tourism Research*, vol. 4, n. 3, pp. 349-373.
- WESTLEY F., VREDENBURG H. (1991), "Strategic bridging: The collaboration between environmentalists and business in the marketing of green products", *The Journal of applied behavioral science*, vol. 27, n. 1, pp. 65-90.

Are Digital Platforms a Bridge Between Developed and Emerging Markets? Evidence from Multiple Case Studies

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Objectives: *The continuing COVID-19 pandemic showed the vulnerability of global supply networks in meeting business and consumer demands (Mollenkopf et al., 2020; Sarkis, 2020). Border closures, restrictions on air, rail, and land transit have produced substantial supply chain disruptions, causing delays and bottlenecks (El Baz and Ruel, 2021). These interruptions and inefficiencies point to the need to reconsider manufacturing and distribution methods.*

Paul et al. (2021) argue that pandemic-related challenges need supply chain recovery and resilience. Supply disruptions may impact the network in several ways (Ivanov and Dolgui, 2021, Li et al., 2021). Supply chains are considered as networks capable of co-creating value (Stolze et al., 2016). It is possible to isolate any supply chain disruptions. In other cases, supply chain disruptions may have a cascading impact on individual companies and networks (Ivanov and Dolgui, 2021). Ivanov et al. (2014) claim the ripple effect affects all network components and enterprises. Academics and practitioners believe that ripple effects are common in global supply networks (Sreedevi and Saranga, 2017; Bonadio et al., 2021).

Between export-dependent developing countries and developed countries, trade flows recorded historic lows during COVID-19 (Espitia et al., 2020). Many commodities from undeveloped countries remained unsold at shipping hubs early in the pandemic owing to factory and store closures (The Economist, 2020). Outbreaks in global industrial hubs like Dongguan, Bangladesh, and Pakistan halted output (UN Department of Economic and Social Affairs, 2021). Then there was the issue of disease outbreaks at ports, cargo ships, and customs (Baldwin, 2020). During the first trimester of 2020, COVID-19 had a negative influence on Eastern Asia, ranging from -20.1% in China to -61.31 in Pakistan (WTO, 2020). One of the most relevant instances is obtaining components from China. Also, Hyundai and Nissan ceased manufacturing in Asia, Africa, and the Middle East. Exclusions from industrial units in India, Vietnam, and China (Xu et al., 2020). Inability to control raw material quality has impacted the textile and garment sectors. Supply chain services and logistics are cheaper in developing markets (Kumar et al., 2017). A closer look at these marketplaces' peculiarities is required. Emerging economies, according to Pelle (2007), have weak corporate infrastructure, changing legal systems, and a high-risk environment. Studies show fierce rivalry and huge corruption in several of these markets (Kumar et al., 2017).

As a consequence, developing markets provide chances for established enterprises. But they may cause complications. Because of this, developing market enterprises were threatened during the pandemic. The so-called bullwhip effect (Foster and Kaplan, 2011) occurs when enterprises fail in new markets (Alvarado-Vargas and Kelley, 2020). Supply chain efficiency is important to business survival in developing markets (Kumar et al., 2017). To be competitive and sustainable, emerging market enterprises must continually rethink and rebuild their supply chains.

New technologies allow intra- and inter-organizational sharing. Most supply chain research ignores developing countries (Scuotto et al., 2017). In both established and emerging economies, supply chain innovations should benefit suppliers and other stakeholders.

Digital platforms may assist assure quality, trust, time, fixed costs and supply chain continuity in global supply chains. Supply chain disruption is well-known (Blackhurst et al., 2005; Ivanov et al., 2021), but the importance of technology in crisis response has been overlooked (Marley et al., 2014). Stank et al. (2001) argue that collaborating reduces costs and improves service quality. There is a shortage of knowledge on how digital platforms boost global supply chain performance (Scuotto et al., 2017). Examination of how digital platforms produce a digital ecosystem is required. Overall, supply chain management must be digitally modernized. Supply and demand must be balanced via digital platforms. Under these assumptions, our research questions are:

RQ1: How do digital platforms help organizations ensure a sustainable supply chain between developed and developing countries during disruption events?

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RQ2: How is supply chain management affected by the use of digital platforms, and what is the impact on businesses in emerging countries?

Conceptual Framework: *New business approaches and solutions are required to overcome current challenges (Lee and Trimi, 2021). New tactics and cooperation may help companies stay stable. Romero and Molina (2011) states that organizations may get new knowledge by combining complementary talents and skills. Exchange of ideas, resources, and technology promotes value co-creation (Ramaswamy and Ozcan, 2018). Individuals and businesses may collaborate on digital platforms (Cozzolino et al., 2021). Digital platforms are virtual spaces where people generate and trade value (Abbate et al., 2019). Innovators from many fields are drawn to digital platforms (Boudreau, 2010).*

For example Amazon's Mechanical Turk network connects consumers and sellers, employers and job seekers (Trabucchi and Bunanza, 2020). The website also connects users with Airbnb hosts and Uber drivers (Trabucchi et al., 2020). These are examples of two-sided platforms. Some systems support several user groups. For example, ELEMICA connects companies, suppliers, customers, and distributors (Wallbach et al., 2019). In-depth research on digital platform dynamics focused on platform providers, technology, and network effects (De Reuver et al., 2018; Hein et al., 2020). The benefits of using digital platforms in business must be explained to organizations and managers.

Aspects of platform adoption were examined using the Diffusion of Innovation (DOI; Rogers, 1995) and Technology Organization Environment theories (TOE; Tornatzky and Fleischer, 1982). The DOI paradigm identifies technology innovation. Managers are more inclined to adopt new technologies if they are seen as advantageous and have tangible benefits. Some of the advantages of platforms include supplier connection and pricing negotiation (Trabucchi et al., 2020).

The majority of explored digital channels were B2C highlighting consumer benefits (Peltier et al., 2020). As stated by Evans and Schmalensee (2016), platforms lower transaction costs and facilitate information flow. Access platforms need a lot of business information. They should also provide detailed product information and images. This is visible in the Alibaba.com B2B application (Tan et al., 2015). Transparency and knowledge are vital in transnational relationships. Platforms facilitate cross-border supply networks. Global supply chains connect overseas clients to new consumers, suppliers, and cheaper labor costs (Fawcett et al., 2008; Myers et al., 2008).

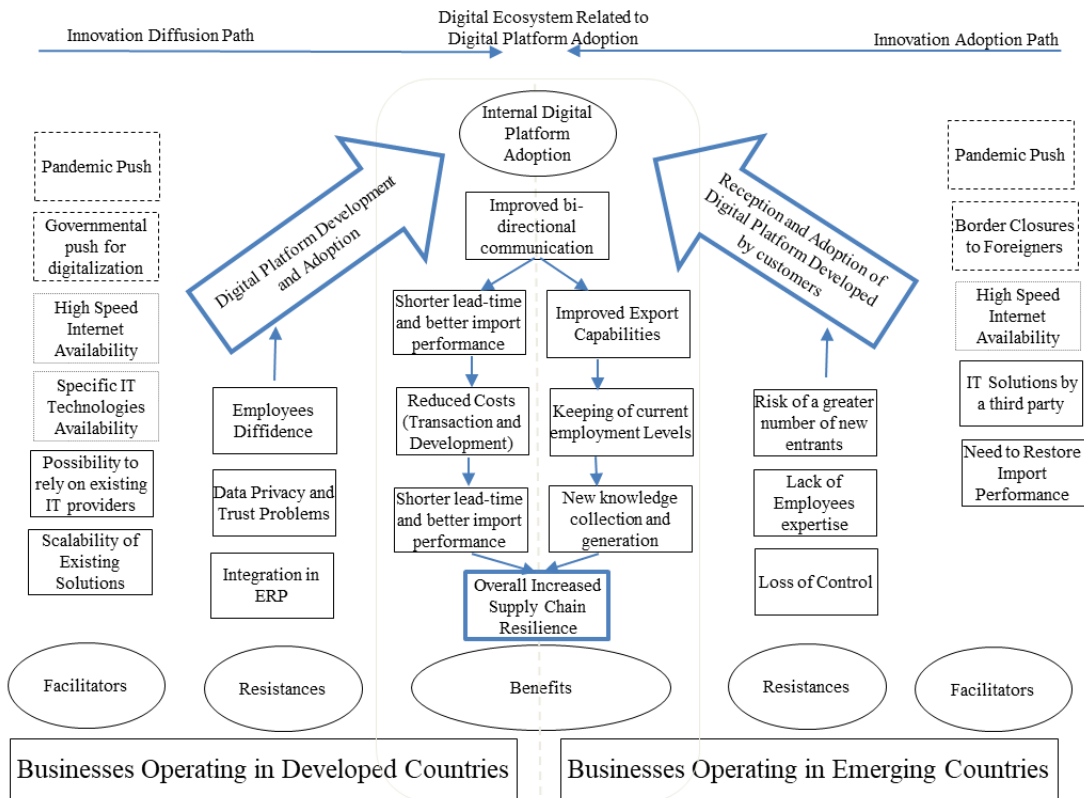
The pandemic has increased the unpredictability of global supply systems, demanding innovative sustainable solutions (Xu et al., 2020). Digitalization and supply chain expansion have followed. The usage of advanced technology may assist develop value-added relationships (Presutti, 2003, Scuotto et al., 2017). Manufacturing enterprises buying raw materials and semi-finished items from developing countries are excluded. Solutions must be created in affluent countries but implemented in developing nations. Because of this profound link, we cannot accept solutions that favor one side of the demand while disregarding the other. Lack of data integration has traditionally slowed many organizations' crisis response (Van Hoek et al., 2001). Increasing supply chain visibility helps organizations interact with suppliers and meet customer expectations (Balakrishnan and Ramanathan, 2021). It increases visibility, communication, and collaboration with suppliers (Wallbach et al., 2019; Mancha and Gordon, 2021)

Adding modules to an ERP system to create an internal modular digital platform; selecting an external digital platform (Gawer and Cusumano, 2014). ERP is widely used to manage supply chains. This system integrates inventory management, order placement, and financial reporting (Umble et al., 2003). These technologies may be used to improve ERP supply chain visibility, cost and performance management, and material quality control (Perboli et al., 2018). By extending an ERP system's capabilities, manufacturers may create a true digital platform. Because of this, the orchestrator will be able to cut expenses and broaden relationships.

Companies may also employ a third-party digital platform to optimize supply (Gawer and Cusumano, 2014). Users of the platform's network in developed and emerging markets would be charged. Depending on the firm, there are different options. Internal platforms allow firms to keep their current suppliers while enhancing traceability. The internal technology would also enable tracking subcontractors over enormous networks (Perboli et al., 2018). This win-win method saves money for suppliers in developing countries. However, external platforms may be used in supply chain management when monitoring logistics without interacting with a known pool of suppliers (Khan and Yu, 2019). Moreover, while the manufacturing company spends extensively in its own digital platform, the rising supplier must do the same.

Companies in developed nations may use digital platforms to construct a digital relational network to increase ideas, creativity, and competitive advantage (Pagani and Pardo, 2017). Moreover, the ecosystem helps both established and new businesses specialization (Scaringella and Radziwon, 2018). Platform-enabled ecosystems dramatically reduce coordination costs and are critical to many organizations' growth strategy. Ecosystems help firms to produce value (Zahra and Nambisan, 2011). The ecosystem is dangerous since it is dependent on other firms. Dependency risks arise when value is produced inside an ecosystem driven by connections (Adner, 2006). However, the digital ecosystem involves collaboration and interaction amongst many enterprises. Using a digital platform, manufacturers may build partnerships with various developing suppliers while reducing reliance and uncertainty (Faisal et al., 2006). Digital platforms facilitate partnerships and the exploitation of new markets by fostering constant innovation and cooperation.

Fig. 1: Explicative framework



* Dashed Boxes Contain Pushing Factors (Facilitators) Related to Environment
 ** Dotted Boxes Contain Pushing Factors (Facilitators) Related to Technology
 *** Full Line Boxes Contain Pushing Factors (Facilitators) Related to Organization
 Source: Authors' elaboration

Methodology: The research technique used is comparative case studies. 8 cases (4 developed, 4 developing markets) of digital platforms for global supply chains management have been chosen. They represent 4 worldwide supply networks. Eight cases were chosen from a bigger pool of businesses belonging to a renowned IT solutions provider and consultancy located in Florence (Italy). Initially, four businesses from Tuscany were chosen because they all suffered some degree of supply-chain management uncertainty because to the COVID-19 epidemic. These initial four businesses are all positioned at the top of a global supply chain. Then 4 cases from developing markets. These are significant suppliers to the first four. So, 4 company pairings (eight examples) were chosen to investigate the phenomena from both ends of the supply chain. The first four chosen organizations requested the IT consultant to design ICTs capable of better monitoring suppliers and keeping in contact with them 24/7. Ultimately, the 8 firms were considered competent of representing 4 distinct supply chains. Observing these 8 incidents directly provided insights on the changing relationship between developed and developing countries. Specifically, how digital platforms and the resulting ecosystem may help re-connect global supply chains divided by ripple effect. To address supply-chain issues between developing and developed markets, Sukhor et al. (2010) used a comparative multiple case study technique (Yin 1993; Ridder 2017). Data collection began on October 15th and finished on November 4th, 2021. Researchers gathered 16 interviews in total, with one researcher present at each session to verify internal consistency. 9 were gathered in person from managers and directors in an Italian company, 7 were collected online from managers in a developing nation. Because the phenomena is two-sided (part happens in Italy, half in a developing nation), it was judged important to investigate both perspectives. The researcher used semi-structured interviews as the interview type.

Results: Digital platforms have grown in popularity as a result of the COVID-19 pandemic. Most companies would have ignored these tools if not for the pandemic. The inability to track new product development and production processes was a strong obstacle for Italian firms. High-speed internet, cameras, and mobile devices all played a part. In reality, connecting these digital platforms permitted more information exchange.

Flexible IT tools and plug-ins with cross-country usability and ease of use, this improved technological compatibility.

One reason for wanting to establish digital platforms internally was to scale current technology (De Reuver et al., 2018). This method cut development costs and reused IT solution providers. Second, scaling up a proven technology

may need management. Current IT abilities may be used to develop new digital platform features. Similarly, employees may value a digital technology more if they understand its characteristics (Li et al., 2018). The control of shared data and participants prevents data breaches. This was particularly true for Italian companies managing digital platforms and deciding who received what information.

An internal digital platform built for global supply chain management arose in a crisis (De Reuver et al., 2018). Using these technological tools, we can now react quickly to communication and collaboration problems. These strategies are easily used in both developed and developing countries. Businesses in emerging economies perceived the lack of investment in technology development as a benefit.

Adoption of digital platforms has direct effects on firms globally. All organizations agree that these solutions may help solve issues related to in-person collaboration and communication. To impart technical information and have bidirectional talks was considered as beneficial by everybody. Communication and data sharing have always benefited.

First, product development expenses decreased. Communication, information sharing, remote monitoring of machine parameters and visual control of output through webcams has all proved quite useful in this context.

Second, both sides' production is traceable. Sharing production dates and advancements facilitated delivery. The inclusion of 2nd level supplier data increased data collection about other participants and improved cross-tier monitoring of product origin and quality concerns.

So a third benefit emerged: better supplier chain quality monitoring. Technical quality control was traditionally not provided by suppliers using digital platforms (Wong et al., 2020). Software quality control provided data on most production batches.

Fourth, more employees from all companies openly exchanged knowledge. Today, anybody may communicate with a counterpart, allowing for the exchange of production procedures, practices, and ways to improve the manufacturing of a product (Wong et al., 2020).

Finally, dashboards help monitor possible production concerns, reducing transaction and coordination costs.

Additional findings: Results revealed that the usage of domestically designed digital platforms may quickly alleviate current difficulties caused by global supply chain ripple effects. Digital platforms might therefore enable cross-border supply chain monitoring and information sharing.

The current study aims to analyse the impact of digital platforms on global supply chain resilience. These technologies may be a leading edge in global supply chain efficiency, allowing for improved shipping planning. Digital platforms also enable bi-directional communication and information exchange, which may save costs and improve quality.

Moreover, digital platforms may be a strategic instrument for the growth of impacted sectors in developing markets, since they may impact export and distribution performance.

Despite this, the current research is restricted in certain ways. For starters, it is a qualitative approach. Quantitative research must thus validate results. Second, we started with enterprises in industrialized nations and extended to developing ones. Third, the study solely examines internally developed digital platforms.

Using quantitative methods and including externally developed platforms, future study could better examine the impact of digital platforms in comparable contexts.

Theoretical implications: This research contributes to the existing body of research on digital platforms in supply chain management. Results show the usefulness of these tools in ensuring supply chain continuity from developing countries to developed markets. Businesses in Europe or North America might continue to purchase raw materials and semi-finished goods from suppliers in developing nations even if travel restrictions and lockdowns are in place. Unknown to us, due to the majority of study focusing on externally developed platforms (like Alibaba Marketplace) rather than internal systems (Trabucchi and Buganza, 2020). Similarly, in developed economies, platforms were largely studied for their influence on supply chain efficiency and price negotiation. This study attempts to provide a dual viewpoint by examining their relevance in emerging nations.

Digital platforms' impacts on all involved parties, developing markets enterprises export performance, and technology progresses have been consistently built upon. COVID-19 threatened to disrupt supply chains, affecting jobs and social development in developing markets (Mollenkopf, et al., 2020). What's more, they can keep in touch and deal with critical international consumers through digital channels. The completion of a digital ecosystem has an additional influence on developing economies, especially knowledge exchange. Interaction with European enterprises enables employees in emerging nations to gain new ideas and methods to enhance manufacturing procedures and planning, therefore improving product quality and overall competitiveness.

The study also found the TOE framework beneficial in evaluating digital platform development and adoption processes. In reality, environmental forces, technological availability, and organizational considerations interacted in digital platforms.

Key words: digital platforms; digital ecosystems; global supply chain; COVID-19 pandemic; international trade.

References

ABBATE T., CODINI A.P., AQUILANI B. (2019), "Knowledge co-creation in Open Innovation Digital Platforms: processes, tools and services", *Journal of Business & Industrial Marketing*, vol. 34, n. 7, pp. 1434-1447.

- ADNER R. (2006), "Match your innovation strategy to your innovation ecosystem", *Harvard Business Review*, vol. 84, n. 4, pp. 98.
- BALAKRISHNAN A.S., RAMANATHAN U. (2021), "The role of digital technologies in supply chain resilience for emerging markets' automotive sector", *Supply Chain Management*, vol. 26, n. 6, pp. 654-671.
- BALDWIN R. (2012), "*Global supply chains: why they emerged, why they matter, and where they are going*. CEPR Discussion Paper 9103.
- BALDWIN R. (2020), "*The greater trade collapse of 2020: Learnings from the 2008-09 great trade collapse*. Published Online as VoxEU.org Column. Link: <https://voxeu.org/article/greater-trade-collapse-2020> Retrieved 15th November 2021.
- BLACKHURST J., CRAIGHEAD C.W., ELKINS D., HANDFIELD R.B. (2005), "An empirically derived agenda of critical research issues for managing supply-chain disruptions", *International Journal of Production Research*, vol. 43, n. 19, pp. 4067-4081.
- BONADIO B., HUO Z., LEVCHENKO A.A., PANDALAI-NAYAR N. (2021), "Global supply chains in the pandemic", *Journal of International Economics*, vol. 133, pp. 103534.
- BOUDREAU, K. (2010), "Open platform strategies and innovation: Granting access vs. devolving control", *Management Science*, vol. 56, n. 10, pp. 1849-1872.
- CAVUSGIL S.T., GHOURI P.N., AKCAL A.A. (2012), "*Doing business in emerging markets*. Thousand Oaks: Sage.
- CHRISTOPHER M., LEE H. (2004), "Mitigating Supply Chain Risk Through Improved Confidence", *International Journal of Physical Distribution & Logistics Management*, vol. 34, n. 5, pp. 388-396.
- COZZOLINO A., CORBO L., AVERSA P. (2021), "Digital platform-based ecosystems: The evolution of collaboration and competition between incumbent producers and entrant platforms", *Journal of Business Research*, vol. 126, pp. 385-400.
- DE REUVER M., SØRENSEN C., BASOLE R. C. (2018), "The digital platform: a research agenda", *Journal of Information Technology*, vol. 33, n. 2, pp. 124-135.
- DELL'ERA C., TRABUCCHI D., MAGISTRETTI S. (2021), "Exploiting incumbents' potentialities: From linear value chains to multisided platforms", *Creativity and Innovation Management*, vol. 30, n. 1, pp. 31-46.
- ECONOMIDES N., KATSAMAKAS E. (2006), "Two-sided competition of proprietary vs open source technology platforms and the implications for the software industry", *Management Science*, vol. 52, n. 7, pp. 1057-1071.
- EISENHARDT K.M. (1989), "Building theories from case study research", *Academy of Management Review*, vol. 14, n. 4, pp. 532-550.
- EISENHARDT K.M., GRAEBNER M.E. (2007), "Theory building from cases: Opportunities and challenges", *Academy of Management Journal*, vol. 50, n. 1, pp. 25-32.
- EL BAZ J., RUEL S. (2021), "Can supply chain risk management practices mitigate the disruption impacts on supply chains' resilience and robustness? Evidence from an empirical survey in a COVID-19 outbreak era", *International Journal of Production Economics*, vol. 233, pp. 107972.
- ESPITIA A., ROCHA N., RUTA M. (2020), "*Database on COVID-19 trade flows and policies*. World Bank.
- EVANS D.S., SCHMALENSEE R. (2016), "*Matchmakers: The new economics of multisided platforms*. Boston (MA), Harvard Business Review Press.
- FAISAL M.N., BANWET D.K., SHANKAR R. (2006), "Supply chain risk mitigation: modeling the enablers", *Business Process Management Journal*, vol. 12, n. 4, pp. 535-552.
- FAWCETT S.E., MAGNAN G.M., MCCARTER M.W. (2008), "Benefits, barriers, and bridges to effective supply chain management", *Supply Chain Management*, vol. 13, n. 1, pp. 35-48.
- FINCH J. (2002), "The role of grounded theory in developing economic theory", *Journal of Economic Methodology*, vol. 9, n. 2, pp. 213-234.
- FITZGERALD M., KRUSCHWITZ N., BONNET D., WELCH M. (2014), "Embracing digital technology: A new strategic imperative", *MIT sloan management review*, vol. 55, n. 2, pp. 1.
- FOSTER R., KAPLAN S. (2011), *Creative Destruction: Why companies that are built to last underperform the market- And how to success fully transform them*. New York: Currency.
- FROW P., MCCOLL-KENNEDY J.R., PAYNE A. (2016), "Co-creation practices: Their role in shaping a health care ecosystem", *Industrial Marketing Management*, vol. 56, pp. 24-39.
- GAWER A., CUSUMANO M.A. (2014), "Industry platforms and ecosystem innovatio", *Journal of product Innovation Management*, vol. 31, n. 3, pp. 417-433.
- HEIN A., SCHREIECK M., RIASANOW T., SETZKE D.S., WIESCHE M., BÖHM M., KRUMAR H. (2020), "Digital platform ecosystems", *Electronic Markets*, vol. 30, n. 1, pp. 87-98.
- IRPET (2021), "*THE ECONOMY OF TUSCANY*. Link: <http://www.irpet.it/the-economy?lang=en> Retrieved 5h January 2022.
- IVANOV D., SOKOLOV B., DOLGUI A. (2014), "The Ripple effect in supply chains: trade-off 'efficiency flexibility-resilience' in disruption management", *International Journal of Production Research*, vol. 52, n. 7, pp. 2154-2172.
- IVANOV D., DOLGUI A. (2021), "OR-methods for coping with the ripple effect in supply chains during COVID-19 pandemic: Managerial insights and research implications", *International Journal of Production Economics*, vol. 232, pp. 107921.

- JACOBIDES M.G., CENNAMO C., GAWER A. (2018), "Towards a theory of ecosystems", *Strategic Management Journal*, vol. 39, n. 8, pp. 2255-2276.
- KALIA P., PAUL J. (2021), "E-service quality and e-retailers: Attribute-based multi-dimensional scaling", *Computers in Human Behavior*, vol. 115, pp. 106608.
- KARABELL Z. (2020), *Will the Coronavirus bring the end of globalization? Don't count on it*. The Wall Street Journal. March 20.
- KHAN S.A.R., YU Z. (2019), *Strategic supply chain management*, Springer International Publishing, Berlin.
- KOCH T., WINDSPERGER J. (2017), "Seeing through the network: Competitive advantage in the digital economy", *Journal of Organization Design*, vol. 6, n. 1, pp. 1-30.
- KUMAR V., VERMA P., SHARMA R.R.K., KHAN A.F. (2017), "Conquering in emerging markets: critical success factors to enhance supply chain performance", *Benchmarking: An International Journal*, vol. 24, n. 3, pp. 570-593.
- LEE S.M., TRIMI S. (2021), "Convergence innovation in the digital age and in the COVID-19 pandemic crisis", *Journal of Business Research*, vol. 123, pp. 14-22.
- LI L., SU F., ZHANG, W., MAO J.Y. (2018), "Digital transformation by SME entrepreneurs: A capability perspective", *Information Systems Journal*, vol. 28, n. 6, pp. 1129-1157.
- LI Y., CHEN K., COLLIGNON S., IVANOV D. (2021), "Ripple effect in the supply chain network: Forward and backward disruption propagation, network health and firm vulnerability", *European Journal of Operational Research*, vol. 291, n. 3, pp. 1117-1131.
- LIBERT B., BECK M., WIND Y. (2016), "Questions to ask before your next digital transformation", *Harvard Business Review*, vol. 60, n. 12, pp. 11-13.
- MANCHA R., GORDON S. (2021), "Multi-sided platform strategies for organizations: transforming the business model", *Journal of Business Strategy*. DOI: <https://doi.org/10.1108/JBS-09-2020-0203>
- MANDJÁK T., BELAID S., NAUDÉ P. (2019), "The development of trust over time in an emerging market context: the case of the Tunisian automotive sector", *Journal of Business & Industrial Marketing*.
- MARLEY K.A., WARD P.T., HILL J.A. (2014) Mitigating supply chain disruptions – a normal accident perspective", *Supply Chain Management: International Journal*, vol. 19, n. 2, pp. 142-152.
- MARUCHECK A., GREIS N., MENA C., CAI L. (2011), "Product safety and security in the global supply chain: Issues, challenges and research opportunities", *Journal of operations management*, vol. 29, n. 7-8, pp. 707-720.
- MOKYR J., VICKERS C., ZIEBARTH N.L. (2015), "The history of technological anxiety and the future of economic growth: Is this time different? *Journal of economic perspectives*, vol. 29, n. 3, pp. 31-50.
- MOLLENKOPF D.A., OZANNE L.K., STOLZE H.J. (2020), "A transformative supply chain response to COVID-19", *Journal of Service Management*. DOI: <https://doi.org/10.1108/JOSM-05-2020-0143>
- MYERS M.B., CHEUNG M.S. (2008), "Sharing global supply chain knowledge", *MIT Sloan management review*, vol. 49, n. 4, pp. 67.
- NAMBISAN S. (2017), "Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship", *Entrepreneurship Theory and Practice*, vol. 41, n. 6, pp. 1029-1055.
- NAMBISAN S., WRIGHT M., FELDMAN M. (2019a), "The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes", *Research Policy*, vol. 48, n. 8, pp. 103773.
- NAMBISAN S., ZAHRA S.A., LUO Y. (2019b), "Global platforms and ecosystems: Implications for international business theories", *Journal of International Business Studies*, vol. 50, n. 9, pp. 1464-1486.
- NDOU V. (2004), "E-Government for developing countries: opportunities and challenges", *The electronic journal of information systems in developing countries*, vol. 18, n. 1, pp. 1-24.
- PAGANI M., PARDO C. (2017), "The impact of digital technology on relationships in a business network", *Industrial Marketing Management*, vol. 67, pp. 185-192.
- PAPETTI A., MARCONI M., ROSSI M., GERMANI M. (2019), "Web-based platform for eco-sustainable supply chain management", *Sustainable Production and Consumption*, vol. 17, pp. 215-228.
- PAUL S.K., CHOWDHURY P., MOKTADIR M.A., LAU K.H. (2021), "Supply chain recovery challenges in the wake of COVID-19 pandemic", *Journal of Business Research*, vol. 136, pp. 316-329.
- PELLE S. (2007), *Understanding emerging markets: building business BRIC by brick*. Thousand Oaks (CA): Sage.
- PELTIER J.W., DAHL A.J., SWAN E.L. (2020), "Digital information flows across a B2C/C2C continuum and technological innovations in service ecosystems: A service-dominant logic perspective", *Journal of Business Research*, vol. 121, pp. 724-734.
- PERBOLI G., MUSSO S., ROSANO M. (2018), "Blockchain in logistics and supply chain: A lean approach for designing real-world use cases", *IEEE Access*, vol. 6, pp. 62018-62028.
- PRATONO A.H. (2019), "Cross-cultural collaboration for inclusive global value chain: a case study of rattan industry", *International Journal of Emerging Markets*. vol. 15, n. 1, pp. 149-170.
- PRESUTTI Jr W.D. (2003), "Supply management and e-procurement: creating value added in the supply chain", *Industrial Marketing Management*, vol. 32, n. 3, pp. 219-226.
- RAMASWAMY V., OZCAN K. (2018), "What is co-creation? An interactional creation framework and its implications for value creation", *Journal of Business Research*, n. 84, pp. 196-205.
- RIDDER H.G. (2017), "The theory contribution of case study research designs", *Business Research*, vol. 10, n. 2, pp. 281-305.

- ROGERS E.M. (1995), *Diffusion of Innovations: modifications of a model for telecommunications*. In *Die diffusion von innovationen in der telekommunikation*. Berlin: Springer.
- ROHM A.J., KASHYAP V., BRASHEAR T.G., MILNE G.R. (2004), “The use of online marketplaces for competitive advantage: a Latin American perspective”, *Journal of Business & Industrial Marketing*, vol. 19, n. 6, pp. 372-385.
- ROMERO D., MOLINA A. (2011), “Collaborative networked organisations and customer communities: value co-creation and co-innovation in the networking era”, *Production Planning & Control*, vol. 22, n. 5-6, pp. 447-472.
- ROWLEY J. (2012), “Conducting research interviews”, *Management Research Review*, vol. 35, n. 3/4, pp. 260-271.
- SARKIS J. (2020), “Supply chain sustainability: learning from the COVID-19 pandemic”, *International Journal of Operations & Production Management*. DOI: <https://doi.org/10.1108/IJOPM-08-2020-0568>
- SCARINGELLA L., RADZIOWON A. (2018), “Innovation, entrepreneurial, knowledge, and business ecosystems: Old wine in new bottles?”, *Technological Forecasting and Social Change*, vol. 136, pp. 59-87.
- SCUOTTO V., CAPUTO F., VILLASALERO M., DEL GIUDICE M. (2017), “A multiple buyer–supplier relationship in the context of SMEs’ digital supply chain management”, *Production Planning & Control*, vol. 28, n. 16, pp. 1378-1388.
- SELANDER L., HENFRIDSSON O., SVAHN F. (2013), “Capability search and redeem across digital ecosystems”, *Journal of Information Technology*, vol. 28, n. 3, pp. 183-197.
- SHIPILOV A., GAWER A. (2020), “Integrating research on interorganizational networks and ecosystems”, *Academy of Management Annals*, vol. 14, n. 1, pp. 92-121.
- SIGGELKOW N. (2007), “Persuasion with case studies”, *Academy of Management Journal*, vol. 50, n. 1, pp. 20-24.
- SREEDEVI R., SARANGA H. (2017), “Uncertainty and supply chain risk: The moderating role of supply chain flexibility in risk mitigation”, *International Journal of Production Economics*, vol. 193, pp. 332-342.
- STANK T.P., KELLER S.B., CLOSS D.J. (2001), “Performance benefits of supply chain logistical integration”, *Transportation Journal*, pp. 32-46. DOI: <https://www.jstor.org/stable/20713491>
- STOLZE H.J., MOLLENKOPF D.A., FLINT D.J. (2016), “What is the right supply chain for your shopper? Exploring the shopper service ecosystem”, *Journal of Business Logistics*, vol. 37, n. 2, pp. 185-197.
- STRAUSS A., CORBIN J. (1990), *Basics of qualitative research*. Thousand Oaks (CA): Sage publications.
- SHUKOR A.A. A., NEWAZ M.S., RAHMAN M K., TAHA A.Z. (2020), “Supply chain integration and its impact on supply chain agility and organizational flexibility in manufacturing firms”, *International Journal of Emerging Markets*, vol. 16, n. 8, pp. 1721-1744.
- TAN B., PAN S.L., LU X., HUANG L. (2015), “The role of IS capabilities in the development of multi-sided platforms: the digital ecosystem strategy of Alibaba. com”, *Journal of the Association for Information Systems*, vol. 16, n. 4, pp. 2.
- THE ECONOMIST (2020), *The Next Calamity. The coronavirus could devastate poor countries*. Link: <https://www.economist.com/leaders/2020/03/26/the-coronavirus-could-devastate-poor-countries> Retrieved 15th November 2021.
- TORNATZKY L.G., KLEIN K.J. (1982), “Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings”, *IEEE Transactions on engineering management*, vol. 1, pp. 28-45.
- TRABUCCHI D., BUGANZA T. (2020), “Fostering digital platform innovation: From two to multi-sided platforms”, *Creativity and Innovation Management*, vol. 29, n. 2, pp. 345-358.
- TRABUCCHI D., MORETTO A., BUGANZA T., MACCORMACK A. (2020), “Disrupting the Disruptors or Enhancing Them? How Blockchain Reshapes Two-Sided Platforms”, *Journal of Product Innovation Management*, vol. 37, n. 6, pp. 552-574.
- UN Conference on Trade and Development - UNCTAD (2020), “*Textile and garment supply chains in times of COVID-19: challenges for developing countries*. Link: <https://unctad.org/es/node/3024> Retrieved 5th January 2020.
- UN Department of Economic and Social Affairs (2021), “*Top economists warn COVID-19 impacts will be severe and long-lasting for developing countries*. Link: <https://www.un.org/en/desa/top-economists-warn-covid-19-impacts-will-be-severe-and-long-lasting-developing-countries> Retrieved 15th November 2021.
- UMBLE E.J., HAFT R.R., UMBLE M.M. (2003), “Enterprise resource planning: Implementation procedures and critical success factors”, *European Journal of Operational Research*, vol. 146, n. 2, pp. 241-257.
- VAN HOEK R.I., HARRISON A., CHRISTOPHER M. (2001), “Measuring agile capabilities in the supply chain”, *International Journal of Operations & Production Management*, vol. 21, n. 1/2, pp. 146-158.
- WALLBACH S., COLEMAN K., ELBERT R., BENLIAN A. (2019), “Multi-sided platform diffusion in competitive B2B networks: inhibiting factors and their impact on network effects”, *Electronic Markets*, vol. 29, n. 4, pp. 693-710.
- WONG L.W., TAN G.W.H., LEE V.H., OOI K.B., SOHAL A. (2020), “Unearthing the determinants of Blockchain adoption in supply chain management”, *International Journal of Production Research*, vol. 58, n. 7, pp. 2100-2123.
- WTO (2020), “COVID-19: Economic Impact and Policy Responses in Asia”, *AID-FOR-TRADE INFORMATION WEBINAR “SUPPORTING COVID-19 RESPONSE AND RECOVERY”*. WTO, 27 May 2020. Retrieved 15th November 2021.
- XU Z., ELOMRI A., KERBACHE L., EL OMRI A. (2020), “Impacts of COVID-19 on global supply chains: facts and perspectives”, *IEEE Engineering Management Review*, vol. 48, n. 3, pp. 153-166.

- YIN R. (1993), *Applications of case study research*. Beverly Hills, CA: Sage Publishing.
- ZAHRA S.A., NAMBISAN S. (2011), "Entrepreneurship in global innovation ecosystems", *AMS Review*, vol. 1, n. 1, pp. 4-17.

Digital platform ecosystem creation: a case study

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Framing of the research. *Digital platforms are digital contexts, where participants exchange services, information, experiences and content (Hein et al., 2020).*

They may become stable ecosystems (Yoffie et al., 2019), which can be considered viable business models in the digital economy, where value can be co-created.

Embracing the ecological metaphor (Evans, 1956), a digital platform can be considered the habitat where an ecosystem rises and expands through interactions among participants. The ecological metaphor has been applied to the field of business research (Kapoor, 2018; Iansiti, Levien, 2004; Moore, 1993), and platform ecosystems have been considered as a basic unit of analysis for studying digital economy (Alaimo et al., 2020; Hein et al., 2020; De Reuver et al., 2018; Jha et al., 2016).

In investigating digital platform ecosystems, different perspectives of analysis have been adopted by scholars, i.e. the economic perspective (Parker et al., 2017; McIntyre, Srinivasan, 2017; Tan et al., 2015), the organizational perspective (Cennamo, Santalò, 2019; Hein et al., 2018; Huber et al., 2017), and the technical perspective (Spagnoletti et al., 2015; Tiwana et al., 2010; Tilson et al., 2010).

In particular, studies adopting an economic view of ecosystems highlight how economic goals and strategies drive the architecture of intentions (Gawer, Cusumano, 2008; Bakos, Katsamakas, 2008; Armstrong, 2006). Tan et al. (2015) demonstrate that multi-sided platforms can adopt different strategies over time according to their development stage. Partnerships and acquisitions have also been considered fruitful strategies to pursue growth and broaden scopes for digital platform ecosystems (Hein et al., 2018; Li, Agarwal, 2017).

However, the economic view of ecosystems does not capture the ways digital services (that are essentially data relations) are made or provide insights on how intentions materialize into actual relations (Alaimo et al., 2020).

The organizational perspective sheds light on governance practices aimed at organizing and coordinating activities to leverage complementarities in the ecosystem (De Reuver et al., 2018; Gawer, Cusumano, 2014; Jacobidies et al., 2018). Establishing an effective governance system requires balancing generativity and control (Eaton et al., 2015; Ghazawneh, Henfridsson, 2013; Yoo et al., 2012). Therefore, studies taking this perspective investigate monetary and non-monetary incentives for users (Feller et al., 2012), as well as formal and informal control actions aimed at aligning the behavior of contributors in the pursued interests of the platform to avoid agency problems (Constantinides et al., 2018; Huber et al., 2017; Wareham et al., 2014; Tiwana, 2014). Previous studies have also observed membership and behavioral rules of participants, highlighting that ecosystem membership can be open and based on self-selection (Gulati et al., 2012).

However, restrictions in participation as well as in stakeholder interactions can be imposed to protect the platform's economic interests (Constantinides et al. 2018; Constantinou et al., 2017).

The technical approach to digital platform ecosystems highlights the relevance of technical infrastructure design and functionalities in value creation processes (Tiwana, 2015; Spagnoletti et al., 2015; Hanseth, Lyytinen, 2010). In this regard, research has addressed the role of technologies to guarantee interoperability and compatibility among different platforms (Ondrus et al., 2015). Moreover, technical features can be specifically designed to encourage socialization, trust, knowledge sharing, and collective problem solving among participants in the ecosystem (Feller et al., 2012; Spagnoletti et al., 2015). Overall, this approach demonstrates that the way technological components are arranged matters, as do the design choices adopted, in that they impact ecosystem emergence and development (Alaimo et al., 2020).

In many cases, these technical choices and the evolution of ecosystem architecture defy the strategies and action of ecosystem actors (Hanseth, 2010; Yoo et al., 2012).

Although these different perspectives provide useful insights into digital platform ecosystems through specific lenses, scholars have called for a more holistic view that investigates the development of digital ecosystems, considering the three perspectives jointly (Hein et al., 2020; de Reuver et al., 2018). In this regard, Li et al. (2012) assess that digital ecosystems “possess properties of simultaneously being technical systems, social systems and

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economic systems, the dependency of these properties on each other makes them unique and requires proper measurements to monitor ecosystem performance” (p.121). Recently, Hein et al. (2020) highlighted that the economic, engineering and organizational perspectives are complementary, thus, they should be jointly considered when researching ecosystems.

Purpose of the paper. Therefore, this paper specifically investigates the formation process of a digital platform ecosystem (Jacobidies et al., 2018), exploring in a joint fashion technical features, organizational processes and business development strategies implemented, in order to identify different formation phases (Langley et al., 2013).

In particular, regarding business development strategies, we primarily consider actions aimed to expand the population of the ecosystem, i.e. in terms of number and variety of actors (Adner, 2017).

With regard to organizational aspects, we considered the system of rules that allow access and regulate the participation in the ecosystem.

In relation to technical aspects, we consider the technical features that allow interaction in the platform.

Coherently with our research focus, we decided to specifically look at a digital platform ecosystem driven by a leading organization (usually the platform owner), since in this type of ecosystem, deliberate strategies from the leading company are crucial to manage ecosystem formation and development (Williamson, De Meyer, 2012; Teece, 2014).

Methodology. We chose the case study methodology (Eisenhardt, 1989; Pan, Tan, 2011; Dube, Pare, 2003; Yin, 1994) to explore the formation of the izi.TRAVEL digital platform ecosystem in depth.

izi.TRAVEL is an interesting case to explore, as it is a virtuous example of the digital platform ecosystem promoted by a leading firm, which orchestrates its development.

In the izi.TRAVEL digital platform (Gawer, 2015; Tauscher, Laudien, 2018), which was launched in 2013, actors can create and consume digital cultural content, i.e. geolocated audio guides and audio tours (Ondrus et al., 2015; Tan et al., 2015, 2016).

In a few years, it has become a global open platform, with a diverse and continuously growing population, which offers a huge range of content available in many languages.

izi.TRAVEL aims to democratize culture and to promote cultural heritage. Therefore, a primary characteristic of its business model is free access to content creation and consumption. Thus, content providers (CPs) can create and share content for free and users can equally consume them for free. Accordingly, a participatory approach and the use of digital storytelling are encouraged to favor wide involvement of both cultural institutions and individuals (tourists as well as local citizens).

Users can access cultural contents through the izi.TRAVEL platform and the app, both when they are on-site and remotely. They can enjoy stories about places by selecting between two “formats”: an audio guide of a museum or a site, or an audio tour, which consists in several tourist geolocated attractions or stories on Google Maps.

Individuals and institutions can participate in the platform assuming different roles, i.e. content providers (e.g. cultural and tourism institutions, schools, private citizens), content users (e.g. tourists, local people), content promoters (e.g. hotels, tourism authorities, public transport) and content distributors (e.g. other platforms).

In order to investigate the creation of the izi.TRAVEL digital platform ecosystem, we observed the strategic choices implemented at business development, organizational and technical level, as well as the ecosystem performance in terms of population growth, diversity, and participation in the ecosystem.

The initial investment to create the izi.TRAVEL platform was about 21M-euros, and until the beginning of 2017, 100% running costs were covered by the private investor and platform owner. Currently, 75% running costs are covered by private investments and 25% by the following revenue sources:

- Paid content: although the majority of content published in the izi.TRAVEL platforms is free (about 95%), a limited number of content providers (about 5%) share their contents for a monetary fee. In these cases, the platform gets a percentage of the revenue received on paid stories. Paid content provides about 15% of the total revenue;
- Advertising on the App and on the Web: users may subscribe to the platform through a sort of annual donation, which is not mandatory (in fact, even those who do not subscribe still have full access to the contents). In this case, as a reward, advertising is removed. These forms of donations provide about 80% of the total revenue;
- Content distributors: partners who are willing to distribute izi.TRAVEL paid content in their systems, in case of monetization on their side, pay a revenue share, which is about 5% of the total revenue.

In the period between 2015 and May 2021, we collected data from secondary sources, such as videos, statistics, whitepaper and documents provided by izi.TRAVEL. We also got data about number of participants and degree of participation over time.

In the period 2020-2021 we also conducted 13 semi-structured interviews with several actors of the ecosystem. When analyzing data, we read the interviews, which had been transcribed, in order to observe the choices implemented to orchestrate the ecosystem formation. We engaged in open coding (Gioia et al., 2013), staying close to the descriptions of the respondents. We categorized these open codes in more abstract categories that related to changes in goals and strategic actions. Then, we created a timeline to better observe the evolution of strategic actions over time.

Results. Our analysis led to the identification of a number of choices implemented with respect to business development, organizational and technical areas.

Based on the goals set by the leading company and the actions performed over time, we identified three main phases in the formation of the izi.TRAVEL ecosystem.

Phase 1 began in 2013 when the izi.TRAVEL platform was launched. Coherently with the vision aimed at

democratizing culture, *izi.TRAVEL* aimed to populate the ecosystem, stimulating the participation of both content providers and content consumers to create a virtuous cycle of network effects.

The technical infrastructure of the *izi.TRAVEL* platform was designed to ensure both content creation and content consumption functionalities. Regarding content creation, the Content Management System (CMS) allows the creation of stories by uploading files, including text, audio, photo and video, which are integrated in audio guides or in audio tours. In terms of content consumption, online consumption is possible by either connecting to the *izi.TRAVEL* website or using the *izi.TRAVEL* app. Through the search function on the website or the map function on the app, users can find the stories they are interested in. Using the Explore mode on the app, users can select the audio guides shown on the map as “Tour” and “Museum”. They can also scan and read a QR code and access the profile page of the content provider. Offline consumption allows accessing contents when users are not connected to the world wide web; in particular, users can download contents and store them locally in the download section on the app, for later offline consumption.

With regard to the organizational aspects, two main strategic choices have been identified, namely free and open participation and no content quality control before publication. In keeping with the vision of promoting the democratization of culture, *izi.TRAVEL* decided to ensure free and unrestricted participation for anyone (e.g. individuals, organizations, cultural institutions) who wants to create or use content, so as to encourage widespread participation. However, whenever inaccurate or inappropriate content was published, everyone in the *izi.TRAVEL* community could activate a sort of social control, signaling the mistakes through the feedback form, so that corrective actions from the author or the content provider can be carried out.

In this phase, the business development strategy was based on two main actions, namely involving cultural institutions as content providers, and conducting advertising campaigns through social media. Involving cultural institutions as content providers aimed at approaching mainly museums and other cultural institutions, in order to let them know about *izi.TRAVEL* and learn how to create audio guides through the digital platform. This action was initially conducted by employing dedicated sales people (account managers). Moreover, advertising campaigns aimed to exploit social media to spread the knowledge of the *izi.TRAVEL* platform to a wide audience of individuals, increase its popularity, and attract more and more content providers and content consumers.

Overall, we can observe that during this phase *izi.TRAVEL* saw themselves as a technological company and the platform as a technological innovation. Hence, the business development strategies aimed at diffusing the use of the digital platform among content providers and content consumers, in order to unleash network effects (Caillaud, Jullien, 2003; Gallaugher, Wang, 2002). This highlights that both technical and organizational features of the platform were important in order to build an effective interaction context. However, for the platform to turn into a sustainable ecosystem, network effects stimulated by market development strategies are necessary, even if they were not totally achieved in this phase.

Phase 2 started roughly at the beginning of 2016, when the leading company decided to expand the population of the ecosystem in terms of number and variety of actors. Accordingly, a number of strategic actions were implemented that influenced the formation process of the *izi.TRAVEL* ecosystem.

In particular, business development strategies regarded turning account managers into agents, engaging content promoters collectively, and the launch of regional development projects.

The lack of resources due to the loss of financing by the private investor, led to the decision to progressively transform account managers involved in engaging cultural institutions, from employees to independent agents, as the pay-for-performance option would allow them to save money as regards salaries. This enabled *izi.TRAVEL* to engage a larger number of agents, so increasing the number of content providers involved in the ecosystem, as well as the contents shared.

Moreover, *izi.TRAVEL* decided to engage new types of actors, i.e. content promoters, by organizing meetings and workshops, where actors from the tourism industry (such as tourism offices, hotels, transportation services) were invited to raise their awareness of the *izi.TRAVEL* platform and its potential. These tourism actors could then both promote the use of *izi.TRAVEL* among tourists, and become content providers themselves and so enrich customer experience.

Another important strategic choice is represented by regional development projects, aimed at promoting the *izi.TRAVEL* platform in selected local areas. For example, in Sicily, on the basis of a proposal by a research fellow from the University of Catania, *izi.TRAVEL* funded an annual research project. The researcher, being experienced in digital storytelling, was engaged as Regional manager to bridge the local gap of digital cultural heritage. The project in Sicily aimed at involving and training local cultural institutions, such as museums, as well as superintendents, tourism offices, archeological sites, and schools, in content creation activities, creating also an effective network among the institutions themselves (Bonacini, 2019).

No change in organizational aspects has been identified in the second phase when compared with the first.

As regards the technological choices, some new functions were introduced, namely the free walking mode and the TextToSpeech functionality. The free walking mode enables users to enjoy single stories through the app, while before they could listen to audio tours and audio guides but could not access single stories from a tour based on their GPS location. TextToSpeech is an automated process through which the written text is transformed into an audio file based on a computerized voice. This function was introduced to support content providers with testing their digital stories. However, the use of robot voice-over was not appreciated by users as storytelling lacked the human touch. Thus, *izi.TRAVEL* decided to have this tool used very selectively.

Overall, in this phase we observe the transition into ecosystem thinking. izi.TRAVEL realizes that their platform is a digital platform ecosystem and not just a technological solution to a need or a problem. As a consequence, their choices focus on creating links between different types of actors that are necessary for the digital platform ecosystem to flourish. In this phase, the effectiveness of the market development strategies in stimulating the network effects (as is shown in Table 2) also demonstrate how izi.TRAVEL has achieved cognitive legitimacy in the market (Garud et al., 2020).

Phase 3 in the izi.TRAVEL ecosystem formation began approximately at the beginning of 2019 and is still in progress. Some important changes have happened in this phase, as the leading firm aimed to achieve the goal of expanding the ecosystem in the entire Travel and Tourism industry.

With reference to the actions for business development, the main strategy implemented in this phase consists in creating partnerships with other digital platforms, with the aim to leverage complementarities and increase the overall value proposition for users, enabling them to easily access the services provided by the different partner platforms. For example, izi.TRAVEL entered in a partnership with Road.Travel, a platform for planning road trips and self-guided travel. Road.Travel, aggregates bookable services (such as accommodation and transportation), points of interest, mapping and routing, audio guides, weather forecasts and other services, to facilitate trip planning, making it more social. The effect of these partnerships makes the platform more attractive both for current users and for potential ones.

Organizational choices remain the same also in this phase.

With reference to technological choices, we noted that API (application programming interface) for data exchange and reuse, although already available for years, was now effectively used by partner platforms.

Overall, in this phase we observe that it becomes imperative for izi.TRAVEL to embrace the perspective of the digital platform ecosystem as part of a larger ecosystem (Weill, Woerner, 2018). In fact, to sustain the expansion, the izi.TRAVEL ecosystem needs to cross-fertilize with other ecosystems (e.g. Road.Travel and the Jewish Heritage Network) to co-create improved value propositions.

When connecting to other digital platform ecosystems, we notice that the role of izi.TRAVEL becomes twofold, i.e. they act as ecosystem orchestrator within their ecosystem and also become modular producer (Kretschmer et al., 2020; Weill, Woerner, 2015) providing geolocated digital stories as plug-and-play services that can adapt to a variety of ecosystems.

Table 1 summarizes the main strategic choices identified for each phase.

Tab. 1: izi.TRAVEL ecosystem formation

	<i>Business development strategies</i>	<i>Organizational choices</i>	<i>Technical choices</i>
Phase 1	-Involving cultural institutions as content providers -Conducting advertising campaigns through social media.	-Free and open participation -No content quality control before publication	-Content Management System (CMS) - Online consumption - Offline consumption
Phase 2	-Turning account managers into agents -Engaging content promoters -Regional development projects	As in phase 1	-Free walking mode -TextToSpeech functionality
Phase 3	-Partnerships with other digital platforms	As in phase 1 and 2	-API

Source: our elaboration

Data collected from 2015 to May 2021 (data were unavailable for previous periods) reveal clear and progressive development of the izi.TRAVEL ecosystem through the three identified phases. In particular, a progressive increase was noted with regard to different aspects that signal the vitality of the ecosystem, such as the number of registered content providers, published stories, stories heard, app downloads, views, etc. All of these elements, confirm the increase in active participation both in content production and in consumption, as is synthetically described in Table 2, which shows the dynamics in izi.TRAVEL ecosystem performance.

Tab. 2: izi.TRAVEL performance data

Number of	From the beginning to December 2015	From the beginning to December 2018	From the beginning to May 2021
registered CPs	6K	22,5K	47,2K
published CPs	0,9K	4,1K	7,2K
app monthly active users	N/A	115K	177K
web monthly active users	11K	139K	364K
published stories	30K	279K	536K
app downloads	1,5M	3M	5,1M
stories heard	1,8M	23,4M	56,7M
Views	4,8M	98,2M	220M

Source: our elaboration based on data provided by izi.TRAVEL

Data reported show that in the first phase, while the number of registered content providers is substantial, the number of published content providers is significantly lower. Likewise, looking at users' behavior, we note that with respect to the number of views, there was a consistently lower number of app downloads and stories listened to. In the second phase, we observed that all the indicators had shown a considerable increase. This underlines the effectiveness of the strategic actions implemented to expand population and variety of actors in the ecosystem. In particular, we note the massive increase, for instance, in registered content providers (275%), as well as in published content providers (355%), web monthly active users (1160%), published stories (830%), stories heard (1200%), and views (1945%). In the third formation phase, data indicate an important expansion trend, with growth rates of indicators between 50% and 100% in each area: registered CPs +110%; published CPs +75%; app monthly active users +54%; web monthly active users +162%; published stories +92%; stories heard +142%; number of views +124%.

Our findings show that izi.TRAVEL has managed the formation of the digital ecosystem implementing a number of deliberate strategies (Teece, 2014; Williamson, De Meyer, 2012), thus acting as ecosystem orchestrator (Furr, Shiplov, 2018; Weill, Woerner, 2015). We also acknowledged that the actions related to business development, organizational and technical aspects, are closely related to each other and mutually instrumental to the achievement of the objectives of the leading organization.

Research limitations. Since we performed a case study research, the explorative nature of this paper does not allow us to consider the identified strategies exhaustively as well as to generalize the results (Walsham, 2006). However, we believe that this study provides relevant insights with respect to the formation of a digital ecosystem driven by a leading firm.

Further studies could investigate, for instance, strategies and mechanisms that drive the formation dynamics in decentralized forms of digital ecosystem, which are governed by the community of members (Constantinides et al., 2018).

Managerial implications. This research offers insights for managers about how to effectively orchestrate the formation and development of a digital platform ecosystem. Indeed, our study increases awareness about the necessity to manage business development, organizational and technical aspects in a coordinated way. In particular, it sheds light on the strategies aimed at engaging actors to participate actively in the ecosystem, so as to contribute to its healthy development by leveraging complementarities.

Originality of the study. Taking inspiration from current literature, this research has investigated the formation process of digital platform ecosystems, providing several theoretical contributions.

First, unlike previous studies, which investigated digital platform ecosystems adopting a single perspective of analysis (Alaimo et al., 2020; Jha et al., 2016; Tan et al., 2015), this article embraces the business development perspective together with the organizational perspective and the technological perspective, highlighting their combined relevance in ecosystem formation.

Second, complementing previous studies, which had identified some types of development strategies in digital ecosystems (Gawer, Cusumano, 2008; Tan et al., 2015), this study identifies several strategic actions at business, organizational and technical level, which can be implemented at different evolutionary phases in ecosystem formation.

Third, this study, after considering digital platform ecosystems driven by a leading organization, provides some insights in the debate on the applicability of the ecological metaphor to digital ecosystems. Compared to those scholars who have questioned the applicability of the ecological metaphor to digital ecosystems (Mars et al., 2012), maintaining that natural ecosystems rise spontaneously and self-regulate over time, while digital ecosystems are intentionally designed and conducted by a governance body (Hein et al., 2020; Cennamo, Santalò, 2019; Oh et al., 2016; Yoo et al., 2012), we believe that the metaphor of artificial ecosystems (Meyerhoff et al., 2019) appears to be appropriate in order to understand the formation dynamics in digital platform ecosystems driven by a leading organization.

Keywords: digital platform ecosystem; strategy; ecosystem formation; case study

References

- ADNER R. (2017), "Ecosystem as structure: An actionable construct for strategy", *Journal of management*, vol. 43, n. 1, pp. 39-58.
- ALAIMO C., KALLINIKOS J., VALDERRAMA E. (2020), "Platforms as service ecosystems: lessons from social media", *Journal of Information Technology*, vol. 35, pp. 25-48.
- ARMSTRONG M. (2006), "Competition in two-sided markets", *RAND Journal of Economics*, vol. 37, n. 3, pp. 668-691.
- BAKOS Y., KATSAMAKAS E. (2008), "Design and ownership of two-sided networks: Implications for internet platforms", *Journal of Management Information Systems*, vol. 25, n. 2, pp. 171-202.
- BONACINI E. (2019), "Engaging participative communities in cultural heritage: use of digital storytelling in Sicily", *International Information Library Review Column Digital Heritage*, vol. 50, n. 1, pp. 42-50.
- CAILLAUD B., JULLIEN B. (2003), "Chicken & egg: Competition among intermediation service providers", *RAND Journal of Economics*, VOL. 34, N. 2, PP. 309-328.
- CENNAMO C., SANTALÒ J. (2019), "Generativity tension and value creation in platform ecosystems", *Organization Science*, vol. 30, n. 3, pp. 617-641.

- CONSTANTINOU I., MARTON A., TUUNAINEN V.K. (2017), "Four models of sharing economy platforms", *MIS Quarterly Executive*, vol. 16, n. 4, pp. 231-251.
- CONSTANTINIDES P., HENFRIDSSON O., PARKER G.G. (2018), "Introduction-Platforms and infrastructures in the digital age", *Information Systems Research*, vol. 29, n. 2, pp. 381-400.
- DE REUVER M., SØRENSEN C., BASOLE R.C. (2018), "The digital platform: a research agenda", *Journal of Information Technology*, vol. 33, n. 2, pp. 124-135.
- DUBE L., PARE G. (2003), "Rigor in information system positivist case research: current practices, trends and recommendations", *MIS Quarterly*, vol. 27, n. 4, pp. 597-635.
- EATON B.D., ELALUF-CALDERWOOD S., SØRENSEN C., YOO Y. (2015), "Distributed tuning of boundary resources: the case of apple's iOS service system", *MIS Quarterly: Special Issue on Service Innovation in a Digital Age*, vol. 39, n. 1, pp. 217-243.
- EISENHARDT K.M. (1989), "Building theories from case study research", *The Academy of Management Review*, vol. 14, n. 4, pp. 532-550.
- EVANS F.C. (1956), "Ecosystem as the basic unit in ecology", *Science*, vol. 123, n. 3208, pp. 1127-1128.
- FELLER J., FINNEGAN P., HAYES J., O'REILLY P. (2012), "'Orchestrating' sustainable crowdsourcing: A characterisation of solver brokerages", *Journal of Strategic Information Systems*, vol. 21, n. 3, pp. 216-232.
- FURR N., SHIPLOV A. (2018), "Building the right ecosystem for innovation", *Mit Sloan Management Review*, vol. 59, n. 4, pp. 58-64.
- GALLAUGHER J.M., WANG Y.M. (2002), "Understanding network effects in software markets: evidence from web server pricing", *MIS Quarterly*, vol. 26, n. 4, pp. 303-327.
- GARUD R., KUMARASWAMY A., ROBERTS A., XU L. (2020), "Liminal Movement by Digital PlatformBased Sharing Economy Ventures: The Case of Uber Technologies". *Strategic Management Journal. Special issue on Strategies for Platform Ecosystems*, pp. 1-29. DOI: 10.1002/smj.3148
- GAWER A., CUSUMANO M.A. (2008), "How companies become platform leaders", *Sloan Management Review*, vol. 49, n. 2, pp. 28-35.
- GAWER A., CUSUMANO M.A. (2014). "Industry platforms and ecosystem innovation", *Journal of Product Innovation Management*, 31(3), 417-433.
- GHAZAWNEH A., HENFRIDSSON O. (2013), "Balancing platform control and external contribution in third-party development: The boundary resources model", *Information Systems Journal*, vol. 23, n. 2, pp. 173-192.
- GIOIA D.A., CORLEY K.G., HAMILTON A.L. (2013), "Seeking qualitative rigor in inductive research: notes on the Gioia methodology", *Organizational Research Methods*, vol. 16, n. 1, pp. 15-31.
- GULATI R., PURANAM P., TUSHMAN M. (2012), "Meta-organization design: Rethinking design in interorganizational and community contexts", *Strategic Management Journal*, vol. 33, n. 6, pp. 571-586.
- HANSETH O., LYTTINEN K. (2010), "Design theory for dynamic complexity in information infrastructures: the case of building internet", *Journal of Information technology*, vol. 25, n. 1, pp. 1-19.
- HEIN A., BÖHM M., KRCCMAR H. (2018), "Tight and loose coupling in evolving platform ecosystems: the cases of Airbnb and Uber", In Abramowicz W., Paschke A. (eds.) *International Conference on Business Information Systems* (pp. 295-306). Springer International Publishing AG, Cham.
- HEIN A., SCHREIECK M., RIASANOW T., SETZKE D.S., WIESCHE M., BÖHM M., KRCCMAR H. (2020), "Digital platform ecosystems", *Electronic Markets*, vol. 30, pp. 87-98.
- HUBER T.L., KUDE T., DIBBERN J. (2017), "Governance practices in platform ecosystems: Navigating tensions between cocreated value and governance costs", *Information Systems Research*, vol. 28, n. 3, pp. 563-584.
- IANSITI M., LEVIEN R. (2004), "Strategy as Ecology", *Harvard Business Review*, vol. 82, n. 3, pp. 68-79.
- JACOBIDES M.G., CENNAMO C., GAWER A. (2018), "Towards a theory of ecosystems", *Strategic Management Journal*, vol. 39, n. 8, pp. 2255-2276.
- JHA S., PINSONNEAULT A., DUBÈ L. (2016), "The evolution of an ICT platform-enabled ecosystem for poverty alleviation: the case of eKutir", *MIS Quarterly*, vol. 40, n. 2, pp. 431-455.
- KAPOOR R. (2018), "Ecosystems: broadening the locus of value creation", *Journal of Organization Design*, vol. 7, n. 12, <https://doi.org/10.1186/s41469-018-0035-4>
- KRETSCHMER T., LEIPONEN A., SCHILLING M., VASUDEVA G. (2022), "Platform ecosystems as meta-organizations: Implications for platform strategies", *Strategic Management Journal*, vol. 43, n. 3, pp. 405-424.
- LANGLEY A.N.N., SMALLMAN C., TSOUKAS H., VAN DE VEN A.H. (2013), "Process studies of change in organization and management: unveiling temporality, activity, and flow", *Academy of Management Journal*, vol. 56, pp. 1-13.
- LI Z., AGARWAL A. (2017), "Platform integration and demand spillovers in complementary markets: evidence from Facebook's integration of Instagram", *Management Science*, vol. 63, n. 10, pp. 3438-3458.
- LI W., BADR Y., BIENNIER F. (2012), "Digital ecosystems: challenges and prospects", in *Proceedings of the international conference on management of Emergent Digital EcoSystems*, pp. 117-122.
- MARS M.M., BRONSTEIN J.L., LUSCH R.F. (2012), "The value of a metaphor: organizations and ecosystems", *Organizational Dynamics*, vol. 41, pp. 271-280.
- MCINTYRE D.P., SRINIVASAN A. (2017), "Networks, platforms, and strategy: emerging views and next steps", *Strategic Management Journal*, vol. 38, n. 1, pp. 141-160.

- MEYERHOFF J., KLEFOTH T., ARLINGHAUS R. (2019), "The value artificial lake ecosystems provide to recreational anglers: Implications for management of biodiversity and outdoor recreation", *Journal of Environmental Management*, vol. 252, 109580.
- MOORE J.F. (1993), "Predators and prey: a new ecology of competition", *Harvard Business Review*, vol. 71, n. 3, pp. 75-83.
- OH D.S., PHILLIPS F., PARK S., LEE E. (2016), "Innovation Ecosystems: A Critical Examination", *Technovation*, vol. 54, pp. 1-6.
- ONDRUS J., GANNAMANENI A., LYYTINEN K. (2015), "The impact of openness on the market potential of multi-sided platforms: a case study of mobile payment platforms", *Journal of Information Technology*, vol. 30, n. 3, pp. 260-275.
- PAN S.L., TAN B. (2011), "Demystifying case research: a structured-pragmatic-situational (SPS) approach to conducting case studies", *Information and Organization*, vol. 21, vol. 3, pp. 161-176.
- PARKER G., VAN ALSTYNE M., JIANG X. (2017), "Platform ecosystems: how developers invert the firm", *MIS Quarterly*, vol. 41, n. 1, pp. 255-266.
- SPAGNOLETTI P., RESCA A., LEE G. (2015), "A design theory for digital platforms supporting online communities: a multiple case study", *Journal of Information Technology*, vol. 30, n. 4, pp. 364-380.
- TAN B., PAN S.L., LU X., HUANG L. (2015), "The role of IS capabilities in the development of multi-sided platforms: the digital ecosystem strategy of Alibaba. Com", *Journal of the Association for Information Systems*, vol. 16, n. 4, p. 2.
- TAN F.T.C., TAN B., PAN S.L. (2016), "Developing a leading digital multi-sided platform: examining IT affordances and competitive actions in Alibaba. Com", *Communications of the Association for Information Systems*, vol. 38, n. 1, 36.
- TAUSCHER K., LAUDIEN S.M. (2018), "Understanding platform business models: a mixed methods study for marketplaces", *European Management Journal*, vol. 36, n. 3, pp. 319-329.
- TEECE D.J. (2014), "A dynamic capabilities-based entrepreneurial theory of the multinational enterprise", *Journal of International Business Studies*, vol. 45, n. 1, pp. 8-37.
- TILSON D., LYYTINEN K., SØRENSEN C. (2010), "Digital Infrastructures: The Missing IS Research Agenda", *Information Systems Research*, vol. 21, n. 5, pp. 748-759.
- TIWANA A., KONSYNKY B., BUSH A.A. (2010), "Platform Evolution: Coevolution of Platform Architecture, Governance, and Environmental Dynamics", *Information Systems Research*, vol. 21, n. 4, pp. 675-687.
- TIWANA A. (2014), *Platform ecosystems: aligning architecture, governance, and strategy*, Morgan Kaufmann: Burlington.
- TIWANA A. (2015), "Evolutionary competition in platform ecosystems", *Information Systems Research*, vol. 26, n. 2, pp. 266-281.
- WALSHAM G. (2006), "Doing interpretive research", *European Journal of Information Systems*, vol. 15, n. 3, pp. 320-330.
- WAREHAM J., FOX P.B., CANO GINER J.L. (2014), "Technology Ecosystem Governance", *Organization Science*, vol. 25, n. 4, pp. 1195-1215.
- WEILL P., WOERNER S.L. (2015), "Thriving in an increasingly digital ecosystem", *MIT Sloan Management Review*, vol. 56, n. 4, pp. 27-35.
- WILLIAMSON P.J., DE MEYER A. (2012), "Ecosystem advantage: How to successfully harness the power of partners", *California Management Review*, vol. 55, n. 1, pp. 24-46.
- YIN R.K. (1994), *Case Study Research: Design and Methods*, 5th ed. Sage Publications, Thousand Oaks, CA
- YOFFIE D.B., GAWER A., CUSUMANO M.A. (2019), "A study of more than 250 platforms reveals why most fail", *Harvard Business Review*(website) (May 29, 2019)
- YOO Y., BOLAND R.J., LYYTINEN K., MAJCHRZAK A. (2012), "Organizing for innovation in the digitized world", *Organization Science*, vol. 23, n. 5, pp. 1398-1408.

Digital platform ecosystems: A multi-layer analysis of their emergence in rural areas

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Framing of the research. *Digital platform ecosystems have quickly emerged as a promising stream of research in entrepreneurship and innovation literature (Jacobides, Cennamo, and Gawer, 2018). They have been broadly conceived as forms of endogenous strategic action where autonomous agents contribute to the digital platform's value proposition (Teece, 2018). Whereas traditional firms create value within the boundaries of a company or a supply chain, digital platform ecosystems drive co-production, co-creation, and value capture (Hein, Schrieck, Riasanow, Setzke, Wiesche, Böhm, and Krmar, 2020). They are built on collaborative arrangements between firms that combine individual offerings to create a coherent solution aimed at a defined audience and share a set of technical standards (Adner, 2006; Thomas and Autio, 2020). As the participants in the ecosystem depend on each other, the digital platform ecosystem offering requires careful orchestration of actors and resources. Even if most digital platforms act as private regulators of their ecosystems (Gawer, 2021), they facilitate transactions and innovation under the coordination and direction of the platform orchestrator (Wareham, Fox, and Cano Giner, 2014, p. 1211). Orchestrators establish the rules through which their various actors interact, decide what behaviors to encourage or discourage on the platform, and choose how to enforce them (Autio, 2021).*

In recent years, the digital platform phenomenon has interested the agri-food activities that have been reorganized around platform-based ecosystems for value creation and appropriation (Annosi, Brunetta, Capo, and Heideveld, 2020). Digital technologies, such as IoT and blockchain, have been exploited to collect and record data to create efficient, transparent, and sustainable supply chains, and more often, digital platform ecosystems have proven necessary for firms operating in the agri-food sector (Tsolakis, Niedenzu, Simonetto, Dora, and Kumar, 2021). For example, the adoption of blockchain technology in terms of recording, storing, validating, and securing data can solve various agricultural problems such as business financing. Previous research has demonstrated that if the banking and insurance industries are connected in real-time to activity data in the agricultural industry, they can create better credit ratings and profile models (Rijanto, 2021). Additionally, in a context where consumers have become more educated at the bottom of the supply chains and demand real-time updated information on foods they consume, digitalization has allowed the agri-food industry to be highly connected, efficient, and responsive to customer needs and regulatory requirements. The Covid-19 pandemic has also increased the reliance from individuals, businesses, and governments on online platforms. As a result, food product traceability, safety, and sustainability issues have become crucial concerns to food retailers, distributors, processors, and farmers. It has forced actors to accelerate the adoption of digital agriculture technologies to support emergency responses, making the issue especially topical and increasing institutional pressures that demand actors to participate in a traceability system (Hew, Wong, Tai, Ooi, and Lin, 2020).

However, the rise and deployment of digital platform ecosystems in the agriculture and food industry are challenging and resource-demanding and can prove particularly difficult within rural areas, where factors related to geographical, social, institutional, and market access conditions can act as barriers to environmental change and innovation (Baumber, Metternicht, Ampt, Cross, and Berry, 2018, Miles and Morrison, 2018). Despite the intervention of the orchestrator, more conservative firms may not perceive this strategy favorably, holding them back from participating in the ecosystem and adopting digital technologies (Hew et al., 2020). In this context, ecosystem leaders must persuade others to make voluntary inputs consistent with the ecosystem's overarching value offering.

Purpose of the paper. *According to the above-depicted literature frame, we intend to deepen our understanding of the processes and mechanisms underlying platform ecosystems' emergence in rural areas. The premise of our paper is that, in the emergent phase of the ecosystem, the orchestrator plays a fundamental role in constructing a solid base for the ecosystems' evolution by increasing the number of actors that join the ecosystem (Autio, 2021). As such, in line with*

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institutional theory (DiMaggio and Powell, 1983) that posits the influences of external institutions in driving isomorphism between firms (Yigitbasioglu, 2015), the orchestrator could exert pressures (coercive, mimetic and regulatory) on firms, influencing their perceptions about digital systems (Hu, Hu, Wei, and Hsu, 2016; Yigitbasioglu, 2015) and motivating their intentions to adopt (Teo, Wei, and Benbasat, 2003).

Accordingly, in this paper, we shall empirically scrutinize the relationships between the orchestrator and the participants of the digital platform ecosystems to shape the context where they will create value. We shall focus on how actors organize around a platform by adopting a multiple layers perspective. Firstly, we will look at the technological foundation of the ecosystem's value creation. Secondly, we will pay attention to the economic motivation that attracts actors to the ecosystems and encourages participation. Thirdly, we will analyze the externally facing institutional activities dedicated to enhancing the embedding of the ecosystem to its broader societal and economic context. Fourthly and finally, we will uncover the behavioral strategies of the orchestrator to expand participation.

Methodology. *We adopted a multiple case study design to highlight the orchestration's technological, economic, institutional, and behavioral layers that affect the initiation of digital platform ecosystems (Eisenhardt, 1989). Multiple cases allow for a logic of replication, in which each case can confirm or disconfirm inferences derived from the others. This process produces a more generalizable theory than single cases and protects against researcher bias (Voss, Tsikriktsis, and Frohlich, 2002; Santos and Eisenhardt, 2009).*

Research setting. *The present study was conducted on an experimental initiative sponsored by public and private actors to promote territorial development. In detail, the project aims to create an integrated multi-chain traceability digital platform - based on Blockchain technology - to enhance the value of the Sicilian quality food products that are certified UNI EN ISO 22005 and promote the development of local economies. The project involves almost 200 firms located in the internal rural areas of Sicily, between the provinces of Catania (CT) and Caltanissetta (CL), which voluntarily chose to adhere to the initiative. Among the participants, there are farms, processing firms, and packagers operating in eleven different supply chains, as detailed in Table 1. Firms participating in the project are primarily small and micro enterprises, many of which are family firms, and about 41% of them operates in more than one certified supply chain. For a more detailed description of the sample, we recovered information from the Orbis database for 149 companies and we reported some descriptive statistics for the whole group as well as for each supply chain (see Table 2 and Table 3).*

For case selection, we used theoretical sampling (Glaser and Strauss, 1967). Among the available companies, we selected companies that produce differentiated agri-food products and operate at different supply chain stages. In addition, we considered farms of various sizes. The reason for these choices lies in the possibility of highlighting variations between trials and identifying categories in terms of properties and dimensions (Strauss and Corbin, 1998). In doing so, in line with Eisenhardt (1989b), we started by selecting six enterprises.

Data collection and analysis. The data collected comes from primary (semi-structured interviews) and secondary data (desk analysis and information from the project kick-off meeting). So far, we have conducted eight semi-structured interviews involving six firms' representatives and two project promoters. For the latter, we interviewed the project leader and a spokesperson for the regional policymakers to better understand the goals and the expected impact of the initiative on the local environment.

All interviews were conducted in Italian, some on an online videoconferencing platform (Teams) and others over the phone. They lasted between 20 and 50 minutes and were recorded, transcribed and subsequently translated into English. At the beginning of each interview, we explained the objectives of the study and the ethical issues surrounding it. We designed an interview outline consisting of eleven open-ended questions. The interview guide had two main sections of questions. The first section allowed informants to provide general considerations about their participation in the project and the role of the organizers. The second section explored how managers working in the agri-food sector perceive digital transformation, highlighting the challenges and opportunities involved. Table 4 presents the key informants of the six companies, their job position, the type of company they work, the supply chain in which the company operates and the duration of the interviews. We then analyzed the collected corpus employing thematic content analysis (King and Horrocks, 2010), highlighting relevant points in line with our research objectives.

Results. *In the present study, we adopted specific theoretical lenses to compare the structure of the initiative with an ecosystem of digital platforms in their emergence stage to enhance and integrate the peculiar features of rural areas. In particular, we identified the role of the orchestrator in the project leader, which is an external actor without any direct interest in the supply chains. Building upon the multi-layered ecosystem framework (Autio, 2021), we analyzed the case study by underlining the role of the external orchestrator's activity in maximizing the potential for co-discovery of ecosystem value. Precisely, we dwell on four dimensions: the technological, economic, institutional, and behavioral layers.*

In the first stage, the orchestrator will rely on an external agency to define the technical and organizational architecture of the digital ecosystem platform. In this regard, during the kick-off meeting, the certification agency said: «We will design a Blockchain Azure platform for digital traceability, in compliance with UNI EN ISO 22005, accessible to all member companies. It will be a modular multi-chain architecture, which will allow each operator to record and share information about each agri-food product. Subsequently, a smart label connected to the platform will be applied to each package, allowing the consumer to know the origin of the product». The architecture of the ecosystem will implicitly define the role of the participants in the ecosystem, differentiating them based on their position along the supply chain - i.e., farms, processing firms and packagers -.

From the point of view of the economic layer, the orchestrator will implement the initiative through public funds and encourage voluntary participation in the ecosystem by requesting a symbolic annual contribution for its maintenance. In addition, this entity will foster the creation of a local direct sales circuit through the marketing of complementary products, originating indirect network effects. Five of the interviewed companies agree that this initiative will give them greater visibility, strengthening their image and customer relations. In this sense, KI-1 (Sales Manager - Pulses, hemp, aromatic-officinal plants and their products and honey supply chain, Livestock supply chain - interviewed on 23 February 2022) says: «I think our final consumer will feel more protected by buying agri-food products whose origin is known and certified. This certification will increase customer loyalty».

Furthermore, the orchestrator will be committed to linking the network of companies with promotional and commercial initiatives carried out by regional, national and international organizations and operators, with the possibility of creating new market opportunities. For example, KI-2 (Founder and Legal Representative - Cheese supply chain - interviewed on 24 February 2022) says: «We expect that this initiative will give us more visibility outside our province». Similarly, KI-3 (Founder and Company Partner - Citrus fruit and citrus fruit products supply chain, Wheat and derivatives supply chain, Extra virgin olive oil supply chain - interviewed on 24 February 2022) states: «For small companies, like ours, the digital label represents an innovation even for the regional or national market». Similarly, KI-4 (Quality Manager - Vegetables and their products supply chain - interviewed on 22 February 2022) and KI-5 (Quality Manager - Wheat and derivatives supply chain - 25 February 2022) argue that certified and traceable niche products will represent an added value for the foreign market, which is already interested in the quality of Made in Italy.

The orchestrator will promote informative meetings on the project and free training courses on the use of digital technologies, both of which are highly appreciated by the interviewees. In fact, on the first point, KI-5 (Quality Manager - Wheat and derivatives supply chain - 25 February 2022) says: «There is a need for better communication of what the project envisages in practice. Some of our suppliers did not want to participate because they did not understand what they had to do (i.e., keeping formal records). Not being able to include them in the traceability system will be detrimental to us». Similarly, KI-3 (Founder and Company Partner - Citrus fruit and citrus fruit products supply chain, Wheat and derivatives supply chain, Extra virgin olive oil supply chain - interviewed on 24 February 2022) recognizes the value of effective communication, through which companies will be able to understand the project and its potential benefits. As a result, companies will be able to organize themselves to welcome the change. Instead, on the second point, both promoters agree that training activities are needed to assist companies in introducing and maintaining digital innovation. Finally, KI-4 (Quality Manager - Vegetables and their products supply chain - interviewed on 22 February 2022), recognizes the usefulness of training courses in less structured, family-run businesses, where «often the owner is of a certain age and not very familiar with technology». According to KI-4, «those who do not have these skills will slow down all the others. Ad hoc training courses will allow us all to start from the same level».

From an institutional point of view, the orchestrator will be responsible for defining the game's rules, codified within a regulatory framework and the confidentiality agreements for sensitive data. Also, the project leader will monitor the correct application of the established procedures through periodic checks and appropriate tools, such as traceability tests and mass balances. On this matter, KI-5 (Quality Manager - Wheat and derivatives supply chain - 25 February 2022) recognizes the orchestrator as «the entity that will dictate the guidelines and periodically check that all the companies - and there are many of them - are doing things correctly». KI-1 (Sales Manager - Pulses, hemp, aromatic-officinal plants and their products and honey supply chain, Livestock supply chain - interviewed on 23 February 2022) and KI-3 (Founder and Company Partner - Citrus fruit and citrus fruit products supply chain, Wheat and derivatives supply chain, Extra virgin olive oil supply chain - interviewed on 24 February 2022) agreed in defining the orchestrator as «a point of reference» to whom they can turn to discuss internal rules.

The behavioral strategies implemented by the orchestrator of the ecosystem to extend participation are centered on promoting the ecosystem as a certification system to enhance the economic and social potentials of local products and the entire territory, making them visible on the markets in an aggregated form. In fact, all the companies interviewed joined because of the possibility of adding value to their niche products. In addition, KI-3 (Founder and Company Partner - Citrus fruit and citrus fruit products supply chain, Wheat and derivatives supply chain, Extra virgin olive oil supply chain - interviewed on 24 February 2022) emphasizes the potential growth of the whole territory as a driver of participation. He says: «I chose to participate because my interest is to develop the whole territory; the single company will never be able to grow if this rural area, which has always been economically and socially depressed, does not grow».

In conclusion, our preliminary results confirm that our study is one for which it is appropriate to apply the multi-layered framework to identify the mechanisms and processes for sustainable ecosystem emergence. In particular, we explore the opportunities and threats specific to rural contexts, focusing on how complex interrelated organizations can thrive and develop rather than fail in scaling up. Despite being on an exploratory stage, the project will allow us to observe and closely monitor the evolution of such a digital ecosystem, shedding light on the role of external orchestrators and the relations among the other actors.

Research limitations. This study is limited to companies operating against the backdrop of a shared project to create a digital platform ecosystem. For this research to have relevance in this area, more cases need to be involved, namely more similar food companies for the purposes of literal replication, and more different food companies, for the purposes of theoretical replication (Yin, 2018). Further research could consider expanding the range of respondents to

include other supply chain actors to enrich the available data and increase the study's validity. In addition, more case evidence from other roles in supply chains would provide different insights and perspectives on the four layers of orchestrator activity. The youthfulness of the project forced us to limit our study to only the initiation stage of the digital platform ecosystem for value co-discovery. In the future, to provide more consistency to our results, the study could be extended to the momentum and control stages of the ecosystem. Finally, for the time being, the project's uniqueness makes it impossible to compare it with other similar cases on the national territory.

Managerial implications. Managers and policymakers can use the preliminary research results of this study. First, our study highlights how firms can manage the adoption of digital technologies in the innovation process by exploiting external collaborations. Second, we offer a multiplayer perspective of the mechanisms behind traditional sectors' innovative efforts operating in rural areas. As policymakers are concerned, this study provides a helpful view on how digital platforms ecosystems emerge and the roles of orchestrators. Eventually, making a digital project successful can rely on selecting support and/or designing the right orchestrators from territories.

Originality of the paper. This paper address the call for more contextualized studies on digital platform ecosystems. As part of a broader research project, the present study explores the mechanisms underlying the innovative efforts of traditional sectors operating in rural areas. More specifically, we focus on the emergence stage of a digital platform ecosystem and on the role of the orchestrator, which is an entity capable of coordinating all participants and introducing a series of actions aimed at shaping the context in which they will collaborate and compete. Although digital platform ecosystems have been the subject of several studies in the agri-food sector, to the best of our knowledge, there is no comprehensive and exhaustive exploration of the phenomenon within a rural area, where ecosystem participants join efforts to create value in an innovation-hostile environment.

Keywords: digital platform ecosystems; rural areas; blockchain; agri-food; multiple-case studies;

References

- ADNER R. 2006, "Match your innovation strategy to your innovation ecosystem", *Harvard Business Review*, vol. 84, n. 4, pp. 98-107.
- ANNOSI M.C., BRUNETTA F., CAPO F., HEIDEVELD L. (2020), "Digitalization in the agri-food industry: the relationship between technology and sustainable development", *Management Decision*, vol. 58, n. 8, pp. 1737-1757.
- AUTIO E. (2021), "Orchestrating ecosystems: a multi-layered framework", *Innovation*, pp. 1-14.
- BAUMBER A., METTERNICHT G., AMPT P., CROSS R., BERRY E., (2018). "From Importing Innovations to Co-Producing Them: Transdisciplinary Approaches to the Development of Online Land Management Tools", *Technology Innovation Management Review*, vol. 8, n. 8, pp. 16-26.
- DIMAGGIO P.J., POWELL W.W. (1983), "The Iron Cage Revisited: institutional Isomorphism and Collective Rationality in Organizational Fields", *American Sociological Review*, vol. 48, n. 2, pp. 147-160.
- EISENHARDT K.M. (1989), "Building theories from case study research", *Academy of Management Review*, vol. 14, pp. 532-550.
- GAWER A. (2021), "Digital platforms and ecosystems: remarks on the dominant organizational forms of the digital age", *Innovation*, pp. 1-15.
- GLASER B., STRAUSS. A. (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Chicago: Aldine Publishing.
- HEIN A., SCHREIECK M., RIASANOW T., SETZKE D.S., WIESCHE M., BÖHM M., KRCCMAR H. (2020), "Digital platform ecosystems", *Electronic Markets*, vol. 30, n. 1, pp. 87-98.
- HEW J.J., WONG L.W., TAN G.W.H., OOI K.B., LIN B. (2020), "The blockchain-based Halal traceability systems: a hype or reality? ", *Supply Chain Management: An International Journal*, vol. 25, n. 6, pp. 863-879.
- HU P.J.H., HU H.FEN, WEI C.P., HSU P.F. (2016), "Examining firms' green information technology practices: a hierarchical view of key drivers and their effects", *Journal of Management Information Systems*, vol. 33 n. 4, pp. 1149-1179.
- JACOBIDES M.G., CENNAMO C., GAWER A. (2018), "Towards a theory of ecosystems", *Strategic Management Journal*, vol. 39, pp. 2255-2276.
- KING N., HORROCKS C. (2010), *Interviews in qualitative research*, Sage, London.
- RIJANTO, A. (2020), "Business financing and blockchain technology adoption in agroindustry", *Journal of Science and Technology Policy Management*, vol. 12, n. 2, pp.
- SANTOS F.M., EISENHARDT K.M. (2009), "Constructing Markets and Shaping Boundaries: Entrepreneurial Power in Nascent Fields", *Academy of Management Journal*, vol. 52, n. 4, pp. 643-671.
- STRAUSS A.L., CORBIN J. (1998), *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd, ed. Newbury Park, CA: Sage publications.
- TEECE D.J. (2018), "Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world", *Research Policy*, vol. 47, n. 8, pp. 1367-1387.
- TEO H.H., WEI, K.K., BENBASAT I. (2003), "Predicting intention to adopt interorganizational linkages: an institutional perspective", *MIS Quarterly*, vol. 27, n. 1, pp. 19-49.

- THOMAS L.D.W., AUTIO E. (2020), "Innovation ecosystems in management: An organizing typology", In Oxford Encyclopedia of Business and Management. Oxford University Press.
- VOSS C., TSIKRIKTSIS N., FROHLICH M. (2002), "Case research in operations management", *International Journal of Operations & Production Management*, vol. 22, n. 1, pp. 195-219.
- WAREHAM J., FOX P.B., CANO GINER J.L. (2014), "Technology Ecosystem Governance", *Organization Science*, vol. 25, n. 4, pp. 1195-1215.
- YIGITBASIOGLU O.M. (2015), "The role of institutional pressures and top management support in the intention to adopt cloud computing solutions", *Journal of Enterprise Information Management*, vol. 28, n. 4, pp. 579-594.
- YIN R.K. (2018), *Case Study Research and Applications: Design and Methods (6th ed.)*, Sage Publications, Inc, London.

Tab. 1: Number of companies operating in eleven different sectors

Supply chain	No. of companies
Extra Virgin Olive oil supply chain	62
Wheat and derivatives supply chain	55
Cheese supply chain	7
Dried fruit and derivates products supply chain	28
Citrus fruit and citrus fruit products supply chain	18
Prickly pear and prickly pear products supply chain	7
Vegetables and their products supply chain	19
Pulses, hemp, aromatic-officinal plants and their products and honey supply chain	23
Exotic fruit and derivates products supply chain	5
Grape and grape products supply chain	10
Livestock supply chain	12

Tab. 2 Descriptive statistics

		Obs.	Mean	Std. Dev.	Min.	Max.
Extra Virgin Olive oil supply chain	Web Presence	62	0.31	0.46	0	1
	Firm age	62	10.74	7.77	1	29
	Multi-chain	62	0.69	0.46	0	1
	Multi-Branches Companies	62	0.18	0.39	0	1
	Sales and Services Revenues*	22	206.12	373.54	0.25	1385.16
	Total Production*	27	389.39	850.68	0.26	4268.06
	Net income*	22	48.84	288.77	-181.72	1319.05
Wheat and derivates supply chain	Web Presence	55	0.45	0.5	0	1
	Firm age	55	14.76	9.82	2	47
	Multi-chain	55	0.55	0.5	0	1
	Multi-Branches Companies	55	0.11	0.31	0	1
	Sales and Services Revenues*	21	616.93	749.02	0.25	2421.05
	Total Production*	28	534.69	691.04	0.26	2567.55
	Net income*	21	8.44	32.49	-54.7	101.8
Cheese supply chain	Web Presence	7	0.43	0.53	0	1
	Firm age	7	15.29	9.72	3	26
	Multi-chain	7	0.43	0.53	0	1
	Multi-Branches Companies	7	0.29	0.49	0	1
	Sales and Services Revenues*	2	990.6	502.64	635.18	1346.02
	Total Production*	3	1968.41	2071.13	250	4268.06
	Net income*	2	661.39	930.07	3.73	1319.05
Dried fruit and derivates products supply chain	Web Presence	28	0.21	0.42	0	1
	Firm age	28	9.14	6.89	1	25
	Multi-chain	28	0.71	0.46	0	1
	Multi-Branches Companies	28	0.11	0.31	0	1
	Sales and Services Revenues*	10	388.21	507.02	0.75	1346.02
	Total Production*	12	392.47	472.45	3.53	1387.18
	Net income*	10	-21.08	69.46	-181.72	36.95
Citrus fruit and citrus fruit products supply chain	Web Presence	18	0.33	0.49	0	1
	Firm age	18	17.67	14.3	3	57
	Multi-chain	18	0.78	0.43	0	1
	Multi-Branches Companies	18	0.22	0.43	0	1
	Sales and Services Revenues*	7	2781.34	5238.66	0	14493.75
	Total Production*	8	2409.07	4543.78	0	13398.8
	Net income*	7	31.87	111.95	-61.51	279.96
Prickly pear and prickly pear products supply chain	Web Presence	7	0.14	0.38	0	1
	Firm age	7	10.57	6.55	3	20
	Multi-chain	7	0.43	0.53	0	1
	Multi-Branches Companies	7	0	0	0	0
	Sales and Services Revenues*	3	635.13	1002.88	49.22	1793.13
	Total Production*	4	535.17	859.02	60.18	1820.12
	Net income*	3	2.18	2.34	-0.18	4.49
Vegetables and their products supply chain	Web Presence	19	0.42	0.51	0	1
	Firm age	19	14.89	8.99	5	36
	Multi-chain	19	0.53	0.51	0	1
	Multi-Branches Companies	19	0.32	0.48	0	1
	Sales and Services Revenues*	12	9153.27	22669	0.75	78185.69
	Total Production*	14	8841.08	23305.82	12.95	86870.56
Net income*	12	131.86	381.8	-54.7	1319.05	

Notes. *Average value computed between 2017 and 2020. Tables continues on the following page.

		Obs.	Mean	Std. Dev.	Min.	Max.
Pulses, hemp, aromatic-officinal plants and their products and honey supply chain	Web Presence	23	0.48	0.51	0	1
	Firm age	23	14.91	9.81	3	39
	Multi-chain	23	0.91	0.29	0	1
	Multi-Branches Companies	23	0.22	0.42	0	1
	Sales and Services Revenues*	8	1175.33	1985.47	1.83	5665.91
	Total Production*	13	852.87	1673.71	3.53	5947.83
	Net income*	8	16.05	35.01	-8.17	77.35
Exotic fruit and derivates products supply chain	Web Presence	5	0.2	0.45	0	1
	Firm age	5	20	21.27	4	57
	Multi-chain	5	0.6	0.55	0	1
	Multi-Branches Companies	5	0.2	0.45	0	1
	Sales and Services Revenues*	2	1180.69	1669.74	0	2361.37
	Total Production*	3	1011.82	1560.89	0	2809.45
	Net income*	2	0.79	2.51	-0.98	2.57
Grape and grape products supply chain	Web Presence	10	0.4	0.52	0	1
	Firm age	10	12.9	7.72	5	28
	Multi-chain	10	0.8	0.42	0	1
	Multi-Branches Companies	10	0.3	0.48	0	1
	Sales and Services Revenues*	3	3472.81	5846.55	12.52	10223.11
	Total Production*	5	2413.6	4555.78	113.22	10548.8
	Net income*	3	-59.15	73.05	-110.99	24.39
Livestock supply chain	Web Presence	12	0.17	0.39	0	1
	Firm age	12	17.08	11.66	3	39
	Multi-chain	12	0.25	0.45	0	1
	Multi-Branches Companies	12	0.17	0.39	0	1
	Sales and Services Revenues*	3	2736.66	2730.23	262.68	5665.91
	Total Production*	5	1787.46	2503.53	141	5947.83
	Net income*	3	73.88	65.52	12.05	142.55
All companies	Web Presence	149	0.33	0.47	0	1
	Firm age	149	13.64	10.34	1	57
	Multi-chain	149	0.41	0.49	0	1
	Multi-branches	149	0.15	0.36	0	1
	Sales and Services Revenues*	56	2940.75	10919.74	0	78185.69
	Total Production*	73	2515.86	10582.47	0	86870.56
	Net income*	56	37.04	187.26	-181.72	1319.05

Notes. *Average value computed between 2017 and 2020.

Tab. 3: Characteristics of supply chains

Supply chain	Firm age			Firm size			Multi-chain		Total
	0-5	6-24	25+	0-9	10-49	50+			
Extra Virgin Olive oil supply chain	26	30	6	57	5	0	19	43	62
Wheat and derivatives supply chain	12	31	12	52	3	0	25	30	55
Cheese supply chain	1	4	2	4	3	0	4	3	7
Dried fruit and derivates products supply chain	12	15	1	25	3	0	8	20	28
Citrus fruit and citrus fruit products supply chain	2	13	3	14	3	1	4	14	18
Prickly pear and prickly pear products supply chain	2	5	0	6	1	0	4	3	7
Vegetables and their products supply chain	4	12	3	13	5	1	9	10	19
Pulses, hemp, aromatic-officinal plants and their products and honey supply chain	3	15	5	21	1	1	2	21	23
Exotic fruit and derivates products supply chain	1	3	1	3	2	0	2	3	5
Grape and grape products supply chain	3	6	1	6	3	1	2	8	10
Livestock supply chain	3	5	4	10	2	0	9	3	12

Tab. 4: Key informants

Key informant ID	Job position	Type of company and Supply chain	Interview duration (in minutes)
KI-1	Sales Manager	Farm and Processor - Pulses, hemp, aromatic-officinal plants and their products and honey supply chain Livestock farms, processors and packers - Livestock supply chain	20''
KI-2	Founder and Legal Representative	Farm and Processor - Cheese supply chain	25''
KI-3	Founder and Company Partner	Farm and Processor - Citrus fruit and citrus fruit products supply chain Processor and Packager - Wheat and derivatives supply chain Farm - Extra virgin olive oil supply chain	40''
KI-4	Quality Manager	Processors and Packagers - Vegetables and their products supply chain	30''
KI-5	Quality Manager	Mill and Processor -Wheat and derivatives supply chain	20''
KI-6	Founder	Farm - Citrus fruit and citrus fruit products supply chain Farm - Extra virgin olive oil supply chain	50''

Il ruolo del contesto locale nelle innovazioni sociali: Un'analisi su Trust e Support

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Inquadramento della ricerca. Negli ultimi anni, ricerche riguardanti il fenomeno dell'innovazione in ambito turistico hanno attirato l'attenzione di molti ricercatori e il concetto di innovazione è considerato un fattore chiave per imprese, organizzazioni e destinazioni sia riguardo alla loro competitività che alla sostenibilità (Gomezelj, 2016; Hjalager, 2010, 2015; Bagiran Ozseker, 2019). Per questo motivo, comprendere quali sono i driver e le tipologie che innescano i processi innovativi e nuove iniziative imprenditoriali nelle destinazioni turistiche rappresenta una sfida per manager, policy maker e accademici (Trunfio and Campana, 2019). Inoltre, i diversi attori coinvolti in tali processi innovativi sono influenzati da fattori politici, economici e sociali legati in senso stretto alla destinazione e, in senso più ampio, al contesto locale in termini culturali, sociali ed economici (Racherla et al., 2008).

Obiettivo del paper. Il contesto locale è in grado di supplire a mancanze istituzionali e fornire le risorse, materiali e non, per sviluppare idee innovative e valorizzare potenziali opportunità imprenditoriali legate al territorio di appartenenza (Trunfio and Campana, 2020); per questo motivo il coinvolgimento della comunità locale è considerato infatti uno dei prerequisiti per la rigenerazione e lo sviluppo del turismo locale (Getz and Jamal, 1994). In questo senso assume un forte valore il capitale sociale. Esso aiuta la condivisione di conoscenza tacita ed esplicita e promuove azioni collettive (Putnam, 1993) attraverso cui vengono alimentati i processi innovativi all'interno delle destinazioni, favorendo la collaborazione dei vari stakeholder e la co-creazione del valore (Inkpen and Tsang, 2005; Macbeth et al., 2004). Il capitale sociale gioca un ruolo molto importante dal momento che favorisce la partecipazione della comunità locale, crea sinergie tra i diversi stakeholder e consente di orchestrare le risorse esistenti, con ricadute positive sulle attività turistiche (Beritelli et al., 2016). Il coinvolgimento attivo dei residenti locali diviene una risorsa chiave per la destinazione turistica (Cole, 2006; Dogra and Gupta, 2012) con ricadute positive anche sulla sostenibilità sociale ed ambientale del luogo (Hardy et al., 2002; Salazar, 2012, Fan et al., 2020). Il contesto locale è quindi una comunità socio-economica di attori, individui ed istituzioni presenti in una determinata area geografica entro cui prendono luogo innovazioni ed iniziative imprenditoriali (Freeman and Audia, 2006; Isenberg, 2010; Malecki, 2011; Kuratko et al. 2017): un sistema con componenti mutualmente dipendenti delimitati geograficamente (Auerswald, 2015; Napier and Hansen 2011). Questo è in coerenza con la definizione di ecosistema imprenditoriale presa in esame nel presente lavoro: “[...] a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory” (Stam, 2015). Alcuni autori hanno considerato la dimensione territoriale come specifica di un ecosistema imprenditoriale (Colombelli et al. 2017; Cavallo et al. 2019), combinando fattori individuali e contestuali (Stam, 2015; Sussan and Acs 2017) in una prospettiva che inquadra l'imprenditorialità come un processo radicato in uno specifico contesto locale, in termini sociali ed economici (Steyaert and Katz 2004) piuttosto che l'azione individuale dell'imprenditore. Il territorio può quindi avere una notevole influenza sui processi imprenditoriali (Johannisson, 2011), soprattutto alla luce della ricerca emergente sugli ecosistemi imprenditoriali che enfatizza la natura interattiva e non lineare del processo (Cooke, 2016). In questo senso, il contesto locale è in grado di generare innovazioni di tipo sociale su cui costruire nuove iniziative imprenditoriali. Le innovazioni sociali consistono in attività innovative al fine di affrontare e soddisfare un bisogno sociale a vantaggio di una comunità più ampia piuttosto che di individui specifici (Mulgan et al., 2007). È un tipo di innovazione collegato alla consapevolezza sociale degli attori locali che, partecipando attivamente ai problemi della comunità, non solo aumentano il valore condiviso del proprio territorio e il benessere generale (Nespolo et al., 2018; Sanzo-Perez et al., 2015), ma sono anche in grado di generare processi imprenditoriali (Trunfio and Campana, 2019). Da questo punto di vista, crediamo che l'innovazione sociale è un costrutto complesso che include diversi attori sociali che lavorano insieme per il bene sociale al fine di fornire risposte a problemi sociali. Così facendo, viene costruito capitale sociale all'interno del contesto locale, facilitando nuove iniziative imprenditoriali e cambiamenti. Utilizzando un'impostazione che trae origine dalla letteratura esistente in ambito del comportamento organizzativo, l'obiettivo del presente lavoro è

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esaminare e comprendere gli antecedenti attraverso la disamina di alcune caratteristiche possedute dai contesti locali che possono contribuire a formare il capitale sociale e, in ultima istanza, impattare positivamente su innovazioni social-driven che innescano nuove iniziative imprenditoriali in ambito turistico. Ghoshal and Bartlett (1994), definiscono un contesto organizzativo in base a quattro attributi: discipline, stretch, support, and trust: in sintesi, una comunità necessita di favorire discipline e stretch affinché gli individui vengano spinti nella realizzazione di obiettivi sempre più ambiziosi e, al tempo stesso, support e trust consente che ciò avvenga in un ambiente cooperativo, partecipato e che offre assistenza. Il contesto, in altri termini, non detta il tipo di azione da intraprendere ma crea le condizioni per un ambiente favorevole che ispira e favorisce l'azione individuale e collettiva verso un obiettivo. Partendo da questa impostazione, gli attributi soft di un contesto, trust e support, costituiscono quindi l'elemento centrale per sviluppare cooperazione tra attori e stakeholder in una comunità e creare le condizioni favorevoli per innovazioni di tipo sociale: ciò favorisce la dimensione cognitiva del capitale sociale, ovvero quella riferita a valori, atteggiamenti, norme e credenze, che, incontrando quella organizzativa e relazionale (Liu et al., 2014), aiuta a creare interazioni interpersonali e interorganizzative che facilitano il coordinamento tra gli attori all'interno di uno specifico contesto. Sulla base di quanto finora argomentato, il presente lavoro si basa sulla seguente domanda di ricerca: "In che modo gli attributi, in termini di fiducia (Trust) e supporto (Support), di un contesto locale influenzano le innovazioni sociali in ambito turistico?"

Metodologia. Per conoscere in che modo gli attributi in termini di fiducia (trust) e supporto (support), di un contesto locale influenzano le innovazioni sociali in ambito turistico, la nostra intenzione è condurre un'analisi qualitativa esplorativa utilizzando come campione sei borghi localizzati in Italia, ma in diverse regioni e con caratteristiche territoriali differenti (cioè: mare, montagna, collina) che implicano offerte turistiche diverse tra di loro. La scelta ricade proprio sui borghi perché considerati come luoghi ricchi di risorse materiali e immateriali e di esperienze da compiere, come escursioni, passeggiate nel centro storico, feste, sagre, degustazioni enogastronomiche, visite a musei, parchi, ecc (Pollice et al., 2019). In questo lavoro, adottiamo un metodo di ricerca qualitativo (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2003) e per la scelta del numero del campione (sei casi), seguiamo il consiglio di Eisenhardt (1989) di usare 4-10 casi, per evitare di avere troppo pochi o troppi dati. Inoltre, si è deciso di applicare un approccio esplorativo e induttivo dello studio di casi multipli al fine di catturare una prospettiva olistica dei fenomeni (Yin, 2003). Per ogni caso, la nostra intenzione è quella di raccogliere dati da diversi attori coinvolti in ciascuna delle reti, al fine di esaminare e descrivere i processi in modo più dettagliato nel tempo e nel contesto in cui sono situati (Pratt, 2009; Siggelkow, 2007; Creswell, 2003). Per ogni caso, la nostra idea è quella di raccogliere dati ed informazioni da almeno due di questi quattro soggetti: il policy maker, un imprenditore locale, rappresentante della Pro-Loco o di un'associazione di volontariato. La modalità di raccolta dati prevede interviste in profondità della durata di 30-50 minuti, seguendo un protocollo di domande aperte volte a stimolare gli intervistati a seguire un approccio narrativo nel loro dialogo con gli intervistatori (Yin, 2003). Inoltre, la nostra intenzione è anche quella di raccogliere dati secondari da siti web, ad esempio dal sito del comune a cui appartiene il borgo, da comunicati stampa, e associazioni (I Borghi più belli d'Italia), blog (The Wom Travel). L'obiettivo è quello di incrociare i dati secondari con quelli primari ottenuti dalla trascrizione verbatim delle interviste (Eisenhardt and Graebner, 2007), al fine di scrivere un testo per ciascun caso adottando un approccio narrativo (Czarniawska, 1999). Un'ulteriore analisi servirà identificare in maniera critica le differenze e le somiglianze tra i casi (Yin, 2003), con l'obiettivo di offrire al lettore la possibilità di comprendere sia il contesto di ciascun caso sia la possibilità di effettuare ragionamenti incrociati e in parallelo.

Risultati. I risultati attesi dallo studio potrebbero delineare la fiducia come attributo chiave di un contesto locale per costruire ed avviare relazioni tra i vari attori, essendo la condizione di base su cui costruire progetti di collaborazione (Den Hond et al., 2015), anche in virtù della capacità di favorire lo scambio di informazioni e conoscenza mettendosi allo stesso tempo a riparo da comportamenti opportunistici (Wang and Rajagopalan, 2015). Questo dovrebbe essere ancora più importante in un contesto locale, dove lo sviluppo di rapporti informali precede e talvolta sostituisce del tutto quelli formali e contrattualizzati. Il concetto di support declinato in un contesto locale costituisce la condizione con la quale è possibile mobilitare e indirizzare persone e risorse presenti sul territorio. Un contesto locale possiede risorse in termini di attrattori turistici (monumenti, attrazioni naturali ecc.), capitale culturale e relazionale (università, terzo settore, residenti locali ecc.) il cui accesso potrebbe fornire un contesto ideale per favorire processi innovativi in ambito sociale; in questo senso, essi svolgerebbero una funzione di empowerment dei singoli attori locali, rendendo il contesto locale supportivo di processi innovativi (Ansari et al., 2012). Il concetto di supporto di un determinato contesto locale si sviluppa anche in termini di guida, aiuto e assistenza: nello specifico, è possibile identificarli nell'insieme di associazioni del terzo settore, istituti di formazione, attività di volontariato più o meno formalizzati, i quali sono detentori privilegiati di best practices ed iniziative in ambito sociale. Similmente, da una prospettiva dello human capital, non è da sottovalutare l'importanza rivestita da corsi di formazione per educare all'imprenditorialità e all'innovazione. In sintesi, tanto trust che support sarebbero due facce della stessa medaglia, una è necessaria per l'altra: la fiducia è ciò che consente alle risorse di essere messe a sistema e sfruttate in una relazione di reciproco affidamento, così come la sola fiducia non è una condizione sufficiente se il contesto locale non è sufficientemente ricettivo nel supportare attivamente le iniziative di innovazione, sia turistica che relativa ad altri settori.

Limiti della ricerca. Nonostante l'adozione di una metodologia rigorosa, questo studio non sarà privo di limitazioni. In particolare, un'analisi condotta solamente su sei casi studio non potrà pretendere di offrire risultati da poter essere utilizzati in ogni contesto e generalizzabili, ma quantomeno potrà offrire valide intuizioni per un

avanzamento della teoria. Per questa ragione, studi futuri potranno riformulare i nostri risultati attesi in ipotesi da poter testare su un campione più ampio di casi. Ad esempio, i risultati del presente lavoro potrebbero essere utilizzati per realizzare una ricerca quantitativa, attraverso una raccolta di dati primari con un questionario, ciò consentirebbe di estendere la ricerca ad un numero maggiore di borghi, al fine di rendere i risultati generalizzabili. Un ulteriore limite potrebbe essere quello di focalizzarsi troppo sui concetti di trust e support, i quali potrebbero non essere direttamente legati all'innovazione social-driven, dal momento che altre variabili latenti facciano da mediatore in tale relazione. Sempre adottando un campione più ampio e con un approccio quantitativo, e facendo ricorso ad analisi con equazioni strutturali, si potrebbero individuare tali variabili latenti, oltre che gettare le basi per la creazione di una scala di misurazione con cui valutare e misurare gli attributi del contesto locale al fine di aiutare i responsabili politici e le decisioni di investimento. Un ulteriore limite è di tipo culturale: la nostra idea è quella di utilizzare un campione di solo borghi italiani e anche questa soluzione potrebbe contribuire ad offrire dati non generalizzabili, trascurando la variabile culturale dovuta al setting nazionale. Ulteriori studi potrebbero analizzare casi in altri Paesi europei o su scala mondiale, identificando differenze e similitudini all'interno di uno specifico contesto culturale.

Implicazioni manageriali. Da questo capitolo si possono trarre anche importanti implicazioni per la pratica. Le osservazioni emerse possono aiutare a coniugare l'azione di studiosi e manager per sviluppare buone pratiche per gli attori, pubblici e privati, che giocano un ruolo chiave nella gestione delle destinazioni turistiche e sono in una posizione privilegiata per innovare l'offerta sul territorio. In particolare, il focus di questo studio è da un lato sul policy maker e sugli imprenditori locali, dall'altro sulla comunità (Pro-Loco e associazioni del terzo settore). In particolare, il policy maker dovrebbe essere in grado di innescare processi di innovazione sociale all'interno dell'ecosistema imprenditoriale grazie al suo ruolo nella gestione del luogo, ma la mancanza di risorse potrebbe ostacolarlo. In questo caso, l'imprenditoria e la comunità locale potrebbero compensare queste mancanze e innescare processi innovativi sul territorio, basandosi sui concetti di fiducia e supporto (Stone and Stone, 2011). L'azione comune dei vari attori in un territorio delimitato, spesso lontano dal turismo di massa, potrebbe infatti avere un impatto positivo sulle iniziative imprenditoriali generando, da un lato, la crescita di notorietà e dell'offerta turistica, dall'altro la creazione di nuovi posti di lavoro con ricadute positive in termini di sostenibilità sociale, ambientale ed economica.

Originalità del paper. Nonostante vi sia una crescente letteratura in merito, il concetto di innovazione sociale è ancora poco definito ed i confini non sono precisamente delineati (Chiappero-Martinetti et al. 2017). Questo lavoro cerca di fornire un contributo circa gli antecedenti che sono alla base delle nuove iniziative sociali, fornendo un perimetro entro cui sviluppare ulteriori ricerche e dei casi empirici che mostrano in concreto lo sviluppo del processo innovativo. Più nello specifico, il presente lavoro contribuisce a esplorare il ruolo dei diversi attori nelle innovazioni sociali ed in che cosa e in che modo si sostanzia il loro coinvolgimento e la loro relazione in tali processi (Dias and Partidário, 2019).

Parole chiave: social innovation; local context; tourism; trust; support; organizational behavior

Bibliografia

- ANSARI S., MUNIR K., GREGG T. (2012), "Impact at the 'bottom of the pyramid': The role of social capital in capability development and community empowerment", *Journal of Management Studies*, vol. 49, n. 4, pp. 813-842.
- AUERSWALD P.E. (2015), "Enabling entrepreneurial ecosystems: Insights from ecology to inform effective entrepreneurship policy", *Kauffman Foundation Research Series on city, metro, and regional entrepreneurship*.
- BAGIRAN OZSEKER D. (2019), "Towards a model of destination innovation process: an integrative review", *The Service Industries Journal*, vol. 39, n. 3-4, pp. 206-228.
- BERITELLI P., BUFFA F., MARTINI U. (2016), "Logics and interlocking directorships in a multi-stakeholder system", *Journal of Destination Marketing & Management*, vol. 5, n. 2, pp. 107-116.
- CARSON D.A., CARSON D.B. (2018), "International lifestyle immigrants and their contributions to rural tourism innovation: Experiences from Sweden's far north", *Journal of Rural Studies*, vol. 64, pp. 230-240.
- CAVALLO A., GHEZZI A., BALOCCO R. (2019), "Entrepreneurial ecosystem research: Present debates and future directions", *International Entrepreneurship and Management Journal*, vol. 15, n. 4, pp. 1291-1321.
- CHIAPPERO-MARTINETTI E., HOUGHTON BUDD C., ZIEGLER R. (2017), "Social innovation and the capability approach. Introduction to the special issue", *Journal of Human Development and Capabilities*, vol. 18, n. 2, pp. 141-147.
- COLE S. (2006). "Information and empowerment: The keys to achieving sustainable tourism", *Journal of sustainable tourism*, vol. 14, n. 6, pp. 629-644.
- COLOMBELLI A., PAOLUCCI E., UGHETTO E. (2019), "Hierarchical and relational governance and the life cycle of entrepreneurial ecosystems", *Small Business Economics*, vol. 52, n.2, pp. 505-521.
- COOKE P. (2016), *Routledge Revivals: Localities (1989): The Changing Face of Urban Britain*. Routledge, Londra
- CRESWELL J.W. (2003), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 2nd ed., Sage Publications, New York
- CZARNIAWSKA B. (1999), *Writing Management: Organization Theory as a Literary Genre*. In *Writing Management*, Oxford University Press, Oxford

- DEN HOND F., DE BAKKER F.G., DOH J. (2015), "What prompts companies to collaboration with NGOs? Recent evidence from the Netherlands", *Business & Society*, vol. 54, n. 2, pp. 187-228.
- DIAS J., PARTIDÁRIO M. (2019), "Mind the gap: The potential transformative capacity of social innovation", *Sustainability*, vol. 11 n. 16, 4465.
- DOGRA R., GUPTA A. (2012), "Barriers to community participation in tourism development: Empirical evidence from a rural destination", *South Asian Journal of Tourism and Heritage*, vol. 5, n. 1, pp. 129-142.
- EISENHARDT K.M., GRAEBNER M.E. (2007), "Theory building from cases: Opportunities and challenges", *Academy of Management Journal*, vol. 50, n. 1, pp. 25-32.
- EISENHARDT KATHLEEN M. (1989), "Building Theories from Case Study Research", *Academy of Management Review*, vol. 14, n. 4, pp. 532-50.
- FAN D.X., HSU C.H., LIN B. (2020), "Tourists' experiential value co-creation through online social contacts: Customer-dominant logic perspective", *Journal of Business Research*, vol. 108, pp. 163-173.
- FREEMAN J.H., AUDIA P.G. (2006), "Community ecology and the sociology of organizations", *Annu. Rev. Sociol.*, vol. 32, pp. 145-169.
- GETZ D., JAMAL T.B. (1994), "The environment-community symbiosis: A case for collaborative tourism planning", *Journal of Sustainable tourism*, vol. 2, n. 3, pp. 152-173.
- GHOSHAL S., BARTLETT C.A. (1994), "Linking organizational context and managerial action: The dimensions of quality of management", *Strategic management journal*, vol. 15, n. 2, pp. 91-112.
- GOMEZELJ D.O. (2016), "A systematic review of research on innovation in hospitality and tourism", *International Journal of Contemporary Hospitality Management*, vol. 28, n. 3, pp. 516-558
- HARDY A., BEETON R.J., PEARSON L. (2002), "Sustainable tourism: An overview of the concept and its position in relation to conceptualisations of tourism", *Journal of sustainable tourism*, vol. 10, n. 6, pp. 475-496.
- HJALAGER A.M. (2010), "A review of innovation research in tourism", *Tourism management*, vol. 31, n. 1, pp. 1-12.
- HJALAGER A.M. (2015), "100 innovations that transformed tourism", *Journal of Travel Research*, vol. 54, n. 1, pp. 3-21.
- INKPEN A.C., TSANG E W. (2005), "Social capital, networks, and knowledge transfer", *Academy of management review*, vol. 30, n. 1, pp. 146-165.
- ISENBERG D.J. (2010), "How to start an entrepreneurial revolution", *Harvard Business Review*, vol. 88, n. 6, pp. 40-50.
- JOHANNISSON B. (2011), "Towards a practice theory of entrepreneuring", *Small business economics*, vol. 36, n. 2, pp. 135-150.
- KURATKO D.F., FISHER G., BLOODGOOD J.M., HORNSBY J.S. (2017), "The paradox of new venture legitimation within an entrepreneurial ecosystem", *Small Business Economics*, vol. 49, n. 1, pp. 119-140.
- LIU J., QU H., HUANG D., CHEN G., YUE X., ZHAO X., LIANG Z. (2014), "The role of social capital in encouraging residents' pro-environmental behaviors in community-based ecotourism", *Tourism Management*, vol. 41, pp. 190-201.
- MACBETH J., CARSON D., NORTHCOTE J. (2004), "Social capital, tourism and regional development: SPCC as a basis for innovation and sustainability", *Current Issues in Tourism*, vol. 7, n. 6, pp. 502-522.
- MALECKI, E. J. (2011), "Connecting local entrepreneurial ecosystems to global innovation networks: open innovation, double networks and knowledge integration", *International Journal of Entrepreneurship and Innovation Management*, vol. 14, n. 1, pp. 36-59.
- MULGAN G., TUCKER S., ALI R., SANDERS B. (2007). *Social innovation: What it is, why it matters and how it can be accelerated*, Oxford, UK: Working Paper Series. Skoll Centre for Social Entrepreneurship, Oxford
- NAPIER G., HANSEN C. (2011), "Ecosystems for young scalable firms", *FORA Group*.
- NESPOLO D., FACHINELLI A.C., FORTES V.M.M., MILAN G.S., CAMARGO M.E. (2018), "Knowledge-based development from the citizen's perspective: a study from Southern Brazil", *International Journal of Knowledge-Based Development*, vol. 9, n. 1, pp. 6-22.
- POLLICE F., RINELLA A., RINELLA F., EPIFANI F. (2019), "C'era una volta... e c'è ancora»: la narrazione dell'autenticità nel progetto «Comunità Ospitali» dell'Asso-ciazione «Borghi autentici d'Italia»
- PRATT M.G. (2009), "From the editors: For the lack of a boilerplate: Tips on writing up (and reviewing) qualitative research", *Academy of management journal*, vol. 52, n. 5, pp. 856-862.
- PUTNAM R. (1993), "The prosperous community: Social capital and public life", *The American prospect*, vol. 4 n. 13
- RACHERLA P., HU C., HYUN M.Y. (2008), "Exploring the role of innovative technologies in building a knowledge-based destination", *Current issues in tourism*, vol. 11 n. 5, pp. 407-428.
- SALAZAR N.B. (2012), "Community-based cultural tourism: Issues, threats and opportunities", *Journal of Sustainable Tourism*, vol. 20, n. 1, pp. 9-22.
- SANZO-PEREZ M.J., ÁLVAREZ-GONZÁLEZ L.I., REY-GARCÍA M. (2015), "How to encourage social innovations: a resource-based approach", *The Service Industries Journal*, vol. 35, n. 7-8, pp. 430-447.
- SIGGELKOW N. (2007), "Persuasion with case studies", *Academy of Management Journal*, vol. 50, n. 1, pp. 20-24.
- STAM E. (2015), "Entrepreneurial ecosystems and regional policy: a sympathetic critique", *European Planning Studies*, vol. 23, n. 9, pp. 1759-1769.
- STEYAERT C., KATZ J. (2004), "Reclaiming the space of entrepreneurship in society: geographical, discursive and social dimensions", *Entrepreneurship & regional development*, vol. 16, n. 3, pp. 179-196.

- STONE L.S., STONE T.M. (2011), "Community-based tourism enterprises: challenges and prospects for community participation; Khama Rhino Sanctuary Trust, Botswana", *Journal of Sustainable Tourism*, vol. 19, n.1, pp. 97-114.
- SUSSAN F., ACS Z.J. (2017), "The digital entrepreneurial ecosystem", *Small Business Economics*, vol. 49, n.1, pp. 55-73.
- TRUNFIO M, CAMPANA S. (2020), "Innovation in knowledge-based destination: technology-driven vs. social-driven", *Int. J. Knowledge-Based Development*, vol. 11, n. 2, pp. 176-199
- TRUNFIO M., CAMPANA S. (2019), "Drivers and emerging innovations in knowledge-based destinations: Towards a research agenda.", *Journal of Destination Marketing & Management*, vol. 14, 100370.
- WANG Y., RAJAGOPALAN N. (2015), "Alliance capabilities: review and research agenda", *Journal of management*, vol. 41, n. 1, pp. 236-260.
- YIN R.K. (2003), "Designing case studies", *Qualitative Research Methods*, vol. 5, n. 14, pp. 359-386.

Consumers' willingness to pay for olive oil with sustainability characteristics: A review

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Organic foodstuffs have become the core sustainable alternative to conventional food consumption. Sustainability is considered a significant element for realizing a successful food strategy, consumer behavior as part of a broader sustainability promotion strategy, and consumer preference for sustainable foodstuffs. This change in consumer habits is even more evident concerning olive oil, considering the increased attention to the quality of the product, and the food security. This review article aims to identify the state of the art in consumers' willingness to pay (WTP) towards olive oil with sustainability characteristics by providing future research directions based on the analysis.

Framing of the research. *The increasing consumers' awareness of health, food safety, environmental, and sustainability issues (Stefano et al., 2002; Hartmann et al., 2018; Filieri et al., 2021) has resulted in more conscious consumers about the ingredients and origin of the products they buy and consume (Ghvanidze et al., 2016; Hsu et al., 2016). This increased awareness has led consumers to change their purchasing and consumption decision-making processes, encouraging them to adopt more sustainable behaviors and opt for organic food consumption (Stubbs et al., 2018). Thus, organic and sustainable food and drink options are increasing (Rana and Paul, 2017), and concerns around chemicals, pesticides, and fertilizers and ethical considerations around animal welfare also drive this behavior (Wee et al., 2014). In the last three decades, there has been a consistent growth in the global market for the production and consumption of organic products (Willer and Lernoud, 2018). According to the Research Institute of Organic Agriculture (FiBL 2021), state-of-the-art of organic agriculture shows that 2020 was one more good year for global organic agriculture¹. From the consumers' perspective, the perception that organic products are sustainable and more environmentally friendly (Ghvanidze et al., 2016), have superior sensory qualities (Waldrop and McCluskey, 2019), and are healthier (Roman et al., 2017) than their conventional equivalents led to a positive consumer behavior toward organic food (Jorge et al., 2020).*

This change in consumer habits is even more evident concerning olive oil, considering the increased attention to the quality of the product (Pagliuca and Scarpato, 2011) and the food security (Tsakiridou et al., 2006). Olive oil is the principal edible oil of the Mediterranean states (e.g., Spain, Italy, and Greece) and an essential commodity in other countries such as Chile, New Zealand, and the USA (Aparicio and García-González, 2013). The European Union, is the largest manufacturer, consumer, and exporter, producing around 67% of the world's olive oil (European Commission, 2021)². According to the Centre for the Promotion of Imports from developing countries (CBI, 2022), the consumption of organic olive oil is growing. Additionally, considering that the olives cover 1/3 of the organic crop area in Europe, organic olive oil production is expected to increase in the short term³.

Purpose of the paper. *Organic foodstuffs have become the core sustainable alternative to conventional food consumption (Seyfang, 2006). Previous studies have shown different food attributes that consumers recognize in organic food (e.g., De Magistris and Gracia, 2008), such as food safety (Curl et al., 2013), healthiness (Hamilton and Hekmat, 2018), and environmental protection (Schäufele and Hamm, 2018). In particular, sustainability is considered a significant element for realizing a successful food strategy (Goggins, 2018), consumer behavior as part of a broader sustainability promotion strategy (Davies et al., 2014), and consumer preference for sustainable foodstuffs (Chen et al., 2020).*

Previous research has investigated the effects on consumers' attitudes, intentions, and dispositions regarding sustainable products such as organic olive oil. Tsakiridou et al. (2006) provide evidence that the quest for organic olive oil is meaningfully affected by socioeconomic aspects (i.e., income size and occupation status) and, to a smaller level, by attitudes towards organic products (e.g., concerns about chemical residues), food safety, sustainable and environmental issues. With the aim to investigate the consumers' satisfaction with the organic olive oil, Sandalidou et

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¹ <https://www.fibl.org/fileadmin/documents/shop/1344-organic-world-2022.pdf>

² https://ec.europa.eu/info/food-farming-fisheries/plants-and-plant-products/plant-products/olive-oil_en

³ <https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/olive-oil/market-potential>

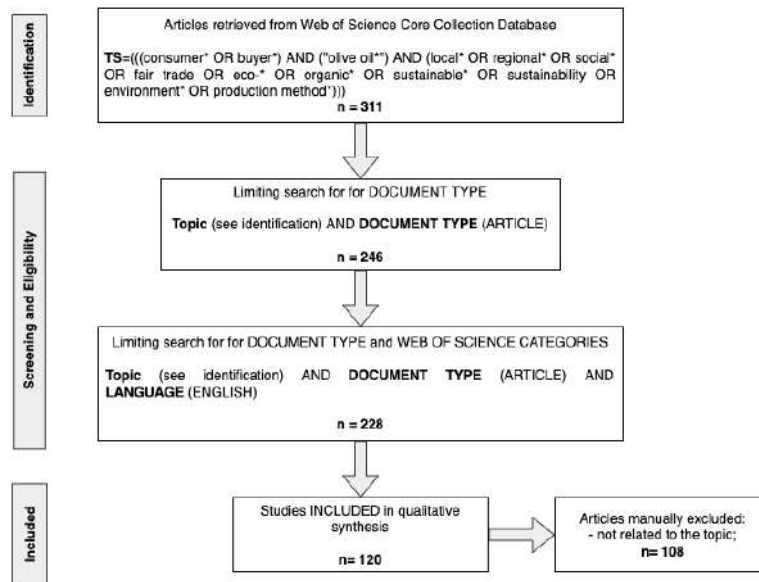
al. (2002) provided evidence that health issues were considered the main competitive advantage of organic olive oil, while disposition and promotion appeared to be its most significant weaknesses. Moreover, also price and packaging were found to have a significant impact on the consumers' satisfaction with organic olive oil (Sandalidou et al., 2002). The organic character of a foodstuff (i.e., without aggressive chemical actions and any residue) leads to more significant consumers' willingness to pay for the product (Ghali, 2020). Especially for organic olive oil, consumers are willing to pay an extra price premium (Marozzo et al., 2021). Gil and Soler (2006) provided evidence that consumer attitudes (e.g., towards food safety, environment, and labeling) and consumers' knowledge (e.g., about organic food) affect the decision to pay a premium for organic olive oil.

Building upon the evidence in the literature, our review aims to clarify the drivers of consumers' willingness to pay for a sustainable product, specifically concerning the organic olive oil, by systematizing existing studies and providing future research directions based on the analysis.

Methodology. To answer our research question in the present study, we implemented a mixed methodology based on a preliminary bibliometric analysis of the publications selected and a more fine-grained qualitative analysis of the contents. Both bibliometric and content measurements have been performed by relying on the free R-Package Bibliometrix (Aria & Cuccurullo, 2017)⁴. This approach offers higher affordable findings concerning the classic approaches implemented in systematic literature reviews since those increase the risk of researchers' bias due to their pre-defined narrative design (Gölgeci et al., 2022). Also, the consequent exercise of content analysis has been performed by manually screening the publications to disentangle the composition of the different research avenues linked to the purpose of our study.

The data for this study have been retrieved by accessing the Thomson Reuters' Web of Science (WoS) Core Collection database. Even if we recognize that there is a large number of bibliometric databases available, we consider suitable the use of WoS since it is widely used and accepted for its extensive collection of prominent journals and distinguished peer-reviewed papers, and it appears as a resource in previous studies (Aria et al., 2020; Crupi et al., 2020). The data was retrieved⁵ using a step-by-step process. We identified the different keywords and searched queries for our search strategy as the first step. In the second step, we manually screened the results to define the most inclusive definitive research query: Query: TS=((consumer* OR buyer*) AND ("olive oil*") AND (local* OR regional* OR social* OR fair trade OR eco-* OR organic* OR sustainable* OR sustainability OR environment* OR production method*)), where "TS" indicates the field "Topic" identified by WoS as: "Title, Abstract, Keywords and Keywords Plus". Since our research strategy assumed a broad perspective, during the third step, we filtered our results and reduced the initial 311 publications to 228 by only considering the publications under the "article" form published in English.

Fig. 1: Diagram of the process of selection and screening of the articles' dataset



We avoided filtering according to the Web of Science Categories to have a more comprehensive view of the ongoing debate. Finally, we manually checked the content of each article in the database to verify its consistency with the topic investigated. We excluded the publications clearly out of topic and those not strictly related to the present study's aim, such as the article regarding the chemical composition or ingredients of the olive oil or those related to the cultivation

⁴ "The bibliometrix R-package (<http://www.bibliometrix.org>) provides a set of tools for quantitative research in bibliometrics and scientometrics. It is written in the R language, which is an open-source environment and ecosystem. The existence of substantial, effective statistical algorithms, access to high-quality numerical routines, and integrated data visualization tools are perhaps the strongest qualities to prefer R to other languages for scientific computation." (Aria and Cuccurullo, 2017, pp. 963).

⁵ Date of download: February 10, 2022.

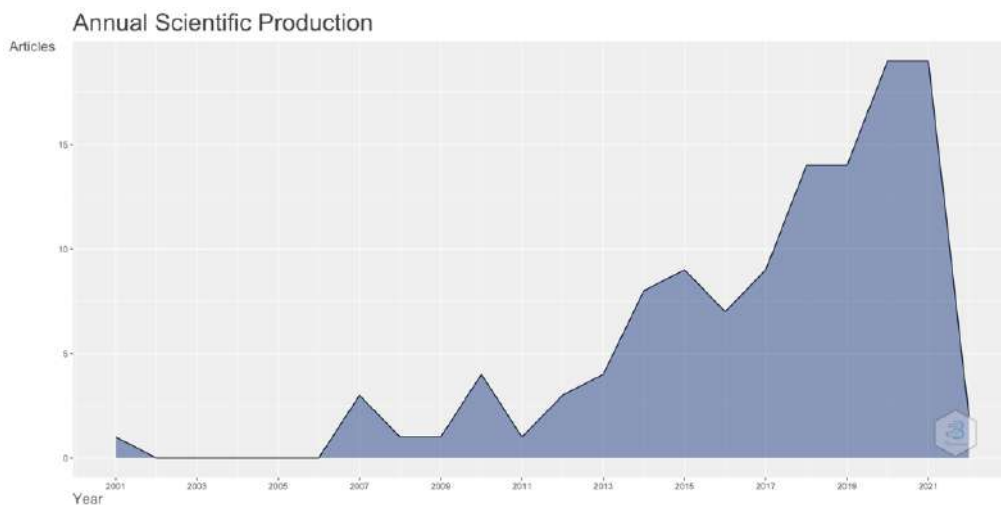
of the olives. The entire database, composed of 120 publications, contains information about the publication year, title, keywords, keywords plus, authors, source title, DOI, scientific category, and references, has been harmonized and organized using excel to perform the quantitative analysis thanks to the use of Bibliometrix R-package. Figure 1 shows the flow of the strategic pattern implemented in the articles' selection process.

Results. Table 1 synthesizes some general quantitative information about the selected dataset. On average, the 120 documents included in our sample have been cited 18.57 times from 2001 to 2022. They appeared in 60 different journals and were written by 383 authors, counting a mean of 0.313 articles per author. Interestingly, the single-authored documents are only 9, and the average of authors per document is 3.19. As shown in Figure 2, the annual scientific production is constantly growing with an annual growth rate of 4.43%, confirming the academic community's rising interest in the topics. Moreover, starting from 2016, the attention of the scholars grew exponentially, reaching a peak in 2020 and 2021 (see Figure 2).

Tab. 1: Main information about bibliometric analysis

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2001:2022
Sources (Journals, Books, etc)	60
Documents	120
Average years from publication	4,93
Average citations per document	18,57
Average citations per year per doc	2,511
References	6093
DOCUMENT TYPES	
article	116
article; book chapter	1
article; early access	1
article; proceedings paper	2
DOCUMENT CONTENTS	
Keywords Plus (ID)	428
Author's Keywords (DE)	439
AUTHORS	
Authors	383
Author Appearances	453
Authors of single-authored documents	9
Authors of multi-authored documents	374
AUTHORS COLLABORATION	
Single-authored documents	9
Documents per Author	0,313
Authors per Document	3,19
Co-Authors per Documents	3,77
Collaboration Index	3,37

Fig. 2: Annual scientific production of the selected articles



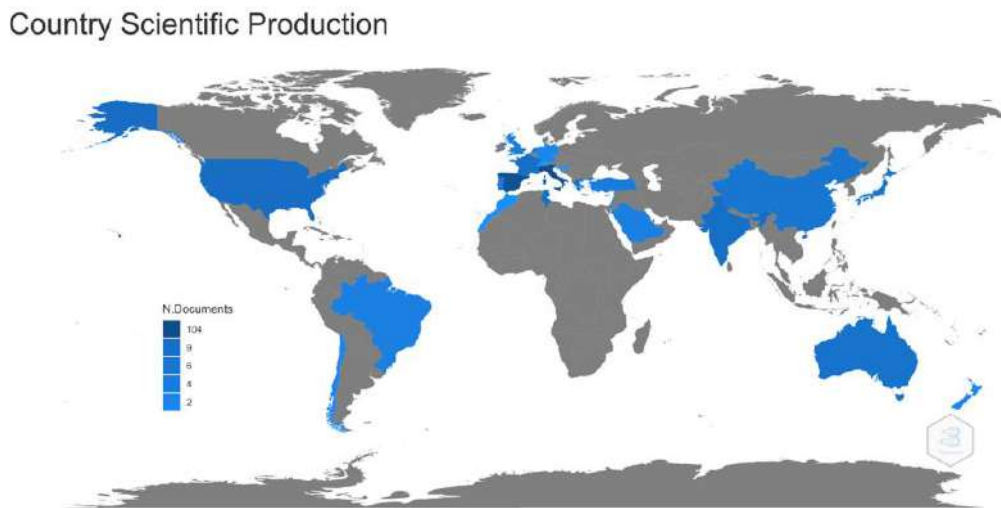
The analysis at the country level in terms of scientific production indicates that the topic captures the interest of scholars all around the World. As shown in Figure 3, the topic is mainly addressed in Europe and the Mediterranean

basin, as demonstrated by authors from Morocco, Tunisia, Turkey, and Greece. This observation is in line with the expectations if we consider the Mediterranean diet and the climate conditions related to olive oil consumption. It is interesting to notice the rising interest in Eastern countries such as India, China, and Japan. Specifically, Italy leads with 104 articles published in terms of scientific production, followed by Spain (65) and Greece, Tunisia, and the US (10). In contrast, in terms of citations, Italy has reported the highest (with 784 citations and a mean per article of 16.70), followed by Spain (564 citations and a mean of 16.6) and the Netherlands, which received 211 on a single published article (Table 2). The University of Jaén in Spain is the most productive institution with 16 articles published, followed by the University of Castilla La Mancha in Spain and the University of Naples Federico II in Italy with 10 and 8 articles published, respectively.

Tab. 2: The 20 productive countries and citations per country

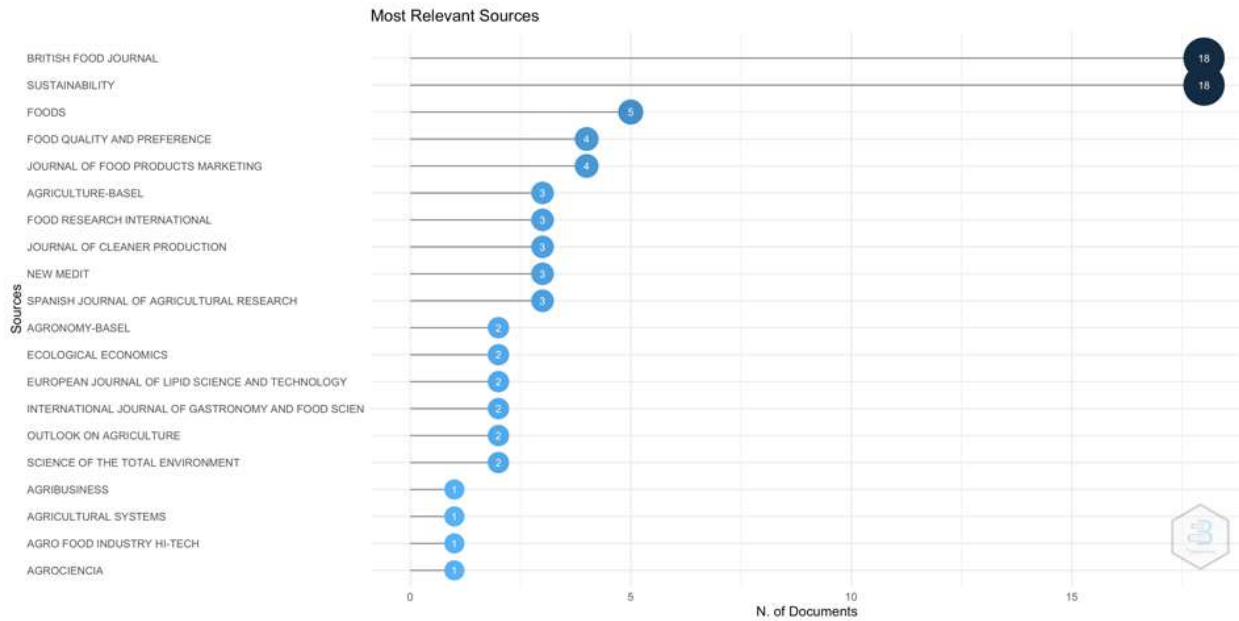
Country	Total Citations	Average Article Citations
ITALY	784	16,7
SPAIN	564	16,6
NETHERLANDS	211	211
AUSTRALIA	165	55
GREECE	143	28,6
USA	122	24,4
FRANCE	87	29
SAUDI ARABIA	39	19,5
TURKEY	21	7
CANADA	20	20
TUNISIA	20	10
PORTUGAL	14	14
GERMANY	13	6,5
LEBANON	8	8
CHINA	6	2
CROATIA	4	4
JAPAN	4	4
INDIA	2	1
NEW ZEALAND	1	1
BRAZIL	0	0

Fig. 3: Country of origin of published article production



The analysis of the most productive sources is shown in Figure 4, which reports the 20 most prolific journals in the sample. There is a relevant gap between the first two sources and the remaining journals in the rank. British Food Journal and Sustainability lead this rank with 18 articles each, followed by Foods with 5 documents. The sources' rank shows that the topic addressed in the study has a clear cross-domain coverage that includes the interdisciplinary sources focused on food science, business and management, and environmental science (i.e., British Food Journal, Sustainability, Journal of Food Products Marketing, and Journal of Cleaner Production), and more specialized sources in foods science (i.e., Foods and Food Research International) or in agriculture (i.e., Agriculture-Basel and Agronomy-Basel). The wide range of sources demonstrates that consumers' olive oil consumption is pushed by different drivers and motivations related to health, sustainability, production techniques, and marketing strategies.

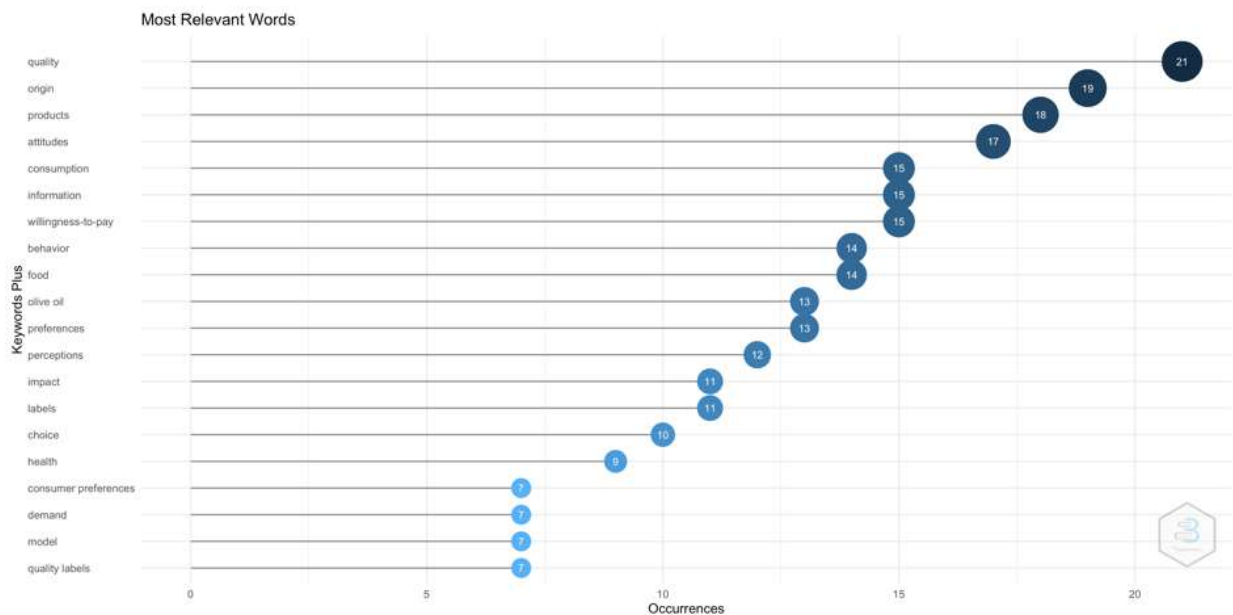
Fig. 4: Top 20 productive sources



Content Analysis

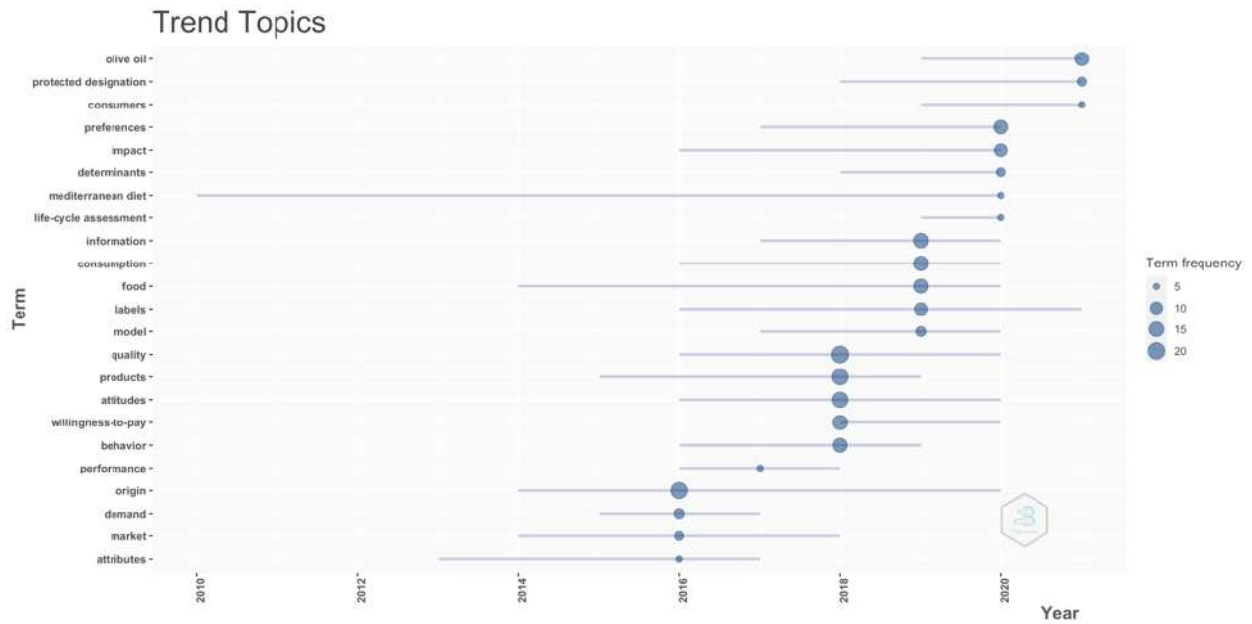
Analyzing the keywords plus frequencies (Figure 5) denotes the emergence of different themes related to the consumers' willingness to pay for organic olive oil. The most addressed topic is the quality (21) of the products (18) and their origins that attract consumers. The attention demonstrated towards the information (15) and the labels (11) is also worthy of notice. This analysis further confirms the interdisciplinarity nature of the topic addressed here that, on the one hand, includes the productions' techniques and origins, and on the other hand focuses on the marketing side with the adequate visibility of the product's quality.

Fig. 5: Top 20 most frequent Keywords Plus



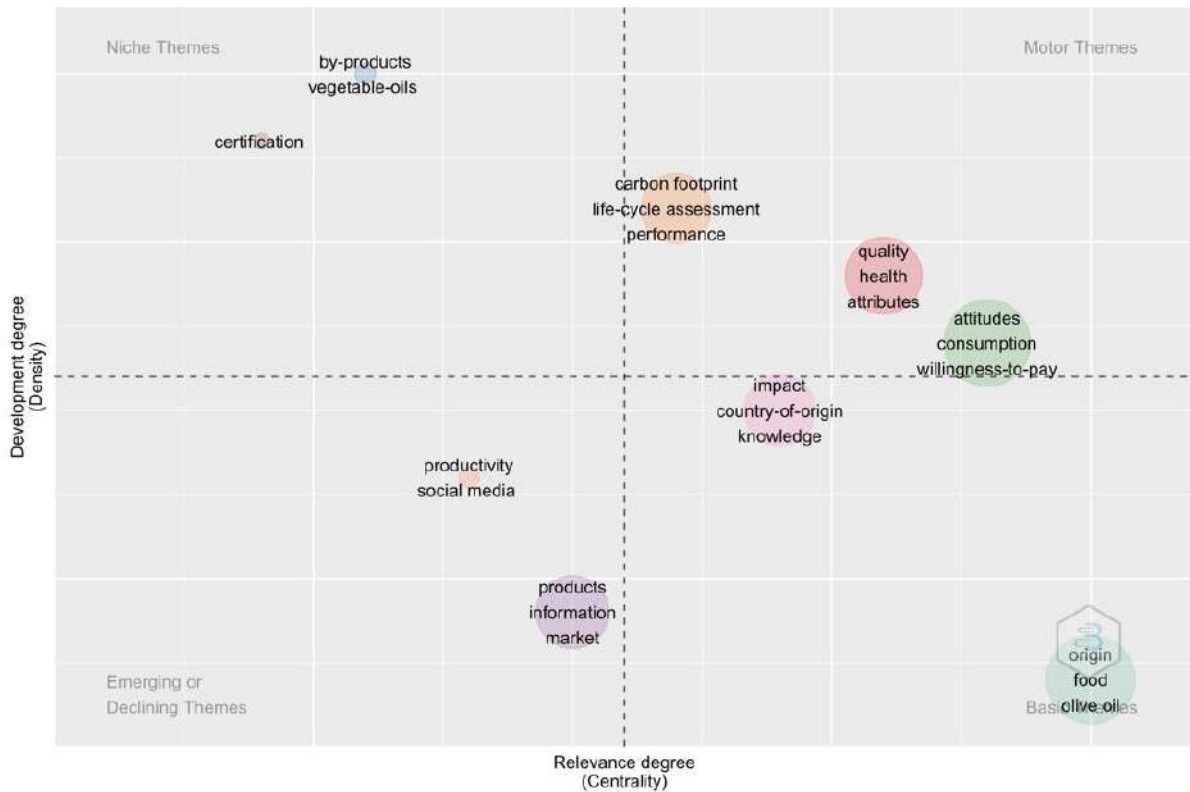
However, those trends evolved, reflecting the mutable trend-setting dynamics that shape the interests of consumers. By looking at the evolution of the topics (Figure 6), it emerges that the "Mediterranean diet" transversally collected studies' interest from 2010 to 2020, and it is, among the most 20 relevant keywords plus, the only one with such a broad timespan. Moreover, studies are recently focusing on "protected designation", "consumers", "origins", and "labels" that demonstrate the rising consumers' attention toward the production cycle and the origin of the olive oil.

Fig. 6: Time evolution of the topics according to the Keywords Plus frequencies over the years



Finally, the analysis of the conceptual structure (Figure 7) shows how the documents in the set have developed the main tendencies. The thematic map generated by such analysis displays in a two-by-two matrix the different themes tackled. The two analyzed dimensions, the centrality that embodies the theme's importance in the analyzed set and the density that graphically represents the theme's evolution, define four quadrants. The one on the upper-right side groups well-addressed and relevant themes that contributed to the evolution of the theory. Instead, the quadrant on the upper-left side collects dedicated themes. The lower-left quadrant, in turn, gathers themes still immature or less relevant. Lastly, the lower-right quadrant collects important but still under-developed themes.

Fig. 7: Thematic map



Accordingly, the thematic analysis illustrates that the literature is developing by following three main trajectories. The first one is determined by the attention toward the sustainability that encompasses the life-cycle assessment and the impact of the carbon footprint for the production in terms of chemical fertilizer use and production techniques to reduce

energy consumption. The second trajectory focuses on the health and the quality of olive oil in terms of organoleptic characteristics and chemical composition as the basic ingredient of the Mediterranean diet. Finally, the third trajectory focuses on the consumers' behavior in terms of purchase attitude and their perception of the importance of organic food. It is also worthy to notice the rising importance, from basic to motor themes, of the attention toward the geographic aspect ("country-of-origin") and the knowledge embedded in terms of olive oil production and use for the promotion of more sustainable cultivation and extraction techniques and a more responsible food consumption.

Table 3 synthesizes the most significant publications identified according to every single trajectory as a preliminary exercise for more detailed analysis in order to exhaustively disentangle the future research avenues.

Tab. 3: Synthesis of the most significant publications and relative findings according to each trajectory

Trajectory	Paper	Main Issue Addressed
Sustainability	Arvanitoyannis et al., 2007	Sustainable olive oil thermal waste treatment
	Navarro et al., 2018	Olive oil packaging life cycle and its environmental impact
	Corrado et al., 2019	Assessment of the impact generated by the consumption choices and behavior on the greenhouse gas emissions generated by three balanced dietary patterns (omnivorous, vegetarian and vegan).
Health	Clodoveo et al., 2010	Analysis of the evolution of the consumers' demand at the restaurant for more healthy, sustainable and high-quality products with a specific focus on olive oil.
	Rizzo et al., 2020	Investigation of consumers' preferences to buy organic extra virgin oil intended as a more sustainable alternative to conventional food consumption.
	Formoso et al., 2020	Proposition of a small-scale approach that involves experts in science and marketing to promote the consumption of tomato sauce and extra virgin olive oil is characterized as high-quality products (no chemical contaminants and ecological production) for human and environmental health.
Consumers' behavior	Aprile et al., 2012	Assessment of consumers' preferences that shows respondents' willingness to pay the highest premium price for a product with a PDO label, followed by an organic farming label, a quality cue describing the product as extra-virgin olive oil and then a PGI label.
	Tempesta and Vecchiato, 2019	Analysis of the demand for extra virgin olive oil of consumers according to given characteristics such as the place of production, the designation of origin, the organic certification, the type of transformation, and the traditional cultivation of olive trees.
	Cappelli et al., 2020	Investigation regarding consumer preferences towards Made in Italy food products that confirms the willingness to pay for Made in Italy products linked with the willingness to pay a premium price according to a higher education degree.

Research limitations. Like the other studies of this kind, the present methodological exercise is affected by the classical limitations determined by its descriptive nature. The effort of linking the avenues is a qualitative exercise determined by the quantitative results of the bibliometric analysis, thus it is affected by authors' biases and perspectives. Also, this study fails in explaining previous studies' divergent results since it is beyond the paper's scope and aim. Finally, regardless of the effort made to collect the most extensive literature possible, authors cannot guarantee that the study offers the largest perspective possible. Also, it does not intend to be prescriptive in the identification of the future trajectories but only aims to suggest possible theoretical developments.

Managerial implications. This study can help to provide valuable insights to retailers and producers of sustainable and organic food. Companies should constantly improve their production processes with the aim of reducing their impact on the environment as much as possible, for example, by using energy-efficient production techniques. At the same time, the sustainable character in terms of organic production (i.e., without the use of chemicals and fertilizers) should be emphasized and better communicated to the consumer how to reassure him about product quality and food safety. A communication strategy through packaging (e.g., front-of-pack label) that emphasizes the salient aspects of sustainable and organic production could be interesting.

Originality of the paper. This study investigates which are the main drivers that impact consumers' willingness to pay when they choose and buy sustainable and organic food, such as organic olive oil.

Keywords: sustainability; organic olive oil; willingness to pay; Mediterranean diet; Bibliometric literature review.

References

APARICIO R., GARCÍA-GONZÁLEZ D.L. (2013), "Olive Oil Characterization and Traceability", In: Aparicio R., Harwood J. (eds) *Handbook of Olive Oil*. Springer, Boston, MA

APRILE M.C., CAPUTO V., NAYGA JR, R.M. (2012), "Consumers' valuation of food quality labels: the case of the European geographic indication and organic farming labels", *International Journal of Consumer Studies*, vol. 36, n. 2, pp. 158-165.

ARIA M., CUCCURULLO C. (2017), "Bibliometrix: An R-tool for comprehensive science mapping analysis", *Journal of informetrics*, vol. 11, n. 4, pp. 959-975.

- ARVANITOYANNIS I.S., KASSAVETI A., STEFANATOS S. (2007), "Current and potential uses of thermally treated olive oil waste", *International journal of food science & technology*, vol. 42, n. 7, pp. 852-867.
- CAPPELLI L., D'ASCENZO F., AREZZO M.F., RUGGIERI R., GORELOVA I. (2020), "The willingness to pay in the food sector. Testing the hypothesis of consumer preferences for some made in Italy products", *Sustainability*, vol. 12, n. 15, pp. 6275.
- CHEN X., GAO Z., MCFADDEN B.R. (2020), "Reveal preference reversal in consumer preference for sustainable food products", *Food Quality and Preference*, vol. 79, p. 103754.
- CLODOVEO M.L., CORBO F., TSIAMI A. (2020), "Gastronomic cultural EVOOolution of the virgin olive oil consumption model at the restaurant", *International Journal of Gastronomy and Food Science*, vol. 22, p. 100238.
- CORRADO S., LUZZANI G., TREVISAN M., LAMASTRA L. (2019), "Contribution of different life cycle stages to the greenhouse gas emissions associated with three balanced dietary patterns", *Science of the Total Environment*, vol. 660, pp. 622-630.
- CRUPI A., CESARONI F., DI MININ A. (2020), "Understanding the impact of intellectual capital on entrepreneurship: a literature review", *Journal of Intellectual Capital*, vol. 22, n. 3, pp. 528-559.
- CURL C.L., BERESFORD S.A., HAJAT A., KAUFMAN J.D., MOORE K., NETTLETON J.A., DIEZ-ROUX A.V. (2013), "Associations of organic produce consumption with socioeconomic status and the local food environment: Multi-Ethnic Study of Atherosclerosis (MESA)", *PloS one*, vol. 8, n. 7, pp. e69778.
- DAVIES A.R., FAHY F., RAU H. (2014), *Challenging Consumption*, Abingdon: Routledge.
- DE MAGISTRIS T., GRACIA A. (2008), "The decision to buy organic food products in Southern Italy", *British Food Journal*, vol. 110, n. 9, pp. 929-947.
- FILIERI R., JAVORNIK A., HANG H., NICETA A. (2021), "Environmentally framed eWOM messages of different valence: The role of environmental concerns, moral norms, and product environmental impact", *Psychology & Marketing*, vol. 38, n. 3, pp. 431-454.
- FORMOSO G., PIPINO C., BALDASSARRE M. P.A., DEL BOCCIO P., ZUCHELLI M., D'ALESSANDRO N., DI PIETRO N. (2020), "An Italian innovative small-scale approach to promote the conscious consumption of healthy food", *Applied Sciences*, vol. 10, n. 16, pp. 5678.
- GHALI Z.Z. (2020), "Effect of utilitarian and hedonic values on consumer willingness to buy and to pay for organic olive oil in Tunisia", *British Food Journal*, vol. 122, n. 4, pp. 1013-1026
- GHVANIDZE S., VELIKOVA N., DODD T.H., OLDEWAGE-THERON W. (2016), "Consumers' environmental and ethical consciousness and the use of the related food products information: The role of perceived consumer effectiveness", *Appetite*, vol. 107, pp. 311-322.
- GIL J.M., SOLER F. (2006), "Knowledge and willingness to pay for organic food in Spain: Evidence from experimental auctions", *Acta Agriculturae Scand Section C*, vol. 3, n. 3-4, pp. 109-124.
- GOGGINS G. (2018), "Developing a sustainable food strategy for large organizations: The importance of context in shaping procurement and consumption practices", *Business Strategy and the Environment*, vol. 27, n. 7, pp. 838-848.
- GÖLGEÇI I., ALI I., RITALA P., ARSLAN A. (2022), "A bibliometric review of service ecosystems research: current status and future directions", *Journal of Business & Industrial Marketing*, vol. 37, n. 4, pp. 841-858.
- HAMILTON K., HEKMAT S. (2018), "Organic food and university students: a pilot study", *Nutrition & Food Science*, vol. 48, n. 2, pp. 218-227.
- HARTMANN C., RUBY M.B., SCHMIDT P., SIEGRIST M. (2018), "Brave, health-conscious, and environmentally friendly: Positive impressions of insect food product consumers", *Food Quality and Preference*, vol. 68, pp. 64-71.
- HSU S.Y., CHANG C.C., LIN T.T. (2016), "An analysis of purchase intentions toward organic food on health consciousness and food safety with/under structural equation modeling", *British Food Journal*, vol. 118, n. 1, pp. 200-216.
- HUGHNER R.S., MCDONAGH P., PROTHERO A., SHULTZ C.J., STANTON J. (2007), "Who are organic food consumers? A compilation and review of why people purchase organic food", *Journal of Consumer Behaviour: An International Research Review*, vol. 6, n. 2-3, pp. 94-110.
- JORGE E., LOPEZ-VALEIRAS E., GONZALEZ-SANCHEZ M.B. (2020), "The role of attitudes and tolerance of ambiguity in explaining consumers' willingness to pay for organic wine", *Journal of Cleaner Production*, vol. 257, 120601.
- MAROZZO V., VARGAS-SÁNCHEZ A., ABBATE T., D'AMICO A., LA ROCCA E.T. (2021), "Perceptions and Implications of Product Sustainability and Product Authenticity in the Agri-food Sector: The Case of Organic Olive Oil in Spain", *Micro & Macro Marketing*, vol. 30, n. 1, pp. 113-140.
- NAVARRO A., PUIG R., MARTÍ E., BALA A., FULLANA-I-PALMER P. (2018), "Tackling the relevance of packaging in life cycle assessment of virgin olive oil and the environmental consequences of regulation", *Environmental management*, vol. 62, n. 2, pp. 277-294.
- PAGLIUCA M.M., SCARPATO D. (2011), "Food quality, consumer perception and preferences: An analysis on olive oil", *Electronic Journal of Applied Statistical Analysis*, vol. 4, n. 2, pp. 215-226.
- PEARSON D., HENRYKS J., JONES H. (2011), "Organic food: What we know (and do not know) about consumers", *Renewable Agriculture and Food Systems*, vol. 26, n. 2, pp. 171-177.

- RANA J., PAUL J. (2017), "Consumer behavior and purchase intention for organic food: A review and research agenda", *Journal of Retailing and Consumer Services*, vol. 38, pp. 157-165.
- RIZZO G., BORRELLO M., DARA GUCCIONE G., SCHIFANI G., CEMBALO L. (2020), "Organic food consumption: The relevance of the health attribute", *Sustainability*, vol. 12, n. 2, pp. 595.
- ROMAN S., SÁNCHEZ-SILES L.M., SIEGRIST M. (2017), "The importance of food naturalness for consumers: Results of a systematic review", *Trends in food science & technology*, vol. 67, pp. 44-57.
- SANDALIDOU E., BAOURAKIS G., SISKOS Y. (2002), "Customers' perspectives on the quality of organic olive oil in Greece: A satisfaction evaluation approach", *British Food Journal*, vol. 104, n. 3-5, pp. 391-406.
- SCHÄUFELE I., HAMM U. (2017), "Consumers' perceptions, preferences and willingness-to-pay for wine with sustainability characteristics: A review", *Journal of Cleaner production*, vol. 147, pp. 379-394.
- SCHÄUFELE I., HAMM U. (2018), "Organic wine purchase behaviour in Germany: Exploring the attitude-behaviour-gap with data from a household panel", *Food Quality and Preference*, vol. 63, pp. 1-11.
- SEYFANG G. (2006), "Ecological citizenship and sustainable consumption: Examining local organic food networks", *Journal of rural studies*, vol. 22, n. 4, pp. 383-395.
- STEFANO F.D., CICIA G., VERNEAU F., CEMBALO L. (2002), "The economic impact of transgenic crop liberalisation on Italian agro-food system", *PAGRI-Politica Agricola Internazionale*, vol. 1, n. 2, pp. 21-52.
- STUBBS R.J., SCOTT S.E., DUARTE C. (2018), "Responding to food, environment and health challenges by changing meat consumption behaviors in consumers", *Nutrition Bulletin*, vol. 43, n. 2, pp. 125-134.
- TEMPESTA T., VECCHIATO D. (2019), "Analysis of the factors that influence olive oil demand in the Veneto Region (Italy)", *Agriculture*, vol. 9, n. 7, pp. 154.
- TSAKIRIDOU E., MATTAS K., TZIMITRA-KALOGIANNI I. (2006), "The influence of consumer characteristics and attitudes on the demand for organic olive oil", *Journal of International Food & Agribusiness Marketing*, vol. 18, n. 3-4, pp. 23-31.
- WALDROP M.E., MCCLUSKEY J.J. (2019), "Does information about organic status affect consumer sensory liking and willingness to pay for beer?", *Agribusiness*, vol. 35, n. 2, pp. 149-167.
- WEE C.S., ARIFF M.S.B.M., ZAKUAN N., TAJUDIN M.N.M., ISMAIL K., ISHAK N. (2014), "Consumers perception, purchase intention and actual purchase behavior of organic food products", *Review of Integrative Business and Economics Research*, vol. 3, n. 2, pp. 378.
- WILLER H., LERNOUD J. (2018), *The world of organic agriculture. Statistics and emerging trends 2018*, Research Institute of Organic Agriculture FiBL and IFOAM - Organics International, Frick and Bonn.
- YANGUI A., COSTA-FONT M., GIL J.M. (2016), "The effect of personality traits on consumers' preferences for extra virgin olive oil", *Food Quality and Preference*, vol. 51, pp. 27-38.

Countervailing effects in hybrid consumption

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Framing of the research. *The structural changes that have affected the markets over the last decades have produced numerous effects that are not yet fully known. While many marketing scholars have focused their attention on studies of consumer behavior, marketers have faced changes and the varying, greater, or lesser, the effectiveness of strategies and actions. The concept of value has become predominant and one of the most representative keywords in marketing. Marketing scholars and practitioners emphasize the central role of customer perceived value, the overall assessment by customers of the utility of an offer, in impacting their purchasing decisions.*

The offer evaluation by the consumer can be seen as a function of perceived benefits, costs, and risks (Wood and Scheer, 1996). The value of the purchase for the customer is therefore the comparison between total benefits and total costs (Zeithaml, 1988). The perceived risk is also related to decision-making uncertainty and the negative consequences associated with a purchase error. Low risk does not necessarily have a high perceived value simply because the benefits are not worth the total costs. Perceived value marketing studies consistently see it as a major determinant of purchasing decisions (Dodds et al., 1991; Zeithaml, 1988). Several marketing studies also believe that perceived risk is an important variable to examine with respect to perceived value (e.g., Agarwal and Teas, 2001; Chen and Dubinsky, 2003). The financial sacrifice of the consumer to acquire trading up items, as well as the high monetary outlay, contribute to the positive perception of the value of the premium and luxury offers (Shuckla et al. 2022) and influences purchase intentions. Although studies on the cost/sacrifice dimension of intentions and purchasing behavior are widespread in the marketing and management literature, according to our knowledge, there are no studies that analyze the countervailing behaviors of the cost/sacrifice that the consumer activates to cope with the trading up purchases.

The scenario, in fact, is far from being clear as other consumer behaviors have emerged such as the democratization of luxury at the end of the last century. These are behaviors that involve the purchase of products belonging to different value ranges that the consumer accesses by activating up and down trading. No longer, therefore, the democratization of luxury and trading up but also trading down in the face of new consumer behaviors and hybrid consumers (Ehnrooth and Gronroos 2016).

Consumer markets around the world have been polarizing into low- and high-end segments. Silverstein and Butman (2006) argue that consumer goods markets have been reshaped by middle-income consumers, who would trade down to low-priced products and services, while at the same time trading up to premium options, avoiding the “boring middle”, which offers little added value - that is, neither great prices nor unbeatable quality. The increase in the income of the middle-class world population in the last twenty years has redesigned consumption patterns and behaviors. The consumption of high-end, premium, or luxury goods has a certain charm, it is an aspirational consumption for the lower classes, both for those with increasing income (middle class) and for the lower-income classes, whether they are young people or adults. When the opportunity to purchase high-end or luxury goods (democratization of luxury) increases, it seems to lose its appeal and the sacrifice becomes less relevant to purchase intentions. By means of the countervailing conduct, consumers instead of deciding to purchase only mid-range alternatives in a linear manner would tend to position themselves on the extremes, realizing the same expenditure foreseen if the portion of income was entirely destined to the middle range, but with the surplus-value to be able to obtain products and services with emotional and experiential connotations in the highly significant categories (without having to be satisfied with the mid-range product in that category, but aiming for higher ranges) and minimizing quality levels for products of low subjective relevance (sacrificing the minimum quality levels guaranteed by the mid-range).

The phenomenon of trading up and down and the analysis of consumer behavior has strong empirical relevance in today's historical period as the current economic scenario shows a marked polarization of markets. Consumer markets worldwide seem to be bifurcating or undergoing polarization into low-end and high-end segments. Consumers would not purchase mid-range alternatives in a linear fashion but would tend to go to the extremes. The literature on changes in consumer behavior, exploring emerging strategies that consumers employ to maximize their satisfaction through optimal allocation of per capita income is scant compared to the intangible dimensions of consumer behavior analysis. Previous research (Silverstein and Fiske, 2003, 2005; Silverstein and Butman, 2006) analyze trading up and trading down in separate sections, instead of focusing on the combined behavior they imply. Middle and low-incomes

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consumers tend to buy products that may be priced above their purchasing power. This apparently irrational behavior, which implies exceeding the available threshold of the subjects' spending capacity, involves a surplus in monetary outlay that can be redressed through countervailing effect.

Previous research (Zhang et al., 2020) examined the determinants of consumers' purchase intentions for luxury goods. While luxury good knowledge provides cognitive control to purchase luxury goods, income acts as a financial control for consumers to purchase luxury goods.

Income is considered a controlling dimension of behavior and has a positive impact on luxury purchase intentions.

Some studies show that the profile of the low-income consumer has been changing. It is observed that it has sought to consume more sophisticated products and brands. Researchers hypothesize that this sophisticated consumer behavior by less favoured classes occurs due to self-projection and self-stereotype. In the implicit processes of attitude formation, the low-income consumer feels awe and aspires to sophistication (Bizarrias et al., 2019).

The topic of trading up and down is typically analyzed in the literature as a corporate brand extension policy. The present research questions trading up and down, analyzing it as a strategy of countervailing between savings and investments, aimed at reaching a break-even point in the individual portfolio.

In this context, the analysis of consumer behavior considers the purchasing choices made by consumers, according to their income position. The income variable - recently less considered by the scientific literature in market segmentations - in the polarization scenario assumes increasing degrees of revitalization.

Income has an impact on purchasing choices, generating differentiation in people's spending capacity. As a result, purchasing choices, which are increasingly selective, are placed at the extremes of the price continuum that characterizes the trading up-down dichotomy.

Purpose of the paper. This research aims to investigate the countervailing process activated by the consumer in the context of hybrid consumption. According to this perspective, the consumer would oscillate between trading up and trading down. The research intends to explore the process of countervailing that is activated in purchases, analyzing whether it is inherent in purely economic choices to return to equilibrium - through diversification and splitting of expenditure items between consumption in trading down and up - or whether it should also be understood as a "perceptual countervailing", driven by mechanisms of alternation between renunciation and gratification.

Methodology. The research is structured with a multiphase methodology with a quantitative analysis. A quantitative secondary analysis on Istat data sources (2018) was conducted (Household expenditure survey: microdata for public use). The strategy of analysis follows the objective of providing a proposal of a functional research design for the detection of trading down and trading up at the micro-level in Italy. In particular - given the lack of an indicator decreed to measure the phenomenon - the research question will focus on an investigation aimed to identify a proposal for the operationalization of the phenomenon. The process of operationalizing involved the selection of variables relating to the product categories typically exposed to both consumption strategies. The product categories included in the analysis are: "home appliances", "electronic devices", "home furnishings", "home textiles", "clothing and footwear", "clothing accessories", "underwear", "kitchen accessories", "small electrical equipment", "personal care products", "food products" and "beverages."

It is hypothesized that the place of purchase can act as a proxy for trading down and trading up; the trading down will concern the purchase of generic private labels in hard discounters, which are the places most committed to responding to the saving needs of customers, while the trading up will concern the purchase in drugstore. The methodology of analysis also considers the modality of "other places" (e.g., hypermarkets, supermarkets, department stores, online purchases, etc.); in this case, if the purchase is made in the "other" modality it will not be possible to capture, with absolute certainty, the consumption behavior realized. The choice to consider such other places outside the hybrid behaviors derives from the will to select, in priority, the places whose purchase is unequivocally attributable in trading down (hard discount) or trading up (drugstore). It follows the elimination from the database of all the lacking expenses of the level of detail reported to the place of purchase since it is not possible to verify which strategy has been put in action.

The first analyses of official statistical data considered functional in answering the questions on the pervasiveness of trading and the phenomenological differences between the "contexts" concerned the so-called "polarization of the Italian territory" based on a plurality of statistical indicators. The analysis identified at the top end of the polarization continuum: the Trentino-Alto-Adige region, which systematically ranks at the highest levels of economic development precisely because of its ability to make use of its territorial resources; at the other pole of the continuum, Calabria, which emerges as an inland area in difficulty, characterized by minimal level of value-added, GDP per capita and per capita income.

The analysis of countervailing effects with reference to perceptions - and possible impacts on perceived benefits - will be investigated through a quantitative methodology.

Through analysis, it will also be possible to explore the most significant recurrence in the chronology according to which the strategies are implemented. In this case, the research aims to understand whether in the two dimensions (the economic-financial one that ends with the disbursement and the mental one that coincides with the countervailing purchase decision), the choice of saving takes place temporally at a time prior to the over-investment purchase (in which case the saving acts as financing) or whether the saving takes the form of a localized choice after a costly purchase (in which case the saving acts as an element of remuneration for the economic sacrifice made).

Results. Previous research (Lyu et al., 2021; Gao et al., 2012) analyzed the countervailing effects of two opposites constructs but which aim at balancing each other synergistically in order to achieve the balance.

Starting from these notions, the present research aims at framing itself within the panorama of countervailing effects, considering compensation as an economic (monetary outlay), behavioral (purchase), and psychological (gratification vs. sacrifice) lever. The purchase in trading up would involve a strong purchase motive (aspirational aspects and high emotional essence), a large outlay of money (products that orbit above the threshold of accessibility), and a feeling of gratification discernible from the mere possession.

These elements are configured as surplus and require countervailing process (in the opposite direction) to be accurately realized without deleterious effects on the individual's economic-financial balance.

In the analysis, it emerges that the countervailing constructs that act simultaneously to achieving equilibrium are over-investment/saving (for economic-financial compensation); gratification/sacrifice (for emotional-psychological compensation); purchase/renouncement (for behavioral compensation).

Our results suggest that Trentino single-person households prefer quality products, despite the premium price; Calabrian single-person households are oriented towards saving, reserving a higher portion of income to over-invest in the purchase of certain food items.

The trading up and trading down behavior of the single-person households Trentino-Alto Adige and Calabria households in the sample does not appear to be rational; it is observed that spending on some categories of goods is not necessarily consistent concerning income bracket.

If the single-component families in the sample were to operate according to the assumptions of classical economics, a lower spending capacity should be followed by a greater propensity to trading down - regardless of product category - and better management and allocation of disposable income.

Transversally, one can observe the prevalence of purchases in places that are characterized neither by up nor down vocation. This is the case, in Trentino-Alto Adige as in Calabria, for the product categories: "electronic devices" and "home furnishings".

Among the less frequently purchased goods, the "household appliances" category is particularly discriminating. The Trentino-Alto Adige sample prefers purchases in trading down only for 33,3%, while the Calabrian sample buys in trading down with a higher percentage frequency.

Our research corroborates the theoretical framework of research on hybrid consumption (Ehnrooth and Gronroos 2016) about the product categories typical for trading up and down. An example case is represented by the frequency and the modalities of purchase of the articles categories "clothing and footwear", "clothing accessories" and "underwear". There is a residual recourse to the purchase in down and a strong investment in up. In this case, income acts as a "moderating element" by determining the intensity of purchases. The Calabrian sample, in fact, overinvests in trading up, but systematically less than the Trentino-Alto Adige sample. These results point to the overcoming of previous evidence on the subject that considers that the purchase of these categories takes place in the down direction (Silverstein and Butan, 2006).

It emerges that single-person households in Trentino would tend to prefer quality products, despite the premium price, while the percentages relative to purchases in trading down are small or close to zero.

Confirming the more pronounced tendency towards trading up in Trentino-Alto Adige are the evaluations regarding the possession of more adequate economic resources and favorable variations in income. It is possible to hypothesize that the single-person households in Trentino-Alto Adige in the sample, by the growth in income, have spent a higher proportion of their budget on the purchase of premium goods. The latter seems to possess income levels congenial to the satisfaction of their needs, while the Calabrian single-person households declare suboptimal income levels.

The single-person households of Calabria, on the other hand, would be more oriented towards savings, reserving a greater share of their income for over-investment in the purchase of certain food items. In Calabria, therefore, savings represent a priority requirement with respect to quality and the search for products with a high emotional essence.

Concerning the Italian reality, Calabria would constitute a sort of grey area in which the saving-oriented clients end up combining with the so-called "excursionists" of neo-luxury. These dynamics are favored by the availability of products and services that possess a clear vocation of luxury but that at the same time have a unit price still strongly accessible to the client with a low purchasing power. Therefore, in the present context, the trend of trading down is configured as a sought-after output, and not always anchored to the dynamics of over-investment. In other words, trading down seems to be pervasive, investing almost all product categories - with significant impacts - while spending on trading up appears to be more selective and focused on specific product categories considered by single-person households as particularly relevant.

Conversely, Trentino Alto-Adige would constitute a privileged area in which the tendency to save represents a secondary objective, reached only in function of a more stimulating goal.

According to Silverstein et al. (2006), consumers trade up in product categories that are personally meaningful to them and trade down in categories of little importance, such that the division of products into categories must be relevant. Our research, in accordance with previous research (Ehnrooth and Gronroos 2016), considers that hybrid consumers do not trade up in a specific category all the time or trade down in another all the time; the pattern seems much less consistent. They often prefer to purchase both high-end and low-end goods in the same categories of products. One interpretation then implies that in different situations purchased products and services have different meanings for consumers or represent different aspirations.

It is, therefore, plausible to assert that even though the policy has been globally consolidated, it does not produce homogeneous effects for every subject in every place; there are consistent differences in the attitudes and priorities of consumers with respect to the region to which they belong.

This study highlights the existence of an accessibility scale relating to the product categories of neo-luxury. It could be postulated that the Calabrian sample, faced with less affluent economic-financial conditions, would limit itself to making discontinuous immersions in neo-luxury, maintaining its purchases at the maximum level of accessibility, while the favorable economic situation would allow the Trentino sample to buy more exclusive and less accessible neo-luxury products. Trading up would thus be a strategy equally adopted by both samples; differences can be seen in the budget allocated to investments in up, the product categories selected, and the frequency of activation of the strategy.

From the results, it emerges that even when is the Calabrian sample demonstrates a more accentuated propensity to the modality of purchase in trading up, the expense carried out in trading up by the resident families in Trentino is higher.

Research limitations. The sample consists only of single-person households; it follows that the analysis is unable to capture the subjective relevance of everyone in terms of overinvestment in product categories do not present in the database and likewise, it will not be possible to guess the pair of product categories that biunivocally represent the savings that the user produces in a category to afford the overinvestment in the other.

The strategy for overcoming the limit mentioned therein will consist in the development of an instrument (survey) capable of detecting the motivations which stimulate the subjects towards purchases in trading down and the reasons that encourage consumption strategies in trading up, distinguishing by product category. The present will also detect the values of expenditure expressed for a single product category to propose an instrument for measuring the phenomenon (quantitative exploration).

Managerial implications. This research provides outputs that can be used as tools for policy optimization at the managerial level, providing useful information for better management of prices and value attributes sought in the product offering.

The exploration of over-investment and savings strategies provides several managerial implications and aims to assist brands in developing coherent trading up and down strategies (brand extension policies, price point).

The study further extends the literature on the perception of the value of luxury goods and the perception of irrelevance associated with specific product categories or goods. These outputs enrich strategic business decisions in choosing product launches at both ends of the price spectrum in response to determining logic. By way of example, if it is estimated that the product category "pasta" is predominantly purchased in trading down, it follows that a well-known pasta brand will make little profit from launching a product at an above-average price, but of superior quality. So, screening the propensity of the category to be bought up and down provides important information that can be used in strategic business venues.

Originality of the paper. The originality can be identified in the strategy of operationalization of the phenomenon through proxy variables produced by official statistics and never involved in an analysis concerning the trading phenomenon.

The originality of the paper derives from the specification of the kinds of products selected by consumers when they engage in hybrid behavior in the implementation of strategies for savings and overinvestment.

This countervailing attitude - to be effectively sustainable by the less affluent consumer - requires monetary countervailing. In this sense, consumers would save on product categories that do not imply significant relevance, and the summation obtained from the gains of savings would be destined to remunerate the over-investment policy. Customers with a lower spending capacity due to unfavorable income conditions would practice trading down choices (selection of goods of reduced quality or price) on a wide range of products and services to be able to afford trading up (selection of goods of higher quality and price) relatively to a limited circle of products and services.

Keywords: trading up; trading down; countervailing; consumer behavior; hybrid consumption; luxury

References

- AGARWAL S., TEAS R.K. (2001), "Perceived value: mediating role of perceived risk", *Journal of Marketing theory and Practice*, vol. 9, n. 4, pp. 1-14.
- BIZARRIAS F.S., BRANDAO M.M., CUCATO J.D.S.T., DA SILVA J.G. (2019), "Low income consumers self projection. A study in sophisticated consumption field", *CPMark-Caderno Profissional de Marketing*, vol. 7, n. 3, pp. 98-117.
- CHEN Z., DUBINSKY A.J. (2003), "A conceptual model of perceived customer value in e-commerce: A preliminary investigation", *Psychology & marketing*, vol. 20, n. 4, pp. 323-347.
- DODDS W.B., MONROE K.B., GREWAL D. (1991), "Effects of price, brand, and store information on buyers' product evaluations", *Journal of marketing research*, vol. 28, n. 3, pp. 307-319.
- EHRNRÖOTH H., GRÖNROOS C. (2013), "The hybrid consumer: exploring hybrid consumption behavior", *Managing Decision*, vol. 51, n. 9, pp. 1793-1820.
- GAO T.T., LEICHTER G., WEI Y.S. (2012), "Countervailing effects of value and risk perceptions in manufacturers' adoption of expensive, discontinuous innovations", *Industrial Marketing Management*, vol. 41, n. 4, pp. 659-668.
- LYU V.C., CHIN W., ZHANG H., LIU V. (2021), "Value added or overload? A study of the countervailing effect of non-core features on mobile banking apps", *Journal of consumer behaviour*.

- SHUKLA P., ROSENDO-RIOS V., KHALIFA D. (2022), "Is luxury democratization impactful? Its moderating effect between value perceptions and consumer purchase intentions", *Journal of Business Research*, vol. 139, pp. 782-793.
- SILVERSTEIN M.J., FISKE N. (2003), "Luxury for the masses", *Harvard business review*, vol. 81, n. 4, pp. 48-59.
- SILVERSTEIN M.J., FISKE N., BUTMAN J. (2008), *Trading Up: why consumers want new luxury goods-and how companies create them*. Penguin.
- SILVERSTEIN M., SILVERSTEIN M.J., BUTMAN J. (2006), *Treasure hunt: inside the mind of the new global consumer*. Penguin.
- WOOD C. M., SCHEER L.K. (1996), "Incorporating perceived risk into models of consumer deal assessment and purchase intent", *ACR North American Advances*.
- ZEITHAML V.A. (1988), "Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence", *Journal of marketing*, vol. 52, n. 3, pp. 2-22.
- ZHANG L., CUDE B.J., ZHAO H. (2020), "Determinants of Chinese consumers' purchase intentions for luxury goods", *International Journal of Market Research*, vol. 62, n. 3, pp. 369-385.

Consumer resource-based view theory in the interaction between Sport Videogame Consumption and Sport Media Consumption

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Framing of the research. *Over the last few years, the virtual world is taking an increasingly important role in people's lives. This growing phenomenon makes the integration of the physical and virtual worlds ever more common. The usage of smartphones and readily available technologies have blurred the distinctions of when people and organizations are participating in the physical or the virtual world. In addition, the persistent pandemic has further softened the lines between the two worlds, stimulating people to establish new-found behaviors built around the virtual world: new skills, competences, abilities have been developed and an understanding of how consumers navigate the two contexts in terms of the resources at stake is a key research area.*

At present, the virtual experience is most visible in the gaming industry attracting a growing attention in the perspective of an integration between the two worlds. The penetration among popular culture has led gaming to be one of the most growing activities within virtual experience. Increase in popularity is favored by technological implementations such as the growing relevance of online gaming (Hamari and Sjoblom 2017), expanding the role that games have, and the concept of play itself. The year 2020 represents an historical moment for the videogame industry, which has grown exponentially surpassing all its previous performance in terms of both users and revenues. The reason for this is that consumers have not only spent more time-consuming video games but have also increased their spending on it (Nielsen, 2020). Despite the slight decrease by 1.1% (\$175.8 billion revenues) due to the second order effects of pandemic (Newzoo, 2022), the forecast for 2024 is growing, with an estimated turnover of \$218.7 billion (Newzoo, 2022). In a nutshell, gaming is now a phenomenon that can no longer be underestimated by companies.

During the pandemic, the growth of videogame consumption has affected a range of genres including sports racing videogames. This can also be partly justified by the fact that sports events were suspended for several months, stimulating some leagues, such as F1 and Nascar, to recreate their competitions in a virtual world. As such, this switch has allowed consumers to keep in touch with the sports competition, the brands involved and athletes. This has led players to increase both the hours of playing and the viewing of online content from this genre of video games (Newzoo, 2020).

Navigating between the physical and virtual worlds such as playing a videogame and watching a competition on a traditional media, poses individuals to live an overall new experience. This integration requires individuals to make a commitment in terms of the resources they need to have. Along this integration, individuals transpose resources from one context to the other affecting the levels of engagement consumer experience.

According to the resource-based view theory (RBT), a company that intends to achieve greater performance should possess several strategic resources and employ them efficiently (Barney 1991; Barney et al. 2011).

However, management studies on consumer resources are scant.

These resources may be derived from several sources (Hooley et al. 1998) and can be tangible or intangible (Barney, 1991). Furthermore, to create a sustainable competitive advantage over time, resources need to be valuable, rare, inimitable, and non-substitutable (Barney, 1991).

Carrying the contribution of resource-based theory to marketing through the Service-Dominant Logic paradigm, (Vargo and Lusch 2008) consider resources essential to enable the process of value co-creation through their integration.

Therefore, unlike the original interpretation of resource-based theory, resources must be used and integrated to create value as they do not possess an intrinsic value. Thus, a resource becomes a specific benefit (Lusch et al. 2007) it becomes fundamental to the function of resources in value creation that is generated. In addition, a second perspective that SDL expands from RBV concerns the distinction between different types of resources. Resources are defined as operant and operand (Constantin and Lusch 1994): operand resources are present at low levels of utility, and then are integrated with operant resources that constitute their value. Within the SDL paradigm, resources defined as operant

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are those that contribute to the creation of ongoing competitive advantage, as opposed to operand resources (Vargo and Lusch 2004). These resources include on the one hand tangible assets, those physical resources that the company owns (Atrill and McLaney 2002). On the other hand, intangible assets are also included. Both tangible and intangible assets can be exploited as operand and operant resources. In the first case it refers to resources on which some processes are implemented to realize an effect. In the same way they can be used as operant resources, those that are employed on operand resources to create value, such as skills (Constantin & Lusch, 1994; Vargo & Lusch, 2004).

Although research contributions regarding the resource-based view have progressed over time, still little is known about the extension of this view in more exploratory contexts, such as the gaming industry with a consumer lens.

In addition, to our knowledge, the relation between consumer resources and consumer engagement is unknown. Considering that Consumer engagement is a relatively new concept in marketing (Hollebeek et al. 2014), the understanding of how consumer engagement influences the development of consumer resources and vice versa would reveal important aspects of the relationship between consumers and the integration of the physical and virtual worlds. Hence, the study investigates the development of consumer engagement according to consumer resources involved in the process of Sport Videogame and Sport Media Consumption and vice versa.

Furthermore, (Hollebeek et al. 2019) model reveals established relationships between the cognitive, emotional and behavioral aspects of consumer engagement and the specific engagement objects characterizing the level of complexity of focal consumer engagement states. (Brodie et al. 2013) also reveal the interplay between the emotional, cognitive and behavioral aspects of engagement generating differing levels of engagement intensity.

Purpose of the paper. The aim of this research is to contribute to the stream of resource-based view offering a consumer perspective on virtual experiences within the gaming context. Specifically, the study aims to understand if, within the physical and virtual sports contexts, there is a relationship between sports video games and sports consumption in terms of consumer resource involved.

Our study expands the theory of resource-based view (Barney, 1991) by transposing it to the consumer actor. The study unveils how consumer operand and operant resources are deployed during a virtual sports experience (SVG) and a physical one (SMC) and the relationship between such resources and consumer engagement. Subsequently, through the Service Dominant Logic theory we intend to investigate the relationship between the physical and virtual contexts and whether the integration between the two contexts has an influence on resources development and consumer engagement.

In sum, the study explores the relationship between consumer resources and consumer engagement in the context of sport videogames and sport media consumption. In specific, we develop two interwoven research questions:

1. The study unpacks the development of consumer resources in the context of sport videogaming and sport media consumption
2. The study unveils how the bidirectional interaction between the two-context boosts consumer engagement

Methodology. This study adopts a qualitative method approach within the interpretive paradigm in which participants are seen as active meaning creators, not just research objects (Gephart 2004). This methodology favours data generation methods that gather rich data directly from those people experiencing the phenomenon (Shah and Corley 2006).

The on-going research comprised 5 in-depth interviews with both Italian F1 consumers and videogame players. Our field research takes place in Italy.

Interviewees were recruited via purposeful sampling. In-depth face-to-face interviews ranged from 40 to 75 minutes and were recorded and transcribed. Two authors carried out face-to-face interviews administering a semi-structured guide derived from the literature review.

Sport videogames (SVG) benefit from the notoriety of traditional sports, as such gamers already know the rules and characters making it easier to approach the game (i.e., FIFA) (Jang and Byon 2020) and thus integrate knowledge to technological implementations of software and hardware that simulate in a hyper realistic manner, sport events have been transposed from the physical to the virtual stimulating the growth of video games and esports (Gawrysiak et al. 2020). Thus, players can virtually reproduce the sport consumption experience. This experience goes further than merely passive consumption and mental interpretation of sports brand information.

According to (García and Murillo 2020) playing a sports video game does not replace the sport event consumption but rather, it is a complementary activity that companies can exploit from a communication and marketing perspective. Likewise, participation in a fantasy game related to a sport, is considered complementary to sports consumption (Karg and McDonald 2011) also affecting viewership (Nesbit and King 2010). These aspects could be led in an increasing level of customer engagement through major contact points, which in turn generate more interest in sport.

However, previous research does not establish how the relationship between sports video game consumption and traditional sports consumption occurs. In this sense, is not investigated whether game participation is antecedent to sports consumption, or vice versa, and what resources are employed by the subjects

Our focus was on the interplay between the physical and virtual contexts of respondents' F1 consumption moments, intended as both virtual gaming and sports media consumption. In particular, we focused on the resources that consumers employ during their interaction, investigating potential areas for their development. The study adopted an interpretive methodology to identify themes emerging from the analysis of the data. Following (Yin 2013), the analytic framework comprised three stages: (1) analysis of individual interviews and transcripts, (2) identification of common recurrent themes and (3) analysis of shared themes.

Results.

Consumer operand and operant resources

The results develop the resource-based theory, according to consumers' perspective within the context of sports video games and sports media consumption.

The study reveals that participants experience a fluid interaction between the virtual and physical world, in the context of F1 which develops. Such behavioural interaction leads to the creation and development of new operand and operant resources that confirm that the operant resources found, are employed on the operand resources for the creation of value (Vargo and Lusch 2004).

Participants, sharing their experience of this fluid interaction, point to specific operand resources that can be identified in the following macro-categories have been identified: game hardware, game software, environment, and time (see Table I).

Regarding gaming hardware, the results identify all those functional devices for gaming activities. In this category we find the gaming seat [Enrico: the perfect gamer, never leaves the seat and doesn't sit on the couch like me, relaxed, but maybe on a gaming seat specifically designed for this purpose], the joystick [Enrico: I use the joystick to play], the steering wheel [Federico: When I play, I play with the steering wheel because I enjoy it more. - Mirko: I play with F1 2021 using a device like the steering wheel].

Regarding gaming software, results identify those game programs that simulate the sport consumption, including the official F1 game [Mirko: I have the possibility to play in a more realistic way with F1 2021]. Finally, the results indicate the hardware such as headphones [Stefano: having headphones affects the gaming experience...]. Such operand resources enable participants to enjoy a new hyper realistic experience, whether they are playing a videogame or watching an F1 race.

For instance, using a steering wheel instead of a joystick to play a videogame makes the gamer more absorbed and immersed [Federico: ...if you want to enjoy this experience even more, it is obvious that the steering wheel immediately amplifies it at an exponential level because it gives you more sensibility, precision of steering for example, that you don't have on the joystick...].

On the other hand, a set of operant resources deployed by consumers are identified. Among these resources we outline participant's technological predisposition [Federico: if you give a fifty year old person, for example, a motor and F1 enthusiast, a joystick in his hand, he doesn't know how to start], passion [Enrico: Yes, I have a passion for Formula One and in general I follow almost all sports], emotion control competencies [Federico: F1 is a game where the person who makes less mistakes wins; therefore, it is a game where if you get overwhelmed, you make mistakes and you lose. And because it's a championship and not a single race, the one who paradoxically does the slowest races wins], technical competencies [Stefano: ...what driving style the pilot is using, if he is in a management phase in an attack phase at what point of the curve he starts to accelerate], sport competencies [Enrico: ...I understood why some smaller teams always arrived at the bottom (see Table 1).

Tab. 1: Operant and Operand Resources classification

	OPERAND	OPERANT
SPORT VIDEOGAME CONSUMPTION	Hardware: - Joystick - Steering Wheel - Gaming seat - Racing cockpit - Console/PC gaming Software: - New game release - Game Characteristics	Technological readiness Passion Emotional competencies
SPORT MEDIA CONSUMPTION	Hardware: - TV - Soundbar/Headphone Software: - Pay TV	Technical competencies Sport competencies

This set of resources is employed by users at different times. At first, participants dispose of a set of operand and operant resources, which belong to one context rather than the other.

Depending on the type of resources available (e.g., passion, predisposition) and their integration, participants approached the world of F1 through either the physical or virtual context. For example, being passionate about sports at a general level and having a lot of free time, triggered an initial interaction with F1 racing [Enrico: I'm into Formula One and in general I follow pretty much almost all sports...I'm multifaceted]. Consuming sports media is seen as a kill time and also learning activity [Enrico: Watching TV sports is also a way to spend spare time and definitely also a way to learn about a new sport].

Similarly, having a technological predisposition towards videogames in general and owning already an F1 videogame, has increased sports media consumption [Mirko: *The passion for Formula One was born when I was little because I had the possibility to play it on the computer through an old videogame*]. Consequently, the first passage from one context to another varies according to the types of resources the person already has.

From the physical to the virtual world

Participants who have approached the world of F1 in the physical context watching the races on television have then, in a second time, developed technical sport resources in terms of sporting competencies inherent the dynamics of the sport itself, technical competencies [Enrico: *... from the physical to the virtual world, I learned how to brake, I know that I don't have to brake at the last moment, but that I have to start braking earlier. I learned this by watching the drivers' on-boards, for example, because there are colors when they break and when they accelerate...*] and emotional control abilities.

The participants who have approached the F1 world in the physical context, have then moved towards the videogame to impersonate the athletes [Stefano: *I already watched Formula One, then especially four years ago I got closer to this world and I followed it much more closely and consequently I also approached the videogame. What pushed me to approach the game was a little bit the impersonation in the characters of Formula One*] or to replicate into the game a race just seen [Federico: *...but simply maybe you want to do it because you saw a competitive race on a circuit that you liked. So you think " yes, I'm going to do it too "*] and to test the technical driving skills.

From the virtual to the physical world

Subsequently, once a shift passage from one context to another occurs, a chain effect is activated that further encourages interaction between the two contexts. Playing a video game allows the development of a series of skills that are transposed during the vision of the Grand Prix on television [Federico: *Playing a video game you are prepared, so you know what you are watching.... you are more attracted and you are more focused on certain dynamics, the same happens for a circuit*], has led people to be more aware in following the sport in the physical context. affecting the emotional, cognitive and behavioral spheres that interact together influencing the CE.

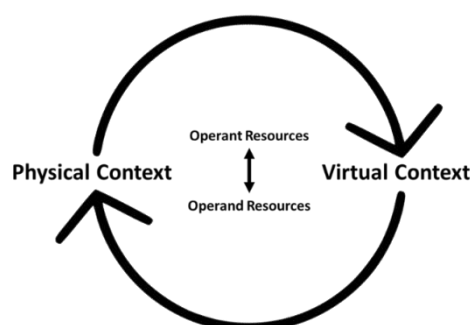
At that stage, in order to repeat this process again, participants return to the virtual context to apply what they have learned while watching the race [Mirko: *I like to combine what I see in the race with what I do in the simulator*] and they anticipate the development of resources before returning to the physical context [Federico: *.... I can play before the race to study things too, so when you see the race you are paradoxically prepared. When you see the race you already know about the overtaking points, you know the DRS zones*].

Likewise, those who first approached the video game were able to develop the same resources. This aspect is favored by employing operand resources, such as the game characteristics that allow to simulate the sport that is seen on television, the use of game accessories such as the steering wheel [Federico: *Let's say that the Formula One video game is very nice. It explains a lot of things, as the set-ups, things that in the past years were not done and so it gives the possibility to immerse the user in a really deep way, especially with the steering wheel*] and the headphones [Enrico: *The ideal player uses headphones and also uses the microphone. So he uses the headphones because he sets the volume to maximum and communicates the various strategies by voice*] that increase the realism of the game, bringing this experience close to the one seen on television.

As mentioned earlier, the development of these resources in the virtual context permits participants to transpose them from one context to another (see Figure 1). This allows one to enjoy in a more conscious way even the sport event seen on television, going to influence the cognitive sphere [Federico: *...many real situations you can understand by playing. Maybe there are situations that you don't know how they work, and the game gives you the tool to understand how they work*], emotional [Stefano: *...when you are in the car with a single driver it is also easy to feel the same emotions on a videogame, so it is very easy to connect the two contexts*], and behavioral [Federico: *I have friends who bought the game after watching the championship this year, for example*].

This process of creation and development of resources is repeated every time there is a transition between the two contexts. In the moment in which such a passage is lacking, or the operand and operant resources are not available, the process develops in the opposite direction, influencing in a negative way the behavioral sphere [Stefano: *I used to watch 80% of the races, while last year I watched 40 because I played a few times. This is because I changed platform, I passed from console to pc and I never continued the game*] and consequently CE.

Fig. 1: Resources interactions



The interaction between the operant and operand resources in both contexts involves a subsequent interaction between the cognitive, emotional, and behavioral spheres that influence CE.

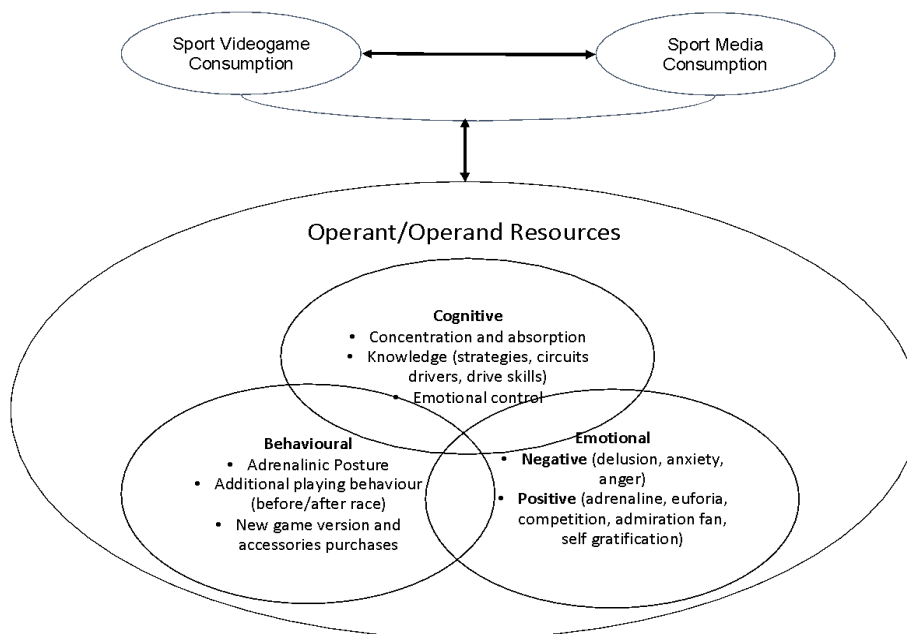
From a process perspective, given the different availability of initial resources, the spheres are also influenced differently, generating a unique CE creation process. Finally, the process of resource creation and implementation does not occur indistinctly between the two contexts. Instead, new resources are generated in a fluid manner. In this regard, they may be created in a virtual context and then developed in the physical one, and vice versa.

Our proposed framework in Figure 2 visualizes the theoretical contribution of this study.

Consequently, this ongoing study intends to contribute to the literature by:

1. exploring RBV in a consumer endeavor
2. unveil how the navigation between the two worlds is a fluid process and this is reflected in the activation and integration of the consumer resources required by the context
3. affirms that the integration of operand and operant in the fluid navigation between the two contexts enhances consumer engagement in terms of cognitive, emotional, and behavioural dimensions
4. The integration of operand and operant resources is transported from one world to the other, and beyond. It appears, indeed, that the development of specific resources (e.g., concentration, emotion control) may be applied outside the contexts under analysis (e.g. in another sport endeavor such as rowing).

Fig. 2: The conceptual framework.



Research limitations. This is to be considered as an ongoing study where results must be interpreted as exploratory and partial. As such no generalization is possible.

Managerial implications. By unveiling how the bidirectional interaction between the two-contexts boosts consumer engagement, marketing managers will be better equipped to delve into an environment which is always more an integration between the physical and virtual worlds define concrete ways to engage consumers in marketing activities. For example, ideating initiatives that boost videogame consumption will help to augment the consumption of media games and vice versa.

Originality. Extant consumer behaviour scholarship has largely neglected the topic of consumer resources and their relationship with consumer engagement. This study explores the RBV theory in a consumer endeavor.

Keywords: Resource-based view, Sport Videogames, Sport Media Consumption, resource, consumer engagement

References

ATRILL P., MCLANEY E.J. (2002), *Financial Accounting for Non-specialists*, Prentice Hall.
 BARNEY J. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, vol. 17, n. 1, pp. 99-120.
 BARNEY J., KETCHEN D., WRIGHT M. (2011), "The Future of Resource-Based Theory", *Journal of Management - J MANAGE*, vol. 37, pp. 1299-1315.
 BRODIE R.J., ILIC A., JURIC B., HOLLEBEEK L. (2013), "Consumer engagement in a virtual brand community: An exploratory analysis", *Journal of Business Research*, vol. 66, n. 1, pp. 105-114.

- CONSTANTIN J.A., LUSCH R.F. (1994), *Understanding Resource Management*. The Planning Forum, Oxford.
- GARCÍA J., MURILLO C. (2020), “Sports video games participation: what can we learn for esports?”, *Sport, Business and Management: An International Journal*, vol. 10, n. 2, pp. 169-185.
- GAWRYSIAK J., BURTON R., JENNY S., WILLIAMS D. (2020), “Using Esports Efficiently to Enhance and Extend Brand Perceptions - A Literature Review”, *Physical Culture and Sport. Studies and Research*, vol. 86.
- GEPHART R.P. (2004), “Qualitative Research and the Academy of Management Journal”, *AMJ*, vol. 47, pp. 454-462
- HAMARI J., SJOBLÖM M. (2017), “What is eSports and why do people watch it?”, *Internet Research*, vol. 27, n. 2, pp. 211-232.
- HOLLEBEEK L., GLYNN M., BRODIE R. (2014), “Consumer Brand Engagement in Social Media: Conceptualization, Scale Development and Validation”, *Journal of Interactive Marketing*, vol. 28.
- HOLLEBEEK L.D., SRIVASTAVA R.K., CHEN T. (2019), “S-D logic-informed customer engagement: integrative framework, revised fundamental propositions, and application to CRM”, *Journal of the Academy of Marketing Science*, vol. 47, n. 1, pp. 161-185.
- HOOLEY G., BRODERICK A., MÖLLER K. (1998), “Competitive positioning and the resource-based view of the firm”, *Journal of Strategic Marketing*, vol. 6.
- JANG W. (WILLIAM), BYON K.K. (2020), “Antecedents of esports gameplay intention: Genre as a moderator”, *Computers in Human Behavior*, vol. 109, p. 106336.
- KARG A.J., MCDONALD H. (2011), “Fantasy sport participation as a complement to traditional sport consumption”, *Sport Management Review*, vol. 14, n. 4, pp. 327-346.
- LUSCH R., VARGO S., O'BRIEN M. (2007), “Competing Through Service: Insights From Service-Dominant Logic”, *Journal of Retailing*, vol. 83, pp. 5-18.
- NESBIT TODDM., KING KERRYA. (2010), “The Impact of Fantasy Sports on Television Viewership”, *Journal of Media Economics*, vol. 23, n. 1, pp. 24-41.
- SHAH S., CORLEY K. (2006), “Building Better Theory by Bridging the Quantitative-Qualitative Divide”, *Journal of Management Studies*, vol. 43, pp. 1821-1835.
- VARGO S., LUSCH R. (2004), “Evolving to a New Dominant Logic”, *Journal of Marketing*, vol. 68, pp. 1-17.
- VARGO S.L., LUSCH R.F. (2008), “Service-dominant logic: continuing the evolution”, *Journal of the Academy of Marketing Science*, vol. 36, n. 1, pp. 1-10.
- YIN R.K. (2013), *Case Study Research Design and Methods*. Sage Publications, Thousand Oaks.

Il ruolo dell'innovazione nelle divise sportive nell'identificazione con il proprio team e nel consumo di prodotti di merchandising

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Inquadramento della ricerca. La nostra ricerca si inserisce nella più ampia area di sport marketing con l'obiettivo di approfondire la conoscenza del fan behavior nell'industria calcistica. Il calcio è lo sport più popolare al mondo e rappresenta una delle industrie più redditizie, con entrate e profitti sostanziali per club e organizzazioni sportive in tutto il mondo (Nalbantis et al., 2017). Negli ultimi 20 anni, i ricavi dei principali club europei sono aumentati a un tasso medio annuo dell'8,2%, con una crescita record di 1.885 milioni di euro nel 2019 (UEFA, 2021). Tali ricavi derivano generalmente da tre flussi principali: broadcasting, match-day e attività commerciali.

I trend negativi delle attività di broadcasting e di match-day causati dalla pandemia collegata al Covid-19 hanno ulteriormente incoraggiato i club ad esplorare flussi di cassa alternativi. L'area commerciale è identificata come la componente più stabile e redditizia dei bilanci dei grandi club (Deloitte Sports Business Group, 2021b); ci si aspetta quindi che le società sportive sviluppino modelli di reddito incentrati sulle attività commerciali, come il Merchandising, al fine di garantire la crescita delle entrate nel tempo. A tal fine, nonostante alcuni autori sostengano che le innovazioni sulle maglie da gioco abbiano raggiunto un punto di saturazione nello sviluppo degli elementi estetici del kit dal design contemporaneo (Stride et al., 2015; Butler and Butler, 2021), la tendenza consolidata a livello globale di un sofisticato riferimento alla cultura, all'architettura e all'arte nel design delle maglie fornisce un ulteriore scenario per esaminare l'interazione tra l'innovazione del design e il comportamento dei tifosi.

L'acquisto e l'esposizione degli articoli di merchandising è riconosciuto come un'espressione del sostegno dei tifosi a una squadra sportiva (Lear et al., 2009). Attraverso questi prodotti, essi si identificano come sostenitori della propria squadra, sviluppano sentimenti di orgoglio e lealtà, ricordano esperienze uniche e creano relazioni di valore (Apostolopoulou et al., 2012; Mullin et al., 2007). Una ampia parte di ricerca si sofferma sul fenomeno per cui il comportamento dei consumatori sia fortemente influenzato dal successo sul campo (O'Reilly et al., 2015; Kwak et al., 2011; Pan and Baker, 2005; Wann et al., 1996; Kahle et al., 1996;), tanto da condizionare negativamente le vendite del merchandising in caso di risultati non soddisfacenti (Kwak et al., 2015). Secondo Decrop e Derbaix (2010), la relazione tra i risultati sportivi, da un lato, e le diverse intenzioni comportamentali dall'altro, sono mediate dall'orgoglio. La performance della squadra diventa quindi il "servizio" principale che le squadre sportive forniscono ai loro tifosi (Kim et al., 2013; Ko et al., 2011) e accresce notevolmente gli stati emotivi dei tifosi quando viene raggiunto il successo sul campo (Katzenbach, 2003; Soscia, 2007). Come conseguenza, i tifosi con elevato orgoglio verso la propria squadra sono più propensi ad acquistare e mostrarsi all'esterno (Chang et al., 2019; Decrop and Derbaix, 2010; Holbrook et al., 2014; Katzenbach, 2003), impegnandosi così in comportamenti "evidenti" come l'utilizzo del merchandising (Stroebe et al., 2019); viceversa, minori sentimenti di orgoglio derivanti dal verificarsi di risultati negativi portano all'esibizione di comportamenti "nascosti" come rimanere in silenzio, sfogare la rabbia, piangere (Damasio, 1999; Decrop and Derbaix, 2010) ed evitare di mostrare l'attaccamento alla squadra (Cialdini et al., 1976). Quindi, i sentimenti di orgoglio potrebbero essere intesi, da un lato, come un risultato emotivo prodotto dalla performance sportiva e, dall'altro, come uno spunto motivazionale per fare o non fare certe azioni, come l'acquisto e il consumo di merchandising.

Se il ruolo dell'orgoglio (e delle emozioni in generale) è rilevante nel plasmare atteggiamenti e comportamenti, sembra che un ulteriore elemento di interesse sia la connessione identitaria (Sirgy et al., 2008). Le ragioni del comportamento del tifoso, infatti, possono essere ricondotte all'attaccamento psicologico alla squadra, con la quale si stabilisce una relazione profonda che provoca risposte emotive (Madrigal & Chen, 2008). Questo concetto, noto come Team Identification e definito come "l'impegno personale e il coinvolgimento emotivo che i fan hanno con un'organizzazione sportiva" (Sutton et al., 1997), è stato ampiamente trattato dalla letteratura nel marketing sportivo (ad esempio, Fink et al., 2002; Kwon et al., 2007; Lock et al., 2014). Alcuni tifosi si identificano maggiormente con la squadra per cui tifano, generalmente perché la considerano incarnare le diverse identità di gruppo all'interno della comunità - ad esempio, città, stato, università - e rappresentare le loro credenze e i loro valori (Funk & James, 2001). Questi individui si dedicano affettivamente alla squadra e si impegnano proattivamente in comportamenti di sostegno (Pimentel and Reynolds, 2004), confermando così che i tifosi altamente identificati consumano comunemente articoli di

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merchandising indipendentemente dalle prestazioni della squadra (Decrop and Derbaix, 2010; Paek et al., 2021; Apostolopoulou and Papadimitriou, 2018; Kim et al., 2011). Tuttavia, è probabile che i tifosi altamente identificati, a parità di prestazioni, mantengano livelli di orgoglio più alti rispetto ai tifosi meno identificati, anche se, a causa della maggiore identificazione, potrebbero trarre una grande gioia dal successo, da un lato, e subire maggiormente il peso del fallimento, dall'altro.

Obiettivo del paper. Il contesto sopra delineato appare ancora più interessante se si considera la necessità per i club di sviluppare una base di tifosi disposti a riacquistare costantemente il prodotto o il servizio, a prescindere dalle performance sul campo, la cui imprevedibilità rende particolarmente impegnativo il monitoraggio delle performance del brand sportivo (Kwak et al., 2015). Diventa quindi rilevante comprendere quali strategie possano essere implementate dai manager sportivi per raggiungere i propri obiettivi commerciali e limitare, di conseguenza, la dipendenza dall'aleatorietà dei risultati sportivi. In questo senso, lo scopo del paper è quello di estendere la ricerca corrente sul fan behavior comprendendo se l'innovatività del merchandising possa contribuire a un miglioramento del merchandise consumption anche in presenza di performance negative. Quindi, indagando le relazioni tra fattori chiave come le prestazioni della squadra, l'orgoglio e l'identificazione della squadra, questo studio attinge alle precedenti ricerche sull'innovazione del design per cercare di aumentare la conoscenza generale sul pieno potenziale delle attività di merchandising. Tali studi suggeriscono che gli atteggiamenti e i comportamenti verso un prodotto sono probabilmente più favorevoli quando viene implementato un approccio di design innovativo - in termini di estetica, caratteristiche e aspetti emotivi o simbolici - perché l'innovazione del design predice il valore percepito, che, a sua volta, determina il comportamento di acquisto (Homburg et al., 2015; Moon et al., 2013). Pertanto, lo scopo del paper è quello di estendere la ricerca comprendendo se l'innovatività del merchandising possa contribuire a un miglioramento del merchandise consumption anche in presenza di performance negative.

Pertanto, sulla base della letteratura esistente, sono state formulate le seguenti ipotesi:

H1: La Team Performance (Failure vs. Success) influenza la Merchandise Consumption Intention, in modo tale che l'intenzione di acquisto diminuisce/aumenta in caso di fallimento/successo.

H2: Il Pride provato dal tifoso può mediare la relazione principale tra la Team Performance (Failure vs. Success) e la Merchandise Consumption Intention.

H3: L'effetto negativo del Failure (vs. Successo) sul Pride dipende dalla Team Identification, così che l'effetto è maggiore per i tifosi altamente identificati rispetto a quelli meno identificati.

H4: L'effetto negativo dei bassi livelli di Pride, derivanti dal Failure, sulla Merchandise Consumption Intention può essere moderato dal Jersey-design. In particolare, in presenza di un design innovativo (vs. tradizionale), per gli stessi bassi livelli di Pride, l'intenzione di consumo è superiore.

Metodologia. L'impostazione metodologica adottata nel paper per rispondere alla domanda di ricerca e testare le ipotesi formulate prevede una sequenza di cinque passi successivi, strutturati attraverso un disegno sperimentale between-subject, e sostenuti da analisi statistiche.

Primo, sono state identificate, in allineamento con la letteratura esistente, le scale appropriate ed è stato ipotizzato un modello teorico di riferimento. Le variabili analizzate sono Team Performance (variabile indipendente X), Pride (mediatore Mi), Merchandise Consumption Intention (variabile Dipendente Y), Team Identification (moderatrice W) e Jersey-Design (moderatrice V), misurate attraverso 5 scale Likert a 7 punti (1-7; anchors = "fortemente in disaccordo" e "fortemente d'accordo"), adattate in base al contesto testato.

Secondo, sono stati preparati i materiali per gli stimoli, basandoci su quattro squadre ben note nel mercato analizzato e militanti nel campionato italiano di Serie A. L'obiettivo era di esporre ogni tifoso agli stimoli riferiti alla sua squadra preferita ed eludere il rivalry effect e la possibile alterazione dei risultati. Infatti, un forte attaccamento emotivo a una squadra sportiva può avere un effetto distorsivo sul modo in cui le persone vedono e valutano lo stesso prodotto che espone il logo di una squadra rivale piuttosto che quello della loro squadra preferita (Dreyer, 2014; Kwak et al., 2015). Sulla base di tre criteri - brand value, ricavi nell'anno finanziario 2019/2020 (Deloitte Sports Business Group, 2021b; Brand Finance, 2020) e base aggregata dei follower sui social media (IQUII Sport, 2021) - sono state selezionate AC Milan, AS Roma, FC Inter Milan, e Juventus FC. Successivamente, per ogni squadra, abbiamo sviluppato due articoli sportivi per manipolare le prestazioni della squadra - fallimento vs. successo - e due concept-kit per manipolare il Jersey-design - tradizionale vs. innovativo. Gli articoli sportivi hanno descritto le prestazioni - positive e negative - della squadra nella stagione in corso con lo scopo di evocare sentimenti positivi o negativi. Infatti, la comunicazione scritta, ad esempio una pagina sportiva o una pubblicità, può avere un impatto sostanziale sulle emozioni, sulle decisioni e sul comportamento sportivo del consumatore (Kwak et al., 2015; 2011). I concept-kit mostravano il design della maglia - tradizionale e innovativo - per la stagione successiva. Nella condizione innovativa, è stato preparato un modello ispirato all'architettura della città natale della squadra, ovvero la Galleria Vittorio Emanuele II a Milano (AC Milan), la Basilica di San Pietro (AS Roma), il Duomo di Milano (FC Inter Milan), e Piazza San Carlo a Torino (Juventus FC).

Nel terzo step, sono stati condotti due pretest per valutare la corretta percezione degli stimoli.

Nel quarto passaggio, sono stati assegnate in modo casuale le condizioni agli intervistati ed è stata avviata la raccolta i dati.

Nel quinto ed ultimo step, sono state eseguite le analisi del modello di mediazione moderata multipla attraverso l'estensione PROCESS Macro sul software SPSS, è stata valutata la relazione tra le variabili indagate e testate l'ipotesi formulate. La Team Performance è stata codificata come "0" (Success) e "1" (Failure) con l'obiettivo di

osservare se una diversa tipologia di maglia (in questo caso, una maglia innovativa) potesse bilanciare la diminuzione della Merchandise Consumption Intention (MCI) prevista dalla performance negativa sul campo.

Un totale di 534 individui sono stati reclutati attraverso la adv platform di Facebook, che fornisce un campionamento più efficace basato sui dati demografici, i comportamenti e gli interessi degli utenti (Iannelli et al., 2020). Per questo studio, i filtri utilizzati sono stati il paese d'origine ("Italia"), la fascia d'età ("18-35 anni"), gli interessi verso il calcio, verso le squadre incluse nello studio ("AS Roma", "AC Milan", "FC Inter Milan", "Juventus FC") e verso le principali competizioni a cui partecipano ("Serie A", "UEFA Champions League"), e i comportamenti ("tifosi di calcio con moderato/alto coinvolgimento nei contenuti", "Amici dei tifosi di calcio"). Alla fine del questionario, l'attenzione dei partecipanti è stata verificata attraverso due domande di controllo e le risposte errate sono state eliminate. La dimensione del campione risultante è stata di 409 individui. I dati sono stati raccolti con un sondaggio strutturato-diretto che prevedeva la somministrazione di un questionario online tramite Qualtrics e composto da domande fisse-alternative. Il sondaggio è stato presentato nella lingua ufficiale del paese.

Risultati. I risultati dei due pretest hanno evidenziato la corretta percezione della manipolazione da parte dei partecipanti. Analizzando i dati con due independent-sample t-test, si nota che gli intervistati esposti alla condizione di successo hanno valutato la performance significativamente più positiva ($N = 59$; $M = 5.81$; $SD = 1.26$) rispetto a coloro che sono stati esposti alla condizione di fallimento ($N = 51$; $M = 3.02$; $SD = 1.61$; $p < .001$), e che coloro che sono stati assegnati alla condizione di design innovativo hanno valutato la maglia significativamente più innovativa ($N = 30$; $M = 4.92$; $SD = 1.24$) rispetto ai rispondenti assegnati alla condizione di design tradizionale ($N = 30$; $M = 3.25$; $SD = 1.17$; $p < .001$).

I risultati del main study suggeriscono che la moderazione dell'effetto indiretto della Performance di squadra da parte della Team Identification differisce significativamente tra un design di maglia e l'altro, confermando l'esistenza del modello stesso (Indice di mediazione moderata multipla = .40; CI 95%: .14, .70). Esaminando gli indici di mediazione moderata condizionale, infatti, si nota una correlazione negativa tra l'effetto indiretto del Fallimento e la Team Identification, in presenza sia di una maglia tradizionale (-.83) che di una maglia innovativa (-.43).

Primo, vengono confermati il ruolo della performance come fattore chiave che guida le intenzioni dei consumatori sportivi e del Pride come mediatore parziale della relazione tra Team Performance e MCI, supportando H1 e H2. L'analisi del modello evidenzia un effetto diretto significativo della Team Performance sul MCI ($\beta = .81$; $p < .001$) e un effetto indiretto significativo attraverso il Pride, con il Fallimento che influenza negativamente il Pride ($\beta = -.91$; $p < .001$) e il Pride che influenza positivamente la MCI ($\beta = .62$; $p < .001$). Inoltre, quando si esaminano gli effetti indiretti condizionati della Team Performance sull'MCI, si osserva che la Team Performance, attraverso il Pride, ha sempre effetti negativi significativi sulla MCI per tutte le diverse combinazioni dei due moderatori.

Secondo, l'analisi della prima moderazione indica che la relazione tra Team Performance e Pride è più forte per i tifosi altamente identificati ($\text{Effect}_{\text{high}} = -2.26$) che per quelli meno identificati ($\text{Effect}_{\text{low}} = -.91$), come ipotizzato in H3. I risultati mostrano che i partecipanti esposti alla condizione di fallimento hanno sperimentato sentimenti di orgoglio più bassi ($\beta = -.91$; $p < .001$) e che questo effetto è significativamente moderato dalla Team Identification ($\beta = -1.34$; $p < .001$). Sebbene l'orgoglio tenda a diminuire in caso di fallimento, ad entrambi i livelli di identificazione della squadra, i tifosi altamente identificati, a parità di prestazioni, si sentono più orgogliosi in situazioni di successo e soffrono di più il peso del fallimento quando la squadra non funziona, anche se il loro livello di orgoglio si mantiene alto rispetto alle loro controparti meno identificate.

Terzo, l'analisi della seconda moderazione indica gli intervistati più orgogliosi erano più propensi ad acquistare il merchandising, con un effetto significativamente positivo del Pride sulla MCI ($\beta = .62$; $p < .001$), e che tale relazione è moderata significativamente dal Jersey-design ($\beta = -.29$; $p = .001$). In generale, sebbene la relazione tra Pride e MCI tenda ad essere più forte quando viene proposta un design tradizionale ($\text{Effect}_{\text{traditional}} = .62$) piuttosto che uno innovativo ($\text{Effect}_{\text{innovative}} = .32$), l'intenzione d'acquisto per la maglia innovativa, per bassi livelli di Pride, è più alta e rimane tale fino a che non si raggiungono alti livelli di Pride; in questa situazione, i partecipanti hanno rivelato una preferenza per la maglia tradizionale, come ipotizzato in H4.

Limiti della ricerca. Questo studio presenta alcuni limiti che potrebbero servire come raccomandazioni e indicare aree di attenzione per la ricerca futura.

In primo luogo, il campione potrebbe essere ampliato esaminando gruppi di età specifici e omogenei. Inoltre, la ricerca futura sull'IPD potrebbe replicare questi studi esponendo gli intervistati agli stimoli di squadre diverse da quella favorita con l'obiettivo di valutare se l'innovatività del merchandising sia capace di stimolare i tifosi all'acquisto della maglia di una squadra rivale.

In secondo luogo, poiché l'esperimento è stato progettato in "laboratorio" e ha richiesto la creazione di stimoli fittizi, la ricerca futura potrebbe condurre un'analisi sul campo per raggiungere un grado di coinvolgimento emotivo alto come quello legato a un'esperienza reale. Gli studiosi potrebbero anche replicare l'esperimento sia all'inizio che alla fine della stagione, per basarsi su situazioni reali, o replicare lo studio in altri paesi per osservare le differenze tra individui di altre nazionalità.

In terzo luogo, lo studio non ha considerato ulteriori elementi di interesse che potrebbero influenzare il comportamento dei tifosi, come la Fan Distance (Pu and James, 2017), la Fan Isolation (Mazodier et al., 2018) o le informazioni sui prezzi (Chang and Wildt, 1994).

Implicazioni manageriali. Secondo la nostra opinione, questo studio potrebbe fornire ai manager della Sport Industry un'ulteriore supporto per aumentare la comprensione del fan behavior e della rilevanza di elementi quali l'orgoglio, l'identificazione e l'innovazione per le attività commerciali dei club.

Il Pride e la Team Identification sono un elemento fondamentale dei beni e dei modelli di consumo dei tifosi. Pertanto, nonostante i risultati sportivi ricoprano un ruolo decisivo nel processo decisionale dei fan, i marketer possono sviluppare strategie per progettare o amplificare i sentimenti di orgoglio dei fan delusi quando la squadra non ha buone prestazioni sul campo, come suggerito da Pham e Sun (2020). I consumatori orgogliosi, infatti, possono garantire un seguito di fan appassionati e un generatore gratuito e affidabile di passaparola in grado di aumentare la disponibilità a pagare, da una parte, e ridurre le spese di marketing necessarie per promuovere il prodotto o servizio (Decrop & Derbaix, 2010), dall'altra. I manager possono comprendere che l'orgoglio è un antecedente dell'intenzione dei tifosi a co-creare valore per il club, sia andando allo stadio e agendo come "dodicesimo uomo" in campo attraverso il loro tifo, sia contribuendo alla generazione di idee per migliorare i prodotti esistenti o sviluppare nuove offerte. Perciò, implementare strategie che permettano ai manager di mantenere alto il sentimento di orgoglio dei tifosi diventa fondamentale per ottenere performance commerciali di successo, soprattutto considerando l'impatto negativo del fallimento sportivo, a tutti i livelli di identificazione. In questo senso, l'emozione, combinata con la creatività e l'innovazione, ha un enorme potenziale che deve essere esplorato. Evidenziando la connessione tra la squadra e la sua città attraverso l'uso di un approccio innovativo al merchandising, ad esempio, è possibile sia fornire opportunità per esprimere l'orgoglio e mostrare l'identificazione con una squadra preferita, un club e una comunità di fan affiliati (Stroebel et al., 2018) attraverso riferimenti culturali, sia cercare di aumentare la propria base di fan costruendo una sinergia tra lo sport e altre arti, come l'architettura, la moda o la musica, differenziando e rafforzando il proprio brand rispetto alla concorrenza.

Originalità del paper. *Questa ricerca contribuisce alla letteratura esistente sullo sport management in due modi. In primo luogo, il nostro studio associa per la prima volta il concetto di Innovative Product Design (IPD) al merchandising sportivo, fornendo ai ricercatori una prima ipotesi di modello per lo studio di un fenomeno sempre più attuale e rilevante come l'utilizzo di elementi innovativi nel concept delle maglie da gioco. Secondo, migliora la comprensione sulle attività di merchandising e sul suo impatto sul fan behavior, analizzando le variabili di Team Performance, Pride e Team Identification da un'altra prospettiva.*

Parole chiave: *sport marketing, fan behavior, team identification, team performance, merchandising, pride*

Bibliografia

- APOSTOLOPOULOU A., PAPADIMITRIOU D., SYNOWKA D., CLARK J.S. (2012), "Consumption and meanings of team licensed merchandise", *International Journal of Sport Management and Marketing*, vol. 12, n. 1-2, pp. 93-110.
- APOSTOLOPOULOU A., PAPADIMITRIOU D. (2018), "Examining the meanings and consumption of sport licensed products through team identification", *Journal Of Brand Management*, vol. 25, n. 6, pp. 536-548.
- BRAND FINANCE. (2020), "Football Annual 2020. London: Independent Publishing Network. Retrieved from <https://brandirectory.com/download-report/brand-finance-football-annual-2020-preview.pdf>
- BUTLER D., BUTLER R. (2021), "The evolution of the football jersey - an institutional perspective", *Journal of Institutional Economics*, vol. 17, n. 5, pp. 821-835.
- CHANG M., CONNAUGHTON D.P., JU I., KIM J., KANG J. (2019), "The impact of self-continuity on fans' pride and word-of-mouth recommendations: The moderating effects of team performance and social responsibility associations", *Sport Marketing Quarterly*, vol. 28, pp. 20-33.
- CHANG T.Z., WILDT A.R. (1994), "Price, product information, and purchase intention: an empirical study", *Journal of the Academy of Marketing Science*, vol. 22, n. 1, pp. 16-27.
- CIALDINI R.B., BORDEN R.J., THORNE A., WALKER M.R., FREEMAN S., SLOAN L.R. (1976), "Basking in reflected glory: Three (football) field studies", *Journal Of Personality And Social Psychology*, vol. 34, n. 3, pp. 366-375.
- CIRRINCIONE A., ESTES Z., CARÙ A. (2014), "The effect of ambient scent on the experience of art: Not as good as it smells", *Psychology & Marketing*, vol. 31, n. 8, pp. 615-627.
- DAMASIO A. (1999), *The feeling of what happens: Body, emotion, and consciousness*, New York: Harcourt Brace.
- DECROP A., DERBAIX C. (2010), "Pride in contemporary sport consumption: a marketing perspective", *Journal Of The Academy Of Marketing Science*, vol. 38, n. 5, pp. 586-603.
- DELOITTE SPORTS BUSINESS GROUP. (2021b), "Testing Times. Manchester. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/it/Documents/consumer-business/DeloitteFootballMoneyLeague2021.pdf>
- Dodds, W., Monroe, K., Grewal, D. (1991), "Effects of Price, Brand, and Store Information on Buyers' Product Evaluations. *Journal Of Marketing Research*, vol. 28, n. 3, pp. 307-319.
- DREYER D.R. (2014), "Perceptions of rivalry", *Political Science and Politics*, vol. 47, n. 1, pp. 195-198.
- FINK J.S., TRAIL G.T., ANDERSON D.F. (2002), "An examination of team identification: Which motives are most salient to its existence? ", *International Sports Journal*, vol. 6, pp. 195-207.
- FUNK D.C., JAMES J. (2001), "The psychological continuum model: a conceptual framework for understanding an individual's psychological connection to sport", *Sport Management Review*, vol. 4, n. 2, pp. 119-150.

- HOLBROOK C., PIAZZA J., FESSLER D. (2014), "Conceptual and empirical challenges to the "authentic" versus "hubristic" model of pride", *Emotion*, vol. 14, n. 1, pp. 17-32.
- HOMBURG C., SCHWEMMLE M., KUEHNL C. (2015), "New product design: Concept, measurement, and consequences", *Journal of Marketing*, vol. 79, n. 3, pp. 41-56.
- IANNELLI L., GIGLIETTO F., ROSSI L., ZUROVAC E. (2020), "Facebook digital traces for survey research: Assessing the efficiency and effectiveness of a Facebook Ad-based procedure for recruiting online survey respondents in niche and difficult-to-reach populations", *Social Science Computer Review*, vol. 38, n. 4, pp. 462-476.
- IQUII SPORT. (2022), "The European Football Club Report. 35th Edition. Retrieved from https://sport.iquii.com/pdf/EUROPEAN_FOOTBALL_CLUB_IQUIISPORT_MAY_2021.pdf
- KAHLE L.R., KAMBARA K.M., ROSE, G.M. (1996), "A functional model of fan attendance motivations for college football", *Sport Marketing Quarterly*, vol. 5, n. 4, pp. 51-60.
- KATZENBACH J. (2003), "Pride: a strategic asset", *Strategy & Leadership*, vol. 31, n. 5, pp. 34-38.
- KIM T.H., KO Y.J., PARK C.M. (2013), "The influence of event quality on revisit intention: Gender difference and segmentation strategy", *Managing Service Quality: An International Journal*, vol. 23, n. 3, pp. 205-224.
- KIM Y., TRAIL G., KO Y. (2011), "The influence of relationship quality on sport consumption behaviors: An empirical examination of the relationship quality framework", *Journal of Sport Management*, vol. 25, pp. 576-592.
- KO Y.J., ZHANG J.J., CATTANI K., PASTORE D.L. (2011), "Assessment of event quality in major spectator sports", *Managing Service Quality: An International Journal*, vol. 21, n. 3, pp. 304-322.
- KWAK D., KIM Y., HIRT E. (2011), "Exploring the Role of Emotions on Sport Consumers' Behavioral and Cognitive Responses to Marketing Stimuli", *European Sport Management Quarterly*, vol. 11, n. 3, pp. 225-250.
- KWAK D., KWON Y., LIM C. (2015), "Licensing a sports brand: effects of team brand cue, identification, and performance priming on multidimensional values and purchase intentions", *Journal Of Product & Brand Management*, vol. 24, n. 3, pp. 198-210
- KWON H.I., TRAIL G., JAMES J.D. (2007), "The mediating role of perceived value: Team identification and purchase intention of team licensed apparel", *Journal of Sport Management*, vol. 21, n. 4, pp 540-554.
- LEAR K., RUNYAN R.C., WHITAKER W.H. (2009), "Sports celebrity endorsements in retail products advertising", *International Journal of Retail & Distribution Management*, vol. 37, n. 4, pp. 308-321.
- LOCK D., FUNK D.C., DOYLE J.P., MCDONALD H. (2014), "Examining the longitudinal structure, stability, and dimensional interrelationships of team identification", *Journal of Sport Management*, vol. 28, pp. 119-135.
- MADRIGAL R., CHEN J. (2008), "Moderating and Mediating Effects of Team Identification in Regard to Causal Attributions and Summary Judgments Following a Game Outcome", *Journal Of Sport Management*, vol. 22, n. 6, pp. 717-733.
- MAZODIER M., HENDERSON C., BECK J. (2018), "The Long Reach of Sponsorship: How Fan Isolation and Identification Jointly Shape Sponsorship Performance", *Journal Of Marketing*, vol. 82, n. 6, pp. 28-48.
- MOON H., MILLER D., KIM S. (2013), "Product Design Innovation and Customer Value: Cross-Cultural Research in the United States and Korea", *Journal Of Product Innovation Management*, vol. 30, n. 1, pp. 31-43.
- MULLIN B.J., HARDY S., SUTTON W.A. (2007), *Sport marketing*, 3rd ed. Champaign, IL: Human Kinetics.
- NALBANTIS G., FAHRNER M., PAWLOWSKI T. (2017), "The Demand for Licensed Merchandise in Sports-On the Purchase Channel Choice", *Journal Of Sport Management*, vol. 31, n. 5, pp. 433-451.
- O'REILLY N., FOSTER G., MURRAY R., SHIMIZU C. (2015), "Merchandise sales rank in professional sport", *Sport, Business And Management: An International Journal*, vol. 5, n. 4, pp. 307-324.
- PAEK B., MORSE A., HUTCHINSON S., LIM C. (2021), "Examining the relationship for sport motives, relationship quality, and sport consumption intention", *Sport Management Review*, vol. 24, n. 2, pp. 322-344.
- PAN D., BAKER J. (2005), "Factors, Differential Market Effects, and Marketing Strategies in the Renewal of Season Tickets for Intercollegiate Football Games", *Journal Of Sport Behavior*, vol. 28, n. 4, pp. 351-377.
- PHAM M., SUN J. (2020), "On the Experience and Engineering of Consumer Pride, Consumer Excitement, and Consumer Relaxation in the Marketplace", *Journal Of Retailing*, vol. 96, n. 1, pp. 101-127. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0022435919300806>
- PIMENTEL R.W., REYNOLDS K.E. (2004), "A model for consumer devotion: affective commitment with proactive sustaining behaviors", *The Academy of Marketing Review*, vol. 5, n. 1, pp. 1-45.
- PU H., JAMES J. (2017), "The distant fan segment", *International Journal Of Sports Marketing And Sponsorship*, vol. 18, n. 4, pp. 418-438.
- SIRGY M.J., LEE D.J., JOHAR J., TIDWELL J. (2008), "Effect of self-congruity with sponsorship on brand loyalty", *Journal of Business Research*, vol. 61, n. 10, pp. 1091-1097.
- SOSCIA I. (2007), "Gratitude, delight, or guilt: The role of consumers' emotions in predicting postconsumption behaviors", *Psychology & Marketing*, vol. 24, n. 10, pp. 871-894.
- STRIDE C., WILLIAMS J., MOOR D., CATLEY N. (2015), "From Sportswear to Leisurewear: The Evolution of English Football League Shirt Design in the Replica Kit Era", *Sport In History*, vol. 35, n. 1, pp. 156-194.
- STROEBEL T., WORATSCHEK H., DURCHHOLZ C. (2019), "Clothes Make the Fan: The Effect of Team Merchandise Usage on Team Identification, Fan Satisfaction and Team Loyalty", *Journal Of Global Sport Management*, vol. 6 n. 2, pp. 185-202.

- SUTTON W.A., MCDONALD M.A., MILNE G.R., CIMPERMAN J. (1997), "Creating and fostering fan identification in professional sports", *Sport Marketing Quarterly*, vol. 6, pp. 15-22.
- UEFA (2021), "Club Licensing Benchmarking Report - Football during the pandemic", *The European Club Footballing Landscape report* [online], available at: <https://editorial.uefa.com/resources/026a-128c5dffdb5f-64d49e6e5300-1000/210615_ecfl_pandemic_eng.pdf> [Accessed 10 September 2021].
- WANN D.L., TUCKER K.B., SCHRADER M.P. (1996), "An Exploratory Examination of the Factors Influencing the Origination, Continuation, and Cessation of Identification with Sports Teams", *Perceptual and Motor Skills*, vol. 82, n. 3, pp. 995-1001.

The transition towards Industry 5.0 in the manufacturing sector: Seeking a new model

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Background. *The Fourth Industrial Revolution (also known as Industry 4.0) began in 2011 as a project inside the German government's high-tech plan. It took the notion of Cyber Physical Systems (CPS) (Vogel-Heuser et al., 2016) and turned it into Cyber Physical Production Systems (CPPS) (Zuehlke, 2010). SmartFactory is one of Industry 4.0's core linked efforts (Jerman, 2021). The phrase Industry 4.0 was first used publicly in 2011 at the Hannover Fair (Vogel-Heuser et al., 2016), and it is based on the descriptions of the first three Industrial Revolutions below. The move from manual production methods to steam or water-powered equipment characterized the First Industrial Revolution.*

The Fifth Industrial Revolution arrived as corporations began to embrace Industry 4.0. (Industry 5.0). Industry 5.0 is understood to recognize the power of industry to achieve societal goals beyond jobs and growth (Xu et al., 2021), to become a resilient provider of prosperity, by ensuring that production respects our planet's boundaries and puts the well-being of industry workers at the centre of the production process (European Economic and Social Committee, 2021). Industry 5.0 is based on the observation or assumption that Industry 4.0 focuses less on the basic concepts of social justice and sustainability and more on digitalization and AI-driven technologies for enhancing production efficiency and flexibility (Xu et al., 2021). Studies have recently been conducted to highlight how we could also speak of I4.0 and Society 5.0. Potočan et al. (2021) present findings from research on how Society 5.0 balances Industry 4.0, responsible economic development, and social problem resolution by advancing corporate social responsibility (CSR) in enterprises. Their findings propose that technology be included into CSR models, that individuals' social problems be solved regionally, and that CSR's environmental, social, and economic elements be changed in response to the circumstances of Society 5.0. In addition, this research has resulted in recommendations for improving CSR practice in firms through responsible operations and conduct based on modern society's controlling environmental and social circumstances. It also highlighted new possibilities for individuals and groups to use human-centered society in interest-based ways. In such a scenario, IoT (including industrial IoT (IIoT)) is a rapidly evolving technology that complements old and common Internet of people and is a key component of Industry 4.0 and Society 5.0 automation (Skobelev et al., 2017).

According to the official Recommendation ITU-Y.2060 - Internet of Things Overview, The Internet of Things (IoT) is a global infrastructure for the information society that enables improved services by linking (physical and virtual) things using existing and evolving interoperable information and communication technologies (Sologub et al., 2013). Cisco coined the phrase "Internet of Everything" (IoE) in 2013, which is believed to be broader than Internet of Things. The networked connection of people, data, process, and things," according to Cisco. The Internet of Things is one of many technology transitions that make up the IoE (Sologub et al., 2013). It is self-evident that IoT (IIoT, IoE) application necessitates the development of a variety of forward-thinking technologies, such as sensors (intellectual sensors, smart dust etc.), telecommunication, and so on. It will allow "intelligence" to be contained in a "thing" during the manufacturing process. IoT (IoE) should not, however, be a technology for the sake of technology in Society 5.0 (as it is in Industry 4.0). For instance, referring to the environmental part of the Society 5.0, I4.0 proposes and integrates a range of technologies, from additive manufacturing, smart sensors, autonomous mobile robots, augmented reality and artificial intelligence, to name but a few. Each of these technologies could affect environmental performance in some way, positively but also negatively.

There are also some unexplored territories of the integration between I4.0 and environmental management. These new digital technologies are ultimately based on electronic components, and it is well-known how discharged electronic equipment often contain chemicals which are harmful to people and the environment (Liao et al., 2013; Luan et al., 2013); not to mention the exploitation of workers and mines in certain areas of Africa (Idemudia et al, 2020) due to rare raw materials. Therefore, we need to identify the potential I4.0 technologies affecting environmental performance, the principles of Society 5.0 and secondly rank the contribution of these technologies to the performance. This digital industrial revolution represents the dawn of a new era for many companies worldwide, which may use I4.0 technologies in their strategic plans to improve performance related to costs, quality, productivity, scheduling and customisation of products and services (Chiarini, 2021). In a period in which environmental concerns are growing daily, the

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manufacturing industry is embracing I4.0 technologies. Consequently, I4.0 has been studied for its effects on environmental performance and its potential to create more environmentally friendly businesses. Nevertheless, it is well known that each industrial revolution has also endangered the environment. During the First Industrial Revolution, for instance, the United Kingdom suffered terrible air pollution from the burning of coal, while other industrial revolutions have led to severe environmental impacts such as resource consumption, waste and carbon emissions.

We could think about the use of some plastics considered at the beginning as a revolution in terms of costs and quality characteristics, but now a great concern for the environment. Therefore, while we may be confident about the positive effects of I4.0 on cost reduction, quality and service, the jury is still out about the pros and cons of adopting I4.0 technologies for improving environmental and social performance towards the so-called Industry 5.0.

Objectives. Industry 5.0 (I5.0) is a novel model that could help academics and practitioners overcome some of the challenges associated with implementing Industry 4.0 (I4.0), particularly in the manufacturing sector. Collaboration robots, autonomous mobile vehicles, smart sensors and devices, smart human interfaces, cloud computing, artificial intelligence, and other digital technologies are all part of I4.0. Many manufacturing businesses have used these technologies, causing concern of job loss as well as loss of empowerment and decision-making abilities. Furthermore, these technologies are suspected of having negative environmental consequences in terms of electricity consumption and electronic trash after their useful lives have expired. As a result, we can deduce that these technologies may pose certain challenges in terms of social and environmental sustainability. According to the 2020's webpages of the European Union (2020), I5.0 contributes to 3 of the Commission's priorities: "An economy that works for people", "European Green Deal" and "Europe fit for the digital age".

The European Commission has clear policy initiatives towards I5.0 such as adopting a human-centric approach, especially when we come to artificial intelligence; up-skilling and re-skilling European workers regarding the new digital technologies; developing sustainable industries and a transition towards circular economy; speeding up investments and research about Industry 5.0. However, the high-level expert group of the Commission is still developing a transformation and innovation policy for I5.0 and there is a complete lack in terms of how an I5.0 operational model could be and how to develop it in our organizations.

Thousands of researchers working on these areas, as well as industrial companies and other stakeholders, would benefit greatly from the development of an I5.0 model. Even the European Commission is aware of this, as evidenced by its dedicated I5.0 homepage, and is working to develop regulations for I5.0 investments and research. As a result, the primary goals of this research project are to:

- improve the Industry 4.0 model and its digital technologies making them more human-centred and environmentally sustainable
- developing and validating a complete I5.0 model from a strategic, operational and performance measurement point of view,
- developing the I5.0 model integrating I4.0 with other models such as Lean Production, Quality Management and Corporate Social Responsibility (CSR), and
- developing a framework to help manufacturing companies successfully plan and implement the Industry 5.0 model.

Methodology. This study was started by attempting to comprehend the current state of the I5.0 discussion. The human-centric progression of Industry 4.0 (I4.0) is represented by the Industry 5.0 (I5.0) paradigm (Nahavandi, 2019). I4.0 is well-known for being technology-driven, but I5.0 should be more value-driven, with value created for stakeholders including employees, communities, institutions, unions, and so on. I5.0 was defined by Skobelev et al. (2017) as the transition from digital manufacturing to digital society. In this sense, whatever I5.0 model is used, social and environmental sustainability are unavoidable concepts, and models like Lean Production and Quality Management can help to better involve employees in decision-making.

The literature review demonstrates that still there is no trace of a complete I5.0 model where I4.0 could be integrated with CSR, Lean Production and Quality Management principles and tools. Some authors have started discussing how I4.0 could be supported and improved by CSR tools principles. Cyfert et al. (2021) suggested that the increase in the use of management solutions supporting Industry 4.0 in the wake of the COVID-19 crisis will increase the importance of the economic, social, and environmental dimensions of corporate social responsibility. The authors concluded that management solutions supporting I4.0 should be linked with CSR. However, the paper does not propose specifically how to integrate the two models. Similarly, other authors highlighted the importance of the I4.0 and CSR integration for a sustainable human resource management framework (Scavarda et al., 2019) and I4.0 for cleaner production and circular economy within the context of business ethics (Shayganmehr et al., 2021).

There is also disagreement in terms of how to define the integration between I4.0 and CSR. For instance, Băndoi et al. (2022) demonstrated how some companies that are implementing I4.0 could exceed the economic, legal and ethical expectations through a model named CSR 4.0, which is a sort of I4.0 and CSR integration. In like manner, Saiz-Alvarez (2019) named CSR 2.0 a socially inclusive business strategy for the I4.0.

Other authors proposed Lean Production, Quality Management and its evolution into the so-called Six Sigma, as a way to transform I4.0 into something more human-centric and worker-inclusive. Chiarini et al. (2020) studied the strategic and technological development of a typical I4.0 model for the manufacturing sector, highlighting the relevance of people involvement through Lean production tools and principles. Similarly, it was analysed the impacts of Lean Six Sigma on I4.0 emphasizing the relevance of the problem solving and decision-making process introduced by Lean Six Sigma. The authors claimed how some I4.0 technologies such as artificial intelligence can just be of some

help, but they cannot substitute human intuition and problem solving. Radziwill (2018), Watson (2019), Chiarini (2020) and Sony et al. (2020) were amongst the first authors who saw how Quality Management people could be threatened by the new I4.0 technologies. Nevertheless, at the same time the authors were in favor of a change of attitude towards these technologies and an increase of knowledge in order to improve the skills of these employees. We can recap the literature review, claiming that still we are missing a complete I5.0 model.

The I4.0 model seems to need a strong “digital leadership” which could be combined with a similar leadership for CSR (Angus-Leppan et al., 2010; Visser, 2011). Characteristics and skills of this charismatic leader are contained in the table below and range from being visionary to being the driver of innovation within the organization (de Araujo et al. 2021).

Regarding the integrations amongst the several I4.0 digital technologies and CSR processes and management systems, from the literature review we can find several applications about identification and traceability of solid waste through RFID and sensors (Condemi et al., 2019; de Fazio et al. 2019). Furthermore, Artificial Intelligence (AI) have found different applications concerning energy management, environmental monitoring systems, reduction of consumptions, recycling, as well as prevention/reduction of environmental impacts in general (Zhang et al., 2021).

This basic research wants to be the first one to develop a complete I5.0 model, developing a guideline for the organisations that are struggling to implement I4.0 technologies at the same time sustaining these social and environmental concepts. The research will focus on the manufacturing sector that has been highly impacted by the new digital technologies adoption and accounts for 15% of the European GDP providing around 33 million jobs. To the aim, the research will investigate what kind of strategies, operational processes and performance measures constitutes the I5.0 model. In the next section, we propose a theoretical model, mainly derived from the literature review results, which must be validated. The characteristics of this model emerged using a thematic context analysis (TCA). The literature review generated a large volume of information, which was analysed, labelled and grouped using TCA. An adequate TCA depicts the thematic content of transcriptions by identifying common subjects in the texts (Creswell 2013). TCA works using the following pattern:

- highlighting in the text any notes that are relevant to the topic of the exploratory research,
- initially coding each distinct unit of meaning,
- grouping similar codes to create more focused categories, and
- labelling categories.

In order to achieve such goal, the main stages of the future research will be:

- a large collection of data and information from hundreds of European manufacturing companies that are managing I4.0 implementation and social and environmental issues at the same time,
- a comparison and debate with other European universities and research institutes, and
- the development of the final I5.0 model and the publication of some articles in the main academic journals.

Findings. The following proposed model, which represents a first preliminary model, was created inductively from the results of the literature review (Table 1). Data and information received from manufacturing companies will be used to complete and validate the model's properties.

Tab. 1: The tentative proposed model

Theme	Characteristics to be validated
Leadership	<ul style="list-style-type: none"> - Digital oriented - CSR oriented - Personal commitment and involvement - Visionary - Inspiring people - First mover to technology - Driver of the innovation - Risk manager
Integration of the systems and processes	<ul style="list-style-type: none"> - Horizontal integration for the operations and the supply chain - Vertical integration within the ERP - Integration with the external stakeholders (e.g. communities, customers, public administrations, etc.) - Problem solving and decision making system based on Lean Production and Quality Management principles - Integration with CSR management systems such as ISO 14001, ISO 45001, SA8000, AA1000, etc.
Operational integration	<ul style="list-style-type: none"> - Risk management of the different kinds of integrations - Solid waste management through RFID and smart sensors - Energy management by means of smart sensors and AI - Analytics and AI for CSR performance - Monitoring and controlling CSR events through I4.0 technologies

Source: our elaboration

Research limits. *This research was exploratory and based only on literature review results, which implies that it has some limitations in terms of generalizing the results. Thus, we require further research to confirm this paper's findings, especially through case studies in different situations and data collection. Practitioners could implement in action the theory developed in this paper, while academics could more systematically research the topic to develop different Industry 5.0 models. Future research will need to examine all the I4.0 digital technologies and the circumstances in which they could be used to improve CSR.*

Practical implications. *The proposed model, even if it has not been validated yet, could be used by managers and consultants as a guideline to integrate I4.0 technologies and processes with CSR. The above-mentioned tentative model present several characteristics, each one can be implemented and evaluated in different kinds of organisations.*

Originality of the study. *This is one of the first studies which tries to explore how to develop a complete Industry 5.0 model*

Keywords: *Industry 5.0; Industry 4.0; Corporate Social Responsibility; Lean, Quality Management*

References

- ANGUS-LEPPAN T., METCALF L., BENN S. (2010), "Leadership styles and CSR practice: An examination of sensemaking, institutional drivers and CSR leadership", *Journal of Business Ethics*, vol. 93, n. 2, pp. 189-213.
- BĂNDOI A., SITNIKOV C., TĂNASIE A., RIZA I. (2022), "CSR 4.0 Dimensions in Relation to the Advantages of Industry 4.0", in GRIMA S., ÖZEN E., GONZI R.E.D. (Eds.), *Insurance and Risk Management for Disruptions in Social, Economic and Environmental Systems: Decision and Control Allocations within New Domains of Risk* (Emerald Studies in Finance, Insurance, and Risk Management), Emerald Publishing, Bingley, pp. 257-275.
- CHIARINI A. (2020), "Industry 4.0, quality management and TQM world. A systematic literature review and a proposed agenda for further research", *The TQM Journal*, vol. 32, n. 4, pp. 603-616.
- CHIARINI A., BELVEDERE V., GRANDO A. (2020), "Industry 4.0 strategies and technological developments: An exploratory research from Italian manufacturing companies", *Production Planning & Control*, vol. 31, n. 16, pp. 1385-1398.
- CHIARINI, A. (2021), "Industry 4.0 technologies in the manufacturing sector: Are we sure they are all relevant for environmental performance?", *Business Strategy and the Environment*, vol.30, n. 7, pp. 3194-3207.
- CONDEMI A., CUCCHIELLA F., SCHETTINI D. (2019), "Circular economy and E-waste: an opportunity from RFID TAGs", *Applied Sciences*, vol. 9, n. 16, pp. 1-19.
- CRESWELL J.W. (2013), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage, London.
- CYFERT S., GLABISZEWSKI W., ZASTEMPOWSKI M. (2021), "Impact of management tools supporting industry 4.0 on the importance of csr during covid-19. Generation z", *Energies*, vol. 14, n. 6, pp. 1-13.
- DE ARAUJO L.M., PRIADANA S., PARAMARTA V., SUNARSI D. (2021), "Digital leadership in business organizations", *International Journal of Educational Administration, Management and Leadership*, vol. 2, n. 1, pp. 45-56.
- DE FAZIO R., CORCIONE C.E., GRECO A., FERRARI F., STRIANI R., CATARINUCCI L., FORNARO, A. (2019), "Sensors-based treatment system of the organic waste with RFID identification and on-cloud traceability", *IEEE 8th International Workshop on Advances in Sensors and Interfaces (IWASI)*, pp. 245-250.
- EUROPEAN ECONOMIC AND SOCIAL COMMITTEE (2021), *Industry 5.0*, available at: https://ec.europa.eu/info/research-and-innovation/research-area/industrial-research-and-innovation/industry-50_en (accessed on 23 February 2022).
- EUROPEAN UNION (2020), *Industry 5.0 - What this approach is focused on, how it will be achieved and how it is already being implemented*, available at: https://ec.europa.eu/info/research-and-innovation/research-area/industrial-research-and-innovation/industry-50_en (accessed on 01 January 2022).
- IDEMUDIA U., KWAKYEWAH C., MUTHURI J. (2020), "Mining, the environment, and human rights in Ghana: An area of limited statehood perspective", *Business Strategy and the Environment*, vol. 29, n.7, pp. 2919-2926.
- JERMAN A., PEJIĆ BACH M., ALEKSIĆ A. (2020), "Transformation towards smart factory system: Examining new job profiles and competencies", *Systems Research and Behavioral Science*, vol. 37, n. 2, pp. 388-402.
- LIAO C.S., LOU K R., GAO C.T. (2013), "Sustainable development of electrical and electronic equipment", *Business Strategy and the Environment*, vol. 22, n. 1, pp. 36-48.
- LUAN C.J., TIEN C., WU P.H. (2013), "Strategizing environmental policy and compliance for firm economic sustainability: Evidence from Taiwanese electronics firms", *Business Strategy and the Environment*, vol. 22, n. 8, pp. 517-546.
- LUUKKONEN T. (2012), "Conservatism and risk-taking in peer review: Emerging ERC practices", *Research Evaluation*, vol. 21, n. 1, pp. 48-60.
- NAHAVANDI S. (2019), "Industry 5.0. A human-centric solution", *Sustainability*, vol. 11, n. 16, pp. 1-13.
- POTOČAN V., MULEJ M., NEDELKO Z. (2021), "Society 5.0: balancing of Industry 4.0, economic advancement and social problems", *Kybernetes*, vol. 50, n. 3, pp. 794-811.
- RADZIWILL N. (2018), "Let's get digital", *Quality Progress*, vol 51, n. 10, pp. 24-29.
- SAIZ-ALVAREZ J.M. (2019), "Managing social innovation through CSR 2.0 and the quadruple helix: A Socially

- inclusive business strategy for the Industry 4.0”, *Organizational Transformation and Managing Innovation in the Fourth Industrial Revolution*, IGI Global, Pennsylvania (U.S.A), pp. 228-244.
- SCAVARDA A., DAÚ G., SCAVARDA L.F., GOYANNES GUSMÃO CAIADO R. (2019), “An analysis of the corporate social responsibility and the Industry 4.0 with focus on the youth generation: A sustainable human resource management framework”, *Sustainability*, vol. 11, n. 18, 5130.
- SHAYGANMEHR M., KUMAR A., GARZA-REYES J.A., MOKTADIR M.A. (2021), “Industry 4.0 enablers for a cleaner production and circular economy within the context of business ethics: A study in a developing country”, *Journal of Cleaner Production*, vol. 281, 125280.
- SKOBELEV P.O., BOROVNIK S.Y. (2017), “On the way from Industry 4.0 to Industry 5.0: From digital manufacturing to digital society”, *Industry 4.0*, vol. 2, n. 6, pp. 307-311.
- SOLOGUB A.V., SKOBELEV P.O., SIMONOVA E.V., TSAREV A.V., STEPANOV M.E., ZHILYAEV A.A. (2013), “The intellectual system of distributed control of group operations of a cluster of small spacecrafts in tasks of remote sensing of Earth”, *Information and Control Systems*, vol. 1, pp. 16-24.
- SONY M., ANTONY J., DOUGLAS J.A. (2020), “Essential ingredients for the implementation of Quality 4.0: a narrative review of literature and future directions for research”, *The TQM Journal*, vol. 32, n. 4, pp. 779-793.
- VISSER W. (2011), “The nature of CSR leadership: Definitions, characteristics and paradoxes”, *CSR International Paper Series*, vol. 4, pp. 1-10.
- VOGEL-HEUSER B., HESS D. (2016), “Guest editorial Industry 4.0–prerequisites and visions”, *IEEE Transactions on Automation Science and Engineering*, vol. 13, n. 2, pp. 411-413.
- WATSON G.H. (2019), “The ascent of quality 4.0”, *Quality Progress*, vol. 52, n. 3, pp. 24-30.
- XU X., LU Y., VOGEL-HEUSER B., WANG L. (2021), “Industry 4.0 and Industry 5.0: Inception, conception, and perception”, *Journal of Manufacturing Systems*, vol. 61, pp. 530-535.
- ZHANG X., SHU K., RAJKUMAR S., SIVAKUMAR V. (2021), “Research on deep integration of application of artificial intelligence in environmental monitoring system and real economy”, *Environmental Impact Assessment Review*, vol. 86, 106499.
- ZUEHLKE D. (2010), “SmartFactory: Towards a factory-of-things”, *Annual Reviews in Control*, vol. 34, n. 1, pp. 129-138.

To Trust or not to Trust? Hybrid Short Food Supply Chains

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Framing of the research. *The food sector is an important contributor to climate change, biodiversity loss and soil degradation. Thus, changing consumption patterns toward a more sustainable level seems to be a critical goal to achieve for a sustainable future. For these reasons, consumers' food choices play a crucial role in the shift toward increased sustainability (Dühr et al., 2021).*

Food consumption is an important and unavoidable part of everyday consumption, and it is a crucial factor for achieving environmental sustainability (Thøgersen, 2010). Moreover, the consumption community around sustainable food has amplified across the globe, and so has the demand for sustainable produce (Kushwah et al., 2019). In fact, due to increasing health awareness around the world, a healthy diet has attracted greater attention among consumers (Jones, 2009).

Consumers' decisions to purchase a product are often driven by different motivations such as taste, nutritional value, health, environment, farmers' welfare, sensory appeal, natural content, and ethical concern (Wojciechowska-Solis and Soroka, 2017; Zakowska-Biemans, 2011). In particular, health concern is found to be the primary motive to buy sustainable food (Zakowska-Biemans, 2011). Furthermore, consumer choices are influenced by the practical benefits of food, such as freshness, taste, healthfulness, appearance, and availability, (Mastronardi et al., 2019).

Consumer attention to sustainable foods is also underlined in some studies that focus on consumption habits. In particular, domestic consumption of sustainable food in Italy reaches the record figure of 3.3 billion in 2020 with a growth of 4.4% driven by the green turn of Italians favored by the emergence of Covid-19 (ISMEA, 2020).

Further surveys reveal that Italians' attention to food ingredients is growing. According to Nielsen (2016) 67% of respondents are concerned about the long-term impact that artificial ingredients could have on their health; 53% would be willing to pay a higher price for food and beverages that do not contain undesirable ingredients, but only 37% would be willing to sacrifice taste for healthier food. Thus, consumers are beginning to consider food as a source of wellness and are approaching their diets more selectively, with a greater interest in healthy products (Nielsen, 2016).

Considering the increasing concern that consumers have towards sustainable food production, and the origin and safety of food (Thomé et al., 2021), in recent years, the presence of Short Food Supply Chains (SFSCs) has gained relevance. With SFSCs scholars identified a type of sustainable supply chain aimed at reaching environmental, social, and ethical objectives (Enjolras and Aubert, 2018; Rajesh, 2018). SFSCs are characterized by a reduction of the number of intermediaries involved in supply chain activities, that allows consumers to re-establish a direct connection with producers (Paciarotti and Torregiani, 2021), giving them the chance to purchase quality products (Zoll et al., 2017; Garner and Ayala, 2018) at a reasonable price (Rainbolt et al., 2012). Indeed, as stated by Mastronardi et al. (2019), the success of SFSCs among consumers encompasses several reasons that can be categorized along three main dimensions: food quality and health, social and economic justice, and ecological sustainability. Nowadays, the SFSCs are various, ranging from forms of physical aggregation, such as on-farm selling, farmers' markets, market halls, collectives with consumers, and purchasing groups (Gilg and Battershil, 2000), as well as multiple forms of digital platforms. Regarding the latter, digital food platforms acquired unique relevance due to the context of the Covid-19 pandemic (Dal Gobbo et al., 2021), as they enable consumers to buy local, fresh, and traceable food comfortably from their smartphone, thus simplifying the logistics and the connection between distant producers and consumers (Dal Gobbo et al., 2021). Indeed, following a year of lockdown, consumers are willing to shift food shopping from traditional supermarkets towards producers' points of sale or online retailers (Hardcastle, 2021). Furthermore, the advantage of these digital SFSC is that they allow to reduce the distance between the final consumer and the producers: consumers are able to collect information on the origins and traditions of the food products, and the human component behind them, that allow to stimulate purchase intentions and a greater feeling of belongingness in the consumption

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community. Considering the Italian context, an example of successful digital SFSCs is “Cortilia”, which wants to bring “the countryside to your home” through a delivery service that connects local producers with consumers providing box schemes.

However, in online food purchasing, it has become difficult for the general consumers to build effective trust mechanisms using traditional methods such as smell, taste, or other physical attributes of food (Xiao et al., 2015). One of the common difficulties that internet grocery retailers have encountered is that sales tend to fall short of consumers’ expectations (Ramus and Nielsen, 2005; Zaohong and Huiyuan, 2013). The most prominent American internet-based supermarket failures are Webvan, Streamline, Homegrocer, Homeruns and Shoplink (Tanskanen et al., 2002). Also in Denmark, supermarkets have closed down their internet-based grocery shops, e.g., ISO, Favør/SuperBest and ISS (Ramus and Nielsen, 2005). Possible explanation of that might be the lack of trust to such platforms from the side of the consumer. Human component is a critical factor that affects consumers’ trust in the retail environment (Toufaily et al., 2013). In offline retail salesperson trust refers to the consumers’ beliefs that the salespeople will be faithful to their obligations, that vendors would treat consumers with high honesty (Jeon et al., 2021). Considering the fact that humans are programmed to pay attention to other humans, human variables have the particular potential to make an impact in retail settings, which comprise salespeople and customers (Kim and Kim, 2012). However, the human component is what online retail is missing. In order to overcome this limit and allow perceiving the human component in the digital retail, some of these platforms started including some elements of Artificial Intelligence, which imitates the human presence on the website. However, technological tools are not sufficient in building consumers’ trust and transmitting the human warmth behind these platforms. Given that buyers face realistic concerns, in this study we seek to understand if the presence of person-to-person interaction during one of the phases of the purchasing process in food digital platforms would help to strengthen consumers’ trust.

Purpose of the paper. Ensuring sustainable consumption and production patterns is one of the goals of Agenda 2030 for Sustainable Development (Goal n. 12).

It is widely recognized that food is one of the three consumption domains responsible for the largest share of environmental impact. In particular, Annunziata et al. (2016), affirm that food production and consumption contribute to several main environmental impacts such as carbon emissions, water pollution and biodiversity loss. As such, sustainable consumption is a central policy goal of the new millennium in national and international arenas, and consumers have a central role in the transition to sustainable food systems (Vittersø et al., 2015).

Support to regional production, fair prices for farmers, protection of small farms and rural communities are considered important drivers in influencing consumers’ sustainable choices (De Magistris and Gracia, 2016). Moreover, healthiness, and sustainability are crucial attribute in influencing food consumption (Verain et al., 2016). For example, Wang et al. (2022) showed that consumers consider sustainable food products as being environmentally friendly, healthier, and more nutritious. According to Chen et al. (2020) sustainable food is becoming more popular among consumers because they believe it is safer/healthier due to the use of less hazardous or chemical inputs.

Recently, due to the COVID-19 pandemic, consumers have increased their demand for sustainable, healthy, and quality products on online platforms (Qi et al., 2021). The development of digital platforms for purchasing sustainable food has grown exponentially in recent years as a result of the decreased accessibility of physical stores and individuals’ fears of being close to others (Tran, 2021). In fact, the pandemic has disrupted retail and increased e-commerce due to its convenience, economic benefits, and flexibility (Kim, 2020). However, online shopping is associated with multiple risks: financial risk, product risk, transaction security, time risk, and physiological risks (Adnan, 2014, Arrifin et al., 2018). This is particularly amplified in the online purchase of food products, where in addition to the risks explained above, consumers are purchasing products that impact their health and consumers may be resistant toward online purchasing due to their conception of food as something to be evaluated on-site prior to purchase (Fuentes, 2019). For example, the virtual nature of the E-commerce transaction process for sustainable food increases the risks and uncertainties that may exist in the transaction, which can lead to a lack of trust in consumers purchasing sustainable food (He et al., 2014). Therefore, it is of primary importance for consumers to shop on digital platforms that provide safe and reliable food products (De Bernardi et al., 2019).

The constant digital search for quality and reliable food has increased the development of Digital short food supply chains, where consumers can find food from a more sustainable short supply chain.

Digital short food supply chains provide consumers with a diverse range of options and the convenience of not leaving home (Colaço et al., 2022). In addition, these platforms allow consumers to know who the producers behind the products are, creating a sense of connection with the farmers (Paciarotti and Torregiani, 2021) and identifying with the values they convey, as well as promoting a sense of social embeddedness and togetherness (De Bernardi et al., 2019). However, even though short supply chains may have sustainable benefits greater than simple e-commerce, the inability of consumers to touch and smell food bypassing a potential distrust remains

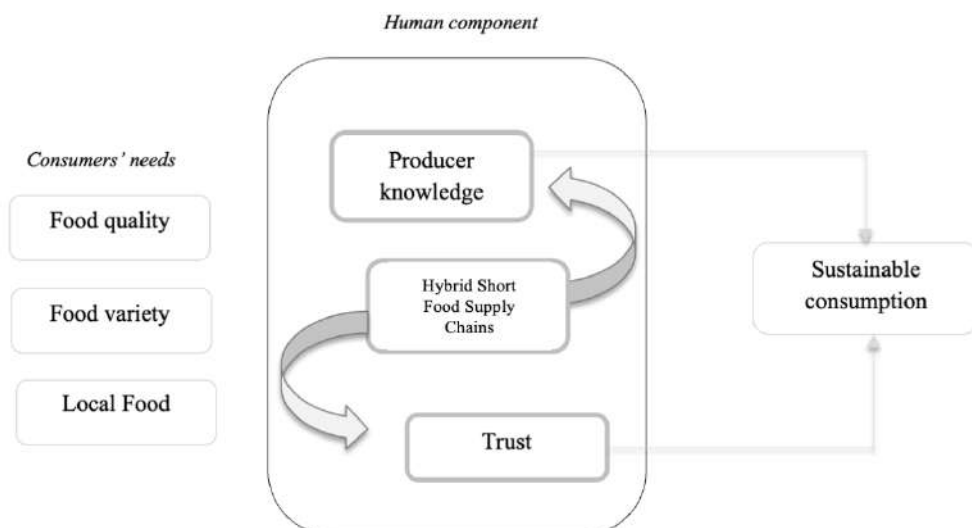
As such, also from a producers’ standpoint, it is pivotal to understand the various risks involved in the online market space to reduce them (Munikrishnan, 2021) and boost the customers’ trust and intention to purchase. Trust in online marketing involves a consumer’s perceived reliability on the brand, products, or services of vendors (Gefen et al., 2008). Given that in the online arena there is a clear lack of personal contact between the seller and buyer, this denotes higher risks for buyers (O’Cass and Carlson, 2012) resulting in low levels of perceived trust. In brick-and-mortar stores the reliability and honesty of salespeople in providing information contribute to building brand trust which positively affects consumer commitment, loyalty and purchasing (Schuller et al., 2018). However, digital platforms do not provide consumers with the presence of salespeople or experts who consumers can refer to. Digital

platforms lack a social presence component or human component (Toufaily et al., 2013). As digital platforms are online intermediaries, they have to deal with the issues of perceived risk and insecurity that consumers associate with Internet transactions (Nosi et al., 2021). Digital platforms need to be trustworthy in order to encourage purchases. As a compromise between brick-and-mortar stores and online platforms, this research focuses on Hybrid Short Food Supply Chains.

Possible Methodology. The aim of this research is to analyze the relevance of human component in fostering consumer's trust towards Hybrid Short Food Supply Chains. The purchase of sustainable food through online platforms has grown exponentially due to the variety of products available in a marketplace and to the quality of purchasable products (Cane and Parra, 2020). Through the platform, consumers can obtain information about a product by reducing the distance with the producer. However, some research maintains that marketplaces exclude certain activities that consumers may find crucial, such as seeing and touching the product. According to Grunert and Ramus (2005), the main disincentive to purchase food on online platforms is the lack of personal inspection of products. On the one hand, we argue that digital platforms offer a valuable contribution to connect small producers with consumers, thus playing an intermediary role. Through the digital platform, value can be created throughout the supply chain by shortening the distance between producers and consumers. On the other hand, the consumer's inability to touch and see the product can be a huge limitation for the success of the food marketplace, as the consumer's trust is lacking (Grunert and Ramus, 2005). Through a case study, the research aims to investigate the role of hybrid platforms as a response to the lack of trust in food marketplaces. Rediscovering the hybrid models of digital platforms implies investigating the role of the human component in bridging the distance generated by the platform.

To explore the role of the human component and the potential success of these hybrid forms, we will use a single case study methodology. Data will be collected during interviews conducted with customers of new hybrid platforms emerging in the Italian market. This hybrid platform utilizes the human component during the pick-up phase of the purchased food. Indeed, consumers, by picking up their purchase at a specific collection point, can directly meet the person who manages the e-commerce and who will be the guarantor of food quality. The authors have followed the methodological approach suggested by Yin (2009). First, a research topic and a suitable case were identified. Then, the context will be analyzed through multiple lenses by collecting data from different sources. A triangulation between the different sources will then be conducted. Specifically, data from different sources will be compared in order to assess their veracity, providing more meaningful insights. Consumer data can be collected in two stages. The authors will collect information from interviews and secondary external sources. A semi-structured interview was chosen as the primary methodology with which to interview consumers. This type of interview allows the interviewer the opportunity to prepare questions on certain topics, while allowing the interviewees a degree of freedom as they can provide open-ended responses (Rowley, 2012). In addition, semi-structured interviews are useful for gathering information on different topics that are deemed important by the interviewees. The themes that the interviews will address include consumers' needs to purchase local and quality food; consumers' attitudes towards the hybrid platform in terms of trust. The following template depicts the themes or constructs that will be addressed in the interviews:

Fig. 1. Interview template. Authors' source



Possible Findings and Practical and Theoretical implications. As anticipated, the objective of the research is to understand the effectiveness of hybrid food platforms in promoting sustainable and responsible consumption among consumers. However, many consumers are skeptical about buying food online because of the lack of opportunity to see or touch the product before purchase (Grunert and Ramus, 2005). In addition, the perceived risk by the consumer when buying food is greater because this type of product has a direct impact on health. Consequently, it turns out to be

central for consumers to purchase food on digital platforms that provide safe and reliable products (De Bernardi et al., 2019).

For these reasons our goal is to understand the connection between hybrid platforms and consumer trust. In fact, we think that hybrid platforms characterized by the presence of the human component are able to increase consumer confidence reducing the lack of trust in buying food online. In our case, this is made possible by the presence of the human component during the pickup phase of purchased food. In fact, consumers, during this phase, can meet directly the person in charge of e-commerce that will play the role of warrantor of food quality.

We will try to study these aspects through the conduct of a case study. In particular through the data that will be collected during the interview with consumers, it will be possible to understand the importance attributed by consumers to the purchase of local and high-quality food and consumers' perceptions and attitudes towards digital platforms in terms of trust. The data collected will give indications on the aspects considered relevant by the consumer when buying food online and will represent a useful tool on the side of retailers/producers to set up digital platforms able to satisfy consumers' needs.

A firm's success in online businesses depends largely on how it develops and reinforces e-consumer trust. Despite the widespread growth of digital platforms in the last 15 years, studies still witness issues with trust transfer from offline to online sales. This is especially relevant for such a delicate segment as online food retail, the sector where consumer trust is a crucial factor for purchase intention. The study finds that one of the beneficial differences between pure digital platforms and hybrid platforms is the role of the human component in developing e-consumer trust since a perceived higher level of social presence enhances trust. The study develops the topic of trustworthiness of digital platforms by linking them with conditions when consumers experience human presence during the purchase process.

Research limitations. In addition to the possible value of this contribution, some limitations need to be acknowledged. Firstly, even if the use of the case study allows us to obtain a richness of qualitative data regarding the phenomenon we analyze, the main limitation is its generalizability, which directly opens up avenues for future studies. One possible future research is to identify other examples of Hybrid Short Food Supply Chains and confront them with our case study through a comparative- case study approach, to understand whether the results obtained in our case can be confirmed, expanded or revised in some parts. Second, our research is conducted only with a national focus. Potential differences related to cultures and food consumption habits might generate different results in other countries, therefore further research may extend the research out of Italy, expanding also the sample of analysis. Thirdly, we invite further research that uses a mix of qualitative and quantitative methods to dig deeper into the topics that we explored.

Keywords: Hybrid Platform; Food Retail; Sustainability; Consumer Trust

References

- ADNAN H. (2014), "An analysis of the factors affecting the online purchasing behaviour of Pakistani consumers", *International Journal of Marketing Studies*, vol. 6, n. 5, pp.133-148.
- ANNUNZIATA A., VECCHIO R. (2016), "Organic farming and sustainability in food choices: an analysis of consumer preference in Southern Italy", *Agriculture and agricultural science procedia*, vol. 8, pp. 193-200.
- CANE M., PARRA C. (2020), "Digital platforms: mapping the territory of new technologies to fight food waste", *British Food Journal*, vol. 122, n. 5, pp. 1647-1669.
- CHEN X., GAO Z., MCFADDEN B.R. (2020), "Reveal preference reversal in consumer preference for sustainable food products", *Food Quality and Preference*, vol. 79, 103754.
- COLAÇO R., E SILVA J.D.A. (2022), "Exploring the e-shopping geography of Lisbon: Assessing online shopping adoption for retail purchases and food deliveries using a 7-day shopping survey", *Journal of Retailing and Consumer Services*, vol. 65, 102859.
- DAL GOBBO A., FORNO F., MAGNANI N. (2021), "Making "good food" more practicable? The reconfiguration of alternative food provisioning in the online world", *Sustainable Production and Consumption*, vol. 29, pp. 862-871.
- DE BERNARDI P., BERTELLO A., VENUTI F. (2019), "Online and on-site interactions within alternative food networks: Sustainability impact of knowledge-sharing practices", *Sustainability*, vol. 11, n. 5, 1457.
- DE MAGISTRIS T., GRACIA A. (2016), "Consumers' willingness-to-pay for sustainable food products: the case of organically and locally grown almonds in Spain", *Journal of Cleaner Production*, vol. 118, pp. 97-104.
- DIHR M., BERTHOLD A., SIEGRIST M., SÜTTERLIN B. (2021), "Consumers' knowledge gain through a cross-category environmental label", *Journal of Cleaner Production*, vol. 319, 128688.
- ENJOLRAS G., AUBERT M. (2018), "Short food supply chains and the issue of sustainability: a case study of French fruit producers", *International Journal of Retail & Distribution Management*, vol. 46, n. 2, pp. 194-209.
- FUENTES C. (2019), "Smart consumers come undone: breakdowns in the process of digital agencing", *Journal of Marketing Management*, vol. 35, n. 15-16, pp. 1542-1562.
- GARNER B., AYALA C. (2018), "Consumer supply-chain demands and challenges at farmers' markets", *British Food Journal*, vol. 120, n. 12, pp. 2734-2747.

- GEFEN D., BENBASAT I., PAVLOU P. (2008), "A research agenda for trust in online environments", *Journal of Management Information Systems*, vol. 24, n. 4, pp. 275-286.
- GILG A.W., BATTERSHILL M. (2000), "To what extent can direct selling of farm produce offer a more environmentally friendly type of farming? Some evidence from France", *Journal of Environmental Management*, vol. 60, n. 3, pp. 195-214.
- GRUNERT K.G., RAMUS K. (2005), « Consumers' willingness to buy food through the internet: A review of the literature and a model for future research", *British Food Journal*, vol. 107, n. 6, pp. 381-403.
- GUTHRIE C., FOSSO-WAMBA S., ARNAUD J.B. (2021) "Online consumer resilience during a pandemic: An exploratory study of e-commerce behavior before, during and after a COVID-19 lockdown", *Journal of Retailing and Consumer Services*, vol. 61, 102570.
- HARDCASTLE, KATE (2021), "2022: The Year Of Shopping Smaller & Locally?", *Forbes*, Dec.29 (online), available at: <https://www.forbes.com/sites/katehardcastle/2021/12/29/2022-the-year-of-shopping-smaller-locally/?sh=1c0598ba2c24> (Accessed: 05.01.2022)
- HE D., HAN X., LI Y. (2014), "Factors affecting consumers' purchase intention in electronic commerce of fresh agro-products", *Journal of Northwest A&F University (Social Science Edition)*, vol. 14, n. 4, pp. 85-91.
- ISMEA (2020), 'Bio in cifre 2020', available at: <http://www.sinab.it/sites/default/files/share/BIO%20IN%20CIFRE%202020.pdf>
- JEON H.G., KIM C., LEE J., LEE K.C. (2021), "Understanding E-Commerce Consumers' Repeat Purchase Intention: The Role of Trust Transfer and the Moderating Effect of Neuroticism", *Frontiers in Psychology*, vol. 12, 2059.
- JONES C.S. (2009), "Taking up space? How customers react to health information and health icons on restaurant menus", *Journal of Foodservice Business Research*, vol. 12, n.4, pp. 344-363.
- KIM J.E., KIM J. (2012), "Human factors in retail environments: a review", *International journal of retail & distribution management*, vol. 40, n. 11, pp. 818-841.
- KIM R.Y. (2020), "The impact of COVID-19 on consumers: Preparing for digital sales", *IEEE Engineering Management Review*, vol. 48, n. 3, pp. 212-218.
- KUSHWAH S., DHIR A., SAGAR M., GUPTA B. (2019), "Determinants of organic food consumption. A systematic literature review on motives and barriers", *Appetite*, vol. 143, 104402.
- MASTRONARDI L., ROMAGNOLI L., MAZZOCCHI G., GIACCIO V., MARINO D. (2019), "Understanding consumer's motivations and behaviour in alternative food networks", *British Food Journal*, vol. 121, n. 9, pp. 2102-2115.
- MUNIKRISHNAN U.T., HUANG K., MAMUN A.A., HAYAT N. (2021), "Perceived Risk, Trust, and Online Food Purchase Intention Among Malaysians", *Business Perspectives and Research*, 22785337211043968.
- NIELSEN (2016, September 22), *New Eating Trends in China: the Healthier the Better*. Nielsen. <https://www.nielsen.com/cn/en/press-releases/2016/new-eating-trends-in-china-the-healthier-the-better/>
- NOSI C., PUCCI T., MELANTHIOU Y., ZANNI L. (2021), "The influence of online and offline brand trust on consumer buying intention", *EuroMed Journal of Business*, ahead-of(ahead-of-print).
- O'CASS A., CARLSON J. (2012), "An e-retailing assessment of perceived website-service innovativeness: implications for website quality evaluations, trust, loyalty and word of mouth", *Australasian Marketing Journal*, vol. 20, n. 1, pp. 28-36.
- PACIAROTTI C., TORREGIANI F. (2021), "The logistics of the short food supply chain: A literature review", *Sustainable Production and Consumption*, vol. 26, pp. 428-442.
- QI X., TIAN X., PLOEGER A. (2021), "Exploring Chinese Consumers' Online Purchase Intentions toward Certified Food Products during the COVID-19 Pandemic", *Foods*, vol. 10, n. 11, pp. 2729.
- RAINBOLT G.N., ONOZAKA Y., MCFADDEN D.T. (2012), "Consumer motivations and buying behavior: the case of the local food system movement", *Journal of Food Products Marketing*, vol. 18, n. 5, pp. 385-396.
- RAJESH R. (2018), "On sustainability, resilience, and the sustainable-resilient supply networks", *Sustainable Production and Consumption*, vol. 15, pp. 74-88.
- RAMUS K., NIELSEN N.A. (2005), "Online grocery retailing: What do consumers think?", *Internet Res.*, vol. 15, n. 3, pp. 335-352.
- ROWLEY J. (2012), "Conducting research interviews", *Management Research Review*, vol. 35, n. 3/4, pp. 260-271.
- SCHULLER S., DIETRICH D., SPIELMANN L. (2018), "The future role of physical touchpoints in luxury retailing", *Marketing Review St. Gallen*, vol. 35, n. 6, pp. 84-95.
- TANSKANEN K., YRJÖLÄ H., HOLMSTRÖM J. (2002), "The way to profitable Internet grocery retailing-six lessons learned", *International Journal of Retail & Distribution Management*, vol. 30, n. 4, pp. 169-178.
- THØGERSEN J. (2010), "Country differences in sustainable consumption: The case of organic food", *Journal of Macromarketing*, vol. 30, n. 2, pp. 171-185.
- THOMÉ K.M., CAPPELLESSO G., RAMOS E.L.A., DE LIMA DUARTE S.C. (2021), "Food supply chains and short food supply chains: coexistence conceptual framework", *Journal of Cleaner Production*, vol. 278, pp. 123207.
- TOUFAILY E., SOUIDEN N., LADHARI R. (2013), "Consumer trust toward retail websites: Comparison between pure click and click-and-brick retailers", *Journal of Retailing and Consumer Services*, vol. 20, n. 6, pp. 538-548.
- TRAN L.T.T. (2021), "Managing the effectiveness of e-commerce platforms in a pandemic", *Journal of Retailing and Consumer Services*, vol. 58, pp. 102287.

- VERAIN M.C., SIJTSEMA S.J., ANTONIDES G. (2016), "Consumer segmentation based on food-category attribute importance: The relation with healthiness and sustainability perceptions", *Food Quality and Preference*, vol. 48, pp. 99-106.
- VITTESSØ G., TANGELAND T. (2015), "The role of consumers in transitions towards sustainable food consumption, The case of organic food in Norway", *Journal of Cleaner Production*, vol. 92, pp. 91-99.
- WANG Q.J., DALSGARD J., GIACALONE D. (2022), "Shopping for a sustainable future: Two case studies on consumer perception of organic cotton and wine", *Food Quality and Preference*, vol. 96, pp. 104405.
- WOJCIECHOWSKA-SOLIS J., SOROKA A. (2017), "Motives and barriers of organic food demand among polish consumers: A profile of the purchasers", *British Food Journal*, vol. 119, n. 9, pp. 2040-2048.
- XIAO Z., ZHANG J., LI D., CHEN C. (2015), "Trust in online food purchase behavior: An exploration in food safety problem for produce e-retailers", *Advance Journal of Food Science and Technology*, vol. 8, n. 10, pp. 751-757.
- YIN R.K. (2009), "The SAGE handbook of applied social research methods", *Choice Reviews Online*, vol. 46, n. 6, pp. 46-3328.
- ZAKOWSKA-BIEMANS S. (2011), "Polish consumer food choices and beliefs about organic food", *British Food Journal*, vol. 113, n. 1, pp. 122-137.
- ZAOHONG Z., HUIYUAN Q. (2013), "The game analysis of public participation in food security supervision", *Advance Journal of Food Science and Technology*, vol. 5, n. 3, pp. 323-327.
- ZOLL F., SPECHT K., OPITZ I., SIEBERT R., PIORR A., ZASADA I. (2017), "Individual choice or collective action? Exploring consumer motives for participating in alternative food networks", *International Journal of Consumer Studies*, vol. 42, pp. 101-110.

A bibliometric analysis of Industry 4.0 base technology and business models

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Framing of the research. *In recent years the fourth industrial revolution has become one of the most debated topics by academics and professionals (Chen et al., 2021; Chiarello et al., 2018). Industry 4.0 implies the adoption of many digital technologies that allow to collect data in real time and to analyze them, providing useful information to the manufacturing system (Lee et al., 2015; Wang et al., 2016). Among the plethora of digital technologies that are emerging within the fourth industrial revolution, Frank et al., (2019) have recently found that Industry 4.0 base technologies, i.e. Internet of Things (IoT), cloud services, big data, and analytics, are the ones that allow firms to develop new products and services through the creation of new concepts based on the cyber-physical system of Industry 4.0 (Lu, 2017; Wang et al., 2015). Industry 4.0 base technologies “provide connectivity and intelligence for front-end technologies” (Frank et al., 2019, p: 15).*

The success of Industry 4.0 base technologies is often ascribed to the impact that these digital technologies, solutions or technological improvements have for companies’ production systems (Frank et al., 2019). Big data, analytics, cloud and internet of things have indeed a large impact on the industry and markets while efficiently affecting the whole life cycle of the product, providing a new way of production and conducting a business. Finally, many academics believe that Industry 4.0 technologies influence the development of new business models (Chen et al., 2021; Cucculelli et al., 2021).

Despite the wide consensus regarding the importance of Industry 4.0 base technologies for business model research (Frank et al., 2019), many scholars point out the need to deepen the impact of Industry 4.0 base technologies on business models and the mechanisms through which this effect takes place (Shet and Pereira, 2021). Understanding this issue could be critical for at least two reasons. First, technologies such as Internet of things, cloud, big data, and analytics, have disrupted entire value chains, leading to the formation of new business models and consequently to an explosion of scientific production in such a topic (Cucculelli et al., 2021; Del Sarto et al., 2021; Kagermann et al. 2013; Oesterreich and Teuteberg, 2016). Moreover, Industry 4.0 base technologies may determine the proliferation of new business models (Muller et al., 2020). In fact, these technologies are transforming the current models of value creation, since they involve changes in the technical and production developments, which in turn has brought extensive organizational consequences and opportunities (Bauer, 2015) providing more cooperative environments, improved customer relationships or new product and services offers (Gerlitz, 2016).

Second, many academics and practitioners are emphasizing that, with the advent of Industry 4.0, not only new business models emerge, but also that existing ones need to be reconfigured (Foss and Saebi, 2017; 2018). In particular, new forms of business allowed by the fourth industrial revolution are characterized by decreased reliance on physical elements (Erevelles, Fukawa, and Swayne, 2016). While initial studies of business models explicitly recognize the central role of physical elements (Dasilva and Trkman, 2014; Demil and Lecocq, 2010), current and emerging forms of business models are prominently based on the adoption of digital infrastructures (Warner and Wäger, 2019), with the creation of new business model archetypes characterized by the dematerialization of processes (Snabe Hagemann, and Weinelt, 2016). Therefore, Industry 4.0 base technologies have started to give rise to the need of renewed interests towards analyzing business models in a digital era (Frank et al., 2019).

Purpose of the paper. *In this paper, we focus our attention on the relationship between technologies underlying the fourth industrial revolution, identified by Frank et al., (2019), and business model, with a particular focus on the developments that have occurred over the last decade and we performed a bibliometric analysis to consider all the burgeoning literature on the topic. Although many researchers provided a variegated set of digital technologies about*

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Industry 4.0, what it seems to have a paucity in the literature is that a specific sub-set of these technologies, namely Industry 4.0 base technologies, is particularly important for firms' innovation processes. Industry base technologies are (i) Internet of things, (ii) cloud services, (iii) big data, and (iv) analytics.

In order to analyse the relation between Industry 4.0 base technologies and business models, this study addresses the following two research questions: (1) How has the business and management literature investigated the impact of Industry 4.0 base technologies on business models? (2) What are the possible future trends for research on business models in Industry 4.0 within the business and management research fields?

Methodology. To tackle such research questions, we conducted a quantitative bibliometric analysis of 368 peer-reviewed articles, using co-citation and bibliographic coupling clustering techniques. To the best of our knowledge, extensive quantitative analyses related to publications about the impact of Industry 4.0 technologies on business models are lacking. Bibliometric analysis represents an appropriate solution to achieve these objectives since it empowers scholars to identify a discipline's most influential studies and relevant scientific activities (Broadus, 1987; Cuccurullo et al., 2016; Merigò et al., 2015). Moreover, bibliometric analysis represents an appropriate solution to achieve such objectives as it helps scholars to identify a discipline's most influential studies and relevant scientific activities (Cuccurullo et al., 2016; Forliano et al., 2021). Leveraging performance analysis and science mapping, several indicators were considered to identify the most influential documents, authors, journals, and countries.

To build our sample we selected papers using the Elsevier's Scopus database. We selected this database for two reasons. First, Scopus is recognized as one of the most comprehensive databases covering peer-reviewed research in reputable journals (Caviggioli and Ughetto, 2019; Donthu et al., 2020; Fahimnia et al., 2015). Moreover, Scopus is a well-organized, indexed database of scientific production with provisions for export of metadata (Cobo et al., 2011a). It includes all journals with SJR (Scientific Journal Rankings), JCR (Journal Citation Reports), and their impact factors. Furthermore, it provides publication data, periodicals, authors, citation numbers, institutions, countries, and research area (Falagas et al. 2008; Meho and Yang 2007). Its pervasive presence in the academic community makes it an appropriate database for science mapping (Cavallone and Palumbo, 2020).

We analysed the articles by conducting co-citation analysis and bibliographic coupling (Ferreira, 2018). These two strategies are part of the search strategy widely adopted in the literature to analyse past publications (Skute et al., 2019). In particular, three main strategies can be applied to explain this analysis: 1) direct citation; 2) co-citation analysis; and 3) bibliographic coupling techniques (Van Eck and Waltman, 2017). The first research strategy allows researchers to analyze the direct citations between two documents, the second one refers to the investigations of the interactions between all the studies that cite the same focal article, and the bibliographic coupling explores relationships between articles that cite the same study.

The three techniques present strengths and weaknesses. Bibliographic coupling and co-citation relationships, for example, display indirect interactions, thus offering less precise information regarding articles' connections with respect to direct citation (Waltman and van Eck, 2012). Differently from the previous, the direct citation technique only includes articles directly linked to the focal one, thus leading to the exclusion of non-directly linked papers. For this reason, the co-citation analysis is more adequate to offer a picture of the evolution of the literature from the origins, whereas bibliographic coupling offers a state-of-the-art picture allowing researcher to analyze future trends and trajectories (Skute et al., 2019). This motivation led us to analyze the collected database through both co-citation and bibliographic coupling techniques.

To identify thematic clusters, we relied on normalized correlation measures. Following previous literature (Kovács et al., 2015), we implemented measures of association based on information co-occurrence. Accordingly, we adopted VOSviewer1.6.10 which uses the algorithm visualization of similarities (Van Eck and Waltman, 2017). After identifying the clusters, we classified them by running the term frequency count and analyzing the content of titles, abstracts and keywords of the grouped publications. Moreover, we produced descriptive statistics by using the bibliometrix R package (Aria and Cuccurullo, 2017).

Results. The thematic evolution of a scientific field can be quantified and visualized using co-word analysis (Cobo et al., 2011). We performed this analysis by using Bibliometrix package in R through which we identified groups or clusters of keywords that represent the different conceptual themes developed within the research field. Clusters of topics were obtained and plotted according to centrality and density indices (Callon et al., 1991). The co-wording analysis allowed us to identify ten clusters and classify them into the four main categories: 1) Motor themes; 2) Basic themes; 3) Emerging/Disappearing themes; and 4) Specialized themes. Starting from specialized themes, the papers included in cluster 1 deal with digital transformation and information and communication technologies. For instance, Warner and Wäger (2019) explored how incumbent firms in traditional industries build dynamic capabilities for digital transformation, finding that digital transformation is an ongoing process of using new digital technologies in everyday organizational life, which recognizes agility as the core mechanism for the strategic renewal of an organization's business model, collaborative approach, and eventually the culture. This theme is characterized by high centrality and low density, showing that the research in this field is still a niche. In future years, these topics may migrate in the area of motor themes as digital transformation spread across all industries.

Motor themes are characterized by high centrality and high density, meaning that around them a lot of literature is actually focused. Among the topics, the most important one is represented by Big Data. For example, Faroukhi et al. (2020) provided an exhaustive and expanded Big Data Value Chain framework which helps firms handle Big Data monetization, making their processes entirely data-driven, support decision-making, and facilitate value co-creation.

Basic themes are instead epitomized by high centrality and low-density measures and represent the main theoretical contributions in the field (Callon et al., 1991). More in detail, almost all the keywords of cluster 3 belong to the domain of Industry 4.0. In fact, even though the papers included in this cluster mainly leverage on the theoretical contributions, they represent research topics that may become full motor themes in the next years.

As for the area focusing on emerging themes, this one includes topics focused on two main different subject areas: Cloud computing and Business modelling suggesting that these topics are emerging but are not central at the moment and that they may move to other areas or disappear during the next years.

Moreover, our analysis highlighted a considerable number of research works on business models in Industry 4.0. In particular, the results of the co-citation analysis revealed that the whole contribution is based on five thematic clusters divided as follows: 1) Smart products; 2) Business model innovation; 3) Technological Platforms; 4) Value Creation and Appropriation; and 5) Digital business models.

These results have been complemented through a bibliographic coupling analysis. More specifically, the results of the bibliographic coupling analysis show that scholarly research on business models and industry 4.0 may pursue five trends and trajectories: 1) Digital Transformation; 2) Servitization; 3) Opportunities for SMEs; 4) Circular economy systems; and 5) Disruptive supply chain logistics.

Research limitations. this study also presents several limitations, some of which may represent a fertile soil for future work for academics and practitioners. First, the dataset was collected through Scopus. We are aware that other databases, such as Web of Science, can be used to deepen the focus of quantitative bibliometric analysis (Falagas et al., 2008). Second, we based our analysis on the industry 4.0 base technologies identified by Frank et al. (2019). We recognize that Industry 4.0 comprises other technologies beyond Internet of things, cloud, big data, and analytics. Hence, an interesting research question for future work is to provide a more comprehensive assessment of the impact of industry 4.0 technologies on business models, thereby including other, albeit less influential, technologies of Industry 4.0., such as 3D printing, cybersecurity, etc. (Bresciani, Ferraris, and Del Giudice, 2018). Third, it is worth noting that alternative methodological and bibliometrical approaches may be adopted to address the research questions of this study. For instance, a systematic literature review on a specific cluster or topic emerged from this study may be a viable alternative method. However, albeit the above-mentioned limitations, this study provides a resourceful piece for scholars aiming to gain some knowledge regarding industry 4.0 technologies and their impact on business models' research.

Managerial implications. Regarding RQ1, it was shown that Technological Forecasting and Social Change has been the main journal investigating the relation between Industry 4.0 base technologies and business models. Most of the publications on this topic are co-authored by scholars from the US, China, and Germany. Among them, Kai-Ingo Voigt, Chair of Industrial Management at Friedrich-Alexander-Universität Erlangen-Nürnberg, is the author with the highest number of publications in the topic. To answer RQ2, instead, we performed both co-citation and bibliographic coupling analysis techniques and we found a menu of interesting findings for developing a comprehensive understanding of the extant and future research on the topics. More specifically, the co-citation analysis reveals the existence of five clusters of interest: 1) Smart products; 2) Business model innovation; 3) Technological Platforms; 4) Value Creation and Appropriation; and 5) Digital business models. The results from the bibliographic coupling analysis, instead, show the following trends and trajectories: 1) Digital Transformation; 2) Servitization; 3) Opportunities for SMEs; 4) Circular economy systems; and 5) Disruptive supply chain logistics. Taken together, these findings lead us to offer a possibly useful research baseline for both scholars and practitioners interested in exploring this flourishing area of research. In particular our study contributes to the literature by putting order in the huge amount of published papers in a systematic way, by providing useful categorizations which may act as base for the future flourishing of studies in an important field. Furthermore, scholars may take advantage of the findings of this study to better address future studies, considering the proposed avenues for future research. In parallel, policy makers and practitioners may leverage this study to revamp the value proposition of a firm's business models based on the development of industry 4.0 technologies.

Originality of the paper. The development and implementation of internet of things, cloud, big data, and analytics represent an opportunity for a firm's positioning in the market (Santoro et al., 2018). In particular, these technologies help firms to improve their processes and products and to innovate their business models by acting on different levels: as a back-office improvement instrument, as a new channel to provide the market with new products and services and as technological incentive for a change in the business model itself (Baden-Fuller and Haefliger, 2013). Nonetheless, all this is certainly not automatic, and firms need to make sense of these technologies and to understand how to exploit them and unlock new revenue streams (Ng and Wakenshaw, 2017). In fact, similarly to the introduction of technological innovations, that represents one of the major factors forcing firms to adapt their business models (BMs) (Baden-Fuller, and Mangematin, 2013 Chesbrough, 2007), the emergence of Industry 4.0 base technologies imposes firms to reshape their BMs (Del Sarto et al., 2021; Dijkman et al., 2015). Thus, many academics advocate that Industry 4.0 base technologies influence the development of new business models (Chen et al., 2021; Cucculelli et al., 2021). However, despite the importance of the topic with regard to both scholarly research and managerial practices, along with the increased attention paid to the fourth industrial revolution and its impact on business models, literature exploring this link is still fragmented and neglect to present a comprehensive view of all the possible ways through which Industry 4.0 base technologies affect firms' business models in the wake of this revolutionary change (Cozzolino et al., 2018; Foss and Saebi, 2018; Wirtz et al., 2016; Zott et al., 2011).

Keywords: *Business models; Industry 4.0; Bibliometric analysis.*

References

- ARIA M., CUCCURULLO C. (2017), "Bibliometrix: an R-tool for comprehensive science mapping analysis", *Journal of Informetrics*, vol. 11, pp. 959-975.
- BADEN-FULLER C., HAEFLIGER S. (2013), "Business models and technological innovation", *Long range planning*, vol. 46, n. 6, pp. 419-426
- BADEN-FULLER C., MANGEMATIN V. (2013) "Business Models: a challenging agenda", *Strategic Organization*, n. 11, pp. 418-427
- BRESCIANI S., FERRARIS A., DEL GIUDICE M. (2018), "The management of organizational ambidexterity through alliances in a new context of analysis: Internet of Things (IoT) smart city projects", *Technological Forecasting and Social Change*, n. 136, pp. 331-338.
- BROADUS R.N. (1987), "Toward a definition of "bibliometrics"", *Scientometrics*, vol. 12, n. 5-6, pp. 373-379.
- CAVALLONE M., PALUMBO R. (2020), "Debunking the myth of industry 4.0 in health care: insights from a systematic literature review", *The TQM Journal*.
- CALLON M., COURTIAL J.P., LAVILLE F. (1991), "Co-word analysis as a tool for describing the network of interactions between basic and technological research: The case of polymer chemistry", *Scientometrics*, vol. 22, n. 1, pp. 155-205.
- CHEN M., SINHA A., HU K., SHAH M.I. (2021), "Impact of technological innovation on energy efficiency in industry 4.0 era: Moderation of shadow economy in sustainable development", *Technological Forecasting and Social Change*, n. 164, pp. 120521.
- CHESBROUGH H., (2007), "Business model innovation: it's not just about technology anymore", *Strategy & Leadership*, vol. 35, n. 6, pp. 12-17.
- CHIARELLO F., TRIVELLI L., BONACCORSI A., FANTONI G. (2018), "Extracting and mapping industry 4.0 technologies using wikipedia", *Computers in Industry*, n. 100, pp. 244-257.
- COBO M.J., LÓPEZ-HERRERA A.G., HERRERA-VIDEIRA E., HERRERA F. (2011), "Science mapping software tools: Review, analysis, and cooperative study among tools", *Journal of the American Society for information Science and Technology*, vol. 62, n. 7, pp. 1382-1402.
- CUCCURULLO C., ARIA M., SARTO F. (2016), "Foundations and trends in performance management. A twenty-five years bibliometric analysis in business and public administration domains", *Scientometrics*, vol. 108, n. 2, pp. 595-611.
- DASILVA C. M., TRKMAN P., DESOUZA, K., LINDIČ J. (2013), "Disruptive technologies: a business model perspective on cloud computing", *Technology Analysis & Strategic Management*, vol. 25, n. 10, pp. 1161-1173.
- DIJKMAN R. M., SPRENGELS B., PEETERS T., JANSSEN A. (2015), "Business models for the Internet of Things", *International Journal of Information Management*, vol. 35, n. 6, pp. 672-678.
- DONTHU N., KUMAR S., PATTNAIK D. (2020), "Forty-five years of journal of business research: a bibliometric analysis", *Journal of Business Research*, n. 109, pp. 1-14.
- FAHIMNIA B., SARKIS J., DAVARZANI H. (2015), "Green supply chain management: A review and bibliometric analysis", *International Journal of Production Economics*, n. 162, pp. 101-114.
- FALAGAS M.E., PITSOUNI E.I., MALIETZIS G.A., PAPPAS G. (2008), "Comparison of PubMed, Scopus, web of science, and Google scholar: strengths and weaknesses", *The FASEB journal*, vol. 22, n. 2, pp. 338-342.
- FERREIRA F.A. (2018), pp. "Mapping the field of arts-based management: Bibliographic coupling and co-citation analyses", *Journal of Business Research*, vol. 85, pp. 348-357.
- FORLIANO C., DE BERNARDI P., YAHIAOUI D. (2021), "Entrepreneurial universities: A bibliometric analysis within the business and management domains", *Technological Forecasting and Social Change*, 165, 120522.
- FRANK A.G., DALENOGARE L.S., AYALA N.F. (2019), "Industry 4.0 technologies: Implementation patterns in manufacturing companies", *International Journal of Production Economics*, n. 210, pp. 15-26.
- LEE J., BAGHERI B., KAO H.A., (2015), "A cyber-physical systems architecture for industry 4.0-based manufacturing systems", *Manuf. Lett.*, n. 3, pp. 18-23
- LU Y., (2017), "Industry 4.0: a survey on technologies, applications and open research issues", *J. Indus. Inf. Integr.*, n. 6, pp. 1-10.
- MEHO L. I., YANG, K. (2007), "Impact of data sources on citation counts and rankings of LIS faculty: Web of Science versus Scopus and Google Scholar", *Journal of the American Society for information science and technology*, vol. 58, n. 13, pp. 2105-2125.
- MERIGÓ J. M., MAS-TUR A., ROIG-TIERNO N., RIBEIRO-SORIANO D. (2015), "A bibliometric overview of the Journal of Business Research between 1973 and 2014", *Journal of Business Research*, vol. 68, n. 12, pp. 2645-2653.
- NG I.C., WAKENSHAW S. Y. (2017), "The Internet-of-Things: Review and research directions", *International Journal of Research in Marketing*, vol. 34, n. 1, pp. 3-21.

- SANTORO G., VRONTIS D., THRASSOU A., DEZI L. (2018), “The Internet of Things: Building a knowledge management system for open innovation and knowledge management capacity”, *Technological forecasting and social change*, n. 136, pp. 347-354.
- SKUTE I., ZALEWSKA-KUREK K., HATAK I., DE WEERD-NEDERHOF P. (2019), “Mapping the field: a bibliometric analysis of the literature on university–industry collaborations”, *The journal of technology transfer*, vol. 44, n. 3, pp. 916-947.
- VAN ECK N.J., WALTMAN L. (2017), “Citation-based clustering of publications using CitNetExplorer and VOSviewer”, *Scientometrics*, vol. 111, n. 2, pp. 1053-1070.
- WANG L., TÖRNGREN M., ONORI M. (2015), “Current status and advancement of cyberphysical systems in manufacturing”, *J. Manuf. Syst.*, n. 37, pp. 517–527.
- WANG S., WAN J., ZHANG D., LI D., ZHANG C. (2016), “Towards smart factory for industry 4.0: a self-organized multi-agent system with big data based feedback and coordination”, *Comput. Network*, n. 101, pp. 158–168.
- WARNER K.S., WÄGER M. (2019), “Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal”, *Long Range Planning*, vol. 52, n. 3, pp. 326-349.
- WIRTZ B.W., PISTOIA A., ULLRICH S., GÖTTEL V (2016), “Business models: Origin, development and future research perspectives”, *Long Range Planning*, vol. 49, n. 1, pp. 36-54.
- ZOTT C., AMIT R., MASSA L. (2011), “The business model: recent developments and future research”, *Journal of management*, vol. 37, n. 4, pp. 1019-1042.

Websites

<http://www.societamanagement.it>

<http://www.sinergiejournal.it>

Industry 4.0 and the international competitiveness of SMEs

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Framing of the research. *The digital transformation of manufacturing represents an open and lively debate on academic and policy makers roundtables. In the last century, technological advances have progressed rapidly, creating barriers and opportunities for organizations and businesses. After the three industrial revolutions related to the introduction of mechanization, electricity and information technology, the world has entered its Fourth Industrial Revolution, with Industry 4.0 technologies that are expected to dramatically impact production systems (Kagermann Wahlster and Helbig, 2013; Wee et al., 2016). In 2015, Mosconi suggested that Industry 4.0 technologies have the potential to boost the competitiveness of the manufacturing base in advanced economies, driving European companies towards a “Manufacturing Renaissance”.*

Born in the policy context with the “Industrie 4.0” governmental project, the concept of Industry 4.0 has gained a momentum, capturing the interest of practitioners and academics from different fields (Kagermann Wahlster and Helbig, 2013; Culot et al., 2020). Although a widely accepted definition is lacking in the literature (Liao et al., 2017; Lu, 2017; Culot et al., 2020), it generally underpins a group of technologies that can facilitate the inter-connection and computerization of traditional manufacturing industry (Lu, 2017). Rüßmann et al. (2015)’s classification identified nine technological pillars: additive manufacturing (3d printing), simulation, horizontal and vertical system integration, the industrial internet of things, the cloud, cybersecurity, robotics and augmented reality (Rüßmann et al., 2015). This last selection is the most used in the literature, even if, in specific contexts (e.g., food and beverage), scholars also include other technologies such as blockchain or smart materials (Culot et al., 2020).

Industry 4.0 includes a wide range of technologies, which can be implemented in different business functions for various purposes (Chiarvesio and Romanello, 2018). The single application depends on the unique setting where they are embedded, the skills possessed by the company, but also the expected outcome. For instance, 3d printing can be used both in prototyping and in production to make single pieces or small batches of highly customized products at relatively low costs (Berman, 2012). Simulation software are used to improve the design and prototyping phase for waste reduction and product quality improvement purposes, but also to support post-sale services (Bortoluzzi et al., 2020). Robotics and collaborative robots increase the productivity and reduce lead times. Machines and plants interconnection outperform traditional plants in terms of operational efficiency, but also increase flexibility. Through the Internet of Things, the cloud and machines interconnection, firms can achieve vertical and horizontal integration that respectively allow to share real time data and information across the business functions of the organization and also across its borders. This can improve information flows, optimize planning and production, but also real time detect errors and problems in production, and improve supply-demand alignment. In conclusion, Industry 4.0 technologies implemented within the organization can have some major impacts:

- *increase productivity, reduce lead times, waste levels and environmental impacts, which may reduce the contribution of labor factor compared to the technological one (e.g., Tortorella et al., 2019; Szász et al., 2021; Sauter et al., 2015).*
- *increase the quality and flexibility, while allowing the customization of production even under the conditions of mass production (Dachs et al., 2019; Laplume et al., 2016).*
- *real-time control and management and data sharing and analysis within the organization can facilitate information flows, improve planning, control and production, but also increase the operational efficiency of plants and factories and, eventually, achieve better alignment between demand and supply.*

Although academics from different fields, ranging from marketing to operations management, have explored Industry 4.0 impacts (Liao et al., 2017), relatively few works have explored the relationships existing among such technologies and the international business outcomes. So far, in the international business field, a number of studies has focused only on one technology, mainly 3d printing and its impacts on the geography of production (Hannibal,

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2020; Hannibal and Knight, 2018; Denicolai et al., 2020; Laplume et al., 2016; Magnani et al., 2021). 3d printing can be used as a complement or a substitute of traditional manufacturing systems, with completely different impacts (Rehnberg and Ponte, 2018). In the second scenario, printers can be used to print objects close to the destination market, while the value-added activities will be held in the design and prototyping phase, rather than production. However, if this technology can revolutionize some industries, as it actually did with aerospace and orthopedics, it is not expected to influence others, such as beverage (Laplume et al., 2016). Instead, a different reasoning deserves Industry 4.0 as a whole, which can dramatically hit the productivity and operational efficiency of plants, factories and subsidiaries where it is implemented. The increase of productivity due to Industry 4.0 could compensate for the high labor costs in advanced countries, increasing the competitiveness of productions located in advanced economies, eventually favoring the backshoring or reshoring of activities (Dachs et al., 2019). Indeed, Industry 4.0 represents an element that can strongly influence “the spatial distribution of global value chains” and the decisions related to offshoring and backshoring (Dachs et al., 2019), or, at large, the production location decisions hereafter (Strange and Zucchella, 2018). Thanks to Industry 4.0, production costs become a less relevant factor in the decisions related to the location of production, which will be probably more influenced by customers’ proximity (Strange and Zucchella, 2018; Dachs et al., 2019) or the strategic or logistic relevance of the location for the global value chain. We might expect, hence, that such technologies will influence the ownership (O), location (L) and internalization (I) advantages (Alcàcer et al., 2016, Strange and Zucchella, 2018). Such technological advances could question some ownership firm-specific advantages by changing the mechanisms of value creation and capture and, thus, the relevance of owning some assets or controlling specific business functions (Strange and Zucchella, 2018). In terms of location decisions, extant research has already shown that specific technologies (e.g., 3d printing, robotics) and Industry 4.0 at large can favor the reshoring or backshoring of production activities from offshored locations (e.g., Laplume et al., 2016), by making production processes more capital-intensive, rather than labor-intensive (Dachs et al., 2019). Moreover, according to Chiarvesio and Romanello (2018), this technological factor can simply represent an alternative to international production now on, suggesting that companies might decide to locate productions closer to destination markets to decrease transport costs and simplify outbound logistics, or simply privilege other strategic reasons for their investments, such as political barriers, taxes or regulations (Pisano and Shih, 2012) or related to the plant role in the firm’s network or inter-functional interdependencies (Ketokivi et al., 2017). However, this element becomes a gamechanger in the debate on offshoring - backshoring of production activities. In terms of internalization, the IoT and the BDA are expected to reduce the coordination costs (Alcàcer et al., 2016), tighten the control mechanisms on foreign subsidiaries, but also favor the concentration of activities in few places, rather than dispersing them around the globe (Romanello and Veglio, 2021). Still, in light of such technologies, it becomes important to understand which activities must be internalized in order to garrison the firm’s competitive advantage (Strange and Zucchella, 2018).

All this considered, Industry 4.0 can give new opportunities to SMEs as leaders of global value chains (Alcàcer et al., 2016), increase their productivity and, thus, competitiveness in the international marketplace (Chiarvesio and Romanello, 2018). However, extant international business studies on Industry 4.0 are mainly qualitative (e.g., Chiarvesio and Romanello, 2018), focused on specific technologies (e.g., Laplume et al., 2016; Hannibal and Knight, 2018) or on specific outcomes e.g., backshoring of manufacturing activities (Dachs et al., 2019; Bals, Daum and Tate, 2015).

This study investigates the influence of factors related to competitive advantage, Industry 4.0 and production decisions on the competitiveness of manufacturing SMEs against competitors located in the emerging markets and in Europe. To this purpose, we developed and tested a conceptual model on a sample of 111 Italian SMEs operating in the metals and machinery sector. We contribute to international business field by providing first empirical evidence on the influence of Industry 4.0 on the international competitiveness of European manufacturing SMEs, and providing new elements to the debate on the emerging trends in the international geography of production (Hannibal and Knight, 2018).

Our work contributes to the scarce literature on Industry 4.0 from an international business perspective (Chiarvesio and Romanello, 2018). Our empirical analyses show that Industry 4.0 technologies and competitive advantage related to innovation have a positive relationship with the international competitiveness of Italian SMEs compared to the competitors located in the emerging markets, while production of core components localized in Italy has a negative impact. These results are not confirmed on the international competitiveness of Italian SMEs compared to the competitors located in Europe. These results highlight that innovation and Industry 4.0 are determinant for European companies to outperform competitors from emerging markets in the case of SMEs, opening reflections in relation to the localization decisions of production. To the best of our knowledge, this is one of the first quantitative studies showing a relationship between Industry 4.0 and the international competitiveness of SMEs.

Purpose of the paper. Despite the widespread debate on this theme, empirical research on companies adopting I4.0 technologies in the International Business field is limited thus far (Chiarvesio and Romanello, 2018). By analyzing a sample of Italian manufacturing SMEs, we investigate the drivers of the international competitiveness of SMEs against competitors located in the emerging markets and in Europe, by including factors related to Industry 4.0, competitive advantage and location production choices.

From the resource based view (Peng, 2001), ownership advantages can derive from the organizational processes that enable firms to leverage valuable resources and capabilities to gain an advantage against its competitors (Teece et al., 2002; Barney, 1991). From this point of view, Industry 4.0 can represent a technology-based advantage. The technological factor represents a fundamental resource that can increase productivity and, thus, positively impact SME

competitiveness. Industry 4.0 is a technological factor that can dramatically increase the productivity and the operational efficiency of European manufacturing companies (Dachs et al., 2019). All this considered, we expect that the adoption of Industry 4.0 technologies increases the competitiveness of Italian companies against their competitors located in Europe and in the emerging markets.

Hypothesis 1a: The use of Industry 4.0 positively impacts the competitiveness of Italian manufacturing SMEs compared to EM-competitors.

Hypothesis 1b: The use of Industry 4.0 positively impacts the competitiveness of Italian manufacturing SMEs compared to European-based competitors.

Drawing on resource-based view (Peng, 2001), firms will garrison their core competences and outsource non-core activities (Prahalad and Hamel, 1991). As clearly explained by Pisano and Shih (2012), outsourcing or offshoring manufacturing activities can come with a cost in terms of reduced innovation capacity of the firm. However, we might expect that, in the Industry 4.0 age, the spread of technologies will rejuvenate the maturity status of manufacturing, making the modularity of research and manufacturing production become tighter due to the interdependency and pervasiveness of such technologies in products and processes (Müller et al., 2021). In fact, Industry 4.0 technologies can impact both product and process innovations (Romanello and Chiarvesio, 2021), while the lines between the two become blurred due to the highly flexibility and customization levels that are increasingly required in manufacturing processes. In this context, keeping research and manufacturing “organizationally integrated and geographically close” can pose barriers to competitors and newcomers (Pisano and Shih, 2012). We thus hypothesize that innovation-related competitive advantage positively impacts the competitiveness of Italian manufacturing SMEs against their competitors located in the emerging markets and in Europe.

Hypothesis 2a: The innovation-related competitive advantage positively impacts the competitiveness of Italian manufacturing SMEs compared to EM-competitors.

Hypothesis 2b: The innovation-related competitive advantage positively impacts the competitiveness of Italian manufacturing SMEs compared to European-based competitors.

Efficiency-gains become a fundamental asset to try to cope with and counterbalance the high productivity costs, including the labor costs. Based on the argument proposed above, we might expect that companies having efficiency-related competitive advantage are more competitive than competitors located in the emerging markets and in Europe. Thus, we hypothesize:

Hypothesis 3a: The efficiency-related competitive advantage positively impacts the competitiveness of Italian manufacturing SMEs compared to EM-competitors.

Hypothesis 3b: The efficiency-related competitive advantage positively impacts the competitiveness of Italian manufacturing SMEs compared to European-based competitors.

Firms tend to garrison core competences and activities to protect their competitive advantage from competitors (Prahalad and Hamel, 1991). In this sense, there is a strategic value related to domestic locations, where companies tend to concentrate core competences and activities (Pisano and Shih, 2012). Moreover, the integration of product-design and manufacturing processes becomes a factor to consider because it may represent a barrier for competitors and newcomers (Pisano and Shih, 2012). In this sense, Ketokivi et al. (2017) highlighted that locating production in a high-cost country tends to be associated with interdependence factors related to production, supply and development, and differences are contextual. Moreover, they found that the coupling of production and development is highly relevant as a source of interdependence in location decisions. Moreover, there might be location advantages related to exploiting local manufacturing capabilities (Buciuni et al., 2013; Bettiol et al., 2019). In this sense, leveraging local manufacturing competences to produce core and high-quality components in Italy can represent a key aspect in the innovation-based competition with both emerging-market companies that leverage low-wage levels and European competitors. We thus hypothesize:

Hypothesis 4a: The production of core components in Italy positively impacts the competitiveness of Italian manufacturing SMEs compared to EM-competitors.

Hypothesis 4b: The production of core components in Italy positively impacts the competitiveness of Italian manufacturing SMEs compared to European-based competitors.

Methodology. We developed a survey using computer-assisted telephone interviewing by contacting a population of 736 manufacturing SMEs in the metals and machinery sector in northeast Italy. Besides collecting in-depth interviews with managers of large companies, we decided to focus our survey only on SMEs because they represent the 95% of the population in the regional sector. In line with the SME definition provided by the European Commission’s Recommendation 96/280/EC, we involved only firms with less than 250 employees, €40 million in total assets and €50 million in turnover. In order to check for unclear questions, we tested the content and design of the questionnaire before submitting it, and minor modifications were implemented after we ran the pilot test on 30 companies. Data were

collected in 2018. A total of 229 SMEs completed the survey, corresponding to a response rate of 31.1%, which is acceptable for this type of research. Two surveys were developed, a short one targeting firms with less than 2.5 Million Euro and a longer one targeting companies overcoming this threshold. We focused on this second sample because they filled the part of the questionnaire on the topic. The average completion time was about 25 minutes. The questionnaire addressed the firms' resources, capabilities, Industry 4.0 technology endowment, supply-client relationships, innovation strategies, and competitive advantage amongst other topics. Through the support of the regional cluster of the metals and machinery sector we identified the best respondent in the company in relation to the arguments included in the survey. Respondents included high-ranking entrepreneurs and managers, such as chief executive officers, chiefs of accounting, production and quality managers, sales managers and financial managers. After excluding incomplete answers, our final sample included 111 SMEs operating in the metals and machinery sector with a turnover overcoming the 2.5 million Euro.

As regards the measures, we mainly used dichotomous and 5-point single and multi-item Likert scales drawing from prior articles. The dependent variables are measured as 5-point single Likert scales self-assessing the firm competitiveness against competitors from emerging markets and from Europe. The factor analyses selected three factors related to Industry 4.0 (KMO and Bartlett's test: 0.715) and two factors for competitive advantage (KMO and Bartlett's test: 0.822). Production of core and high-quality components in Italy was measured on a single Likert scale. We also controlled for size, age, FSTS, and the level of internalization of business functions, which were identified through a factor analysis as well (KMO and Bartlett's test: 0.70). We tested the research hypotheses through multiple linear regressions using SPSS (27 v.) software package. The goodness of fit of the model was assessed through Adjusted R square (Model 1: 0.168, Model 2: 0.087). We checked for multicollinearity, and we assessed common method bias through procedural remedies following Podsakoff et al. (2003)'s suggestions.

Results. Pearson correlations showed that innovation-related competitive advantage and one of Industry 4.0 factors are statistically and positively correlated with competitiveness against emerging-market competitors ($p < .01$), meaning that the higher is the level of innovation-related competitive advantage and Industry 4.0, the higher is the competitiveness against competitors from emerging markets. In relation to competitiveness against competitors based in Europe, Pearson correlations showed only a weak positive correlation with the Industry 4.0 factor related to robotics ($p < .05$) and a stronger positive correlation with innovation-related competitive advantage ($p < .01$). Table 1 describes the results of the regression models on the different dependent variables: Model 1 tests the relationships among the variables and the competitiveness against emerging-market competitors, while Model 2 tests the relationships of variables with competitiveness against European-based competitors.

Tab. 1: Regression models.

	Model 1		Model 2	
	DV: Competitiveness against emerging-market competitors		DV: Competitiveness against European-based competitors	
Independent and control variables	Coefficient	Sig.	Coefficient	Sig.
Industry 4.0 factor 1: IoT-related	.417	.003	.070	.390
Industry 4.0 factor 2: Robotics-related	.305	.025	.129	.120
Industry 4.0 factor 3: BDA-related	.188	.162	-.087	.294
Innovation-related competitive advantage	.359	.033	.278	.006
Efficiency-related competitive advantage	-.152	.266	-.037	.672
Production of core and high quality components in Italy	-.339	.006	-.135	.070
Internalization level factor 1: research	-.206	.209	-.011	.896
Internalization level factor 2: assembly	-.171	.211	-.094	.252
Internalization level factor 3: production	.182	.164	.067	.394
Size	-.035	.773	-.047	.519
Age	.028	.828	-.085	.276
FSTS	-.203	.211	-.055	.547
Constant	4.630	.000	3.984	.000
Adjusted R square	.168		.087	

Model 1 shows the impacts of Industry 4.0, competitive advantage and production of core components in Italy on the competitiveness of SMEs against the emerging-market competitors, while Model 2 was tested in relation to competitiveness against competitors based in Europe. Model 1 highlights that Hypothesis 1a is partially supported (two Industry 4.0 factors out of three), showing a significant positive effect of Industry 4.0 on the competitiveness of SMEs against emerging market competitors. Hypothesis 2a is confirmed, showing that the higher is the innovation-related competitive advantage, the higher is the competitiveness against emerging-market competitors, while hypothesis 3a related to efficiency-based competitive advantage is not confirmed. Last, Hypothesis 4a is not confirmed, as the model shows a negative significant relationship of production of core components in Italy with SME competitiveness against competitors from emerging markets. In Model 2, which tested the relationships among the same variables and competitiveness against competitors based in Europe, only Hypothesis 2b was confirmed, showing that innovation-

related competitive advantage has a positive significant impact on the SME competitiveness against European-based competitors.

Research limitations. Some limitations must be considered when interpreting our findings. First, analyses are performed on a one-country sample, which is however a common limitation in International Business studies (Chetty, Johanson and Martin, 2014). Focusing on one single region (Friuli Venezia Giulia), we thus obtained a representative sample equal to about 27,5 % of the population of metals and machinery small companies in this region. This strengthens our results. Second, we surveyed companies operating in the metals and machinery sector, which is vast and multifaceted and highly relevant in manufacturing. Hence, future studies could target firms operating in different manufacturing sectors or other industries which are highly internationalized, such as food and beverage industries.

Other limitations stem from the perceived measures used to assess our variables, which are however spread and accepted in management literature. In response to this, we carefully developed our survey and data collection, and adopted strict procedural remedies to assess common method bias (Podsakoff et al., 2003). However, we suggest that future studies will develop more articulated measures to capture Industry 4.0 technologies which tend to be now more diffuse and known.

Moreover, this is a preliminary study. Future research steps might encompass the analysis of interaction effects among the variables to further investigate the potential influence of Industry 4.0 on location and internalization decisions.

Managerial implications. Our results provide food for thought on the potential implications stemming from the adoption of Industry 4.0 as a productivity factor. Although Industry 4.0 can contribute to improve the competitiveness of European manufacturing companies, as expected (Mosconi, 2015), we see that producing core components in Italy negatively affects this outcome. We might interpret that the costs of labor and production in Italy are so high that they might have a detrimental effect on competitiveness, which could be difficult to restore, despite the investments in innovation and Industry 4.0. This result might somehow challenge the generally accepted idea that European companies should produce core components in Europe, or suggest that small firms should find mechanisms to counterbalance this effect.

Originality of the paper. Our results is the first empirical article, to the best of our knowledge, showing a direct relationship between Industry 4.0 and the competitiveness of SMEs against emerging market-competitors. These considerations are also relevant as the impact of variables is not confirmed on SMEs' competitiveness against competitors based in Europe. This result might represent a time-specific effect related to the expansive trend of digital transformation at the time of data collection, which might however last over the next years and so become a trend over the medium-long term. For sure, this study provides food for thought for the International Business community, by discussing the role of Industry 4.0 in relation to location decisions and the international competitiveness of Italian manufacturing SMEs.

Keywords: Industry 4.0, international competitiveness, SMEs, Italy.

References

- ALCÀCER J., CANTWELL J., PISCITELLO L. (2016), "Internationalization in the information age: A new era for places, firms, and international business networks?", *Journal of International Business Studies*, vol. 47, n. 5, pp. 499-512.
- BALS L., DAUM A., TATE W. (2015) "From offshoring to rightshoring: Focus on the backshoring phenomenon", *AIB Insights*, vol. 15, n. 4, p. 3
- BERMAN B. (2012), "3-D printing: The new industrial revolution", *Business Horizons*, vol. 55, n. 2, pp. 155-162.
- BORTOLUZZI G., CHIARVESIO M., ROMANELLO R., TABACCO R. VEGLIO V. (2020) "Industry 4.0 technologies and the servitization strategy: a good match?", *Sinergie Italian Journal of Management*, vol. 38, n. 1, pp. 55-72.
- BETTIOL M., CHIARVESIO M., DI MARIA E., GOTTARDELLO D. (2019) "Local or global? Does internationalization drive innovation in clusters?", *European Planning Studies*, vol. 27, n. 10, 1995-2014.
- BUCIUNI G., CORO' G., MICELLI S., (2013) "Rethinking the role of manufacturing in global value chains. An international comparative study in the furniture industry", *Industrial and Corporate Change*, vol. 23, n. 4, 967-996.
- CHETTY S., JOHANSON M., MARTÌN O.M. (2014), "Speed of internationalization: Conceptualization, measurement and validation", *Journal of World Business*, vol. 49, n. 4, pp. 633-650.
- CHIARVESIO M., ROMANELLO R. (2018), "Industry 4.0 technologies and internationalization: Insights from Italian companies", In *International Business in the Information and Digital Age*. Emerald Publishing Limited.
- CULOT G., FATTORI F., PODRECCA M., SARTOR M. (2019), "Addressing industry 4.0 cybersecurity challenges", *IEEE Engineering Management Review*, vol. 47, n. 3, pp. 79-86.
- DACHS B., KINKEL S., JÄGER A. (2019), "Bringing it all back home? Backshoring of manufacturing activities and the adoption of Industry 4.0 technologies", *Journal of World Business*, vol. 54, n. 6, pp. 101017.
- DENICOLAI S., MAGNANI G., VIDAL J.A. (2020), "Competitive renaissance through digital transformation", *European Management Journal*, vol. 38, n. 6, pp. 827.

- HANNIBAL M. (2020), "The influence of additive manufacturing on early internationalization: considerations into potential avenues of IE research", *Journal of International Entrepreneurship*, vol. 18, n. 4, pp. 473-491.
- HANNIBAL M., KNIGHT G. (2018), "Additive manufacturing and the global factory: Disruptive technologies and the location of international business", *International Business Review*, vol. 27, n. 6, pp. 1116-1127.
- KAGERMANN H., WAHLSTER W., HELBIG J. (2013), "Acatech-National Academy of Science and Engineering", *Recommendations for implementing the strategic initiative INDUSTRIE*, n. 4.
- KETOKIVI M., TURKULAINEN V., SEPPÄLÄ T., ROUVINEN P., ALI-YRKKÖ J. (2017), "Why locate manufacturing in a high-cost country? A case study of 35 production location decisions", *Journal of Operations Management*, vol. 49, pp. 20-30.
- LAPLUME A.O., PETERSEN B., PEARCE J.M. (2016), "Global value chains from a 3D printing perspective", *Journal of International Business Studies*, vol. 47, n. 5, pp. 595-609.
- LIAO Y., DESCHAMPS F., LOURDES E.D.F.R., RAMOS L.F.P. (2017), "Past, present and future of Industry 4.0-a systematic literature review and research agenda proposal", *International Journal of Production Research*, vol. 55, n. 12, pp. 3609-3629.
- LU Y. (2017), "Industry 4.0: A survey on technologies, applications and open research issues", *Journal of Industrial Information Integration*, vol. 6, pp. 1 -10.
- MAGNANI G., DENICOLAI S., PETERSEN B. (2021), "Internationalization, value-chain configuration, and the adoption of additive manufacturing technologies", *Industrial and Corporate Change*, vol. 31, n. 3, pp. 762-782.
- MOSCONI F. (2015), *The new European industrial policy: Global competitiveness and the Manufacturing Renaissance*. Routledge.
- MÜLLER J.M., BULIGA O., VOIGT K.I. (2021), "The role of absorptive capacity and innovation strategy in the design of industry 4.0 business Models-A comparison between SMEs and large enterprises", *European Management Journal*, vol. 39, n. 3, pp. 333-343.
- PENG M.W. (2001), "The resource-based view and international business", *Journal of Management*, vol. 27, n. 6, pp. 803-829.
- PISANO G.P., SHIH W.C. (2012), "Does America really need manufacturing?", *Harvard Business Review*, vol. 90, n. 3, pp. 94-102.
- PODSAKOFF P.M., MACKENZIE S.B., LEE J.Y., PODSAKOFF N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, vol. 88, n. 5, pp. 879.
- PORTER M.E. (1980), *Competitive advantage. Techniques for analyzing industries and competitors*, The Free Press, New York.
- PORTER M.E., HEPPELMANN J.E. (2014), "How smart, connected products are transforming competition", *Harvard Business Review*, vol. 92, n. 11, pp. 64-88.
- PORTER M.E., HEPPELMANN J.E. (2015), "How smart, connected products are transforming companies", *Harvard Business Review*, vol. 93, n. 10, pp. 96-114.
- PRAHAL C.K., HAMEL G. (1991), The Core Competence of the Corporation in The State of Strategy. *Harvard Business Review*, vol. May-June, pp. 3-15.
- RENHBERG M., PONTE S. (2018), "From smiling to smirking? 3D printing, upgrading and the restructuring of global value chains", *Global Networks*, vol. 18, n. 1, pp. 57-80.
- ROMANELLO R., VEGLIO V. (2021), "Covid-19 crisis, digitalization and localization decisions", Chapter in *Progress in International Business Research*, vol. 16, International Business in Times of Crisis. ISBN. 978-1-80262-164-8. Editors: Rob van Tulder, Alain Verbeke, Lucia Piscitello, Publisher: Emerald.
- RÜBMAN M., LORENZ M., GERBERT P., WALDENER M., JUSTUS J., ENGEL P., HARNISCH M. (2015), Industry 4.0: The future of productivity and growth in manufacturing industries", *Boston Consulting Group*, pp. 1-9
https://www.bcg.com/it-it/publications/2015/engineered_products_project_business_industry_4_future_productivity_growth_manufacturing_industries.
- SAUTER R., BODE M., KITTELBERG D. (2015), "How Industry 4.0 is changing how we manage value creation", Horvath & Partners, Management Consultants. *White Paper*, pp. 1-12.
- STRANGE R., ZUCHELLA A. (2017), "Industry 4.0, global value chains and international business", *Multinational Business Review*, vol. 25, n. 3, pp. 174 - 184.
- SZÀSZ L., DEMETER K., RÁCZ B.G., LOSONCI D. (2021), "Industry 4.0: a review and analysis of contingency and performance effects", *Journal of Manufacturing Technology Management*, vol. 32, n. 3, pp. 667-694.
- TEECE D.J., PISANO G., SHUEN A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, vol. 18, n. 7, pp. 509-533.
- TORTORELLA G.L., GIGLIO R., VAN DUN D.H. (2019), "Industry 4.0 adoption as a moderator of the impact of lean production practices on operational performance improvement", *International Journal of Operations & Production Management*. vol. 39, n. 6/7/8, pp. 860-886.
- WEE D., BREUNIG M., KELLY R., MATHIS R. (2016), "Industry 4.0 after the initial hype-Where manufacturers are finding value and how they can best capture it", *McKinsey Digital*, pp. 1-36,
https://www.mckinsey.com/~media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/getting%20the%20most%20out%20of%20industry%204%200/mckinsey_industry_40_2016.ashx.

On the relationship between Industry 4.0 and Lean Management adoption: evidence from Italy

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Framing of the research. *Insofar, a large body of studies has tried to understand whether, to what extent and upon which conditions the use of up-to-date manufacturing technologies can be beneficial for firms. In this regard, extant contributions claim that, in order to achieve remarkable benefits, such solutions should be adopted only after the main wastes that affect the production system has been removed (Buer et al., 2021; Rosin et al. 2020; Buer et al., 2018). In this regard, the implementation of Lean Production (LP) principles seems to be consistent with this purpose (Tortorella and Fettermann, 2018). As a matter of fact, several authors claim that automation can be effectively adopted in an efficient environment, otherwise the cost of automation would be extremely high (Nicoletti, 2013; Kaspar and Schneider, 2015). More specifically, several links can be seen between Industry 4.0 and LP. For instance, a pillar of the latter is the Total Productive Maintenance approach, which can be considered remarkably in line with the big data and analytics that enable the prediction of future machine breakdowns (Gerbert et al., 2015). The role of availability of data is relevant also as a condition to address the “inventory waste”, which in a lean context can be more effectively achieved through the enhanced visibility brought about by the digitalisation of the supply chain (Zelbst et al. 2014). The same happens with the analysis of data concerning quality problems and their root-causes, the identification of which can be achieved by the adoption of sensors along the production lines. This is a prerequisite for eliminating the “quality waste” pursued by lean companies through the prompt stoppage of machines that are deviating from the normal operations (Buer et al., 2018; Ohno, 1988). Even the new forms of automations peculiar to Industry 4.0 can be considered beneficial for lean companies. Indeed, some sort of light automation is considered an essential part of lean production, even they are characterized by a low level of complexity (Bicheno and Holweg, 2009; Ohno, 1988).*

However, empirical evidence is necessary to check whether the joint adoption of LP and Industry 4.0 can further enhance the manufacturing performance. Moreover, empirical evidence provided by the extant literature does not agree on the conditions that can influence the relationship between LP and Industry 4.0 adoption. Namely, those factors that more than others seem to be controversial in their effect are the following: company size; nature of the production process; level of experience in LP practices; manufacturing plant location; headquarter location (Tortorella and Fettermann, 2018; Jasti and Kodali, 2015; Kagermann et al., 2013; Hines et al., 2004, p.994; Shah and Ward, 2003). Our study wants to shed light on the relationship between LP and Industry 4.0, exploring the effect that their joint effect can have on the manufacturing performance, as well as the role played by the above-mentioned contextual factors.

Purpose of the paper. *The purpose of this paper is to check whether the joint adoption of LP and Industry 4.0 technologies can boost manufacturing performance, as well as to describe the role of the contextual factors that are associated with their adoption.*

Methodology. *Building on previous contributions, we conducted an empirical investigation that aims at checking whether the joint adoption of LP principles and Industry 4.0 technologies can boost manufacturing performance. Furthermore, we investigated about the role of some contextual factors, for which extant contributions have provided contrasting evidence. These factors are company size, nature of the production process, level of experience in LP practices, manufacturing plant’s location, headquarter location.*

Due to the nature of our research question, we adopted a survey-based approach (Forza, 2002). The questionnaire was developed mostly replicating the one used by Tortorella and Fettermann (2018). Dislike Tortorella and Fettermann (2018), we controlled for a wider number of contextual factors that are likely to influence to relationship between Industry 4.0 technologies and LP adoption. On top of company size and experience in LP adoption (already considered by Tortorella and Fettermann, 2018), we controlled also for the following: nature of the production process (repetitive vs not repetitive and discrete vs continuous), location of the plants (just in Italy vs in Italy and abroad), location of the headquarter (Italy vs abroad).

The questionnaire is made up of 4 sections: “Company overall information”, “Lean production practices implementation”, “Degree of adoption of Industry 4.0 technologies” and “Operational performance improvement”.

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The construct “Lean production practices implementation” was measured through 41 questionnaire items, the construct “Degree of adoption of Industry 4.0 technologies” through 9 items and the construct “Operational performance improvement” through 7 items. All of them had to be assessed on a 1 to 5 Likert scale.

The questionnaire was addressed to Italian manufacturing companies that have implemented LP principles. The online version of our questionnaire was sent through an email to the management of these firms. Insofar 189 questionnaires have been collected. Descriptive information on the sample is reported in Table 1.

Tab. 1: Descriptive information on the sample

	N	%
Size of the company		
<50 employees	45	23.8
50-249	71	37.6
>250	73	38.6
LP implementation in the company		
≤2 years	73	38.6
>2 years	116	61.4
Industry		
Discrete process	109	57.7
Continuous process	78	41.3
Production plant location		
Only Italy	116	61.4
Italy and abroad	73	38.6
Corporate headquarter location		
Italy	168	88.9
Abroad	21	11.1
Production type		
Repetitive, standardized products. Stable and predictable demand	63	33.3
Non-repetitive, high product variety, fluctuating unpredictable demand	126	66.7

Source: Authors' elaboration

Results. In order to conduct our analysis on the relationships among LP implementation, Industry 4.0 adoption and operational performance improvement, we first checked the reliability of the three constructs. The values of the Cronbach's Alpha in Table 2 provide favourable outcomes in this regard, all of them being above the threshold of 0.7 set by Nunnally (1978).

Tab. 2: Reliability analysis: Cronbach's Alpha

	N. questionnaire items	Cronbach's Alpha
Lean production practices implementation	41	0.93
Degree of adoption of Industry 4.0 technologies	9	0.81
Operational performance improvement	7	0.77

Source: Authors' elaboration

Then, the method of the contingency tables was adopted in order to investigate about the relationships among the three constructs, as in Tortorella and Fettermann (2018). For this purpose, a cluster analysis was conducted to split the whole sample into two sub-samples for each construct (e.g. High Lean vs Low Lean).

In all clusterings performed we:

- applied a hierarchical method to identify the proper number (say k) of clusters – we used Ward's linkage method with euclidean measure distance;
- used the k -means clustering method to rearrange observations into k clusters.

The Calinski and Harabasz (1974) pseudo- F index was used as Cluster-analysis stopping rule to determine the optimal number of clusters. Standardization was not necessary since all the variables use an identical scale. For each construct, two clusters were identified. Then, an ANOVA (Analysis of Variance) was performed to verify differences in means of clustering variables calculated using data from each cluster. For instance, for Degree of adoption of Industry 4.0 technologies, consisting of 9 items, we found significant differences in means (p -values < 0.05 in all cases). The observations assigned to cluster 1 presented a high average adoption level of Industry 4.0 technologies, and the cluster was labelled HTEC (high level of technologies 4.0 adoption); the observations assigned to cluster 2 presented a low average adoption level of technologies 4.0, and the cluster was labelled LTEC (low level of technologies 4.0 adoption). The same procedure was followed also for Lean production practices implementation and for Operational performance

improvement. The two clusters for the former construct were named HLP (High Lean production adoption) and LLP (Low Lean production adoption) and those for the latter were named HPI (High performance improvement) and LPI (Low performance improvement).

Evidence about the relationship between LP adoption and Industry 4.0 is reported in Table 3, where it is confirmed that, in the whole sample, the implementation of LP practices is positively associated with the adoption of technologies belonging to the Industry 4.0.

Tab.3: Contingency table for the analysis of the relationship between LP practices and Industry 4.0 technologies

Technology adoption	LP implementation				Total frequency
	LLP		HLP		
	Frequency	Adjusted residual	Frequency	Adjusted residual	
LTEC	48	4,808**	40	-4,808**	88
HTEC	21	-4,808**	80	4,808**	101
Total frequency	69		120		189

** significant at 1%

Source: Authors' elaboration

Table 4 describes the results that are obtained replicating the above analysis in the two clusters HPI (High Performance Improvement) and LPI (High Performance Improvement). In both clusters it is demonstrated that there is a positive association between LP adoption and Industry 4.0 implementation. On the contrary, Tortorella and Fetterman (2018) didn't report any statistical significance for this association in the LPI sub-sample, which seemed to demonstrate that if Industry 4.0 and LP are jointly adopted, this will result into a superior performance improvement. However, our evidence suggests in this regard there is no difference between HPI and LPI firms. Thus, to shed light on this aspect, we have conducted further analysis involving the use of regressions.

Tab.4: Contingency table for the analysis of the relationship between LP implementation and technologies 4.0 adoption according to the level of operational performance improvement

Operational performance improvement	Technology adoption	LP implementation				Total frequency
		LLP		HLP		
		Frequency	Adjusted residual	Frequency	Adjusted residual	
HPI	LTEC	21	3,406**	30	-3,406**	51
	HTEC	12	-3,406**	69	3,406**	81
	Total freq	33		99		132
LPI	LTEC	27	2,089*	10	-2,089*	37
	HTEC	9	-2,089*	11	2,089*	20
	Total freq	36		21		57

* significant at 5%

** significant at 1%

Source: Authors' elaboration

More specifically, for each of the 7 items that describe the Operational performance improvement construct, we tested a regression model in which the dependent variable is the single performance item and the independent ones are:

- Lean production practices implementation (LP)
- Degree of adoption of Industry 4.0 technologies (TECH)
- Interaction between LP and TECH (LP*TECH)

Table 5 reports the outcomes of these analyses.

Tab.5: Outcomes of the regressions

	Overall performance	Productivity	Delivery Service Level	Inventory Level
TECH	0.42	0.84*	0.035	-0.020
LP	0.54*	0.65*	0.587°	0.291
LP*TECH	-0.09	-0.19°	-0.025	0.049
R-squared	0.244	0.114	0.1284	0.1837
Adjusted R-squared	0.231	0.100	0.1143	0.1705
p-value	0.000	0.000	0.000	0.000

	Workplace Safety	Quality	Flexibility	Sustainability
TECH	0.65	0.82°	0.283	0.301
LP	0.51°	0.88*	0.358	0.483
LP*TECH	-0.13	-0.23°	-0.038	-0.074
R-squared	0.102	0.102	0.091	0.070
Adjusted R-squared	0.087	0.088	0.076	0.055
p-value	0.000	0.000	0.000	0.000

° significant at 10%

* significant at 5%

** significant at 1%

Source: Authors' elaboration

As can be seen in Table 5, the regression on the overall performance shows that only LP is a statistically significant driver. According to this evidence it should be claimed that Industry 4.0 technologies do not provide any relevant support to the manufacturing performance. However, looking at the regressions carried out on the single performance items, some other interesting conclusions can be drawn. Indeed, the statistically significant regression weights demonstrate that TECH is a relevant driver of both productivity and quality. This can be explained, for example, by the remarkable effects that some tools as robotics can determine on the degree of efficiency of production activities. Similarly, quality can be greatly improved in cases where mistakes are avoided through the adoption of the Internet of Things (IoT) solutions or the main causes of non-conformities are detected through data analytics.

Furthermore, it is confirmed that LP is the main statistically significant determinant for all performance dimensions, but inventory level, flexibility and sustainability. Interestingly, the interaction between LP and TECH is always negative, with a good level of statistical significance for productivity and quality. This seems to show that there is an unfavourable interaction between these two constructs, in that their joint adoption is detrimental to the manufacturing performance, namely productivity and quality. This evidence deserves a deeper analysis since it is not consistent with the claims of several papers on this topic, according to which LP adoption is a sort of prerequisite of Industry 4.0 implementation (Rosin et al., 2020; Buer et al., 2018).

Finally, the effect of the contextual factors on the relationship between LP and Industry 4.0 adoption was investigated. Also in this case contingency tables were used and a synthetic description of our evidence is reported in Table 6.

Tab.6: The effect of contextual factors on the relationship between LP and Industry 4.0 adoption

Contextual factors	Association	Direction	p-value
Small companies (<50)	Yes	Positive (the higher LP the higher TECH)	0.000
Medium companies (50-249)	Yes	Positive	0.006
Large companies (>250)	No	-	0.204
High experience in LP (>2 years)	Yes	Positive	0.000
Low experience in LP (<2 years)	No	-	0.468
Plants just in Italy	Yes	Positive	0.000
Plants in Italy and abroad	No	-	0.468
Headquarter in Italy	Yes	Positive	0.000
Headquarter abroad	Yes	Positive	0.060
Repetitive production process	No	-	0.112
Not repetitive production process	Yes	Positive	0.000
Discrete production processes	Yes	Positive	0.001
Continuous production processes	Yes	Positive	0.008

Source: Authors' elaboration

As can be seen in Table 6, company size is a factor that can affect the joint adoption of LP and TECH. Indeed, this association is statistically significant only in small (<50 employees) and medium (50-250 employees), but not in large ones (>250 employees). This can be considered an interesting evidence since it is generally assumed that the lack of human and financial resources that affect SMEs can keep them from investing in new technologies and best practices. Also the length of experience in LP adoption seems to drive the decision to invest in Industry 4.0. The association between LP and Industry 4.0 is peculiar also to companies whose plants are located just in Italy and that run non-repetitive production processes. Finally it is worthwhile noticing that there is a statistically significant association not only in discrete production processes, but also in continuous ones. Most examples of LP adoption refer to discrete operations, as car manufacturing, while in continuous production environments (e.g. chemical industry) LP projects seem to find an obstacle in the capital-intensive nature of the system. It could be argued that in these settings especially light automation, which is a pillar of LP, is considered useful and worthwhile being implemented. The usefulness of this solution can be further enhanced by the adoption of Industry 4.0 technologies.

Research limitations. The evidence of this study can be affected by country-specific factors, which deserve a more detailed analysis, to be conducted through a comparison with companies from other nations. Furthermore, this study does not investigate on the actual performance levels achieved by companies, thus it would be useful to conduct further studies that can quantify the improvements that can be achieved by firms investing in Industry 4.0 and Lean Production.

Managerial implications. Our contribution to practice refers to the profiling of firms that insofar have implemented Industry 4.0. Many companies are currently considering the possibility to adopt one or more of these technologies. Being properly informed about the factors that can influence the success of this type of project can lead them to a correct identification of the opportunities and threats embedded into such an investment decision. Moreover, another relevant managerial implication has to do with the negative interaction between Industry 4.0 and Lean Production. One reason that was explored by the authors of this paper refers to the length of implementation of the latter. Indeed, it could be contended that if a firm starts investing in technology while it is still completing a project of adoption of Lean Production can create a sort of conflict between the two projects. We actually tested this hypothesis, modifying our regression models by adding length of implementation of Lean Production (<2 years) as a control variable. Interestingly, the empirical evidence stemming from this analysis was not different from the one reported in Table 5, thus showing that this control variable does not make any remarkable difference. Another hypothesis that can be tested in order to understand the reasons of the negative interaction between Industry 4.0 and Lean Production is the sponsor of the project technology adoption. Indeed, managers' experience demonstrate that when the sponsor comes from the IT Department, technology adoption projects that highly affect the factory can fail, due to the inability of the sponsor to understand how technology is used by production workers and which kind of technology is consistent with their needs and work duties. This kind of situation can result into a failure of the project, especially in environments where the workforce is highly committed as in lean factories. However, this hypothesis cannot be tested in this paper since that available database misses data useful in this regard. Finally, it could also be stated that Lean Production and Industry 4.0 are intrinsically incompatible with each other. Indeed, Lean Production, at least some of its tools, has been developed as a solution to the inability of technology-based approaches to effectively address manufacturing problems. The adoption of Kanban systems as an alternative to MRP ones can be considered an example. A second example can be seen in the adoption of U-shape lines and cellular manufacturing as a way to overcome the problems of a functional lay-out especially in terms of materials flows along the factory. Now, the industrial IoT adopted at the shopfloor level is enabling a perfect interaction and coordination among machines and production departments, so that the functional lay out empowered with IIOT solutions is becoming popular again, in that they combine remarkable levels of efficiency with well-organized materials flows. All of these deserve further empirical investigation.

Originality of the paper. Through the empirical analysis, we show that Industry 4.0 technologies can be relevant drivers of just productivity and quality. This evidence highlights that companies willing to invest in Industry 4.0 must first understand what manufacturing performance needs to be enhanced and then they can decide whether (and which) technologies should be implemented. Indeed, only in some cases Industry 4.0 seems to be beneficial. Concerning its relationship with LP, our results show that at least for some performances such interaction can even be negative. This evidence deserves further analysis since it disconfirms well established beliefs on this topic. In order to test the hypotheses that can be developed upon the origin of this negative interaction, a case-based study is considered the most suitable research approach. Indeed, the relationship between LP and Industry 4.0 depends on the specific LP tools and technologies adopted. E.g., the SMED approach to the reduction of set-up times would not be useful for production environments endowed with 3D printer, which are intrinsically flexible. Thus, it would be necessary to understand in-depth why some LP solutions can be incompatible with some technological tools and why.

Keywords: Industry 4.0; Lean Management; Manufacturing Performance; Survey.

References

- BICHENO J., HOLWEG M. (2009), *The Lean Toolbox*. PICSIE Books, Buckingham, UK.
 BUER S.V., STRANDHAGEN J.O., CHAN F.T. (2018), "The link between Industry 4.0 and lean manufacturing: mapping current research and establishing a research agenda", *International Journal of Production Research*, vol. 56, n. 8, pp. 2924-2940.

- BUER S.V., SEMINI M., STRANDHAGEN J., SGARBOSSA F. (2021), “The complementary effect of lean manufacturing and digitalisation on operational performance”, *International Journal of Production Research*, vol. 59, n. 7, pp. 1976-1992.
- CALINSKI T., HARABASZ J. (1974), “A dendrite method for cluster analysis”, *Communications in Statistics*, vol. 3, pp. 1-27.
- FORZA C. (2002), “Survey research in operations management: a process-based perspective”, *International Journal of Operations & Production Management*, vol. 22, n. 2, pp. 52-194.
- GERBERT P., LORENZ M., RÜßMANN M., WALDNER M., JUSTUS J., ENGEL P., HARNISCH M. (2015), “Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries.” < https://www.bcg.com/it-it/publications/2015/engineered_products_project_business_industry_4_future_productivity_growth_manufacturing_industries.aspx>
- HINES P., HOLWEG M., RICH N. (2004), “Learning to Evolve: A Literature Review of Contemporary Lean Thinking”, *International Journal of Operations and Production Management*, vol. 24, n. 10, pp. 994-1011.
- JASTI N., KODALI R. (2015), “Lean Production: Literature Review and Trends”, *International Journal of Production Research*, vol. 53, n. 3, pp. 867-885.
- KASPAR S., SCHNEIDER M. (2015), “Lean und Industrie 4.0 in der Intralogistik: Effizienzsteigerung durch Kombination der beiden Ansätze”, *Productivity Management*, vol. 20, n. 5, 17-20.
- MILLIGAN G.W., COOPER M.C., (1985), “An examination of procedures for determining the number of clusters in a dataset”, *Psychometrika*, vol. 50, pp. 159-179.
- NICOLETTI B. (2013, September), “Lean and automate manufacturing and logistics”, *IFIP International Conference on Advances in Production Management Systems* (pp. 278-285), Springer, Berlin, Heidelberg.
- NUNNALLY J.C., (1978), *Psychometric Theory - 2nd ed.*, McGraw-Hill, New York.
- OHNO T. (1988), *Toyota production system: beyond large-scale production*. CRC Press, New York.
- ROSIN F., FORGET P., LAMOURI S., PELLERIN R. (2020), “Impacts of Industry 4.0 technologies on Lean principles”, *International Journal of Production Research*, vol. 58, n. 6, pp. 1644-1661.
- SHAH R., WARD P.T. (2007), “Defining and Developing Measures of Lean Production”, *Journal of Operations Management*, vol. 25, pp. 785-805.
- TORTORELLA G.L., FETTERMANN D. (2018), “Implementation of Industry 4.0 and lean production in Brazilian manufacturing companies”, *International Journal of Production Research*, vol. 56, n. 8, pp. 2975–2987.
- ZELBST P.J., GREEN K.W.J., SOWER V.E., ABSHIRE R.D. (2014), “Impact of RFID and Information Sharing on JIT, TQM and Operational Performance”, *Management Research Review*, vol. 37, n. 11, pp. 970–989.

Tourism and arts: an empirical test of causality

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Framing of the research. *Cultural tourism represents a crucial component of tourism flows (Richards, 2018). Although, as highlighted by the author, culture and tourism have always presented strong reciprocal links, the emergence of academic interest in cultural tourism as a phenomenon to be investigated “per se” is relatively recent. In its review, Richards discusses, among other element, the economic role of cultural tourism in supporting the preservation of heritage in the visited area, or in reducing the seasonality of the flows. Moreover, the participation to cultural activities fosters both the contemporaneous and the future arrival of visitors. Indeed, it is important to notice that the interest of cultural tourists involves both “the tangible and intangible cultural attractions/products in a tourism destination” (p. 13), thus including the “creative economy” (p. 15). Among the creative segments, performing arts play an important role with respect to their interconnection with tourism choices. Barbieri and Mahoney (2010) demonstrate that different behaviors in attending performing arts (in particular being an “omnivorous” consumer, i.e. frequent participant to a wide variety of performance, an “univorous” consumer, i.e. frequent participant to a narrow variety of shows, or a “sporadic” consumer, that attends live performance unfrequently) has an effect on the tourism choices of the respondent: the most appealing segment for the tourism industry is represented by the “omnivorous”, since they not only are likely to participate to live performance while travelling, but also to engage in a wide range of other cultural activities. Moreover, they tend to travel more and to appreciate destinations able to offer a diversified cultural experience.*

Performing arts and tourism have also shared common difficulties in relation to the Covid-19 emergency. Both kind of activities involve (to a larger or lesser extent) some physical travelling and the aggregation of people: for these reasons, they are among the sectors that have suffered the most dramatic impact of the sanitary crisis and of the consequent restrictions. Although in both the industries the sector players have developed some forms of virtual alternative activity, making some tourism options available online while preserving the perception of “experiences” (Mastroberardino et al., 2021), or moving towards a “mediatization” of theatrical performances (Gemini et al., 2020; Timplalex. 2020), the consequences on both the industries have been huge. In 2020 the tourism presences in Italy showed a reduction of more than 50%, with a decrease of 11,4% in terms of employment in the industry (Demma, 2021); with respect to performing arts, the “live” branch has suffered the most serious issues since theatres remained closed for several months, and for a long time they have been operating with reduced capacity. In general, freelancers of the cultural sector, already suffering from chronic economic precarity, have faced profound social and psychological consequences (see May et al., 2022, for a study on the UK context). Although the “virtual” offer options have represented an effective way for maintaining a minimum level of activity during the lockdowns, the largest portion of economic consequences could be overcome only with the full re-starting of activity in presence, and subject to the ability of engaging in an effective recovery path.

In this context, understanding the nature and the intensity of the relationship between culture and tourism appears crucial to define an effective strategy of (possibly, joint) recovery of both the sectors.

Purpose of the paper. *In the light of the discussed interrelations between culture (with a special focus on performing arts) and tourism, it is relevant to recall the role of cultural events in fostering (current and future) tourism flows mentioned in Richards (2018). Grappi and Montanari (2011), focusing on the attendees of an Italian festival, identify a set of variables able to mediate the relationship between the festival characteristics and the intention of participating to subsequent festival editions. In the authors’ opinion, these results are crucial since the identified variable represents strategic levers for retaining cultural tourists, thus generating positive economic impact at local level.*

The discussion of the crucial role of performing arts, however, is established since a long time in the literature.

Of particular interest is the contribution by Hughes, which dates back to 1998, focusing on the theatrical activities of the city of London. The author, on one hand, recognize the role of arts and culture in defining the attractiveness of cities as touristic destination, since “Tourism and culture are mutually reinforcing by virtue of the fact that tourism is

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also seen as an economic regenerator, part of the potential of which may be realised in 'tourism through culture'" (p. 446). On the other hand, however, he raises some questions about the potential role of tourism on the programming strategies of performing arts organizations; such a role, the author argues, could be detrimental in terms of artistic quality, since the aim of meeting tourists' demand by means of more "standardized" productions introduces the risk of inhibiting innovative or, more generally, diversified cultural offer. The reported example refers to the predominance of musicals within the offer of West End theatres in London.

With this framework in mind, the purpose of the paper is to verify empirically, with respect the Italian context,

- the impact of past performing art attendance on subsequent tourism flows at local level, consistently with the idea that cultural events can act as catalysts for the touristic development (or recovery) of an area.
- the impact of tourism flows on the programming of performing arts organization, in order to understand whether the dynamics of the flows actually foster the development of some genres more than others.

This approach can reveal its utility with respect to policy and managerial interventions aimed at supporting the post-crisis recovery of the two sectors.

Methodology. A well-known approach to verify the causal relation among variables is the test for Granger causality (Granger, 1969). The test verifies if one variable causes another one, in the sense that it is a good predictor of that variable. Following Granger (2004) "The statement about causality has just two components: 1. The cause occurs before the effect; and 2. The cause contains information about the effect that is unique and is in no other variable. A consequence of these statements is that the causal variable can help forecast the effect variable after other data has first been used." (p. 365). To perform the test, time series of both the variables are needed.

With respect to the aim of this study, the main classes of variables involved in the analysis concern tourism flows and performing arts shows and attendance. They must be available in (possibly long) time series.

Data on tourism flows are available in ISTAT databases for relatively long time series (at least 15 years). Data can be disaggregated according to:

- the measurement unit of the flow (arrivals or presences)
- the national or international origin of the visitors
- the type of accommodation chosen
- the geographical area, with the maximum detail corresponding to the province level.

With respect to data related to performing arts, the issues of the "Annuario dello Spettacolo", provided by Osservatorio dello Spettacolo - SIAE (Società Italiana degli Autori ed Editori) are rich sources of data related to performing art. For instance, the Annuario dello Spettacolo proposes information about

- Number of shows
- Attendance
- Number of admissions to the show
- Audience expenditure data.

The data are provided with high level of geographical granularity, with the maximum level of detail related, also in this case, to the province level. At this level, however, details regarding the performance genres are not available.

With a geographical focus at regional level, instead, it is possible to find detail regarding the genre of spectacle, such as:

- theatrical activity (e.g. theatre, opera, ballet, musicals)
- concerts (classical, pop or jazz)
- Sport events
- dancing and musical entertainment
- travelling show
- shows and exhibitions
- events belonging to multiple genres.

Clearly, not all the mentioned categories refer strictly to performing arts, but they all represent cultural events for which it can be interesting verifying the causal relations of interest, namely

- whether attendance to performing arts or other cultural events fosters ("Granger causes") subsequent tourism flows in the area
- whether tourism flows "Granger cause" the programming strategy of performing arts or other cultural events, linking some type of entertainment more than others to the dynamics of tourists flows.

Results. The proposed research is in an early phase. Given the different touristic vocation of Italian areas, and the tendency to promote some genres "at the expenses" of others in presence of intense tourism activity, as highlighted by Huges (1998), it is reasonable to expect a variety of results, where the significance of the causality relationship will differ across genres and across geographical areas.

Research limitations. The main research limitation is the focus on Italian data. Although useful for defining managerial and institutional level strategy in the national context, the peculiarities of Italian cultural and touristic offer will make the results hardly generalizable at international level.

Managerial implications. Implications will be relevant both at managerial and at policy level. In a vision of supporting the recovery of two among the sector suffering the most dramatic consequences of the Covid-19 crisis, the results will provide useful insights for

- performing arts organizations manager, thanks to a better knowledge of the offer tendency in their own as well as in other local area, in relation to the tourism vocation of the area itself. In addition, a better understanding of the

impact of cultural event attendance on tourism would improve their awareness of the value of their offer and, possibly, their bargaining power in the interaction with local institutions.

- tourism firms manager, thanks to a deeper understanding of the importance of integrating cultural events (and which kinds of events) in their offer.
- policy makers, thanks to a broader knowledge of the interrelations among two sector that will need, in the near future, some form of support for stimulating recovery. Understanding these interrelations will be a support for optimizing resources allocation.

Originality of the paper. To the best of our knowledge, this study is the first attempt to measure the causal relationship between cultural (performing arts) events and tourism flow as well as between tourism and cultural programming by comparing different areas (with different tourism vocations) and different kinds of cultural performance.

Keywords: Tourism; Culture; Performing Arts; Granger Causality

References

- BARBIERI C., MAHONEY E. (2010), “Cultural tourism behaviour and preferences among the live-performing arts audience: an application of the univorous-omnivorous framework”, *International Journal of Tourism Research*, vol. 12, n. 5, pp. 481-496.
- DEMMA, C. (2021). Il settore turistico e la pandemia di Covid-19. *Note Covid*, 28 settembre 2021. Banca d’Italia. https://www.bancaditalia.it/pubblicazioni/note-covid-19/2021/Demma_Nota_Covid_settore_turistico_e_pandemia.pdf
- GEMINI L., BRILLI S., GIULIANI F. (2020), “Il dispositivo teatrale alla prova del Covid-19. Mediatizzazione, liveness e pubblici”, *Mediascapes journal*, vol. 15, pp. 44-58.
- GRANGER C.W.J. (1969), “Investigating Causal Relations by Econometric Models and Cross-spectral Methods”, *Econometrica*, vol. 37, n. 3, pp. 424-438.
- GRANGER C.W.J. (2004). “Time Series Analysis, Cointegration, and Applications“, *American Economic Review*, vol. 94, n. 3, pp. 421-425.
- GRAPPI S., MONTANARI F. (2011), “The role of social identification and hedonism in affecting tourist re-patronizing behaviours: The case of an Italian festival”, *Tourism management*, vol. 32, n.5, pp. 1128-1140.
- HUGHES, H. L. (1998). “Theatre in London and the inter-relationship with tourism”, *Tourism management*, vol. 19 n. 5, pp. 445-452.
- MAY T., WARRAN K., BURTON A., FANCOURT D. (2021), “Socioeconomic and Psychosocial Adversities Experienced by Freelancers Working in the UK Cultural Sector During the COVID-19 Pandemic: A Qualitative Study”, *Frontiers in psychology*, vol. 12, pp. 1-11.
- RICHARDS G. (2018). “Cultural tourism: A review of recent research and trends”, *Journal of Hospitality and Tourism Management*, vol. 36, pp. 12-21.
- TIMPLALEXI E. (2020), “Theatre and Performance Go Massively Online During the COVID-19 Pandemic: Implications and Side Effects”, *Homo Virtualis*, vol. 3, n. 2, pp. 43-54.

Websites

<https://www.istat.it/>

<https://www.siae.it/it/chi-siamo/lo-spettacolo-cifre/losservatorio-dello-spettacolo>

Technology-driven cultural tourism experience: A pilot study on FoodWalk app

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Framing of the research. Although cultural tourism is a complex concept (McKercher et al., 2003) and multiple definitions are proposed in literature (Urry, 1990, MacCannell, 2002), scholars agree that “cultural tourism 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”, as emerged during the 22nd session of the General Assembly held in Chengdu, China in 2017 (UNWTO, 2017).

The interest in cultural tourism continued to grow throughout the 1980s and 1990s, driven by the ‘heritage boom’ (Hewison, 1987), the growth of international and domestic travel and the identification of cultural tourism as a ‘beneficial’ form of tourism that would stimulate the economy and, at the same time, help conserve cultural heritage (Richards, 2001). The growth of culture tourism has changed its position from a niche market consisting of relatively well educated and high-income visitors to a mass market open to a much wider range of people. This created a challenge in many destinations, where the development of ‘mass cultural tourism’ led to overcrowding at key sites and residents’ complaints of ‘over tourism’ in some cities (García-Hernandez et al., 2017). In addition, the cultural object of tourism has shifted: the search for the exceptional has been placed side by side with the search for the everyday (Richards, 2011). Tourists increasingly want to “live like a local” because the “local” has become the new touchstone of authenticity (Richards, 2011). Recently, the identification of the “new cultural tourism” has emerged, stemming from the concept of authenticity (Jovicic, 2016).

In this context, the importance of technology as a strategic tool has long been recognized as fundamental (Poon, 1993). The rapid development of information technology in general and the Internet have dramatically changed the tourism industry (Ho et al., 2007), cultural tourism included. The adoption of digital technologies is especially relevant in cultural tourism (Ponsignon and Derbaix, 2020), as it provides a means of enriching the tourism experience along the four dimensions of Pine and Gilmore experience economy framework (1999): education, entertainment, escapism, and aesthetics. Previous literature has found that these four realms of experience encourage tourists’ satisfaction, loyalty, and word of mouth (Oh et al., 2017; Huang et al., 2019; Ponsignon and Derbaix, 2020).

Recent research has also focused on the role of information and communication technologies (ICTs) in tourism value co-creation (Cabiddu et al., 2013), emphasizing that organizational boundaries are even more blurred and that new value propositions can be realized. New mobile technologies such as smartphones, augmented reality applications, virtual reality technology, and digital games offer benefits in co-creating the tourist experience (Dorcic et al., 2017). Co-creation occurs when tourists are actively involved and collaborate with service providers to create their own experience. It was found that consumer habits regarding mobile technologies influence the extent of the consumer co-creation process with service providers (Morosan and Defranco, 2016).

One of the subcategories of cultural tourism in which technologies are widely developed is food tourism (García-Gonzalez et al., 2014). Hall et al. (2004) describes food tourism as “visitation to primary and secondary food producers, food festivals, restaurants and specific locations for which food tasting and/or experiencing the attributes of specialist food production region are the primary motivating factor for travel”. Food is a ‘cultural reference point’, which, within it, includes entirely unique information about the production and culture and geography of the destination from which it originates (Montanari, 2009). Food tourism can also be stimulated through the development of cultural routes linked to food and wine brands, including olive oil routes (Arjona-Fuentes et al., 2017), cheese routes (Folgado-Fernández et al., 2017) and wine routes (Castro et al., 2017).

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Purpose of the paper. *In the 21st century, the enormous proliferation of websites and applications, which have progressively expanded a vast amount of tourist offers in a competitive environment has led tourism to converge towards cultural tourism and an increasingly demand for immersive and interactive customer experience (Ponsignon and Derbaix, 2020). In addition, as cultural tourism is widely considered a growing market, many practitioners seek to promote cultural tourism to achieve profitable economic performance. Therefore, in specific destinations, it has become crucial to design digital tools, such as mobile apps, which are able to generate and communicate information effectively, characterized by an easy accessibility and by providing a continuous novelty. Mobile applications, visitor involvement and local uniqueness should work harmoniously together to enhance the development of a cultural tourist destination, not only in the perspective of the destination management organization but also of the local companies.*

Local businesses serving cultural tourists can benefit from adopting a customer/tourist service approach initiated with the implementation of technology. The integration of historical monuments, hidden treasures and the uniqueness of the place, cultural heritage, charm atmosphere, culinary traditions and the taste of local cuisine on an mobile app within everyone's reach enables the spread of culture, the enhancement and preservation of cultural heritage, the development of cultural values and enrichment, the growth of a community's identity (Mousavi et al, 2016).

To this aim, a web and mobile app, namely FoodWalk, is being developed to create a memorable experience in the cultural destination of Verona. The app intends to achieve the harmonious encounter of culture, tourism, and culinary traditions for the tourists, but also for the locals, who want to forge a deep connection with the place they visit or live in. Precisely, FoodWalk will guide visitors through a series of itineraries in the historical city center of Verona, with the purpose of uncovering the linkages between culinary traditions, history, art, and architecture. The app provides different thematic walking routes such as the four following: "The painted cities", "Verona: between history, famous people, art and architecture", "The city of crime" and "Verona: between legends and history". These itineraries also pass through less touristic places in the city, which are often little known even to the residents themselves, by using the logic proposed into the Vascitour model (Canestrino et al., 2018). Each itinerary includes at least one stop at a restaurant, to combine culinary traditions with the other elements of tourist attractiveness.

Previous studies dealing with mobile apps for tourism focused on technology adoption rates and acceptance (Huang et al., 2019) or on value co-creation related to the usage of mobile apps (Morosan and Defranco, 2016). In order to design this app effectively, the present study has chosen to investigate tourists' needs and expectations regarding an app that can be used as a tool to enhance cultural tourism experiences. In this regard, needs and expectations differ in service management literature. Needs are unconscious and global, and are to underlie expectations (Chiu and Lin, 2004), while expectations are conscious and accessible (Schneider and Bowen, 1995). Their fulfilment creates customer satisfaction and, in some cases, also customer delight (Torres and Kline, 2006; Kim and Mattila, 2013; Torres et al., 2020).

Based on the aforementioned literature, this study aims to answer the following Research Questions:

RQ1: What needs should an app meet to offer a cultural tourism experience?

RQ2: What expectations should an app meet to offer a cultural tourism experience?

Therefore, this study aims to examine the role of technology in enhancing cultural tourism experiences. More specifically, the goal of this research is twofold: 1) to identify visitors' needs and expectations regarding an app that can provide a positive - if not memorable - cultural tourism experience, and 2) to suggest to tourism managers how they can carefully design an app to enhance the local cultural tourism experience while concurrently ensuring a high level of visitors' satisfaction.

Methodology. *Given the explorative nature of this research, a qualitative approach was used. The present study was conducted with semi-structured interviews to a purposive sample of apps' users (Caruana et al., 2014). More specifically, a sample of informants with the following characteristics was selected: 1) being aged between 18 and 50 years old, 2) using a digital app more than ten times per month, and 3) regularly using digital devices such as smartphones, computers and tablets during daily activities. Overall, the study included 15 participants, 8 being female, from different nationalities: 6 respondents were from Germany, 4 from Spain, 2 from Denmark, 1 from Japan, 1 from Brazil and 1 from Argentina.*

In semi-structured interviews, researcher have a list of themes and questions to be covered, although these may vary from interview to interview (Saunders et al., 2009). The interview protocol covered questions related to the visitors' needs and expectations for using an app that is able to provide a local cultural tourism experience. Face to face interviews were conducted at locations and in situations considered to provide the "greatest opportunity to gather the most relevant data about the phenomena under investigation" (Stauss and Corbin, 1998, p. 208), such as a panoramic terrace in the heart of Verona. Participants were assured of their anonymity, and no compensation was granted. Interviews were conducted between April and May 2022 by two of the researchers. They were recorded and transcribed verbatim. Each interview lasted between 15 and 30 minutes.

In order to answer the Research Questions of the study, data were analyzed with a thematic content analysis following an abductive approach to coding, that consists in starting with an initial theoretically driven set of codes, and then generating inductive codes, based on further themes that emerge from the data (Vila-Henninger et al., 2022).

The themes were organized according to the multi-expectation model proposed by Parasuraman, Zeithaml, and Berry (1994), which distinguishes expectations into the two following levels: 1) the adequate service level - that is, what customers consider acceptable to receive without being disappointed, and 2) the desired service level - that is, what they hope to receive in relation to their personal needs. A tolerance zone develops between these two expectation levels.

In general, customers will be unsatisfied when service quality is below the adequate service level. Differently, when service quality is beyond the desired service level, customers will be more than satisfied, that is delighted.

Results. *In order to answer the RQ of the study, following the multi-expectation model by Parasuraman et al. (1994), this section presents users' needs and expectations regarding the adequate service level that must be provided by digital app, and users' needs and expectations regarding the desired service level that should be provided by this app.*

Adequate service level

Findings show that adequate service level is provided by the fulfillment of 4 needs, i.e., app easiness of use; app usefulness; need for aesthetic experience; and need for education.

First, interviewees expect the app not to require particular skills that make its usage too complicated, and to be accessible, meaning that it can be used all the time and by people with different familiarity in using technology. All respondents stated their preference for intuitive navigation, fast loading, and quick finding of the different functions available, as well as an overall usability. Respondents consider it important that the accessibility of the app occurs at any point across the city. In addition, they find it advantageous to be able to download the app quickly and, above all, for free. As the interviewed sample consisted of people from different countries, there was a strong need for well-developed multilingual support in the respective native languages for enhanced understanding of the experience.

With respect to the need for app usefulness, interviewees agree with the fact that the app should provide all relevant information in planning the visit to the city, and it should contain information related to diverse and varied tourist attractions. In addition, respondents emphasize the importance of having the opportunity to view the culinary offers of the various listed restaurants as well as prices. Respondents pointed out that having additional services such as customer service, in-app payment and security or history of places visited could be a key strength of the app.

Need for aesthetic is given by an attractive physical and digital environment. In terms of digital environment, a quality and engaging interface is considered crucial for respondents, as it increases their interest in spending more time on the app and in an enjoyable way. In this sense, well-developed graphics influence the momentary experience that leads to greater user interest. Almost all respondents expressed a preference for a visible easy-to-interpret textual content. In terms of attractive physical environment, respondents would like to have a clean, orderly, pleasant environment (i.e., ambient conditions), in which they do not experience a stressful social atmosphere such as queues, crowding (i.e., social factors).

All respondents agreed that they would use the app for an education purpose to find basic information about city's main attractions such as museums, palaces, statues. Given that the app is structured on both a cultural and culinary level, respondents expect to find information about the origins of local cuisine and the way dishes are cooked as well as the history of the restaurants where the culinary offers are proposed.

Desired service level

Desired service level is given by the fulfillment of 5 needs, i.e., need for education; need for entertainment; need for escapism; need for social interaction; and app usefulness

Interviewees' expectation for education does not refer just to acquire new knowledge, but the app should also stimulate their curiosity to learn more about the city historical background and anecdotes. Developing new skills set and interactivity is seen by all as a two-way process of education in an immersive and fun way. In fact, some respondents expressed a desire to have the chance to frame places through the camera to discover additional information and rarities, thus making the education experience interactive and unique. In analyzing interviews, education and entertainment frequently intersect in the interviewed sample needs.

Need for entertainment is expressed by interviewees expectation to take part to an amusing and pleasant experience. Almost all respondents (about 90%) declared that they want to be emotionally involved through a fun, amusing, and playful experience. In fact, a respondent suggested that an app may be implemented as an interactive game. For instance, Verona is famous for the underground pathways, a distinctive feature that could be integrated into game mode in which the visitor discovers remnants of mosaics, temples, villas, and ancient streets by earning rewards.

Need to escapism is given by interviewees expectations for feeling immersed in a totally different world, far from their daily routine. Respondents expressed a significant desire for an immersive cultural, tourist and culinary experience with the Food Walk in order to imaginatively immerse themselves into an ancient time. For respondents, it is crucial to dislodge themselves from what they experience on a daily routine, from stress and problems. However, this leads them to seek uniqueness in the experience, authenticity of places and heritage, history and identity of restaurants. Additionally, this form of entertainment is appreciated by all tourists as they are able to experience a new culture and reality.

Need for social interaction is given by the fact that users expect to meet people during the walking route and share their experience. According to respondents, sociability would also be reflected in the possibility of reviewing restaurants visited directly in the app, in order to share one's experiences, feelings and recommendations. According to half of the respondents, sociability, as well as the educational dimension, could also be intensified through events dedicated to cultural or culinary themes - organized in the local restaurants on the Food Walk app - where visitors with the same interests and hobbies can interact, exchange ideas, organize contests, etc.

With respect to the need for app usefulness, in order to enhance service level from adequate to desired, respondents mention the fact that having a driven-customized path could make the app more appealing. Several respondents suggest that through app filters based on preferences, geolocation, or interests, they could choose a customized fitting itinerary

and restaurants. In addition, some users are accustomed to voice interaction with the phone, so they suggested a “voice search” that could be incorporated into the app to enhance its usefulness.

Lastly, our research found that all the experience needs (easiness-of-use, usefulness, aesthetic, education, entertainment, escapism, and social interaction) differed among age groups.

Research limitations. The research, which is preliminary in nature, presents some limitations. First, the sample is limited to a specific age group, but people over 50 may have different needs and expectations from using an app. Similarly, only people with a certain level of familiarity with technological devices were interviewed and expanding the sample to include less experienced users could lead to very different results.

In addition, for qualitative research a saturation criterion is generally used to stop interviews (Saunders et al., 200); more precisely, the researchers continue to interview additional participants until saturation of interest field (i.e., until nothing new was being heard). In the current research the saturation criterion has not been met. Indeed, the purpose of pilot studies is to gather relevant information that could serve to improve the validity and reliability of the study instrument that will be used in the main research (Malmqvist et al., 2019). Further research should enlarge the sample to increase the generalizability of results. In addition, possible differences between residents and tourists’ perceptions could be investigated, since these may not always correspond, as reported by previous literature (Cassia et al., 2018).

Managerial implications. Managerial implications refer to app designers and tourism service providers and offer suggestions on how to develop an app to provide delightful experiences in cultural tourism. The proliferation of websites and mobile applications has led to increased competition in the cultural tourism industry, and for tourism service providers to maintain a competitive advantage a deep understanding of tourists’ needs and expectations is of utmost importance. Findings of this study, which were derived by analyzing qualitative data through the multiple expectations model of Parasuraman et al. (1994), reveal a difference in terms of expectations for adequate and desired service levels, which in turn are categorized in different needs. In order to provide adequate service level, i.e., for tourists not to be dissatisfied with their experience, the following variables are crucial: app easiness of use, app usefulness, aesthetic needs and education needs must be fulfilled. This means that the app must necessarily be easily accessible and for free, and it must contain all relevant information to allow tourists to plan their visit. The app content must be informative, in that it must allow tourists to acquire new knowledge about the attractions they visit, and the user interface must also be graphically attractive.

In order to go beyond adequate service level, that is to provide the desired service level and improve visitors’ satisfaction and possibly achieve visitors’ delight, app developer should also take into consideration additional needs and expectations. According to the findings, the app should not only provide relevant information but also stimulate curiosity to learn more about the historical background and anecdotes of the city. Gamification techniques could also be involved in order to fulfill visitors’ need for entertainment and enhance the overall service level. Tourists should not only passively visit historical attractions, but they also expect to be actively engaged and fully immersed in the tourist environment. Additional technological devices, such as virtual reality, may help in meeting tourists need for escapism. Moreover, in the design of an app for cultural tourism, occasion for social interactions should also be taken into account, since tourism is a social phenomenon, and tourists expect to be offered the possibility to meet other tourists, and share their experience, both online and offline. Lastly, for the app to provide the desired level of usefulness, accurate and informative contents is not enough, and customized suggestions and recommendations should also be included. These can be easily obtained by asking users some preliminary questions about their background, interests, and expectations when they download the app.

Originality of the paper. This study brings to focus the importance of technology driven devices - including mobile apps - to enhance cultural tourism and the overall tourism experiences. The originality of the paper consists in dealing with tourists’ expectations, rather than actual perceptions, since the focus of the analysis is an ongoing project of a mobile app for cultural tourism. In this sense, this study contributes to existing literature on tourist needs and expectations (Vigolo et al., 2021) by investigating users’ expectations about adequate and desired service levels in a mobile app for cultural tourism. App users do not expect just to be passively entertained visitors in a highly aesthetic environment, but also to be actively involved, to learn new things, and to escape from daily routine. In this sense, tourist needs coincide with the four realms of Pine and Gilmore framework of the experience economy (1999). Findings also reveal that social interaction is an additional realm of the experience that cultural tourists expect for their delight. In addition, this study supports previous research dealing with the use of technology and technology acceptance rates, since important visitors’ needs and expectations refer to the technological device easiness-of-use and its usefulness, as already shown by the Technology Acceptance Model (TAM) (Davis, 1989; Venkatesh and Davis, 2000).

Keywords: cultural tourism; mobile apps; tourism experience; food tourism; tourist needs and expectations; service quality

References

ARJONA-FUENTES J.M., AMADOR-HIDALGO L. (2017), “Olive oil tourism: Promoting rural development in Andalusia (Spain)”, *Tourism management perspectives*, vol. 21, pp. 100-108.

- BOWEN D.E., SCHNEIDER B. (1995), "Winning the service game", *Harvard Business School Press, Boston, MA*.
- CABIDDU F., LUI T.W., PICCOLI G. (2013), "Managing value co-creation in the tourism industry", *Annals of Tourism Research*, vol. 42, pp. 86-107.
- CANESTRINO R., BONFANTI A., MAGLIOCCA P. (2018), "Value co-creation in the hospitality industry: Learning from the Vascitour experience", *Sinergie Italian Journal of Management*, vol. 36, n. 107, pp. 23-47.
- CARUANA R., GLOZER S., CRANE A., MCCABE S. (2014), "Tourists' accounts of responsible tourism", *Annals of Tourism Research*, vol. 46, pp. 115-129.
- CASSIA F., VIGOLO V., UGOLINI M., BARATTA R. (2018), "Exploring city image: residents' versus tourists' perceptions", *The TQM Journal*, vol. 30, n. 5, pp. 476-489.
- CASTRO V.A., DE OLIVEIRA SANTOS G.E., GIMENES-MINASSE M.H.S.G., GIRALDI J.D.M.E. (2017), "Práticas de visitaç o nas vin colas da Serra Ga cha: unindo vitivinicultura e turismo no sul do Brasil", *Revista Turismo em An lise*, vol. 28, n. 3, pp. 380-402.
- CHIU H.C., LIN N.P. (2004), "A service quality measurement derived from the theory of needs", *The Service Industries Journal*, vol. 24, pp. 187-204.
- DAVIS F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, vol. 13, n. 3, pp. 319-340.
- DORCIC J., KOMSIC J., MARKOVIC S. (2019), "Mobile technologies and applications towards smart tourism-state of the art", *Tourism Review*.
- FERNANDEZ J.A.F., SANCHEZ P.R.P., CERRO A.M.C., MOGOLLON J.M.H. (2017), "Productos gastron micos con identidad y desarrollo del destino tur stico. Un estudio sobre rutas del queso en Espa a", *International journal of scientific management and tourism*, vol. 3, n. 1, pp. 93-109.
- GARCIA-GONZALES M. (2014), "Food, tourism and urban economic development: A role for ICT?", *Information and Communication Technologies in Tourism*, vol. 83.
- GARCIA-HERNANDEZ M., LA CALLE-VAQUERO D., YUBERO C. (2017), "Cultural heritage and urban tourism: Historic city centres under pressure", *Sustainability*, vol. 9, n. 8, pp. 1346.
- HALL C.M., SHARPLES L., MITCHELL R., MACIONIS N., CAMBOURNE B. (2004), "Food tourism around the world", *Routledge*.
- HEWISON R. (1987), "The heritage industry: Britain in a climate of decline".
- HO C.I., LEE Y.L. (2007), "The development of an e-travel service quality scale", *Tourism management*, vol. 28, n. 6, pp. 1434-1449.
- HUANG Y., CHANG L., YU C., CHEN J. (2019), "Examining an extended technology acceptance model with experience construct on hotel consumers' adoption of mobile applications", *Journal of Hospitality Marketing & Management*, vol. 28, n. 8, pp. 957-980.
- JOVICIC D. (2016), "Cultural tourism in the context of relations between mass and alternative tourism", *Current Issues in Tourism*, vol. 19, n. 6, pp. 605-612.
- KIM M. G., MATTILA A.S. (2013), "Does a surprise strategy need words? The effect of explanations for a surprise strategy on customer delight and expectations", *Journal of Services Marketing*, vol. 27, n. 5, pp. 361-370.
- MACCANNEL D. (2002), "The ego factor in tourism", *Journal of Consumer research*, vol. 29, n. 1, pp. 146-151.
- MALMQVIST L., HELLBERG K., M LL S G., ROSE R., SHEVLIN M. (2019), "Conducting the Pilot Study: A Neglected Part of the Research Process? Methodological Findings Supporting the Importance of Piloting in Qualitative Research Studies", *International Journal of Qualitative Methods*, vol. 18, pp. 1-11.
- MCKERCHER B., DU CROS H. (2003), "Testing a cultural tourism typology", *International journal of tourism research*, vol. 5, n. 1, pp. 45-58.
- MONTANARI A., STANISCI A. B. (2009), "Culinary tourism as a tool for regional re-equilibrium", *European Planning Studies*, vol. 17, n. 10, pp. 1463-1483.
- MOROSAN C., DEFRANCO A. (2016), "Modeling guests' intentions to use mobile apps in hotels: the roles of personalization, privacy, and involvement", *International Journal of Contemporary Hospitality Management*, vol. 28, n. 9, pp. 1968-1991.
- MOUSAVI S.S., DORATLI N., MOUSAVI S.N., MORADIAHARI F. (2016), "Defining cultural tourism", *International Conference on Civil, Architecture and Sustainable Development*, vol. 1, n. 2, pp. 70-75.
- OH H., FIORE A.M., JEOUNG M. (2007), "Measuring experience economy concepts: Tourism applications", *Journal of Travel Research*, vol. 46, pp. 119-132.
- PARASURAMAN A., ZEITHAML V.A., BERRY L.L. (1994), "Reassessment of expectations as a 905 comparison standard in measuring service quality: implications for further research", *Journal of Marketing*, vol. 58, pp. 111-124.
- PINE J. B., GILMORE J.H. (1999), "The experience economy: Work is a theatre and every business a stage", *Harvard Business School, Cambridge MA*.
- PONSIGNON F., DERBAIX M. (2020), "The impact of interactive technologies on the social experience: An empirical study in a cultural tourism context", *Tourism Management Perspectives*, vol. 35, 100723.
- POON A. (1993), "Tourism, technology and competitive strategies", *Tourism, technology and competitive strategies*, pp. 370.
- RICHARDS G. (2001), "El desarrollo del turismo cultural en Europa", *Estudios tur sticos*, pp. 3-14.

- RICHARDS G. (2011), "Tourism trends: tourism, culture and cultural routes. Cultural tourism trends in Europe: a context for the development of Cultural Routes", *Council of Europe Publishing*, pp. 21-39.
- SAUNDERS M.N.K., LEWIS P., THORNHILL A. (2009), "Research methods for business students", *Prentice Hall*, New York.
- STRAUSS A., CORBIN J. (1998), "Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory", *Sage*, Thousand Oaks, CA.
- TORRES E.N., KLINE S. (2006), "From satisfaction to delight: A model for the hotel industry", *International Journal of Contemporary Hospitality Management*, vol. 18, n. 4, pp. 290-301.
- TORRES E.N., ZHANG T., RONZONI G. (2020), "Measuring delightful customer experiences: The validation and testing of a customer delight scale along with its antecedents and effects", *International Journal of Hospitality Management*, vol. 87, 102380.
- UNWTO, (2017), available on: <https://www.unwto.org/archive/global/press-release/2017-09-18/22nd-unwto-general-assembly-china-week-important-achievements>.
- URRY J. (1990), "The consumption of tourism", *Sociology*, vol. 24, n. 1, pp. 23-35.
- VENKATESH V., DAVIS F.D. (2000), "A theoretical extension of the technology acceptance model: Four longitudinal field studies", *Management Science*, vol. 46, n. 2, pp. 186-204.
- VIGOLO V., BONFANTI A., RIVERA-HERNANDEZ O. (2021), "Disentangling customer delight: a needs-based analysis of senior tourists in hotels", *Anatolia: An International Journal of Tourism and Hospitality*, pp. 565-578.
- VILA-HENNINGER L., DUPUY C., VAN INGELGOM V., CAPRIOLI M., TEUBER F., PENNETREAU D., LE GALL C. (2022), "Abductive Coding: Theory Building and Qualitative (Re) Analysis", *Sociological Methods & Research*.

Approccio partecipativo e processo di certificazione di una destinazione turistica community. Il caso “San Vigilio Dolomites”

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Inquadramento della ricerca. Il paper analizza il community participation nel processo di sviluppo e certificazione di una destinazione turistica di tipo community. Le destinazioni community sono territori all'interno dei quali risorse e attività sono diffuse tra attori pubblici e privati e comunità locale che contribuiscono, con ruoli, capacità e competenze distinte, alla definizione e promozione dell'offerta turistica (Murphy, 1985; Murphy and Murphy, 2004; Beritelli et al., 2016.) La comunità locale assolve ad un ruolo determinante all'interno di queste destinazioni, sia perché attore indiscusso nel definire l'atmosfera di accoglienza e nel comunicare identità e autenticità dei luoghi nelle relazioni con il turista (Simmons, 1994; Beeton, 2006), sia perché attore coinvolto direttamente nella filiera turistica divenendo pertanto protagonista nella creazione dell'offerta (Presenza et al., 2013; Buffa et al., 2019). Il coinvolgimento della comunità locale nei processi di sviluppo di queste destinazioni diviene elemento essenziale per riuscire a coniugare gli obiettivi di crescita e sviluppo dei singoli attori con quelli di sviluppo territoriale (Tosun, 2006; Okazaki, 2008; Sakata and Prideaux, 2013; Wondirad and Ewnetu, 2019). Il coordinamento tra ente preposto alla definizione degli obiettivi di politica turistica, organizzazione di meta-management che si occupa della gestione dell'offerta turistico-territoriale (destination management organisation - DMO) e comunità locale (direttamente e indirettamente coinvolta nella definizione dell'offerta), pertanto, richiede l'adozione di processi partecipativi orientati al raggiungimento di obiettivi di sviluppo sostenibile (Della Corte e Sciarrelli, 2013; Martini e Buffa, 2020; Scheyvens and Cheer, 2021). La ricerca, illustrata nel presente contributo, considera il tema del community participation nelle destinazioni turistiche con particolare riferimento ai lavori di Simmons (1994) e Tosun (1999, 2000, 2001 e 2006). I contributi di Tosun (ibidem) traggono ispirazione da Arnstein (1969), senza dubbio uno dei contributi di riferimento per lo studio della partecipazione comunitaria, e declinano al contesto turistico lo studio del community participation.

Al fine di definire cosa si intende per community participation, è utile spiegare cosa si intende per “comunità” e “partecipazione”. La comunità¹ è un'entità sociale composta da persone o famiglie che soddisfa alcune importanti caratteristiche: vivono all'interno della stessa area geografica e condividono le risorse e servizi presenti nel territorio (Treccani). Inoltre, questo gruppo di persone condivide il medesimo sistema di comunicazione, di tradizioni, di storia e di memoria che ne definiscono l'identità culturale. Parlando di community participation, si fa riferimento ad un processo nel quale la comunità si mobilita per lo sviluppo di progetti ed iniziative volte a migliorare il proprio benessere collettivo. Nel corso degli anni molti studiosi hanno affrontato la tematica della “partecipazione” della comunità (Nelson and Wright 1995; Pretty, 1995), dando origine a diversi significati ed accezioni. Elemento che accomuna le definizioni di partecipazione è l'identificazione della comunità locale come “motore”, elemento centrale nel processo decisionale.

Arnstein (1969) propone una prima classificazione delle forme di citizen participation rappresentandola con una scala ad otto pioli, ognuno dei quali corrisponde al grado di potere/coinvolgimento dei cittadini nei processi decisionali. Arnstein (1969) evidenzia tre principali raggruppamenti all'interno dei quali sono presenti livelli di partecipazione distinti. Adottando una lettura dal basso verso l'altro, la “non participation” si riferisce ad azioni che non coinvolgono i cittadini nell'assunzione di decisioni collettive e si esprime attraverso forme di “manipulation” e “therapy”. Il livello intermedio fa riferimento ad una partecipazione apparente della comunità (tokenismo) in cui la diffusione di informazioni e le attività di consultazione e confronto sono “di facciata” in quanto le decisioni determinanti sono già state assunte. Il livello più alto, infine, descrive i livelli di “citizen power” all'interno dei quali i cittadini partecipano attivamente, sebbene con intensità, ruoli e modalità diverse, ai processi decisionali inerenti alla governance e lo sviluppo comunitario.

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¹ Dal latino *communitas*, derivato di *communis* “ciò che è comune a molti o tutti, quello che è condiviso”.

Con riferimento al *community participation* nelle destinazioni turistiche, Tosun (2006) sostiene che l'approccio partecipativo è una condizione necessaria per l'adozione dei principi di turismo sostenibile volti a considerare le esigenze della comunità locale permettendole di ottenere maggiori e più equi benefici dallo sviluppo turistico. Questo induce la comunità locale ad adottare atteggiamenti più positivi nei confronti dello sviluppo turistico e a contribuire alla conservazione dell'ambiente. Numerosi sono gli studi che confermano l'esistenza di una relazione tra gli impatti del turismo, che non sono neutri, e l'ambiente. Il turismo ha, infatti, un impatto sistemico in quanto tende a coinvolgere trasversalmente l'economia del territorio nel quale si indirizza con importanti ricadute di natura sociale, culturale, ambientale ed economica (Weaver, 2000 e 2012; Deery et al., 2012; Franch e Martini, 2013; Lee and Jan 2019; Franch e Peretta 2020).

A fronte di quanto sino a qui illustrato, appare essenziale utilizzare un modello di sviluppo turistico sostenibile, ossia in grado di assicurare il soddisfacimento dei bisogni della generazione presente senza compromettere la possibilità delle generazioni future di realizzare i propri. Come evidenziato negli studi di Simmons (1994) e Tosun (1999, 2000, 2001 e 2006) il coinvolgimento e la partecipazione della comunità locale diventano un elemento imprescindibile in questo modello in quanto, se il turismo non viene controllato e gestito rischia di scontrarsi con la negatività e il malessere dei residenti soprafatti dagli impatti del settore turistico sul loro territorio.

Nel corso del secolo scorso si sono sviluppati diversi strumenti di politica ambientale per contrastare gli impatti negativi causati dalle attività produttive. Tali strumenti affrontano i problemi dal punto di vista sia normativo (regolamenti di comando e controllo), sia economico (tasse e permessi negoziabili) (Barde, 1995). A questi, negli ultimi trent'anni si sono affiancati strumenti di tipo volontario (certificazioni ambientali, reporting ed etichettatura) con l'intento di internalizzare nelle strategie d'impresa i temi ambientali e sociali della sostenibilità (Daddi et al., 2016; Mazzi et al., 2017; de Nadae et al., 2020). Nel tempo, per favorire e integrare la sostenibilità nei diversi settori produttivi, alle norme volontarie generali si sono aggiunti standard specifici come, ad esempio, nel settore turistico (Costa et al., 2019; Font, 2020). Gli impatti, non solo ambientali, generati dal turismo sono legati a tutto il ciclo della vacanza: dall'arrivo nella destinazione, alle attività svolte in loco ed in ultimo dal rientro a casa. Conseguentemente nascono delle sfide che la politica deve affrontare per lo sviluppo di un turismo sostenibile riconducibili a sei specifiche azioni inerenti a: consumo di energia ed emissioni di gas a effetto serra, consumo di acqua, gestione e trattamento dei rifiuti, biodiversità e gestione degli habitat, minacce al patrimonio (Gössling and Peeters, 2015).

L'importanza di ripensare ai modelli di sviluppo in un'ottica di sostenibilità è ampiamente evidenziata dai Millennium Development Goals (MDGs)² e Sustainable Development Goals (SDGs) promossi dalle Nazioni Unite e nel Green Deal proposto dalla Commissione Europea. Per contrastare gli impatti ambientali negativi causati dalle attività umane (tra cui il turismo) hanno trovato ampia diffusione i sistemi di certificazione che permettono di verificare, nonché di attestare e comunicare, la sostenibilità di azioni e attività adottate da imprese e organizzazioni (UNWTO, 2016; UNWTO, 2017).

Nel turismo è stata ideata e sviluppata la certificazione promossa dal Global Sustainable Tourism Council (d'ora in avanti "certificazione GSTC"), organizzazione istituita da United Nations Environment Programme (UNEP) e dall'organizzazione mondiale del turismo (UNWTO). La certificazione ha definito specifici standard (criteri GSTC) finalizzati a rispondere ad uno o più SDGs.

Il GSTC ha deciso di elaborare un modello che abbia valenza internazionale e che sia applicabile alle destinazioni turistiche e alle strutture ricettive, sviluppando due certificazioni espressamente dedicate alle necessità del settore turistico. La caratteristica che contraddistingue la certificazione GSTC, rispetto alle altre, è la capacità di racchiudere al suo interno tutte le componenti della sostenibilità: (1) gestione sostenibile, (2) sostenibilità socio-economica, (3) sostenibilità culturale e (4) sostenibilità ambientale.

Con riferimento alla destinazione turistica eletta a caso di studio ("San Vigilio Dolomites" in Alto Adige) (cfr infra) sono stati selezionati ed approfonditi alcuni criteri dello schema di certificazione GSTC e si è analizzato il coinvolgimento della comunità locale nei processi decisionali inerenti alla certificazione della destinazione.

Obiettivo del paper. L'oggetto di analisi è il *community participation* nelle destinazioni turistiche *community* al fine di analizzare il coinvolgimento della popolazione locale nei processi decisionali per lo sviluppo turistico-territoriale sostenibile. Lo studio discute il caso della località turistica "San Vigilio Dolomites" (Alto Adige) e di come la partecipazione della comunità locale abbia favorito l'ottenimento della certificazione di sostenibilità del Global Sustainable Tourism Council (GSTC) avvenuta nell'estate 2021.

Metodologia. La ricerca finalizzata a cogliere opinioni e percezioni riguardo ai processi partecipativi che hanno interessato l'ottenimento della certificazione è stata organizzata in due fasi principali. La prima orientata ad analizzare le opinioni della comunità locale, la seconda finalizzata ad analizzare opinioni e percezioni di *key player* (pubblici e privati) della destinazione.

Per la prima fase ci si è avvalsi della collaborazione della DMO della destinazione che ha indirizzato un questionario a tutta la popolazione locale. Per la seconda fase si sono condotte interviste in profondità con *stakeholder* di riferimento per lo sviluppo turistico-territoriale avvalendosi dello *snowball sampling*.

La prima fase è iniziata con la preparazione del questionario per i residenti nel mese di maggio 2021 che è stato reso disponibile, sia su carta, sia online, nei primi giorni di luglio. Sono state date ai residenti circa 10 settimane di tempo per rispondere, chiudendo definitivamente il sondaggio alla fine di settembre 2021. Il questionario, composto da

² Per un approfondimento sui Millennium Development Goals si rinvia a Hulme (2009).

22 domande, è stato costruito in modo da coprire le tre dimensioni della sostenibilità (economica, ambientale, socio-culturale) ed indagare le percezioni della comunità locale rispetto al suo coinvolgimento nelle decisioni per il futuro sviluppo del turismo locale. Sono stati inviati 1.800 questionari; 385 sono stati compilati conseguendo un tasso di redemption pari al 21,4%.

Nella seconda fase (condotta tra fine ottobre 2021 e inizio dicembre 2021) sono state realizzate le interviste con i key stakeholders, alcune in modalità online (utilizzando la piattaforma Zoom), altre attraverso l'utilizzo del telefono, altre in presenza. Per le interviste si è adottata la tecnica di campionamento snowball sampling al fine di individuare gli attori ritenuti più importanti per lo sviluppo turistico della destinazione. Per le interviste si è definita una “short list” composta di 9 attori: tali attori sono stati identificati poiché coinvolti in attività e/o organizzazioni di rilievo per lo sviluppo turistico territoriale e/o nel processo di certificazione della destinazione. Ad essi è stato chiesto di esprimere opinioni in merito al processo di certificazione e ai vantaggi e/o criticità di tale strumento ed è stato altresì chiesto di identificare i soggetti che possono rappresentare stakeholder di riferimento per il futuro sviluppo sostenibile della destinazione.

I dati raccolti attraverso le interviste sono stati organizzati in matrici di adiacenza, ossia matrici quadrate che si riferiscono ad un unico set di attori (one-mode network). Per l'elaborazione dei dati ci si è avvalsi del software Ucinet (versione 6.734) e per la rappresentazione del grafo di NetDraw (versione 2.177) (Borgatti et al., 2002; Hanneman and Riddle, 2005; Borgatti et al., 2013).

Complessivamente sono stati identificati 50 attori (9 iniziali e 41 identificati dagli attori locali) e ne sono stati intervistati 29. Questa seconda fase di ricerca ha permesso di ricostruire la rete che coinvolge gli attori come proposto dalla social network analysis (SNA); approccio che ha trovato applicazione negli studi di tourism management adottando tecniche e metodologie di indagine che hanno permesso di ricostruire network di attori e analizzare le dinamiche di relazione nelle destinazioni turistiche (Baggio et al., 2010; Baggio 2011; Beritelli, 2011; Beritelli and Laesser 2011; Martini e Buffa 2015).

Al fine di cogliere la posizione e la rilevanza degli attori all'interno della rete, si è fatto riferimento all'indicatore di centralità (centrality) e, nello specifico, al Freeman's degree (Freeman, 1979; Scott, 2000). L'indicatore di centralità consente di analizzare la rilevanza e l'influenza nei nodi (attori) che appartengono alla rete. I nodi che si trovano in una posizione centrale detengono un vantaggio sugli altri: la centralità consente, infatti, accesso più facile alle risorse e alle informazioni così come una maggiore capacità e opportunità di influenzare gli altri nodi. Il grado di Freeman misura il numero di relazioni in cui un nodo è coinvolto all'interno di una rete: maggiore è il numero di link (relazioni) che un attore ha con gli altri nodi della rete, più alto è il suo grado di centralità (degree). Al fine di identificare gli attori locali riconducibili ai nodi della rete con maggiore rilevanza, ad ogni intervistato è stato chiesto di indicare cinque persone ritenute importanti per il futuro sviluppo turistico-territoriale della destinazione e il motivo di tale scelta. Con riferimento agli attori intervistati ($n = 29$) essi rappresentano i nodi con più elevato valore di in-degree: il 90% degli intervistati, infatti, presentava valore di in-degree ≥ 2 .

Come ultima domanda, è stato chiesto di indicare l'ordine di importanza delle cinque persone nominate. L'intensità della relazione (ossia l'importanza attribuita dall'attore intervistato agli altri attori da lui/lei identificati) è stata misurata attraverso una scala di importanza (da 1 a 5). In questo modo, per ognuno degli attori appartenenti alla rete, si è ottenuto l'in-degree centrality con valori pesati.

Risultati. Dalla prima fase della ricerca è emerso come nonostante ci sia stato un buon livello di coinvolgimento della popolazione locale, sia presente una forte differenza di informazione tra coloro che godono di un canale di comunicazione diretto con la DMO (ossia i soci della stessa) e gli individui non facenti parte di questa organizzazione. Si nota un forte disallineamento tra la volontà dell'organizzazione di informare e rendere consapevole l'intera popolazione sulla tematica della certificazione e la realtà dei fatti, in quanto molti residenti sono venuti a conoscenza del raggiungimento di questo traguardo all'ottenimento della certificazione. Alcuni dei risultati più interessanti emersi dal questionario somministrati ai residenti, fanno riferimento alla percezione della comunità rispetto allo sviluppo turistico e alla qualità della vita. Interessante che i residenti attribuiscono al turismo il merito di aver migliorato l'economia, portando maggiore ricchezza al territorio e migliorando conseguentemente la qualità della vita. Si osserva tuttavia che il 45% dei rispondenti afferma che la qualità della vita non viene presa in considerazione nello sviluppo turistico facendo emergere un punto critico rispetto al quale è necessario un intervento da parte della DMO, al fine di invertire questa tendenza.

Dalle interviste condotte con i key stakeholder è emerso che in linea generale vi sia stato un buon livello di coinvolgimento ed una buona informazione riguardo alla certificazione GSTC. Sono emerse, tuttavia, alcune difficoltà nell'adozione di un approccio partecipativo dovute principalmente all'attuale situazione di pandemia globale che ha limitato notevolmente le occasioni di aggregazione e socialità. Inoltre, secondo gli intervistati, ci sono alcuni aspetti, sintetizzati di seguito, dove si può e si deve migliorare:

- **Sostenibilità:** è stata segnalata la necessità di chiarire in maniera univoca come viene interpretata la sostenibilità all'interno della destinazione turistica;
- **Mobilità:** necessità di far capire in primo luogo ai residenti che non serve usare sempre la macchina, resta inteso che deve essere offerta una mobilità pubblica sostenibile efficace ed efficiente.
- **Limite dei posti letto:** alcuni rispondenti vorrebbero imporre un tetto massimo al numero dei posti letto, in quanto in certi momenti dell'anno il numero di turisti supera il numero di residenti, suscitando un atteggiamento critico verso uno sviluppo turistico di massa

- *Rifiuti: una maggiore sensibilizzazione dei turisti alla raccolta differenziata e a non abbandonare gli stessi lungo i sentieri montani;*
- *Compensazioni: un intervistato ha avanzato l'idea di avviare un progetto per cercare di compensare le emissioni di gas serra; aspetto quest'ultimo inserito anche all'interno della certificazione GSTC.*

L'analisi dei dati relativi alla mappatura degli stakeholder ha messo in luce che i cinque attori ritenuti più rilevanti, sono il presidente e il direttore della DMO, i sindaci dei due comuni principali della destinazione e il vicepresidente del comprensorio sciistico di riferimento per l'area dolomitica.

È interessante osservare come dei cinque attori identificati, due siano attori pubblici mentre gli altri tre appartengano al settore privato, indicando la presenza di interazione tra i due settori e riconoscendo alla DMO un ruolo centrale nello sviluppo futuro della destinazione. È opinione diffusa tra gli intervistati che solamente grazie ad una buona collaborazione tra pubblico e privato si possa perseguire uno sviluppo sostenibile di lungo termine. La DMO ed i due Comuni dovrebbero condividere non solo tale visione, ma anche progetti e decisioni per migliorare la qualità della vita dei residenti e rendere più efficace anche l'offerta turistica.

In linea generale si può affermare che c'è stato un buon livello di coinvolgimento della comunità locale anche considerando il grande sforzo effettuato dalla DMO con il questionario rivolto a tutti i residenti. Emerge tuttavia una marcata distinzione nel livello di partecipazione in ragione del coinvolgimento della comunità in qualità di socio, oppure no, nella DMO. I soci beneficiano di un canale di comunicazione diretto con la DMO, la quale ha previsto incontri di approfondimento. Il coinvolgimento degli albergatori, ad esempio, ha permesso non solo di informare tali soci del processo di certificazione della destinazione, ma di presentare loro anche l'opportunità di intraprendere un processo di certificazione GSTC rivolto specificatamente alle strutture ricettive.

La popolazione residente non direttamente coinvolta in qualità di socio della DMO invece è stata informata rispetto al processo di certificazione in corso, ma non sono state alimentate occasioni di confronto e di coinvolgimento in specifici processi decisionali. La sola dimensione informativa, tuttavia, non è parsa efficace stante il 65% dei rispondenti che ha dichiarato di non essere a conoscenza del processo di certificazione in corso.

Con riferimento alla letteratura si osserva pertanto che una parte della popolazione locale è stata direttamente coinvolta in processi che richiamano lo "spontaneous participation" indicato in Tosun (2006), mentre i processi informativi sono riconducibili maggiormente a "induced participation". Dalle interviste condotte con gli stakeholder emerge, tuttavia, che il processo di certificazione è stata una occasione per considerare l'intera comunità locale, chiedendole di esprimere opinioni sullo sviluppo turistico e la qualità della vita nella destinazione. La certificazione, pertanto ha avviato un processo di ascolto della comunità che può trovare seguito nelle scelte attuali e future inerenti allo sviluppo turistico territoriale creando occasioni di dialogo e confronto attivo con i residenti.

Limiti della ricerca. *La ricerca rivolta specificatamente alla popolazione locale risente del limite di autoselezione dei rispondenti non permettendo di ottenere un quadro completo di opinioni ed istanze della comunità. La ricerca rivolta agli stakeholder presenta alcuni limiti dovuti all'impossibilità di condurre le interviste con tutti i key stakeholder identificati dai rispondenti. Il completamento delle interviste avrebbe consentito una rappresentazione più dettagliata del contesto sociale e dei key player per lo sviluppo futuro della destinazione "San Vigilio Dolomites".*

Implicazioni manageriali. *La ricerca evidenzia la complessità connessa ai processi partecipativi allargati a più attori che contraddistinguono il management delle destinazioni community. Numerosi sono gli stakeholder locali che sono stati coinvolti nei processi decisionali inerenti alla certificazione, ma emergono altresì le difficoltà a raggiungere la maggioranza della popolazione locale, soprattutto laddove i residenti non siano coinvolti direttamente in qualità di soci della DMO. Al fine di favorire la partecipazione della comunità appare utile la creazione di un gruppo di lavoro espressione del tessuto sociale della destinazione, incaricato di gestire l'intero processo di certificazione (che è soggetta a valutazione annuale e a rinnovo ogni tre anni) ed esprimere pareri e possibili azioni per lo sviluppo turistico sostenibile della destinazione. Tali proposte sarebbero sviluppate in base agli indicatori di performance del GSTC. In questo gruppo di lavoro potrebbero essere coinvolti, oltre ai referenti della DMO, soggetti identificati come rilevanti per lo sviluppo futuro della destinazione, ma che attualmente non rientrano tra i soci della DMO.*

Originalità del paper. *La ricerca indaga i processi partecipativi per lo sviluppo turistico sostenibile di una destinazione community che ha ottenuto la certificazione GSTC (Global Sustainable Tourism Council). Ad oggi, la destinazione oggetto di studio è la prima destinazione nelle Dolomiti ad ottenere questa certificazione e la terza a livello italiano, dopo "Valsugana" in Trentino (che è stata la prima non solo a livello italiano, ma a livello internazionale), la destinazione "Tarvisiano, Sella Nevea e Passo Pramollo" in Friuli Venezia Giulia.*

Parole chiave: *community participation; turismo sostenibile; certificazione Global Sustainable Tourism Council - GSTC; stakeholder network; stakeholder engagement; San Vigilio Dolomites*

Bibliografia

- ARNSTEIN S.R. (1969), "A ladder of citizen participation", *Journal of the American Institute of Planners*, vol. 35, n. 4 pp. 216-224.
- BAGGIO R. (2011), "Collaboration and cooperation in a tourism destination: a network science approach", *Current Issues in Tourism*, vol. 14, n. 2, pp. 183-189.

- BAGGIO R., SCOTT N., COOPER C. (2010), "Network science - a review with a focus on tourism", *Annals of Tourism Research*, vol. 37, n. 3, pp. 802-827.
- BARDE J. (1995), "Environmental policy and instruments". In: Folmer H., Gabel L.H., Opschoor H. (Eds.), *Principles of Environmental and Resource Economics*. Edward Elgar, London (pp. 201-227).
- BEETON S. (2006), *Community development through tourism*, Landlinks Press, Collingwood.
- BERITELLI P. (2011), "Cooperation among prominent actors in a tourist destination", *Annals of Tourism Research*, vol. 38, n. 2, pp. 607-629.
- BERITELLI P., LAESSER C. (2011), "Power dimensions and influence reputation in tourist destinations. Empirical evidence from a network of actors and stakeholders", *Tourism Management*, vol. 32, n. 6, pp. 1299-1309.
- BERITELLI P., BUFFA F., MARTINI U. (2016), "Logics and interlocking directorships in a multi-stakeholder system", *Journal of Destination Marketing & Management*, vol. 5, n. 2, pp.107-116.
- BORGATTI S.P., EVERETT M.G., FREEMAN L.C. (2002), *Ucinet 6 for Windows: Software for Social Network Analysis*. Analytic Technologies, Harvard.
- BORGATTI S.P., EVERETT M.G., JOHNSON J.C. (2013), *Analyzing Social Networks*. Sage Publications.
- BUFFA F., BERITELLI P., MARTINI U. (2019), "Project networks and the reputation network in a community destination: Proof of the missing link", *Journal of Destination Marketing & Management*, vol. 11, pp. 251-259.
- COSTA J., RODRIGUES D., GOMES J. (2019), "Sustainability of tourism destinations and the importance of certification", *Worldwide Hospitality and Tourism Themes*, vol. 11, n. 6, pp. 677-684.
- DADDI T., TESTA F., FREY M., IRALDO F. (2016), "Exploring the link between institutional pressures and environmental management systems effectiveness: An empirical study", *Journal of Environmental Management*, vol. 183, n. 3, pp. 647-656.
- DE NADAE J., CARVALHO M.M., VIEIRA DR. (2020), "Integrated management systems as a driver of sustainability performance: exploring evidence from multiple-case studies", *International Journal of Quality & Reliability Management*, vol. 38, n. 3, pp. 800-821.
- DEERY M., JAGO L., FREDLINE L. (2012). "Rethinking social impacts of tourism research: A new research agenda", *Tourism Management*, vol. 33, n. 1, pp. 64-73
- DELLA CORTE V., SCIARELLI M. (2013), "Alla ricerca della sostenibilità delle destination: riflessioni e primi riscontri empirici". In Franch M., Martini U. (a cura di) *Management per la sostenibilità dello sviluppo turistico e la competitività delle destinazioni*, Il Mulino, Bologna (pp. 325-366)
- FONT X. (2020), "Environmental certification in tourism and hospitality: progress, process and prospects", *Tourism Management*, vol. 23, pp. 197-205.
- FRANCH, M., MARTINI U. (2013) (A cura di), "Management per la sostenibilità dello sviluppo turistico e la competitività delle destinazioni", Il Mulino, Bologna.
- FRANCH M., PERETTA R. (A cura di) (2020). *Turismo, fragilità, emergenze*, McGraw-Hill, Milano.
- FREEMAN L.C. (1979), "Centrality in Social Networks: I. Conceptual Clarification". *Social Networks*, n.1, pp. 215-239.
- GÖSSLING S., PEETERS P. (2015) "Assessing tourism's global environmental impact 1900-2050", *Journal of Sustainable Tourism*, n. 23, pp. 639-659.
- HANNEMAN, R.A., RIDDLE M. (2005), "Introduction to social network methods", University of California, Riverside.
- HULME D. (2009), "The Millennium Development Goals (MDGs): A Short History of the World's Biggest Promise". *BWPI Working Paper* No. 100, Available at <http://dx.doi.org/10.2139/ssrn.1544271>
- MARTINI U., BUFFA F. (2015), "Local networks, stakeholder dynamics and sustainability in tourism. Opportunities and limits in the light of stakeholder theory and SNA", *Sinergie Italian Journal of Management*, vol. 33, n. 96, pp. 113-130.
- MARTINI U., BUFFA F. (2020), "Marketing for Sustainable Tourism. Editorial", *Sustainability*, n. 12, 2014. DOI: 10.3390/su12052014
- MAZZI A., TONIOLO S., CATTO S., DE LORENZI V., SCIPIONI A. (2017), "The combination of an Environmental Management System and Life Cycle Assessment at the territorial level", *Environmental Impact Assessment Review*, vol. 63, pp. 59-71.
- MURPHY P.E. (1985), *Tourism a community approach*, Methuen, New York.
- MURPHY P.E., MURPHY A.E. (2004). *Strategic management for tourism communities: bridging the gaps*, Channel View Books, Clevedon.
- NELSON N., WRIGHT S. (1995), *Power and Participatory Development: Theory and Practice*, Intermediate Technology Publications Publishing, London.
- PRESENZA A., DEL CHIAPPA G., SHEEHAN L. (2013), "Residents' engagement and local tourism governance in maturing beach destinations. Evidence from an Italian case study", *Journal of Destination Marketing & Management*, vol. 2, n. 1, pp. 22-30.
- PRETTY J. (1995), "Participatory Learning for Sustainable Agriculture", *World Development*, vol. 23, n. 8, pp. 1247-1263.
- OKAZAKI E. (2008), "A community-based-tourism model: its conception ad use", *Journal of Sustainable Tourism*, vol. 16, n. 5, pp. 511-529.

- SAKATA H., PRIDEAUX B. (2013), “An alternative approach to community-based ecotourism: a bottom-up locally initiated non-monetized project in Papua New Guinea”, *Journal of Sustainable Tourism*, vol. 21, n. 6, pp. 880-899.
- SCOTT J. (2000), *Social Network Analysis*, Sage, London.
- SIMMONS D.G. (1994), “Community participation in tourism planning”, *Tourism Management*, vol. 15, n. 2, pp. 98-108.
- TOSUN C. (1999), “Towards a typology of community participation in the tourism development process”, *Anatolia*, vol. 10, n. 2, pp. 113-134.
- TOSUN C. (2000), “Limits to community participation in the tourism development process in developing countries”, *Tourism Management*, vol. 21, n. 6, pp. 613-633.
- TOSUN C. (2001), “Challenges of sustainable tourism development in the developing world: the case of Turkey”, *Tourism Management*, vol. 22, n. 3, pp. 289-303.
- TOSUN C. (2006), “Expected nature of community participation in tourism development”, *Tourism Management*, vol. 27, n. 3, pp. 493-504.
- LEE T.H., JAN F.H. (2019), “Can community based tourism contribute to sustainable development? Evidence from residents’ perceptions of the sustainability”, *Tourism Management*, vol. 70, pp. 368-380.
- UNWTO - World Tourism Organization (2016), *2017 International Year of Sustainable tourism Development, A roadmap for celebrating together*. Accessible at www.unwto.org/tourism4development2017 (last view March 2022).
- UNWTO - World Tourism Organization and United Nations Development Programme (2017), *Tourism and the Sustainable Development Goals - Journey to 2030*, UNWTO, Madrid.
- WEAVER D.B. (2000), “A broad context model of destination development scenarios”, *Tourism Management*, vol. 21, n. 3, pp. 217-224.
- WEAVER D.B. (2012), “Organic, incremental and induced paths to sustainable mass tourism convergence”, *Tourism Management*, vol. 33, n. 5, pp. 1030-1037.
- WONDIRAD A., EWNETU B. (2019), “Community participation in tourism development as a tool to foster sustainable land and resource use practices in a national park milieu”. *Land Use Policy*, vol. 88, 104155.

Turismo, attrattività e mobilità sostenibile: l'effetto moderatore degli aeroporti nella relazione tra la mobilità intelligente ed i flussi turistici nelle città

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Inquadramento della ricerca. *Nel corso degli anni, le pratiche di mobilità intelligente hanno assunto un ruolo centrale nelle traiettorie di sviluppo delle città poiché influenzano non solo le politiche interne legate allo sviluppo urbano, ma anche le scelte degli utenti e gli utilizzatori della città. Questa evoluzione determina lo sviluppo di nuovi servizi e strategie che elevano la città in un contesto nuovo, più dinamico e altamente personalizzato sulla base dei bisogni e delle richieste dei suoi utenti. In questa evoluzione delle città verso un più ampio concetto di “Smart City”, le pratiche di mobilità intelligente possono essere considerate un processo sostenibile e innovativo, basato su un’evoluzione incrementale del sistema di mobilità socio-tecnologico locale, che influisce ulteriormente sull’attrattività della città e sul suo sviluppo interno ed esterno. Questo studio mira a valutare la relazione esistente tra l’implementazione di pratiche di mobilità intelligente nelle città rispetto al flusso turistico delle città stesse. Per valutare questa relazione, utilizziamo il metodo generalizzato di stima dei momenti (GMM), considerando i flussi turistici in ingresso nella città e lo sviluppo del turismo nelle città stimati sulla base di un pool di indicatori. Nello specifico, considerando un campione di 20 città italiane per un periodo di otto anni, evidenziamo l’attuale relazione tra lo sviluppo di pratiche di mobilità intelligente ed i flussi turistici in entrata. Inoltre, indaghiamo sul ruolo che gli aeroporti nelle città. Risultati preliminari mostrano come ci sia una crescente relazione tra pratiche di mobilità intelligente e flussi turistici in entrata e che la presenza attiva di aeroporti in città moderi positivamente questa relazione. Pertanto, suggeriamo che le città dovrebbero concentrarsi sui meccanismi di crescita da una prospettiva bilaterale che vadano a considerare sia lo sviluppo interno che l’apertura della città.*

Obiettivo del paper. *Le pratiche di “Smart Mobility” hanno recentemente generato un crescente interesse a livello di sviluppo urbano e turismo (Benevolo, Dameri and D’Auria, 2016; Tung, Cheong and To, 2020). Questa crescita può essere considerata il risultato della crescente importanza di queste pratiche intelligenti nello sviluppo delle città e della loro connessione con il capitale umano che si muove verso queste città (Francini et al., 2021). Pertanto, questo fenomeno evidenzia la necessità della città di adattarsi a questo cambiamento rimodellando i propri servizi in base alle attuali condizioni ambientali e strutturali (Leitheiser and Follmann, 2020; Christofi et al., 2021). L’importanza dei trasporti e della mobilità per i servizi offerti e per la sostenibilità è altamente riconosciuta nelle pratiche di sviluppo urbano poiché il settore dei trasporti svolgerà un ruolo significativo nello sviluppo delle città a causa del suo impatto a livello ambientale (Mangiaracina et al., 2017). Per far fronte a questo cambiamento, le città stanno riorganizzando le proprie strutture sulla base della tecnologia disponibile e delle esigenze degli utenti (Gil-Garcia, Zhang and Puron-Cid, 2016). Nel corso degli anni, le città hanno affrontato un profondo cambiamento, rimodellando i propri servizi e le proprie pratiche interne in base alle esigenze dei cittadini e al progresso tecnologico (Leitheiser and Follmann, 2020; Marchesani and Masciarelli, 2021). Così, la necessità di rimodellare i trasporti pubblici e la mobilità è stata inclusa nel più ampio concetto di smart city (Albino, Berardi and Dangelico, 2015). Nello specifico, la mobilità intelligente (Smart Mobility) rappresenta una delle 6 dimensioni su cui le città lavorano per elevarsi nel più ampio concetto di Smart City, incorporando fattori fondamentali come la tecnologia e la governance intelligente (de Falco, Angelidou and Addie, 2019). Seguendo la definizione proposta da Bakici (2013), consideriamo la Smart City come una città ad alta intensità tecnologica e avanzata che connette persone, informazioni ed elementi della città utilizzando le nuove tecnologie al fine di creare una città sostenibile, più verde, competitiva e innovativa. Di conseguenza, le pratiche di mobilità intelligente influenzano non solo lo sviluppo ecologico della città, ma anche la sua competitività in termini di servizi offerti ai cittadini e agli utenti (Herschel, 2013). In questo documento ci concentriamo sulla relazione tra la mobilità intelligente e sviluppo turistico delle città. Lo sviluppo di queste pratiche sta avendo implicazioni significative per la gestione del turismo, in particolare nelle aree dei modelli turistici e del processo decisionale (Del Vecchio et al.,*

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2019). Il turismo in entrata sta gradualmente modificando i modelli di viaggio, influenzando profondamente le esperienze turistiche e i servizi di cui hanno bisogno. Questo genera esperienze e servizi diversificati che migliorano le esperienze e la soddisfazione dei turisti e creano un nuovo turismo fortemente legato alla sostenibilità e ai servizi intelligenti (Jeekel, 2017; Seetanah, Teeroovengadam and Nunkoo, 2020). Nel contesto del turismo, le pratiche di mobilità intelligente, così come le destinazioni Smart City, consentono alle città di realizzare una proposta di esperienza esclusiva e di rendere le visite turistiche più complete e convenienti (Boes, Buhalis and Inversini, 2015). Pertanto, le città cercano di fornire un ambiente favorevole al turismo influenzando le scelte e le aspettative dei turisti e di conseguenza incoraggiando i turisti a scegliere una città che soddisfi le loro esigenze (Foronda-Robles, Galindo-Pérez-de-Azpillaga and Fernández-Tabales, 2020).

L'obiettivo principale di questa ricerca è quello di contribuire a una valutazione quantitativa della relazione tra flussi turistici in entrata nelle città e pratiche di mobilità intelligente. Utilizzando un'analisi delle componenti principali (PCA), e metodi generalizzati dei momenti (GMM), analizziamo 20 città italiane che differiscono tra loro per posizione geografica, sviluppo economico e programmi culturali. Nel fare ciò, consideriamo anche il ruolo moderatore dell'aeroporto nelle città. Seguendo la letteratura sull'apertura delle città e le influenze esterne, assumiamo che il ruolo degli aeroporti nelle città risieda nell'interconnessione tra le pratiche di sviluppo della mobilità intelligente nel piano urbano ed i flussi turistici. Questa relazione sarà direttamente influenzata dalle caratteristiche e dai servizi urbani per migliorare le connessioni con stakeholder (Doerr et al., 2020; Pike, Pontes and Kotsi, 2021). I pianificatori, manager e responsabili delle politiche turistiche potranno valutare l'impatto degli investimenti e lo sviluppo di queste pratiche di mobilità interne attraverso le relazioni con i turisti e l'attrattiva della città stessa. Di conseguenza, ciò fornirà una chiara motivazione e prove per un'implementazione iniziale o successiva di pratiche di mobilità intelligente e del paradigma dell'apertura delle città.

Metodologia. Il nostro lavoro si basa su una combinazione di metodi e modelli empirici che ci permettono di investigare la relazione esistente tra la mobilità intelligente ed i flussi turistici in entrata. In particolare, utilizziamo la "Principal Component Analysis" (PCA), nella creazione e nell'inquadramento delle variabili ed il "Generalized Method of Moments" (GMM), data la natura dinamica della modellazione turistica (Roodman, 2009) per valutare la relazione tra le variabili nel corso degli anni. Nello sviluppo di questa ricerca, vengono considerate e costruite diverse variabili a livello di città, combinando diversi database e diverse fonti. I dati a livello di città, riguardanti le pratiche di mobilità intelligente, provengono da diverse fonti quali report (iCity Report), e banche dati, tra cui Istat (Istituto Nazionale di Statistica), FPA (Innovation Public Procurement), Municipal Open Data e ACI (Automobile Club Italia). I dati utilizzati per l'analisi della variabile turismo sono raccolti dall'Istituto Nazionale di Statistica (Istat), in collaborazione con l'Ente Nazionale Bilaterale per il Turismo (EBNT), e siti web specializzati per il turismo (TripAdvisor e Booking). Per quanto riguarda gli aeroporti, i nostri dati si basano su Istat e Asseareoporti. Questi database forniscono una panoramica completa dello sviluppo della città in termini di turismo, mobilità e afflussi. Tutte le variabili considerate sono operazionalizzate sulle principali caratteristiche della città, quali PIL e popolazione. Il nostro campione è composto da 20 città italiane in un periodo di otto anni che va dal 2012 al 2019. La scelta delle 20 città campione è dettata da una duplice motivazione. La prima riguarda l'omogeneità delle variabili individuate all'interno di ciascuna città. La seconda riguarda l'eterogeneità del campione, che ben rappresenta il contesto di riferimento caratterizzato da città medie e grandi e città meno e ben sviluppate secondo l'identità territoriale nella NUTS 3 italiana e nella Politica di coesione europea.

Nello specifico, per strutturare la variabile relativa alla mobilità intelligente, abbiamo proposto un indice basato su un diverso insieme di indicatori che includono una serie di variabili quali l'accessibilità dei servizi offerti, la mobilità sostenibile, le stazioni di bike sharing e lo sviluppo tecnologico dei trasporti. Lo sviluppo di questa variabile prende in considerazione non solo le pratiche tecnologiche ma anche aspetti dello sviluppo sostenibile della mobilità inclusi nelle pratiche di sviluppo sostenibile delle città intelligenti (Battarra et al., 2018; Orłowski and Romanowska, 2019). Per misurare la variabile strutturale del turismo delle città italiane considerate, abbiamo selezionato e utilizzato una serie di indicatori turistici per rappresentare lo sviluppo turistico nelle città come gli arrivi turistici alberghieri, i visitatori nelle mostre d'arte, musei, teatri e gallerie (basate sul numero di biglietti venduti), e sulla domanda ed offerta culturale di ogni città. Infine, per misurare l'impatto strutturale e annuale degli aeroporti nel nostro campione di città, consideriamo cinque variabili che rappresentano l'impatto e lo sviluppo degli aeroporti nelle città. Nella costruzione di questa variabile si considerano i dati relativi agli aeroporti nelle città (Aeroporto Privato, Aeroporto Pubblico e Aeroporto Totale), e il traffico aeroportuale (in entrata e in uscita).

Risultati. I nostri risultati preliminari dimostrano come ci sia una forte relazione tra pratiche di mobilità intelligente ed i flussi turistici in entrata. Nello specifico, queste pratiche influenzano i flussi turistici in entrata condizionando la relazione esistente tra città e turismo secondo una duplice prospettiva. Nello specifico: (1), le città che promuovono ed implementano queste pratiche incrementano la relazione con gli utenti e gli stakeholder della città; (2), le città promuovono ed attraggono una nuova forma di turismo che si sta sviluppando recentemente rappresentata dallo "Smart Tourism", Mentre l'impatto di queste pratiche è evidente nella relazione tra le variabili dipendenti e indipendenti, esploriamo anche il ruolo che gli aeroporti svolgono all'interno di questa relazione analizzando in profondità il loro impatto sul modello. In questo caso, i nostri risultati preliminari confermano che il ruolo di moderazione degli aeroporti è coerente con i nostri risultati precedenti. Il ruolo dell'aeroporto in questa relazione è cruciale in quanto consente un duplice percorso nello sviluppo della città. Da un lato, alimenta pratiche di mobilità intelligente già presenti nello sviluppo del concetto di città intelligente. D'altra parte, offre un'apertura verso esternalità come altre città o altre nazioni che possono avere un impatto anche in aree diverse.

Limiti della ricerca. Il nostro lavoro, come la maggior parte delle ricerche empiriche, soffre di criticità inerenti al campione e alle variabili utilizzate. Il primo limite nello svolgimento della ricerca è il campione di analisi. Pur rappresentando per caratteristiche e struttura lo sviluppo nel panorama italiano ed in generale a livello europeo, ci concentriamo su un unico Paese. La ricerca futura potrebbe estendere questo campione di analisi ad altri paesi con politiche, piani di sviluppo e culture sociali differenti per valutare l'impatto di questi risultati in diverse direzioni. Un'altra possibile limitazione deriva dalle potenziali debolezze presenti nell'utilizzo delle variabili in esame. A causa del nuovo concetto di mobilità intelligente, non esistono variabili singole per questo concetto. Tuttavia, ci affidiamo alla letteratura di riferimento (Neirotti et al., 2014; Battarra et al., 2018; Orłowski and Romanowska, 2019) e ai dati disponibili per valutare metodicamente lo sviluppo di queste pratiche. Infine, una limitazione potrebbe essere la scelta di includere nell'APC variabili culturali come gli ingressi ai musei e il turismo culturale. La scelta di inserire queste variabili nella macro-variabile del turismo è data dal fatto di cogliere l'evoluzione di queste pratiche nella città nel corso degli anni. Nonostante le città differiscano nella loro offerta culturale, questo permette di cogliere lo sviluppo del turismo e il rapporto tra lo sviluppo interno della città e le pratiche di mobilità intelligente.

Implicazioni manageriali. I nostri risultati offrono diverse implicazioni manageriali. La trasformazione delle città è lo sviluppo di pratiche di mobilità intelligente stanno modificando profondamente il contesto urbano ed evidenziano una naturale relazione tra lo sviluppo della città e il turismo in entrata. Le città devono considerare relazioni interne ed esterne nella gestione e nell'implementazione non solo di servizi (Input), ma anche di strategie (Output), che assumono queste una parte centrale nelle traiettorie di sviluppo interno ed esterno della città.

I risultati presentati in questo lavoro possono aiutare manager e policymaker ad adottare pratiche e misure adatte ad elevare la relazione corrente tra turismo e traiettorie di sviluppo delle città. Queste pratiche, se supportate a livello pratico, possono portare le città ad aumentare il loro impatto a livello nazionale ed internazionale rappresentando un modello nella transizione interna verso uno sviluppo sostenibile. Inoltre, contribuiscono a migliorare l'attrattività della città in termini di turismo e flussi in entrata migliorando i servizi offerti e rispondendo alle esigenze dei propri stakeholder. Infine, data la complementarità nella relazione tra lo sviluppo degli aeroporti e le pratiche di mobilità intelligente, suggeriamo che una gestione interna rivolta all'apertura della città sia dal punto di vista dello sviluppo locale che dell'attrattività della città stessa. In questo caso, suggeriamo che la gestione strategica della città debba considerare non solo lo sviluppo locale ma investire complementarmente nella transizione "Smart" e nell'apertura stessa della città verso l'esterno.

Originalità del paper. Un ampio flusso di ricerche ha rilevato che lo sviluppo sostenibile e l'avanzamento tecnologico dell'ambiente urbano sono due dei drivers più significativi che influenzano le esperienze turistiche e la percezione, interna ed esterna, della città stessa (Ma, 2020; Chang, Jou and Chung, 2021). Nello specifico, lo sviluppo di pratiche di mobilità intelligente influenza, sempre più, lo sviluppo turistico delle città modificandone gli equilibri ed incrementando la relazione con i propri utilizzatori. Le città tentano di fornire un ambiente favorevole al turismo influenzando le scelte e le aspettative dei turisti, incoraggiando gli stessi a scegliere una città adatta alle loro esigenze (Foronda-Robles, Galindo-Pérez-de-Azpillaga and Fernández-Tabales, 2020). Sulla base di questa relazione, l'obiettivo di questo lavoro è di investigare la relazione esistente tra le pratiche di mobilità intelligente nelle città ed i flussi turistici in entrata. Questa relazione, ad oggi, è ancora poco sviluppata evidenziando come, da una parte, ci sia un crescente interesse accademico nello studio e nell'evoluzione delle città intelligenti da diverse prospettive, dall'altra non ci siano ancora studi quantitativi sull'argomento atti a dimostrare empiricamente questi inquadramenti teorici. In oltre, nello studio di questa relazione, seguendo la letteratura sull'apertura della città e le influenze esterne (Dimitriou, 2018; Doerr et al., 2020; Pike, Pontes and Kotsi, 2021), evidenziamo come l'apertura della città verso l'esterno moderi positivamente la relazione con i flussi turistici in entrata.

Parole chiave: mobilità intelligente, smart city, turismo, flussi turistici, aeroporti

Bibliografia

- ALBINO V., BERARDI U., DANGELICO R.M. (2015), "Smart cities: Definitions, dimensions, performance, and initiatives", *Journal of Urban Technology*, vol. 22, n. 2, pp. 3-21.
- BAKICI T., ALMIRALL E., WAREHAM J. (2013), "A Smart City Initiative: The Case of Barcelona", *Journal of the Knowledge Economy*, vol. 4, n. 2, pp. 135-148.
- BATTARRA R., GARGIULO C., TREMITERRA M.R., ZUCARO F. (2018), "Smart mobility in Italian metropolitan cities: A comparative analysis through indicators and actions", *Sustainable cities and society*, vol. 41, pp. 556-567.
- BENEVOLO C., DAMERI R. P., D'AURIA B. (2016), "Smart Mobility in Smart City", In *Empowering organizations* (pp. 13-28). Springer, Cham
- BOES K., BUHALIS D., INVERSINI A. (2015), "Conceptualising Smart Tourism Destination Dimensions", in *Information and Communication Technologies in Tourism 2015*, pp. 291-403.
- CHANG I.C.C., JOU S.C., CHUNG M.K. (2021), "Provincialising smart urbanism in Taipei: The smart city as a strategy for urban regime transition", *Urban Studies*, vol. 58, n. 3, pp. 559-580.

- CHRISTOFI M., IAIA L., MARCHESANI F., MASCIARELLI F. (2021), “Marketing innovation and internationalization in smart city development: a systematic review, framework and research agenda”, *International Marketing Review*, vol. 38, n. 5, pp. 948-984.
- DIMITRIOU D.J. (2018), “Comparative evaluation of airports productivity towards tourism development”, *Cogent Business and Management*, vol. 5, n. 1, pp. 1-15.
- DOERR L., DORN F., GAEBLER S., POTRAFKE N. (2020), “How new airport infrastructure promotes tourism: evidence from a synthetic control approach in German regions”, *Regional Studies*, vol. 54, n. 10, pp. 1402-1412.
- DE FALCO S., ANGELIDOU M., ADDIE J.P.D. (2019), “From the “smart city” to the “smart metropolis”? Building resilience in the urban periphery”, *European Urban and Regional Studies*, vol. 26, n. 2, pp. 205-223.
- FORONDA-ROBLES C., GALINDO-PÉREZ-DE-AZPILLAGA L., FERNÁNDEZ-TABALES A. (2020), “Progress and stakes in sustainable tourism: indicators for smart coastal destinations”, *Journal of Sustainable Tourism*, pp. 1-20.
- FRANCINI M., CHIEFFALLO L., PALERMO A., VIAPIANA M.F. (2021), “Systematic Literature Review on Smart Mobility: A Framework for Future “Quantitative” Developments”, *Journal of Planning Literature*, vol. 36, n. 3, pp. 283-296.
- GIL-GARCIA J.R., ZHANG J., PURON-CID G. (2016), “Conceptualizing smartness in government: An integrative and multi-dimensional view”, *Government Information Quarterly*, vol. 33, n. 3, pp. 524-534.
- HERRSCHEL T. (2013), “Competitiveness AND Sustainability: Can “Smart City Regionalism” Square the Circle?”, *Urban Studies*, vol. 50, n. 11, pp. 2332-2348.
- JEEKEL H. (2017), “*Social Sustainability and Smart Mobility: Exploring the relationship*”, in *Transportation Research Procedia*.
- LEITHEISER S., FOLLMANN A. (2020), “The social innovation-(re)politicisation nexus: Unlocking the political in actually existing smart city campaigns? The case of SmartCity Cologne, Germany”, *Urban Studies*, vol. 57, n. 4, pp. 894-915.
- MA H. (2020), ‘The construction path and mode of public tourism information service system based on the perspective of smart city’, *Complexity*, pp. 1-15
- MANGIARACINA R., PEREGO A., SALVADORI G., TUMINO A. (2017), “A comprehensive view of intelligent transport systems for urban smart mobility”, *International Journal of Logistics Research and Applications*, vol. 20, n. 1, pp. 39-52.
- MARCHESANI F., MASCIARELLI F. (2021), “*Crowdfunding as Entrepreneurial Investment: The Role of Local Knowledge Spillover*”, *Exploring Innovation in a Digital World*, Springer, Cham, pp. 92-108.
- NEIROTTI P., DE MARCO A., CAGLIANO A.C., MANGANO G., SCORRANO F. (2014), “Current trends in Smart City initiatives: Some stylised facts”, *Cities*, vol. 38, n. 1, pp. 25-36.
- ORLOWSKI A., ROMANOWSKA P. (2019), “Smart Cities Concept: Smart Mobility Indicator”, *Cybernetics and Systems*, vol. 50, n. 2, pp. 118-131.
- PIKE S., PONTES N., KOTSI F. (2021), “Stopover destination attractiveness: A quasi-experimental approach”, *Journal of Destination Marketing and Management*, vol. 19.
- ROODMAN D. (2009), “How to do xtabond2: An introduction to difference and system GMM in Stata”, *Stata Journal*, vol. 9, n. 1, pp. 86-136.
- SEETANAH B., TEEROOVENGADUM V., NUNKOO R. (2020), “Destination satisfaction and revisit intention of tourists: does the quality of airport services matter?”, *Journal of Hospitality & Tourism Research*, vol. 44, n. 1, pp. 134-148.
- TUNG V.W.S., CHEONG T.M.F., TO S.J. (2020), “Tourism management in the era of smart mobility: a perspective article”, *Tourism Review*, vol. 75, n. 1, pp. 283-285.
- DEL VECCHIO P., SECUNDO G., MARUCCIA Y., PASSIANTE G. (2019), “A system dynamic approach for the smart mobility of people: Implications in the age of big data”, *Technological Forecasting and Social Change*, vol. 149.

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An Investigation on Leadership and Decision Quality

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Framing of the research. Nowadays, due to their key influence on the survival and success of organizations, leaders' chief duty is to make effective decisions (Cyert and March, 1963; Powell et al., 2011). To facilitate this effective decision making, a growing number of large-, medium- and even small- enterprises are currently embracing the Shared Leadership (SL) practice - the "team property that results from the distribution of leadership influence across multiple team members" (Carson et al., 2007, p. 1218) - to more easily handle decision stressors, such as information overload, time pressure, complexity and uncertainty (Phillips-Wren and Adya, 2020; Pitelis and Wagner, 2019); and in turn, make superior choices.

However, despite the multitude of contributions investigating the effect of SL in organizations, there is a substantial unaddressed gap in directly understanding the influence of SL on the quality of decisions made (Wang et al., 2014; Wu et al., 2020). Therefore, the present contribution is intended to answer the following research questions: Does shared leadership influence decision quality? What are the mechanisms that foster or undermine shared leadership to make superior choices?.

Since decision quality is mainly driven by the systemic procedure through which agents methodically deal with gathered information (Carr et al., 2021; Meissner and Wulf, 2014), it is hypothesized here that the SL-decision quality relationship is mediated by decision comprehensiveness - i.e., "the extent to which organizations attempt to be exhaustive or inclusive in making and integrating strategic decisions" (Fredrickson and Mitchell, 1984, p. 402) - because decision comprehensiveness is commonly helpful in lowering the negative effects that individual and group information biases have on the choice context that surround decision-makers (Althubaiti, 2016). Connected with this phenomenon, it has been assumed that individual team member's possession of high levels of self-leadership - the "process through which individuals control their own behavior" (Neck & Houghton, 2006, p. 270) - negatively moderates the SL-decision comprehensiveness mediated relationship. Indeed, it has been recently found that individuals with a high level of self-leadership are more prone to be victims of biases that lead to a poor capacity to accomplish systemic search for information (Cristofaro & Giardino, 2020). On the contrary, we additionally hypothesize a positive moderation of the debate variable, because "debate itself, through its presence rather than its format, improves group performance by formalizing and legitimizing conflict and encouraging critical evaluation" (Schweiger et al., 1989; p. 767); consequently, well-established debate policies may enhance the capacity to accomplish systemic search for information and avoid information biases (Castellano et al., 2021).

Purpose of the paper. The model we propose hypothesizes a positive effect of SL on decision quality by the mediation of decision comprehensiveness (H1). However, the SL-decision comprehensiveness relationship is assumed to be, on one hand, negatively moderated by individuals' high levels of self-leadership (H2) while, on the other hand, positively moderated by debate among team members (H3).

For what concerns the relationship between shared leadership and decision quality, Carson et al. (2007), in line with previous scholars (Day et al, 2004; Mehra et al., 2006), have hypothesized that SL improves team performance because it requires well-structured close interactions among team members, who may share opinions and provide mutual influence - possibly enhancing the overall decision quality as a result. More recently, Singh et al. (2019) have shown that SL has positive repercussions on several organizational aspects such as the market-oriented culture, innovation capability and firm performance; supporting prior studies (Shondrick et al., 2010). Hence, the aforementioned works have advanced that the adoption of the SL practice seems positively correlated to an overall enhancement of organizational, financial and economic effectiveness (Wang et al., 2014). This can be assumed also from the fact that the amelioration of teams' internal processes (e.g., behavioral integration), here considered

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stimulated by SL, are a propellant for decision quality (Carmeli and Schaubroeck, 2006) and consequent team/firm performance (Meissner and Wulf, 2014).

Although shared leadership enhances team and firm performances (Singh et al., 2019), its effective implementation requires a translucent exchange of information among members that must be sorted and analyzed. To do so, it is imperative for organizations to understand the meaning and the magnitude of this information exchange (Muethel and Hoegl, 2010). According to a theoretical point of view, the adoption of the SL practice, since it concerns the distribution of leadership influence across team members, may counteract the commonly beset individual information bias. For the sake of clarity, this information bias is a cognitive error that occurs when decision-makers place more value to their own individual specific information, regardless of its truthfulness or completeness, rather than taking into account the information coming from third parties, consequently resulting in an incomplete and biased view of the decision context (Stasser and Titus, 1985). To assuage this bias, SL may foster an exchange of information coming from multiple backgrounds, resulting in greater decision comprehensiveness and, in turn, potentially superior decisions (Hoch, 2014). In this light, Mihalache et al. (2014) have found strong evidence on how decision comprehensiveness helps organizational agents bring together well-diversified bundles of information and knowledge, which are likely to represent a turning point in the efficient management of organizational situations, with clear positive consequences on the overall quality of the decision-making processes. Therefore, we argue that decision comprehensiveness positively mediates the influence of shared leadership on decision quality (H1).

Consequently, it could be possible to state that shared leadership requires decision-makers to establish deeper and closer interactions among each other in order to generate better decisions (D'Innocenzo et al., 2021). In this regard, self-leadership is instrumental in affecting the multitude of psychological processes that may influence, either positively or negatively, individuals' attitudes and performances in the workplace, as it provides the behavioral and cognitive strategies required to improve the efficacy of individual working routines and relationship with others (Goldsby et al., 2021; Neck & Houghton, 2006). However, despite dozens of studies having been conducted with the aim of providing increased knowledge about the dynamics concerning self-leadership, scholars have not been homogeneous in their recognition of its effects on both individual and overall organizational performances (e.g., Houghton and Neck, 2002; Neck & Houghton, 2006). In fact, on one hand, there are authors (e.g., Stewart et al., 2011) who have robustly demonstrated that self-leadership could be linked with positive variation in work attitudes, firm performance, and even entrepreneurial success. On the other hand, there is a recent stream of scholars who are beginning to claim that too high levels of self-leadership may not always be positive for managerial decision-making processes and their resultant performance (Cristofaro and Giardino, 2020). This latter may occur because high levels of self-leadership are usually connected with high levels of Core Self-Evaluation (CSE) which stimulates the adoption of intuitive thinking (Hiller & Hambrick, 2005) - which is heavily linked with a poor capacity to accomplish systemic search for information, as intuitive decision-makers rely on the generation of quick decisions (Elbanna et al., 2013). Thus, according to a theoretical point of view, individuals characterized by high levels of self-leadership may be more likely to be affected by the information bias which influences the completeness of the information at hand and the quality of the decision to be made. Therefore, we argue that high levels of self-leadership negatively moderate the influence of shared leadership on decision comprehensiveness (H2).

The comprehensiveness and harmonization of the flows of information should represent an imperative priority with which organizations must deal with to increase decision quality (Hammond et al., 1998). To cope with this, previous studies have highlighted the role played by debate among organizational agents. Particularly, stemming from the fact that debate "is more likely to be fruitful when it draws on different experiences and perspectives" (Simons et al., 1999, p. 670), it can bring positive effects to the overall performances. With regard to the effect of debate on decision comprehensiveness, Yi et al. (2021) have investigated the effects of divergencies between organizational agents, finding that a diversified array of divergencies represents a fertile context upon which is possible to establish proactive and positive debates enhancing the level of decision comprehensiveness. This conclusion is in line with the theoretical assumptions of the information bias, which is reduced when different points of view are equally and enthusiastically discussed by decision-makers in constructive debate circumstances (Stasser and Titus, 1985). This finding further mirrors that of Schulz-Hardt et al. (2002) who have empirically demonstrated that high-quality, genuine dissent represents an effective approach to counteract biased information-seeking behaviors. Therefore, we argue that debate positively moderates the influence of shared leadership on decision comprehensiveness (H3).

Methodology. In order to test the proposed conceptual model, data have been collected from teams and their direct managers involved and responsible for important decisions within their organizations. In particular, we targeted teams and their managers working in large companies that are involved with/responsible for product and/or service innovation decisions. Resultingly, all of the included employees worked in their respective firms' R&D departments. As done also by Cristofaro et al. (2020), due to having access to the AIDA (Analisi Informatizzata delle Aziende Italiane) Bureau Van Dijk database, we identified large companies by searching for the ones having a staff headcount greater than 250 and, alternatively, having i) a turnover value greater than 50 million euro, or ii) a balance sheet total greater than 43 million euro. This definition of "large" companies is in accordance with the European Union recommendation 2003/361. After filtering, we randomly sought e-mail addresses for the firms' human resources or administrative departments and sent a request for participation in the research, which would administer a series of surveys to participants and their managers of product and/or service innovation to understand the influence of leadership practices on decision quality. We received data from 506 team members working in 112 teams and their direct R&D managers (N= 618 in total). Formally, teams did not have an appointed internal leader, but they share the same

hierarchical position. The average age of teams' members was 44 years ($SD = 5.46$), 59% were male, their average work experience was 19.12 years ($SD = 8.47$), and their average tenure under the same manager was 4.12 years ($SD = 1.04$). Distribution of respondents among sectors is the following: a) manufacturing activities (29%), b) construction (26%), c) logistics (23%), d) food and hospitality (22%). The elements that feature the proposed conceptual model have been measured as follows:

- i) *Shared leadership*. To assess the level of shared leadership, a 20-item Likert-type scale on 5-points (Grille & Kauffeld, 2015; $\alpha = .87$) has been implemented;
- ii) *Decision comprehensiveness*. To assess decision comprehensiveness, a 5-item Likert-type scale on 5-point (Atuahene-Giman and Li, 2004; $\alpha = 0.93$) has been implemented;
- iii) *Self-leadership*. To assess self-leadership, a 35-item Likert-type scale on 5-point (Carmeli et al., 2006; $\alpha = 0.73$) has been implemented;
- iv) *Debate*. To assess the level of debate, a 4-items Likert-type scale on 5-points (Simons et al., 1999; $\alpha = 0.75$) has been implemented;
- v) *Decision quality*: To assess quality of decisions, a 3-items Likert-type scale on 5-point (Amason, 1996; $\alpha = 0.85$) has been implemented.

Furthermore, we controlled for a series of variables. A first group of control variables - i.e., 'team size', 'functional diversity', 'team turnover', 'goal uncertainty', 'task interdependence', 'gender diversity', and the 'educational background' - was identified as crucial in influencing decision-making processes and self-leadership (Carmeli et al., 2006; Carson et al., 2007; Houghton and Neck, 2002; Kanadli et al., 2018; Simons et al., 1999). Additionally, we included other more specific variables related to each single construct present in the model. Specifically, for what concerns quality of decision, 'managerial performances' (Li et al., 2010; $\alpha = 0.90$) has been the specific control variable adopted because many scholars observed that high performances are often the result of high-quality strategic decisions (Carmeli et al., 2012; Elbanna and Child, 2007), about decision comprehensiveness, 'institutional environmental volatility' (Mitchell et al., 2016; $\alpha = 0.89$) has been included and, lastly, for the debate variable, we included four specific control factors: i) 'affective conflict', ii) 'cognitive conflict' (Pelled et al., 1999; $\alpha = 0.79$), iii) 'environmental munificence' (Goll and Rasheed, 2004; $\alpha = 0.74$), and iv) 'behavioral integration' (Mooney, 2000; $\alpha = 0.87$).

Results. In line with the similar, in terms of model structure, contribution by Dimitrova (2020), we firstly applied a confirmatory factor analysis with a robust maximum likelihood estimation (MLE) in Mplus 8 (Muthén and Muthén, 1998) to evaluate the measurement structure of studied variables. The 5-factor model had a very good fit ($N = 618$; $\chi^2 = 691.51$, $p < 0.001$; $df = 612$; $CFI = 0.91$; $RMSEA = 0.04$; $SRMR = 0.04$), all items had loadings over 0.70, and there were no cross-loadings.

To test developed hypotheses, we implemented a structural equation modeling (SEM) method. However, following Dong et al. (2020), before testing hypotheses, a confirmatory factor analyses to test the discriminant validity of the constructs in our model has been conducted. The results indicate that the five-factor structure fit the data better than the following alternative models, $\chi^2(504) = 1543.31$, root mean square error of approximation (RMSEA) = 0.05, standardized root mean square residual (SRMR) = 0.05, comparative fit index (CFI) = 0.90, and incremental fit index (IFI) = 0.90: (b) when shared leadership and debate were set to load on a single factor, $\chi^2(508) = 2155.42$, RMSEA = 0.11, SRMR = 0.103 CFI = 0.75, and IFI = 0.75; (c) when shared leadership and decision comprehensiveness were set to load on a single factor, $\chi^2(508) = 2832.46$, RMSEA = 0.14, SRMR = 0.14, CFI = 0.64, and IFI = 0.64; (d) when decision comprehensiveness and decision quality were set to load on a single factor, $\chi^2(508) = 3123.15$, RMSEA = 0.16, SRMR = 0.18, CFI = 0.55, and IFI = 0.55; (e) when shared leadership, decision comprehensiveness, and debate were set to load on a single factor, $\chi^2(512) = 3456.22$, RMSEA = 0.18, SRMR = 0.20, CFI = 0.40, and IFI = 0.40; and (f) when all the variables were set to load on a single factor, $\chi^2(514) = 4567.28$, RMSEA = 0.21, SRMR = 0.22, CFI = 0.40, and IFI = 0.40.

For what concerns Hypothesis 1, results reveal a significant indirect effect between SL and decision quality via decision comprehensiveness (indirect effect = 0.086, 95% CI = [0.24, 0.08]). Therefore, Hypothesis 1 was supported.

About Hypothesis 2, results supported Hypothesis 2 by showing that the interaction between self-leadership and SL was negatively related to decision comprehensiveness ($\beta = -0.12$, $p < 0.05$). Therefore, Hypothesis 2 was supported.

Concerning Hypothesis 3, results demonstrate that the interaction between debate and SL was positively related to decision comprehensiveness ($\beta = 0.12$, $p < 0.05$). Therefore, Hypothesis 3 was supported.

Research limitations. This study is not exempt from limitations. Firstly, the present contribution has been based on a sample population made of 618 respondents working in Italian firms. Hence, future research would be well served to use a sample population coming from different countries in order to assess, through a cross-cultural analysis, the possible fluctuation of the interaction among elements investigated in this study. Consequently, this first limitation means that more research must take place in order to examine if our results hold firm when examining organizations located in other countries where SL, self-leadership and debate could be more, or less, encouraged according to cultural factors. Secondly, respondents were neither top managers nor c-board members; therefore, future studies may use these types of respondents to test the proposed models on strategic Vs. managerial decisions in order to determine how engaging in SL practice influences the quality of certain strategic decisions. In this vein, the third limitation of this study centers around the fact that respondents were not asked to make a decision at the time they completed questionnaires.

Managerial implications. Due to the positive influence of SL on decision quality, organizations should promote SL by: i) creating a collaborative working environment that encourages individuals to work together as a team, through building trust and helping employees communicate properly and openly in both “hard” and “good” firms’ phases (Hoch & Dulebohn, 2013); ii) devote time toward discussing how the team will find consensus in order to identify the approach through which collective decisions are made and by which none defer to the other; iii) ensuring that the entire organization understands the new structure of teams and that each team has a clear group mission; and iv) encouraging team members to provide emotional support to each other through showing encouragement, recognizing each team member’s individual effort, and stimulating each member to provide input to the team process (Carson et al., 2007). In other words, organizations should persuade team members to actively participate in decision-making processes, making sure that co-workers understand that their opinion matters - regardless of the hierarchical roles (Hoch and Dulebohn, 2013).

Then, organizations should be aware that individuals characterized by high levels of self-leadership may be susceptible to information bias and resultingly create a reduced decision comprehensiveness - leading to poorer decisions in terms of quality. To practically counteract this, organizations may compose ad hoc teams consisting of members with average levels of self-leadership in order to balance the different tendencies towards the information bias. Of course, this suggestion is not to exclusively select employees according to their level of self-leadership, but to use this information for identifying individuals for specific training that can facilitate their avoidance of the downsides of strong self-leadership. For instance, these individuals found high in self-leadership can be posed in front of a fictitious decisional situation and asked to articulate: i) how a situation looks from their own perspective; ii) what the situation looks like from the perspective of the group of coworkers; iii) how the situation looks from the perspective of the manager.

Considering the first two implications, it is additionally possible to propose a third which relates to debate. Organizations should establish formal practices, such as round tables, that serve to complement other informal initiatives that allow for the creation of transparent and constructive debate within teams and, at the same time, lower co-workers’ latent fears about speaking up and breaking with the party ideology. This can be done, for example, by: i) introducing cognitive frictions among members to stimulate different points of view; ii) establishing that each voice holds equal weight within the debate session; iii) keeping the debate about facts, logic, and the topic at hand and keeping the focus on investigating and clarifying the decision at hand rather than attacking others’ opinions.

Originality of the paper. This study has demonstrated that SL does not directly affect organizational performance, but its influences must be accounted for in the implemented decision-making practice. In this regard, we fill a major research gap, as despite dozens of previous scholars intuiting the positive effects that SL may have on decision quality (e.g., Bergman et al., 2012; Carmeli and Schaubroeck, 2006; Singh et al., 2019) none have empirically investigated and discussed this relationship before the present study. This gap in the literature is here addressed by providing an explained connection - through the counteraction of the information bias which increases decision comprehensiveness - between SL and decision quality.

Second, the results of this study have shown that individuals with high levels of self-leadership lead to a reduced decision comprehensiveness and, consequently, to poorer decision quality outcomes. In this light, another novelty lies in the fact that while previous scholars have largely hypothesized a positive influence of self-leadership on decision quality (e.g., Neck and Houghton, 2006; Neck et al., 2013), this contribution sets a limit on such effect: too high a level of self-leadership is detrimental for the quality of the decision to be made, while a low or moderate level of self-leadership leads to greater outcomes. Posing this boundary constitutes a step forward for the self-leadership literature by providing the limits within or beyond which self-leadership may exert a positive/negative influence on decision-making processes and thus establishing a maturation stage of the self-leadership concept itself.

Keywords: Shared leadership; Self-leadership; Decision comprehensiveness; Debate; Decision quality

References

- ALTHUBAITI A. (2016), “Information bias in health research: definition, pitfalls, and adjustment methods”, *Journal of Multidisciplinary Healthcare*, vol. 9, n. 1, pp. 211-217.
- AMASON A.C. (1996), “Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management teams”, *Academy of Management Journal*, vol. 39, n. 1, pp. 123-148.
- ATUAHENE-GIMA K., LI H. (2004), “Strategic decision comprehensiveness and new product development outcomes in new technology ventures”, *Academy of Management Journal*, vol. 47, n. 4, pp. 583-597.
- BERGMAN J.Z., RENTSCH J.R., SMALL E.E., DAVENPORT S.W., BERGMAN S.M. (2012), “The shared leadership process in decision-making teams”, *The Journal of Social Psychology*, vol. 152, n. 1, pp. 17-42.
- CARMELI A., SCHAUBROECK, J. (2006), “Top management team behavioral integration, decision quality, and organizational decline”, *The Leadership Quarterly*, vol. 17, n. 5, pp. 441-453.
- CARMELI, A., MEITAR, R., WEISBERG, J. (2006), “Self-leadership skills and innovative behavior at work”, *International Journal of Manpower*, vol. 27, n. 1, pp. 75-90.

- CARMELI A., TISHLER A., EDMONDSON A.C. (2012), "CEO relational leadership and strategic decision quality in top management teams: The role of team trust and learning from failure", *Strategic Organization*, vol. 10, n. 1, pp. 31-54.
- CARR J.C., VARDAMAN J.M., MARLER L.E., MCLARTY B.D., BLETNER D. (2021), "Psychological antecedents of decision comprehensiveness and their relationship to decision quality and performance in family firms: An upper echelons perspective", *Family Business Review*, vol. 34, n. 1, pp. 33-47.
- CARSON J.B., TESLUK P.E., MARRONE J.A. (2007), "Shared leadership in teams: An investigation of antecedent conditions and performance", *Academy of Management Journal*, vol. 50, n. 5, pp. 1217-1234.
- CASTELLANO S., CHANDAVIMOL K., KHELLADI I., ORHAN M.A. (2021), "Impact of self-leadership and shared leadership on the performance of virtual R&D teams", *Journal of Business Research*, vol. 128, pp. 578-586.
- CRISTOFARO M., GIARDINO P.L. (2020), "Core self-evaluations, self-leadership, and the self-serving bias in managerial decision making: A laboratory experiment", *Administrative Sciences*, vol. 10, n. 3, pp. 64-87.
- CRISTOFARO M., GIARDINO P.L., LEONI L. (2020), "The influence of core self-evaluations on group decision making processes: A laboratory experiment", *Administrative Sciences*, vol. 10, n. 2, pp. 29-45.
- CYERT R.M., MARCH J.G. (1963), *A Behavioral Theory of the Firm*, Prentice-Hall, Englewood Cliffs, NJ, USA.
- D'INNOCENZO L., KUKENBERGER M., FARRO A.C., GRIFFITH J.A. (2021), "Shared leadership performance relationship trajectories as a function of team interventions and members' collective personalities", *The Leadership Quarterly*, vol. 32, n. 5, 101499.
- DAY D.V., GRONN P., SALAS E. (2004), "Leadership capacity in teams", *The Leadership Quarterly*, vol. 15, n. 6, pp. 857-880.
- DIMITROVA M. (2020), "Of discovery and dread: The importance of work challenges for international business travelers' thriving and global role turnover intentions", *Journal of Organizational Behavior*, vol. 41, n. 4, pp. 369-383.
- DONG Y., JIANG J., RONG Y., YANG B. (2020), "LMX differentiation and voice behavior: A resource-conservation framework", *Journal of Leadership & Organizational Studies*, vol. 27, n. 3, pp. 307-322.
- ELBANNA S., CHILD J. (2007), "Influences on strategic decision effectiveness: Development and test of an integrative model", *Strategic Management Journal*, vol. 28, n. 4, pp. 431-453.
- ELBANNA S., CHILD J., DAYAN M. (2013), "A model of antecedents and consequences of intuition in strategic decision-making: Evidence from Egypt", *Long Range Planning*, vol. 46, n. 1-2, pp. 149-176.
- FREDRICKSON J.W., MITCHELL T.R. (1984), "Strategic decision processes: Comprehensiveness and performance in an industry with an unstable environment", *Academy of Management Journal*, vol. 27, n. 2, pp. 399-423.
- GOLDSBY M.G., GOLDSBY E.A., NECK C.B., NECK C.P., MATHEWS R. (2021), "Self-Leadership: A four-decade review of the literature and trainings", *Administrative Sciences*, vol. 11, n. 1, pp. 25-46.
- GOLL I., RASHEED A.A. (2004), "The moderating effect of environmental munificence and dynamism on the relationship between discretionary social responsibility and firm performance", *Journal of Business Ethics*, vol. 49, n. 1, pp. 41-54.
- GRILLE A., KAUFFELD S. (2015), "Development and preliminary validation of the Shared Professional Leadership Inventory for Teams (SPLIT)", *Psychology*, vol. 6, n. 1, pp. 75-92.
- HAMMOND J.S., KEENEY R.L., RAIFFA H. (1998), "The hidden traps in decision making", *Harvard Business Review*, vol. 76, n. 5, pp. 47-58.
- HILLER N.J., HAMBRICK D.C. (2005), "Conceptualizing executive hubris: the role of (hyper-) core self-evaluations in strategic decision-making", *Strategic Management Journal*, vol. 26, n. 4, pp. 297-319.
- HOCH J.E. (2014), "Shared leadership, diversity, and information sharing in teams", *Journal of Managerial Psychology*, vol. 29, n. 5, pp. 541-564.
- HOCH J.E., DULEBOHN J.H. (2013), "Shared leadership in enterprise resource planning and human resource management system implementation", *Human Resource Management Review*, vol. 23, n. 1, pp. 114-125.
- HOUGHTON J.D., NECK C.P. (2002), "The revised self-leadership questionnaire: Testing a hierarchical factor structure for self-leadership", *Journal of Managerial Psychology*, vol. 17, n. 8, pp. 672-691.
- KANADLI S.B., BANKEWITZ M., ZHANG P. (2018), "Job-related diversity: the comprehensiveness and speed of board decision-making processes - an upper echelons approach", *Journal of Management and Governance*, vol. 22, n. 2, pp. 427-456.
- LI W., NAN X., MO Z. (2010), *Effects of budgetary goal characteristics on managerial attitudes and performance*, 2010 International Conference on Management and Service Science, Wuhan, China.
- MEHRA A., SMITH B.R., DIXON A.L., ROBERTSON B. (2006), "Distributed leadership in teams: The network of leadership perceptions and team performance", *The Leadership Quarterly*, vol. 17, n. 3, pp. 232-245.
- MEISSNER P., WULF T. (2014), "Antecedents and effects of decision comprehensiveness: The role of decision quality and perceived uncertainty", *European Management Journal*, vol. 32, n. 4, pp. 625-635.
- MIHALACHE O.R., JANSEN J.J., VAN DEN BOSCH F.A., VOLBERDA H.W. (2014), "Top management team shared leadership and organizational ambidexterity: A moderated mediation framework", *Strategic Entrepreneurship Journal*, vol. 8, n. 2, pp. 128-148.
- MITCHELL R., NICHOLAS S., BOYLE B. (2009), "The role of openness to cognitive diversity and group processes in knowledge creation", *Small Group Research*, vol. 40, n. 5, pp. 535-554.

- MOONEY A.C. (2000), *Exploring antecedents to conflict during strategic decision making: The importance of behavioral integration*, University of Georgia, Athens, GA, USA.
- MUETHEL M., HOEGL M. (2010), "Cultural and societal influences on shared leadership in globally dispersed teams", *Journal of International Management*, vol. 16, n. 3, pp. 234-246.
- MUTHÉN L.K., MUTHÉN B.O. (1998), *Mplus User's Guide*, Muthén & Muthén, Los Angeles, CA, USA.
- NECK C.P., HOUGHTON J.D. (2006), "Two decades of self-leadership theory and research: Past developments, present trends, and future possibilities", *Journal of Managerial Psychology*, vol. 21, n. 4, pp. 270-295.
- NECK C.P., HOUGHTON J.D., SARDESHMUKH S.R., GOLDSBY M., GODWIN J.L. (2013), "Self-leadership: A cognitive resource for entrepreneurs", *Journal of Small Business & Entrepreneurship*, vol. 26, n. 5, pp. 463-480.
- PELLED L.H., EISENHARDT K.M., XIN K.R. (1999), "Exploring the black box: An analysis of work group diversity, conflict and performance", *Administrative Science Quarterly*, vol. 44, n. 1, pp. 1-28.
- PHILLIPS-WREN G., ADYA M. (2020), "Decision making under stress: the role of information overload, time pressure, complexity, and uncertainty", *Journal of Decision Systems*, vol. 29, pp. 1-13.
- PITELIS C.N., WAGNER J.D. (2019), "Strategic shared leadership and organizational dynamic capabilities", *The Leadership Quarterly*, vol. 30, n. 2, pp. 233-242.
- POWELL T.C., LOVALLO D., FOX C.R. (2011), "Behavioral strategy", *Strategic Management Journal*, vol. 32, n. 13, pp. 1369-1386.
- SCHULZ-HARDT S., JOCHIMS M., FREY D. (2002), "Productive conflict in group decision making: Genuine and contrived dissent as strategies to counteract biased information seeking", *Organizational Behavior and Human Decision Processes*, vol. 88, n. 2, pp. 563-586.
- SCHWEIGER D.M., SANDBERG W.R., RECHNER P.L. (1989), "Experiential effects of dialectical inquiry, devil's advocacy and consensus approaches to strategic decision making", *Academy of Management Journal*, vol. 32, n. 4, pp. 745-772.
- SHONDRICK S.J., DINH J.E., LORD R.G. (2010), "Developments in implicit leadership theory and cognitive science: Applications to improving measurement and understanding alternatives to hierarchical leadership", *The Leadership Quarterly*, vol. 21, n. 6, pp. 959-978.
- SIMONS T., PELLED L.H., SMITH K.A. (1999), "Making use of difference: Diversity, debate, and decision comprehensiveness in top management teams", *Academy of Management Journal*, vol. 42, n. 6, pp. 662-673.
- SINGH S.K., DEL GIUDICE M., TARBA S.Y., DE BERNARDI P. (2019), "Top management team shared leadership, market-oriented culture, innovation capability, and firm performance", *IEEE Transactions on Engineering Management*, 8884097.
- STASSER G., TITUS W. (1985), "Pooling of unshared information in group decision making: Biased information sampling during discussion", *Journal of Personality and Social Psychology*, vol. 48, n. 6, pp. 1467-1478.
- STEWART G.L., COURTRIGHT S.H., MANZ C.C. (2011), "Self-leadership: A multilevel review", *Journal of Management*, vol. 37, n. 1, pp. 185-222.
- WANG D., WALDMAN D.A., ZHANG Z. (2014), "A meta-analysis of shared leadership and team effectiveness", *Journal of Applied Psychology*, vol. 99, n. 2, pp. 181-198.
- WU Q., CORMICAN K., CHEN G. (2020), "A meta-analysis of shared leadership: Antecedents, consequences, and moderators", *Journal of Leadership & Organizational Studies*, vol. 27, n. 1, pp. 49-64.
- YI Y., CHEN Y., HE X. (2021), "CEO leadership, strategic decision comprehensiveness, and firm performance: The moderating role of TMT cognitive conflict", *Management and Organization Review*, forthcoming.

The impact of digitalization on *design-driven* innovation: some insights

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Abstract

This paper contributes to collecting some insights on the impact of digitalization on the design-driven innovation (DDI) process, a research topic that is poorly investigated in the literature. We explored and identified aspects related to how digitalization impacts the characteristics of design products, the DDI process, and the network of actors involved in such a process. Direct interviews with key interpreters of the design world were done. The exploratory research is focused on physical design products of the furniture sector.

Framing of the research. *Digitalization has affected all processes of the firm, including the DDI process. There is poor literature focused on the impact of IT or digital technologies on design practice in firms, especially on the characteristics of a design product, the DDI process, and the network of actors involved in such a process. This paper aims to contribute to filling these gaps in the literature. Specifically, we explore and identify aspects related to ways digitalization impacts the above aspects focusing on physical design products of the furniture sector (such as chairs, tables, etc.).*

The literature on design in management is quite recent (Olson et al., 2000). The modern “industrial designer” is a relatively young profession and offers productive services to organizations that often are unfamiliar with his/her approaches and expertise (Jevnaker, 2005). Furthermore, the potential of design is rarely fully exploited by businesses (Walsh et al., 1992) and we could say that today design is still a powerful but neglected tool, as (Kotler and Alexander Rath, 1984) already affirmed about 40 years ago. “Rarely” means that some do explore and exploit design profitability (B. Jevnaker, 2000).

First, we recall some main concepts of the literature on design related to the attributes of a design product, the DDI process, and the network of actors involved in such a process, and second, we identify some key concepts of the literature concerning the impact of digitalization on the above aspects and collect some insights from interviews to key interpreters on the above aspects.

It is widely accepted that design as a source of product innovation impacts competitiveness (Jevnaker and Olaisen, 2022) and that new and original product created with designers integrate functionality, technology, aesthetics, and meanings (Bloch, 2011; Ravasi and Rindova, 2008; Verganti, 2009) thus satisfying customers looking for high-quality products, as well as abundant hedonistic and semiotic benefits (Luchs and Swan, 2011). Among many meanings, design is about drawing and animating something potentially “good,” “appropriate,” “beautiful,” and easy to use (Jevnaker, 2014). To achieve this, the author underlines that empirical evidence suggests not only recurrent design efforts but a willingness to work continually with somewhat unconventional doings and directions.

In a recent study, it was stressed that for entrepreneurs the following attributes of design products have a significant impact on customer value: aesthetics, technology, performance, manufacturing quality, and environmental sustainability (Conti et al., 2019).

There is wide agreement on (Verganti, 2003) interpretation of DDI as a managerial strategy for radical innovation based on the way of a new product or service (Verganti, 2003; Dell’Era and Verganti, 2009; D’Ippolito, 2014;). The Author explained that radical innovations often entail an innovation process that focuses on how to come up with a new interpretation of a product’s meaning. Companies with designers and other creative actors can create breakout products that add new and unsolicited meaning to things people love because they are so different from other products that dominate the market (Verganti, 2003, 2009). Jevnaker (1993) focused in her Design Studies article on new meanings created in product innovation. This article refers to the importance of communicating and fostering learning with many managerial parties involved in the design, technology use, and meaning creation in the innovation process.

However, few studies proposed specific phases for the DDI process (among others Mozota et al., 2008; Acklin, 2010; Conti, 2018), and other contributions provided only the macro-phases, namely listening, interpreting and addressing (Dell’Era and Verganti, 2009; Verganti, 2003, 2009) as it seems that the complex and iterative design-driven process cannot be formalized. For example, according to (Conti and Chiarini, 2021) the new product development related to DDI includes the following phases: the company brief, the designer research, the concept of the

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designer, the design, legal protection, prototyping, production, and the market launch. Designers play a strategic role in the above phases of the DDI process, but other actors also cooperate in such a process.

Designers can offer profound and recurrent presences and interactivity between development and commercialization processes (Jevnaker, 2014). Therefore, both enterprises and designers can engage in delivering and communicating new solutions and thinking - even in the longer term (Jevnaker, 2014).

To produce new radical innovations companies need to build relationships and a continuous dialogue with designers and an exclusive circle of actors or “interpreters” (designers, artists, suppliers, companies of other sectors, etc.) - the so-called “design discourse” (Verganti, 2008) - which facilitates the interpretation of the socio-cultural and economic arena and contributes to developing ideas, insights, and new products with new meanings for users and customers (Verganti, 2008, 2009, 2017).

About the relationship of companies with designers (Jevnaker, 2012) points out that designers and business managers can cooperate in the short term and over multiple years, some relations last even a work lifetime; second, design is a moving process of and creation; the third, design is a creating interactive agency - with often unconventional actions, expertise, models, and other footprints accumulating over time. Two important implications for leaders and knowledge-building are: first, to participate in design-creation - attending to this as creating action fundamental for the enterprise. Second, to support the crucial boundary work by and with a creative design agency, which can foster imaginative inquiry, embed, expose, and express the new in ways that may animate the firm and reap potentially wider benefits.

Concerning the relationships of companies with the design discourse (Verganti, 2009) specifies that interpreters are “firms in other industries that target the same users, suppliers of new technologies, researchers, designers, and artists, that can provide complementary and synergistic knowledge”. To develop design-driven innovations, firms must enter into dialogue with this external network, which enables taking a step back from their view of the industry and facilitates a more holistic interpretation of the surrounding sociocultural arena (Verganti, 2009, 2017).

All the above areas of research (design product characteristics, DDI process, and network of actors involved in such a process) require further theoretical and empirical investigation. Today a new and poorly investigated area of research relates to the impact of digitalization on design.

By digitalization, in this paper, we intend how firms apply IT or digital technologies to optimize existing business processes through more efficient coordination between processes and/or creating additional customer value improving user experiences (Pagani and Pardo, 2017). Hence, digitalization is related not only to cost-saving but also includes process improvements that may enhance customer experience (Verhoef et al., 2021).

has stressed that in Artificial Intelligence-powered organizations (such as Netflix and Airbnb) the role of humans (of designers) has been partially replaced by machines. The Authors investigated two pioneering cases at the frontier of AI, Netflix, and Airbnb which offer a privileged window on the future evolution of design. They found that AI does not undermine the basic principles of Design Thinking (people-centered, abductive and iterative) but contributes to overcoming past limitations (in scale, scope, and learning) of human-intense design processes. In the context of AI factories solutions may even be more user-centered (to an extreme level of granularity, i.e., being designed for every single person), more creative, and continuously updated through learning iterations that span the entire life cycle of a product. At the same time, they noticed that AI changes the practice of design as problem-solving tasks, traditionally carried on by designers, are now automated into learning loops that think in a radically different way than a designer. They address complex problems through very simple tasks, iterated exponentially. The main implications for design and innovation theory are the following: as creative problem solving is significantly conducted by algorithms, human design increasingly becomes an activity of sense-making, i.e., to understand which problems make sense to be addressed; furthermore, this shift in focus calls for new theories and brings design closer to leadership, which is, inherently, an activity of sense-making. The integration of digital technologies in design products is gaining traction also in industries based on physical products (Verganti et al., 2020).

Cantamessa et al. (2020) stress that digitalization impacts the designers (at individuals and part of a team and their work), the design process itself and new tools that can support data-driven design processes. Digital technologies allow the identification of specific customers segments whose needs must be addressed, the collection of data from users to improve simultaneously product development and to discover implications that were not anticipated by the initial design and the automation of the innovation process or at least parts of it. Data derive also from the supply side (production machinery, monitoring systems, etc.) and therefore data analysts should work closely with designers. The new product development with designers is changing because of virtualization, real-time capacity, decentralization, etc. Designers should design an initial version of the product (i.e., “seed design”) as a basis for further product improvements. Activities and teams must be managed with increasingly frequent exchange of information between the demand and supply-side information. Data mining and AI algorithms were used also in the past to solve a variety of design problems but today new tools such as machine learning are increasingly adopted and consequently more autonomy in learning and decision making and predictive analysis will characterize the design process activities.

This paper aims to gain some insights from key actors of the design world on the impact of digitalization on the attributes of design products, the DDI process, and the network of actors involved in such a process.

Purpose of the paper. The purpose of the paper is to understand how IT or digital technologies are impacting the 1) characteristics of design products, 2) DDI process, and 3) actors involved in such a process. To reach this scope some key concepts from the literature were identified and some insights from interviews with “key interpreters” of the design world were collected. The exploratory research is focused on physical design products of the furniture sector.

Methodology. Three interviews with three key representatives of the design world were done. Two experienced designers (from now on Designer 1 and Designer 2) and one entrepreneur (from now on the Entrepreneur) were interviewed. The selection of the three interviewees was based on the idea that these persons who are among important interpreters of the design world can describe and explain the impact of digitalization on design products, processes and actors involved. The two designers have experience in the sector for more than 30 years and received mentions and awards for design (e.g. from ADI (Associazione Design Industriale), the Italian Association of Industrial Design) and the entrepreneur is the owner of a born design-driven company more than 20 years ago which has received many awards by ADI and he is also playing an important role in the most prestigious Association of design in Italy as he is the President of the ADI (Associazione Design Industriale), the Italian Association of Industrial Design, for the Marche, Abruzzo, and Molise regions. The chosen interpreters are adequate to the scope of this exploratory and qualitative research which represents the initial step of a still poorly investigated area of research.

The interviewees investigated how IT or digital technologies impacted (in the perceptions of the interviewees) the following aspects of design practice: 1) the characteristics of a design product (intended as a physical product); 2) the DDI process (related to radical product innovation); 3) the network of actors involved in such a process.

One interview was personal and two via zoom video call. Each interview lasted one hour and was recorded. The three open-ended questions of the interview protocol follow the three research questions: 1) How is digitalization impacting the characteristics of a design product? 2) How is digitalization impacting the DDI process? How is digitalization impacting the network of actors involved in such a process? After text transcription, interviewees were translated into English and key statements and concepts of each section that best answered the research questions have been identified and analyzed (Saldaña, 2021). Key statements and concepts that emerged from each section were compared to identify similarities and differences. The Authors read the answers independently to identify significant statements and concepts related to the research questions. This process required many interactions between Authors resulting in discussion and revision of the text and the findings were then discussed using the theoretical concepts of the recalled literature.

Results and discussion. All interviewees agreed on the answer to the first research question: the impact of IT or digital technologies on product design as a physical product. The respondents explained that IT or digital technologies are still poorly incorporated into the design of products, intended as physical products. Internet of Things applied to design products or “smart design products”, in other words, design products connected to the Internet or other digital technologies are widespread in specific industries such as kitchen white goods and automotive. For example, the IoT refrigerators communicate when to order our shopping and maybe start ordering our shopping for us. Also, cars are increasingly connected to digital technologies. Consider for example Tesla. These products dialogue with users and through the Internet many data (on how people use these products) can be collected and analyzed.

However, it is difficult to apply such technologies to many physical products such as chairs or tables. In short, digitalization does not impact industrial design products and they remain traditional physical products.

In this regard, Designer 1 argues that “In traditional design-driven companies which manufacture hardware products it is difficult to provide customized solutions to users like in Artificial Intelligence firms. Designers must design each time different hardware”. He specifies that: “The automotive sector is the most interesting sector in terms of innovation and new technologies applications as a car includes all components (mechanical, electrical, software, etc.). For example, you can change the position of car dashboard odometer or other element of the touch screen”.

The Entrepreneur affirms that: “It is not always a good idea to satisfy all users requests in terms of customization with digital technologies. In this direction, many experiments have been made in my industry. For example, some companies put on the market mirrors in bathrooms capable of identifying the expression of faces. This innovation was not very successful. Further, digital technologies have a negative impact on the environment”. Then he stresses that: “Indeed, the real challenge is to use digital technologies to increase environmental sustainability!”

However, the owner of design-driven company explains that digital technologies allow to create very innovative and sustainable physical objects. For example, he explained that a few years ago, a plastic chair has won the Compasso D’Oro ADI Award. It was designed with special software using machine learning that made it possible to produce a chair with little raw material. Generally, a designer plastic chair is heavy, e.g., 1.5 kg. The software had studied the weaving, etc. which allowed to use of less than 1 kg of plastic.

Interviewees also agreed on the impact of digitalization on design-driven innovation process (the second research question). They all think that these technologies help to make the process faster and save money.

Designer 1 affirms that “Thanks to 3 D virtual prototyping we can in short time evaluate many different alternatives of products, observing the new products in a completely virtual context or an augmented reality context”. The Entrepreneur adds that “Therefore, we put fewer products on the market which are less risky or in other words more successful, as they have been better tested”. Furthermore, he specifies that: “the reduction of new products allows to reduce the impact on the environment”.

Designer 1 specifies that in the past at trade fairs you could get feedback from prototypes but now fairs are also online and today the feedback is continuous with the Internet (social networks, emails, many touchpoints with users) but in the face of such market feedback it is not possible every time to re-design the hardware product.

Very interestingly, Designer 1 in short explains that innovation of a design product such as a car like Tesla consists of the following components:

- continuous software innovation;
- the hardware products have discrete innovations in terms of radical changes;

- *the components of the hardware undergo continuous changes or continuous incremental innovation.*
Instead, Designer 2 focuses the attention on the impact of digitalization on the designer's creativity, and therefore on the "concept design" phase of the design-driven innovation process. He argues that the place where designers live, and work are very important as it impacts creativity. Italian designers and architects are appreciated all over the world as they are very creative and have a sophisticated taste that was forged in the beautiful cultural heritage and landscape of our country. He says: "Even though it is important to stay in a beautiful and pleasant place - for example, I like to live in Rimini, sometimes I travel but for short periods - thanks to digital technologies a designer can benefit from the Internet to have many stimuli and ideas".

He specifies that "music dictates trends and new ideas which then move on to fashion and finally to industrial design". Designer 2 explains that today music is even faster than in the past, as it is cheap to make music. Fashion is less fast, even though it has changed (think for example of fast fashion such as Zara or "capsule collections" of main fashion luxury brands). An industrial designer is less fast than a fashion. In this respect, he says: "We wait comfortably on the sofa!".

Another aspect concerning the impact of digital technologies on the design-driven innovation process concerns the relationship between designer and firm. Today Internet and online meetings substitute face-to-face meetings. All interviewees agree on the fact that these technologies help to save time and sometimes can be useful. However, especially when there is a feeling between a designer and an entrepreneur, direct meetings are very important to develop design products. Designer 2 underlines that "the design masterpieces of the 70s in Italy were characterized by the strict cooperation between of company and designer".

Internet and digital technologies impact also the way designers get in touch with companies. Designer 2 explains that thanks to websites designers can make themselves more visible and have more clients, especially foreign and large companies. The small size of Italian companies is a limit for designers who want to research, experiment with materials, and processes, and to make mistakes in the initial phase of their work. For example, Designer 2 first creates new processing of materials and then thinks about a specific product (a table, a chair, etc.).

The Entrepreneur as the owner of a design-driven company, adds that "Internet and digital technologies may be useful also for clients who ask for personalized design product. Through a "product configurator" installed on the website, clients can develop a customized design product, print its photos and get the price". This tool is very common, especially in the automotive sector. Further, he adds that: "there is useful application to furnish the room, which allows customers to see the sofa in three dimensions and how it fits in their rooms, spaces".

Email marketing among digital tools is also considered very important by all interviewees, especially to download catalogs.

The third research question is focused on the impact of the Internet and digital technologies on the network of actors involved in the design-driven innovation process, such as designers, artists, other companies, suppliers, customers, technology centers, etc.

The respondents are aware that the design-driven innovation process is a teamwork process where many actors cooperate and that new digital technologies influence the network dimension and composition new experts need to be involved in such a process.

As Designer 1 explains: "Designers act as movie directors, as they have to collect all the "best components" of the design product to develop the best design product". He continues as follows: "Designers have to cooperate for example with software experts, with materials experts as all sectors are experiencing continuous and rapid innovations and designers cannot know all the state of the art".

Designer 2 is very direct from this perspective as he believes that to diffuse design practice and benefits in terms of competitiveness in territories it is important that companies and designers cooperate to allow designers to conduct research without immediate applications. He refers to a sort of "basic research" on new materials and manufacturing processes which is strategic to be very innovative concerning other countries. Therefore, design needs to be developed in a wide network of actors as first doing design research is necessary and it is teamwork.

According to Designer 2 large companies must help the creation of such "laboratories" in the territories, as small companies do have not enough resources.

The above results confirm and shed new light on the literature on this topic.

Concerning design products (first research question) this piece of research stresses that in traditional design-driven companies which manufacture physical products the designers still must design the products as they cannot be customized for each user. Designers still create products for segments of users. This result adds new insights to the current literature (Cantamessa et al., 2020; Verganti et al., 2020) stressing the impact of digitalization on AI firms (e.g., Netflix or Airbnb) which are based on digital platforms and where the work of designers has been strongly reduced as algorithms replace humans (Verganti et al., 2020). Further, even though in some industries physical objects are becoming more and more intelligent and connected to sensors, on Internet - such as the automotive sector - it is still difficult to customize hardware products like in AI firms. The automotive sector is close to AI firms. Think for example of Tesla. However, our research stresses that in the furniture sector, for example, new design products such as chairs and tables are developed by designers for segments of users and cannot be customized for single users. We could affirm that the important contribution of (Verganti et al., 2020) describes well the impact of digitalization on AI firms, which are based on digital platforms. In these specific cases, digitalization reaches the most pervasive phase, the "digital transformation" phase, characterized by the development of new business models that is of new business logic and

ways to capture value (Verhoef et al., 2021). From interviews, we could understand that digitalization has impacted much fewer manufacturing firms, especially those in the furniture sector.

About the DDI process (second research question) the results of our exploratory research point out that digitalization has increased tools to make the process more rapid and cheap. Thanks to digital technologies - such as rapid prototyping or online trade fairs, continuous feedback from the Internet, etc. - new product development is more rapid and costs less. Further, the design concept proposed by designers to companies may use virtual or augmented reality and be more effective in the presentation to the companies. Hence, innovations put on the market are less risky than in the past. This result, therefore, enriches the literature on phases of the DDI process (Design Council, 2007; Borja de Mozota, 2008; Aklin, 2010; Conti, 2018; Aydin and Erkarlsan, 2019), updating those phases in the light of digital change. From interviews, it emerged also that the new product development process is more flexible and automated (virtualization, etc.) and data collected from the demand and supply side are still not widely used, as stressed in the literature (Catamessa et al., 2020).

Further, this result confirms the literature on digital transformation (Verhoef et al., 2021) stressing that traditional design-driven firms live the phase of digitalization - digital technologies allow cost savings and process improvements which enhance designer-firm interactions and firms' experience - while AI firms live the digital transformation phase, characterized by the development of new business models.

Hence, digitalization has enriched design products with sensors, connected to the Internet, etc. (first research question), and the DDI process thanks to 3D virtual prototyping, feedback from social media, Internet, etc. (second research question), in terms of new elements and tools of competitiveness.

Consequently, companies and designers of physical products must cooperate (third research question) with new kinds of experts for example with experts in software, sensors, virtual prototyping tools, online events, and other digital technologies. The network of actors (the so-called "design discourse") seems to be more heterogeneous and complex in the digital age. Thus, this exploratory research contributes to enriching the literature on the network of actors involved in the DDI process (Verganti, 2008, 2009, 2017). Further, also design-driven companies, in the digital era, must be able to introduce new digital technologies, and develop a flexible organizational structure and digital networking capability, as suggested in the literature on digital transformation (Verhoef et al., 2021).

From interviews, another aspect was stressed that requires future research attention. Designers have also to manufacture products that are sustainable and digital technologies may play a crucial role in this scope.

Hence, digitalization should be used to create more comfortable and useful design products that satisfy customers, but at the same time, digital technologies must be used properly as they may have a negative impact on the environment.

Research limitations and strengths. Even though key aspects are taken from some contributions of the literature and some insights derived from three interviews with key interpreters of industrial design who work mostly in the furniture industry, the paper represents a starting point of an explorative investigation of the impact of digitalization on design practice from the management perspective. It offers some ideas and points of views on the impact of IT or digital technologies on the characteristics of a design product, on the DDI process, and on the network of actors involved in such a process. We identified inspirational aspects across technology categories by the qualitative interviews. They are potentially relevant for designing because designers take inspiration crossover and do not limit themselves to just one kind of technology or set industry bounds (Jevnaker and Olaisen, 2022).

Future qualitative research should conduct a systematic managerial literature review of the topic (the impact of digitalization on design product, DDI process and network of actors involved in the process), investigate a larger number of actors and of different sectors and use MAXQDA software to analyze qualitative data. Furthermore, quantitative research could analyze the impact of digitalization on design practice in representative sample of design-driven companies in our country and abroad to identify clusters of companies at different stages of digital change in the design practice. Investigating how digital technologies may help to develop sustainable design-driven innovations (for example the reduction of plastic, recycled products, etc.) is another interesting research direction.

Managerial implications. Digitalization has impacted all processes of the firm, bringing new business opportunities but at the same time, more complex management is required. New skills and organizational structures are required to work in a more digitalized company. Also, design-driven companies should cooperate with a larger team of actors to develop design-driven innovations. Designers should cooperate with experts for example of software and digital technologies (3 D prototyping, data analysts, etc.), develop digital networking capability and more flexible organizational structures.

The originality of the paper. These initial reflections are rare in management studies as design is usually studied by scholars of the industrial design discipline. We analyze from the managerial perspective, how digitalization impacts design products, on DDI process, and on the network of actors involved in such a process.

Keywords: design product; design-driven innovation (DDI) process; digitalization; the network of actors

References

ACKLIN C. (2010), "Design-Driven Innovation Process Model", *Design Management Journal*, vol. 5, n. 1, pp. 50-60.

- BLOCH P.H. (2011), "Product Design and Marketing: Reflections After Fifteen Years", *Journal of Product Innovation Management*, vol. 28, n. 3, pp. 378-380.
- CANTAMESSA M., MONTAGNA F., ALTAVILLA S., CASAGRANDE-SERETTI A. (2020), "Data-driven design: The new challenges of digitalization on product design and development", *Design Science*, vol. 6. <https://doi.org/10.1017/dsj.2020.25>
- CONTI E. (2018), "*Il ruolo del design nei processi innovativi e di creazione del valore* (Vol. 1-1), Aracne. <http://www.aracneeditrice.it/aracneweb/index.php/publicazione.html?item=9788825513073>
- CONTI E., CHIARINI A. (2021), "Design-driven innovation: Exploring new product development in the home appliances and furniture industry", *The TQM Journal*, vol. 33, n. 7, pp. 148-175.
- CONTI E., VESCI M., CRUDELE C., PENCARELLI T. (2019), "Design-driven innovation, quality, and customer value in manufacturing companies", *TQM Journal*, vol. 31, n. 6, pp. 968-986. 2
- DELL'ERA C., VERGANTI R. (2009), "Design-driven laboratories: Organization and strategy of laboratories specialized in the development of radical design-driven innovations", *R&D Management*, vol. 39, n. 1, pp. 1-20.
- D'IPPOLITO B. (2014), "The importance of design for firms' competitiveness: A review of the literature", *Technovation*, 34, n. 11, pp. 716-730.
- JEVNAKER B. (2000), "Championing Design: Perspectives on Design Capabilities", *DMI Academic Review*, vol. 1, pp. 25-39.
- JEVNAKER B. (2014), *The Paradoxical Road to Innovation* (pp. 41-66),
- JEVNAKER B.H. (1993), "Inaugurative learning: Adapting a new design approach", *Design Studies*, vol. 14, n. 4, pp. 379-401.
- JEVNAKER B.H. (2005), "'Vita Activa': On Relationships between Design(ers) and Business", *Design Issues*, vol. 21, n. 3, pp. 25-48.
- JEVNAKER B.H. (2012), *Vestiges of Design-Creation: An inquiry into the advent of designer and enterprise relations*. <http://web.bi.no/forskning/papers.nsf/wSeriesDissertation/02AA98ABD74E06F5C12579EC003EF93F>
- JEVNAKER B.H., OLAISEN J. (2022), "A comparative study of knowledge management research studies: Making research more relevant and creative", *Knowledge Management Research & Practice*, vol. 0, n. 0, pp. 1-12.
- KOTLER P., ALEXANDER RATH G. (1984), "Design: a powerful but neglected strategic tool", *Journal of Business Strategy*, vol. 5, n. 2, pp. 16-21.
- LUCHS M., SWAN K.S. (2011), "Perspective: The Emergence of Product Design as a Field of Marketing Inquiry", *Journal of Product Innovation Management*, vol. 28, n. 3, pp. 327-345.
- MOZOTA B.B.DE, VERGANTI R., DELL'ERA C. (2008), "*Design management. La cultura del progetto al centro della strategia d'impresa* (1A edizione), Franco Angeli.
- OLSON E.M., SLATER S.F., COOPER R.D. (2000), "Managing Design for Competitive Advantage A Process Approach", *Design Management Journal (Former Series)*, "vol. 11, n. 4, pp. 10-17.
- PAGANI M., PARDO C. (2017), "The impact of digital technology on relationships in a business network", *Industrial Marketing Management*, vol. 67, pp. 185-192.
- RAVASI D., RINDOVA V. (2008), "Symbolic Value Creation", In *The SAGE Handbook of New Approaches in Management and Organization* (pp. 270-284), "SAGE Publications Ltd. <https://doi.org/10.4135/9781849200394>
- SALDAÑA J. (2021), *The Coding Manual for Qualitative Researchers*. SAGE Publications Ltd. <https://uk.sagepub.com/en-gb/eur/the-coding-manual-for-qualitative-researchers/book273583>
- VERGANTI R. (2003), "Design as brokering of languages: Innovation strategies in Italian firms", *Design Management Journal*, vol. 14, n. 3, pp. 34-42.
- VERGANTI R. (2008), "Design, Meanings, and Radical Innovation: A Metamodel and a Research Agenda", *Journal of Product Innovation Management*, vol. 25, n. 5, pp. 436-456.
- VERGANTI R. (2009), "*Design-Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean*. Harvard Business School Press.
- VERGANTI R. (2017), "*Overcrowded Designing Meaningful Products in a World Awash with Ideas*. MIT Press.
- VERGANTI R., VENDRAMINELLI L., IANSITI M. (2020), "Innovation and Design in the Age of Artificial Intelligence", *Journal of Product Innovation Management*, vol. 37, n. 3, pp. 212-227.
- VERHOEF P.C., BROEKHUIZEN T., BART Y., BHATTACHARYA A., QI DONG J., FABIAN N., HAENLEIN M. (2021), "Digital transformation: A multidisciplinary reflection and research agenda", *Journal of Business Research*, vol. 122, pp. 889-901.
- WALSH V., ROY R., BRUCE M., POTTER S. (1992), *Winning by Design: Technology, Product Design and International Competitiveness*. Blackwell Publishers. http://bookshop.blackwell.co.uk/jsp/id/Winning_by_Design/9780631185116

From “Community as Concrete Utopia” to “Harmonic Innovation”: A Historical Approach to Entrepreneurial Innovation

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[1] «There was a time, in the mid-1960s, when an Italian company had the opportunity to lead the global IT revolution, ten years before the ‘Silicon Valley kids’, of Steve Jobs and Bill Gates: a technological revolution that was rooted in a cultural and social revolution, in an industrial model that transcended socialism and capitalism, and whose promoter, Adriano Olivetti, had been experimenting with it since the 1930s in Ivrea, in the province of Turin. Olivetti had become the largest Italian company, with the greatest international commercial success, capable of covering a third of the world market in its sector: an atypical multinational, with strong territorial roots, characterized by futuristic social policies, permanent training and cultural activities of international scope, which were the secret of its commercial success and not the philanthropic or patronage consequence of its profits. This entrepreneurial model, which also promoted an alternative model of society and led to the greatest industrial opportunity that Italy has ever had, consisted of what? [...]» (our translation). (Documentary, 2011, “*In me non c’è che futuro...*”. *Ritratto di Adriano Olivetti*).

[2] «In the days of the lockdown, we often asked ourselves: will the world after the Covid-19 emergency be the same as before, will it be better, will it be worse? Certainly it will be different, we answered [...] Have we really managed to internalise and make the most of the opportunity for a new outlook that the crisis has bequeathed us? [...] In order to make real innovation and build a real future, we need to go back to the root of the problems, starting from the reflection and investigation on the deepest “meaning” of each choice and then committing ourselves, consequently, in the construction of unifying “visions” and in the formation of consciences and skills capable of pursuing and implementing them with “swiftness” and “selectivity”. We need to address the “why” and not just the “how” of any policy, action and/or intervention. So where do we start from? From ourselves, we would like to answer. From the “we-me”. From the “truth” and the “sense”. This would be true innovation. Harmonic innovation, we call it. [...] Harmonic innovation is first and foremost ‘sense’, ‘integration’ and ‘community’ [...] it is ‘noble and kind’ [...] it is ethical (unblemished, clean, inoffensive, good-loving, beneficial, free, uncontaminated, holy); intelligent (subtle, acute, human-friendly, stable, safe, useful, new); generative (performing, emanation of creative power, at the same time unique and multiple); pervasive (penetrating, mobile, agile, multidisciplinary); sustainable (circular, reflection of perennial balance)” » (our translation). (F. Cicone, L. De Biase, 2021, *Innovazione Armonica. Un senso di futuro*, Rubettino)

Framing of the research. *The two excerpts can be traced back to as many stories on how an innovative model of entrepreneurship takes shape in the contexts where it is practised, helping to change the very contexts that lead to its production: Olivetti’s “community as concrete utopia” and Entopan’s “harmonic innovation” idea. The two events belong to apparently very different histories: (a) they took place in different periods (in the case of Olivetti, it was an “accomplished” experience that unfolded between the early post-war period and the second half of the 1960s; the story of Entopan, which began twenty years ago, is still “in progress”); (b) in apparently distant territories (Ivrea and Catanzaro); (c) with heterogeneous protagonists such as a multinational mechanics company which, through electronics, literally invented information technology, and a company which, as part of an innovative ecosystem “under construction”, proposed an “unconventional” business venturing model.*

In terms of research design, the juxtaposition of the two stories yields (see Table 1a): (i) firstly, the links between the concepts of “entrepreneurship” and “institutions” on the one hand (Rowlinson et al. 2014; Bucheli, Wadhvani 2014; Ocasio et al. 2016; Coraiola et al. 2018; Mutch 2018; Wadhvani et al. 2018; Maclean et al. 2020), and of “change” and “time” on the other (Rowlinson et al. 2010; Anteby, Molnar 2012; Granqvist, Gustafsson 2016; Hatch, Schultz 2017; Lubinski 2018; Ravasi et al. 2019; Foroughi et al. 2020); (ii) as well as an approach, that of historical institutionalism (Suddaby et al. 2014), as a coherent method to approach the analysis of innovation and institutional change processes (Suddaby, Foster 2017) in management and organization studies (MOS). The first point constitutes the basis for the conceptual background of this paper: the hypothesis would be that a performative approach to entrepreneurial innovation (Garud et al. 2014) constitutes a possible descriptive key that unites the two experiences not so much as “comparison” but “comparatively” (in terms of “grounded theory”: Glaser, Strauss 1967) through their historical dimension. With the concept of entrepreneurship “as the creation of a new organization” (Greenwood et al. 2017), in both stories the emphasis seems to be on “a process wherein actors and contexts are co-created” and “on meaning making through interplay of entrepreneurs and environments” (Garud et al. 2014; Padgett, Powell 2012).

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Purpose of the paper. *In this conceptual background, the purpose of the paper is to bring out a coherent research program on harmonic innovation as a process of developing an “unconventional” form of business venturing. As a particular form of “entrepreneurial innovation”, where “agency is ‘translated’ through social and material networks” and “contexts are constituted through performative effort” (Garud et al 2014), the “harmonic innovation” represents a “creation of new enterprises” (Tracey et al 2018). The process of “translation” that Entopan’s “harmonic innovation” and Olivetti’s “community as concrete utopia” seem to share manifests itself by (re)configuring, sometimes unexpectedly, three dimensions of analysis (see Table 1b): “the domains of sustainability, responsibility, and ethics [...], centered on responsible management phenomena observed in extending spheres around the responsible manager [job, group, organization, occupation, and planetary society], and [in which] salient themes of research are (a) responsible management praxis, practices and process(es), (b) learning, change and innovation, and (c) alternative management framework” (Laasch et al. 2020: p. 18). This specific mapping of the phenomenon of “responsible management” (Laasch et al. 2020; Moosmayer et al. 2020) provides the interpretative framework that enables the formulation of a possible research agenda for the “emerging” phenomenon (harmonic innovation), compared to the historical “comparison” of the “established” phenomenon (the Olivetti community) (Glaser, Strauss 1967).*

Methodology. *For the purposes of this paper, the material used can be traced back to the documentary “In me non c’è che futuro...”. Ritratto di Adriano Olivetti, a film by Michele Fasano (SATTVA Films, 144', 2011) and the book by Francesco Cicione (founder and president of Entopan) and Luca De Biase, published by Rubettino, in collaboration with Entopan, “Innovazione Armonica. Un senso di futuro” (2021). Additional materials linked to different sources were used on the Entopan experience: a press review, archival materials from the official website, interviews and public films found online. In particular, Entopan develops “acceleration and integration” paths (as a business incubator) on the themes of open innovation, digital transformation, industry 4.0 and circular economy, supporting companies, start-ups, social organizations and public administrations using different structures: an open innovation accelerator and hub (Entopan Innovation) and a digital platform (Tonnhäuser); Harmonic Innovation Research (a research centre, in collaboration with the Colorni-Hirschman International Institute, which has developed the “original paradigm” of Harmonic Innovation); a corporate academy (OASI-Oltre Advanced School of Innovation); the Harmonic Innovation Hub project (finalised for 2023), with the creation of a specific venture capital fund (Harmonic Innovation Venture).*

The juxtaposition of the two histories and the connection between the concepts of “entrepreneurship & institutions” and “change & time” also form the basis of the data analysis: the methodological aspects are designed around the work of Roy Suddaby (Suddaby 2016; Suddaby, Foster 2017; Suddaby et al. 2014), straddling grounded theory (Goulding 2002) and historical institutionalism (see Table 1a). Investigating the dimensions of change and temporality involves addressing entrepreneurial innovation and the emergence of new venture creation as “processes” (Langley et al. 2013; Langley, Tsoukas 2016; Reinecke, Ansari 2016; Reay et al. 2019; Reinecke et al. 2020). The perspective that emerges results from the convergence of a number of historical paradigms with ontological and epistemological foundations common to different strands and traditions of MOS research (Suddaby 2016; Suddaby, Foster 2017): (i) “history-as-sensemaking”, where “cosmology episodes are characterized by a sudden and profound loss of rationality or meaning in one’s lived experience where prior perceptions of change, which one made sense, no longer cohere and participants are forced to reconstruct a new interpretive framework within which to organize experience” (p. 30); (ii) “history-as-power” exhibits a form of “[...] agency enacted through reflexivity and praxis - the ability of individuals or collectives to overcome the constraints of their history through retrospection, critical reflection, and creative visioning” (p. 26); (iii) finally, “history-as-rhetoric” is “a model of change that uses narratives of history” and where, “periodization is the process of retrospectively cultivating the idea of radical transformation in terms of ‘before’ and ‘after’” (p. 31). The synthesis proposed by historical institutionalism falls in the context of the “organizational research that draws extensively on historical data, methods, and knowledge, embedding organizing and organizations in their sociohistorical context to generate historically informed theoretical narratives attentive to both disciplines” (Maclean et al. 2016: p. 609; Maclean et al. 2020; Suddaby et al. 2014).

According to Glaser and Strauss (1967), the analysis of the data includes: the “constant comparison” between the two stories to develop concepts and categories (the dimension of entrepreneurial innovation and “new venture creation” as a sort of “substantive theory”); the gradual abstraction of data from the descriptive level to higher order theoretical categories (the emergence of the themes of the research program on Harmonic Innovation: “responsible management” as a sort of “formal theory”) (Goulding, 2002).

Results. *Starting from the two stories of Olivetti and Entopan, investigated through a historical approach on how the innovation of an entrepreneurial model is achieved, it was considered that the two entities fit well into the framework of the emerging studies on “responsible management”. Among the various approaches identified in the literature on this phenomenon, we have therefore chosen the anthropological contribution of Laasch et al. (2020) which, better than others, highlights an articulated set of constructs useful for the mapping of responsible management and the construction of an analysis model consistent with the conceptual framework used in this paper. In this abstract, therefore, we first carried out the construction of the analysis scheme in Table 1(b) and then mapped the analysis dimensions. Finally, a number of possible research paths were identified, aimed at the conceptualisation of harmonic innovation.*

The matrix that emerges from the mapping of the constructs inherent to “responsible management” according to Laasch et al. (2020) is developed in rows and columns where the dimensions of analysis are brought together. Starting from the disciplinary domains of ethics, responsibility and sustainability, we report a series of constructs that describe

the spheres in which managerial action is carried out (spheres) and the managerial practices involved (themes) connected to them and which allow a multidimensional and multi-level analysis of the action of "innovative entrepreneurs".

Tab. 1: Conceptual framework, and the emerging field of a research program

a)	ENTREPRENEURIAL INNOVATION (*)	HISTORICAL INSTITUTIONALISM (**)	
Approach	Constitutive approaches	«The socio-historical process by which habituated actions and meanings become reified as objective social structures»	
Analytical focus	«A process wherein actors and contexts are co-created». Journeys: dynamics whereby entrepreneurial innovation emerges (A) "Community as Concrete Utopia" (by Olivetti) (B) "Harmonic Innovation" (by Entopan)	<ul style="list-style-type: none"> institutions are clearly to be understood as a historical process, i.e., the outcomes of past events and interpretations of those events; this process is undefined by the interactions of individuals over time, the interpretations of these actions, and the social significance attached to them, change» Three core constructs that underpin the theory: <ul style="list-style-type: none"> diffusion: "historical approaches to understanding institutions]: (a) see the process of mimetic adoption as a messy and often chaotic process; (b) specifically narrative historiography, are more likely to be attentive to the powerful role of interpretation of meaning over time and space; (c) using historical methods is also, when focused on narrative and interpretation, sensitive to the powerful effects of prior institutions on present decisions to adopt or reject a new organizational characteristic or practice individuals, actors and actorhood entrepreneurship and embedded agency 	
Perspective	A. CO-CREATION	B. NARRATIVE	
Emphasis	• «emphasis on dynamic equilibrium and ongoing change»	• «emphasis on meaning making through interplay of entrepreneurs and environments»	
Locus and nature of agency	• «agency located in ecology of interactions»	• «agency "translated" through social and material networks»	
Role of context	• «contexts are both the medium and outcome of action»	• «contexts are constituted through performative efforts»	
Research streams	• structuration • complexity • disequilibrium	• Actor-Network Theory (ANT) • Path creation	
b) emerging field of responsible management (***)	(A) Mundanely (Ir)Responsible Management	(B) The Normalization of Responsible Management	(C) Management Academics' Performative Agency
(1) Disciplinary domains	<ul style="list-style-type: none"> Ethics Responsibility Sustainability 		
(2) Spheres (responsible manager at the center):	<ul style="list-style-type: none"> Job Group Organizational Occupational Planetary/Society 		
(3) Themes	<ul style="list-style-type: none"> Praxis, Practices, Process(es) Learning, Change, Innovation Alternative Management Frameworks 		

(*) adapted from Garud, Gehman, Giuliani 2014; (**) Suddaby 2016; Suddaby, Foster 2017; Suddaby, Foster, Mills 2014; Ocasio, Mäuskapf, Steele 2016; Wadhvani, Suddaby, Modhost, Popp 2018; Bucheli, Wadhvani 2014; Maclean, Clegg, Suddaby, Harvey 2020; (***) Laasch, Suddaby, Freeman, Jamali 2020; Moosmayer, Laasch, Parkes, Brown 2020; Steyaert, Beyes, Parker 2016; Burgoyne, Reynolds 1997

Disciplinary domains. The historical dimension of entrepreneurial action can be investigated by highlighting aspects related to: (i) ethics, understood as the distinction between what is right and what is wrong, but also how agents make decisions, right or wrong, or how ethics itself influences agents' decisions and actions; (ii) responsibility of agents regardless of their nature both in terms of agency and in terms of modifying the context through agencement; (iii) sustainability - sustainable development and intergenerational equity - e.g. strongly based on the Triple Bottom Line model and oriented towards the process of integrating sustainability principles into business dynamics and practices.

Spheres. At the heart of the constructs referring to the spheres of managerial action is the individual rather than professional responsibility of the agents, which relates to the “identity” of the entrepreneur and his characteristics (job sphere and occupational sphere). Managerial/entrepreneurial practices are the historical and performative result of the ethical, responsible and sustainable instances that actors bear in their daily lives and in their business actions. The intertwining of these instances with those of the organizations, from an institutional perspective, makes it possible to act in a given context, helping to produce and modify it. This can take place through the production of organizational change (organizational sphere) or the activation of interactional dynamics between groups within the enterprise or the sharing of practices and objects (group sphere). The group sphere also includes the definition of responsible collective action by interconnected actors, as happens in innovation ecosystems. In addition, entrepreneurial action in line with the principles of “responsible management” contributes to the creation of positive value for the environment and social welfare (planetary/society sphere) and at the same time legitimises the dissemination of those same principles in the context where business action takes place, bringing managerial practices to the fore.

Themes. Management dynamics and practices can be further examined at the level of “praxis, practices, and processes” e.g. in terms of managerial goals, functions and internal organizational processes. Outside the boundaries of the enterprise, the intertwining of global challenges, such as technological transition, and the local context, bring out the managerial practices of multiple actors aiming at collaboration, not just balancing the interests of the parties, but harmonising them. On the themes of “learning, change and innovation”, the connection between managerial practices and learning and/or innovation practices acquires significance in order to facilitate the development of new skills and knowledge, to stimulate the innovation of business models or to support the development of new forms of innovation or the use of “alternative frameworks” in the development of new practices.

In a performative approach, in which the management practices undertaken define the context and modify it over time, the three analysis dimensions can be interpreted according to three different research perspectives: (i) *Mundanelly (Ir)Responsible Management*, where it is possible to identify domains, areas and practices of management that are typical of “operational” action in the existing context of reference and that can therefore offer the possibility to understand how responsible or not responsible processes and practices historically emerge; (ii) *Normalization of Responsible Management*, which define processes for normalizing new models of entrepreneurial action and institutionalising new emerging practices; (iii) *Management Academics’ Performative Agency*, which also enables the definition of the evolution and/or emergence of new educational processes supporting the process of normalization of managerial action and practices and their dissemination necessary to activate and legitimise the emergence of new theories.

From the proposed mapping, a research agenda emerges based on a historical approach to investigate the phenomenon of Harmonic Innovation. The research lines could be developed along two main lines (see Table 1b).

The first research direction (from top to bottom, see letters in the circles A, B and C, inside the figure) is developed transversally to the scheme, considering Harmonic Innovation in terms of “new venture creation” (see third column: from bottom to top, following the steps from 1 to 5) with respect to the three main themes through which the perspective of “responsible management” is developed. The research agenda focuses on “management academics’ performative agency” and is developed, for example, in terms of “critical management education” (Contu 2009; Perriton, Reynolds 2004, 2018): (i) around the processes of ‘learning about entrepreneurship’; (ii) around the logic of “participatory culture” inherent both in the emergence of new organizational forms, downstream, in the creation of enterprises and startups; (iii) and, above all, in the organization of learning platforms themselves, in the diffusion of entrepreneurial logics that are themselves emerging, ahead of the training process and outside the “conventional” model of academic learning. The theme is part of an extremely topical debate in the academic world and, specifically, in business schools (Burgoyne, Reynolds 1997; Kennedy et al. 2015; Reynolds, Vince 2007; Steyaert et al. 2016;), often adopting a critical approach in recalling the possible developments of innovative perspectives both in theoretical frameworks on entrepreneurship, and in training methods and the evolution of management education.

A second research path (indicated in the scheme by the numbering from 1 to 5, from bottom to top), builds on the previous one by linking the emergence of the Harmonic Innovation “paradigm” with its founding dimension of “entrepreneurial learning” (Reynolds, Vince 2007; Steyaert et al. 2016): in essence, a form of entrepreneurial innovation combined with an organizational design conceived to “act” as a “learning platform”. Moving up the table from below, the emergence of “new venture creation” encounters spheres of intervention and “practices” centred on the “responsible manager” at two levels: (a) around the creation of a Harmonic Innovation Hub in terms of processes of legitimizing “new venturing” (point 2: Tracey et al. 2018); (b) or, for example, in terms of “social symbolic work” and “organizational work” (point 3: Lawrence, Phillips 2019; Lawrence, Suddaby 2006), both with respect to the functioning of the innovation ecosystem revolving around Entopan, and in terms of the entrepreneurial formula and organizational designs of enterprises “grounded” in the logics of Harmonic Innovation. The next two points (4 and 5), operate at the same level (disciplinary domains), crossing business ethics issues with the specific history of the birth of Entopan and, in a circular way, on the very definition of Harmonic Innovation as a “performative” and “emergent” model of entrepreneurial innovation (Garud et al. 2014; Padgett, Powell 2012).

Research limitations/Implications. The implications related to this work and, above all, to the development of the research program that emerges from this analysis, are of a theoretical and methodological nature. Suddaby and Foster (2017) suggest two aspects that are useful in defining the temporal and historical dimensions also in the case of entrepreneurial innovation processes: (a) “our central argument is that variations in how we conceptualize change are underpinned by different assumptions about history and its relationship to our capacity for change”; (b) and “our

explicit theories of change and our ability to change, thus, vary by our implicit models of history" (p. 20). From the methodical point of view, the epistemological and ontological features linking the historical approach and MOS allow to address some relevant issues that characterise the very evolution of MOS research. On this aspect, for example, Belk and Sobh (2018: p. 489) have stressed the necessity of: (i) an original phenomena-driven inquiry; (ii) combining grounded theory and abductive reasoning, and (iii) generating and comparatively analyzing alternative theoretical explanations. The reference to the nature of MOS research relates to the very boundary of this paper: the construction of a research program revolves around the idea of "using the past responsibly" (Laasch et al. 2020; Cummings, Bridgman 2016; Hatch, Schultz 2017; Maclean et al. 2016, 2020; Lubinski 2018).

Originality of the paper. The implications of method are also the main elements of originality of what is proposed, linked to the assumptions that revolve around the study of processes and "history as method" in MOS: a research program "based" on the dimensions of "responsible management" tends not to underestimate (i) the "dynamics" of change processes, (ii) the manifestation of innovative phenomena in sometimes "unexpected" or "unconventional forms, (iii) and the fact that organizational changes and entrepreneurial innovations tend to "mature over time" in different ways, reaching completion but also changing their paths or sometimes failing.

Keywords: historical institutionalism; entrepreneurial innovation; "harmonic innovation"; "responsible management; "performative agency"

References

- ANTEBY M., MOLNAR (2012), "Collective memory meets organization identity: Remembering to forget in a firm's rhetorical history", *Academy of Management Journal*, vol. 55, n. 3, pp. 515-540.
- BELK R., SOBH R. (2019), "No assemblage required: On pursuing original consumer culture theory", *Marketing Theory*, vol. 19, n. 4, pp. 489-507.
- BUCHELI M., WADHWANI D. (2014), *Organizations in Time: History, Theory and Methods*, Oxford: Oxford University Press.
- BURGOYNE J., REYNOLDS M. (eds.) (1997), *Management Learning*, SAGE, London.
- CONTU A. (2009), "Critical Management Education", in Alvesson M., Bridgman T., Willmott H. (eds.), *The Oxford Handbook of Critical Management Studies*, OUP, Chapter 27, pp. 536-550.
- CORAIOLA D., SUDDABY R., FOSTER W.M. (2018), "Organizational Fields as Mnemonic Communities", in J. Glückler et al. (eds.), *Knowledge and Institutions*, Springer, pp. 45-68
- CUMMINGS S., BRIDGMAN T. (2016), "The Limits and Possibilities of History: How a Wider, Deeper, and More Engaged Understanding of Business History Can Foster Innovative Thinking", *Academy of Management Learning & Education*, vol. 15, n. 2, pp. 250-267.
- FOROUGH H., CORAIOLA D.M., RINTAMÄKI J., MENA S., FOSTER W.M. (2020), "Organizational Memory Studies", *Organization Studies*, vol. 41, n. 12, pp. 1725-1748.
- GARUD R., GEHMAN J., GIULIANI A.P. (2014), "Contextualizing entrepreneurial innovation: A narrative perspective", *Research Policy*, vol. 43, pp. 1177-1188.
- GLASER B.G., STRAUSS A. (1967), *The discovery of grounded theory*, Aldine.
- GOULDING C. (2002), *Grounded Theory. A Practical Guide for Management, Business and Market Researchers*. SAGE.
- GRANQVIST N., GUSTAFSSON R. (2016), "Temporal Institutional Work", *Academy of Management Journal*, vol. 59, n. 3, pp. 1009-1035.
- GREENWOOD R., OLIVER C., LAWRENCE T.B., MEYER R. (eds.) (2017), *The SAGE Handbook of Organizational Institutionalism*. Sage.
- HATCH M.J., SCHULTZ M. (2017), "Toward a Theory of Using History Authentically: Historicizing in the Carlsberg Group", *Administrative Science Quarterly*, vol. 62, n. 4, pp. 657-697.
- KENNEDY M., BILLET S., GHERARDI S., GREALISH L. (eds.) (2015), *Practice-based Learning in Higher Education*. Springer.
- LAASCH O., SUDDABY R., FREEMAN R.E., JAMALI D. (eds.) (2020), *Research Handbook of Responsible Management*. Edward Elgar.
- LANGLEY A., TSOUKAS H. (eds.) (2016), *The SAGE Handbook of Process Organization Studies*, SAGE, London.
- LAWRENCE T.B., SUDDABY R. (2006), "Institutions and institutional work", in Clegg S., Hardy C., Nord W., Lawrence T.B. (eds.), *Handbook of organization studies*, SAGE: London, pp. 215-254.
- LAWRENCE T.B., PHILLIPS N. (2019), *Constructing Organizational Life. How Social-Symbolic Work Shapes Selves, Organizations, and Institutions*, Oxford University Press, Oxford.
- LUBINSKI C. (2018), "Form 'History as Told' to 'History as Experienced': Contextualizing the Uses of the Past", *Organization Studies*, vol. 39, n. 12, pp. 1785-1809.
- MACLEAN M., HARVEY C., CLEGG S. (2016), "Conceptualizing Historical Organization Studies", *Academy of Management Review*, vol. 41, n. 4, pp. 609-632.
- MACLEAN M., CLEGG S., SUDDABY R., HARVEY C. (2020), *Historical Organization Studies*, Routledge, London

- MOOSMAYER D.C., LAASCH O., PARKES C., BROWN K.G. (eds.) (2020), *The Sage Handbook of Responsible Management*. SAGE.
- MUTCH A. (2018), "Practice, Substance, and History: Reframing Institutional Logics", *Academy of Management Review*, vol. 43, n. 2, 242-258.
- OCASIO W., MAUSKAPF M., STEELE C.W. (2016), "History, Society, and Institutions: The Role of Collective Memory in the Emergence and Evolution of Societal Logics", *Academy of Management Review*, vol. 41, n. 4, pp. 1-24.
- PADGETT J.F., POWELL W.W. (eds.) (1992), *The emergence of organizations and markets*. Princeton University Press.
- PERRITON L., REYNOLDS M. (2004), "Critical Management Education. From Pedagogy of Possibility to Pedagogy of Refusal?", *Management Learning*, vol. 35, n. 1, pp. 61-77.
- PERRITON L., REYNOLDS M. (2018), "Critical Management Education in challenging times", *Management Learning*, vol. 49, n. 5, pp. 521-536.
- RAVASI D., RINDOVA V., STIGLIANI I. (2019), "The Stuff of Legend: History, Memory, and the Temporality of Organizational Identity Construction", *Academy of Management Journal*, vol. 62, n. 5, pp. 1523-1555.
- REAY T., ZILBER T.B., LANGLEY A., TSOUKAS H. (2019), *Institutions and Organizations. A Process View*, Oxford University Press, Oxford
- REINECKE J., ANSARI S. (2016), "Time, Temporality, and Process Studies", in Langley A., Tsoukas H. (eds.), *The SAGE Handbook of Process Organization Studies*, SAGE, London.
- REINECKE J., SUDDABY R., LANGLEY A., TSOUKAS H. (eds.) (2020), *Time, Temporality, and History in Process Organization Studies*. Oxford University Press.
- REYNOLDS M., VINCE R. (eds.) (2007), *The Handbook of Experiential Learning & Management Education*, OUP.
- ROWLINSON M., HASSARD J., DECKER S. (2014), "Research Strategies for Organizational History: A Dialogue between Historical Theory and Organization Theory", *Academy of Management Review*, vol. 39, n. 3, pp. 250-274.
- STEYAERT C., BEYES T., PARKER M. (eds.) (2016), *The Routledge Companion to Reinventing Management Education*, Routledge.
- SUDDABY R. (2016), "Toward a Historical Consciousness: Following the Historic Turn in Management Thought", *M@n@gement*, vol. 19, n. 1, pp. 46-60.
- SUDDABY R., FOSTER W.M. (2017), "History and Organizational Change", *Journal of Management*, vol. 43, n. 1, pp. 19-38.
- SUDDABY R., FOSTER W.M., MILLS A.J. (2014), "Historical Institutionalism", in M. Bucheli, R.D. Wadhvani (eds.), *Organization in time: History, theory, methods*, Oxford University Press, Oxford, pp. 100-123.
- TRACEY P., DALPIAZ E., PHILLIPS N. (2018), "Fish Out of Water: Translation, Legitimation, and New Venture Creation", *Academy of Management Journal*, vol. 61, n. 5, pp. 1627-1666.
- WADHWANI R.D., SUDDABY R., MORDHORST M., POPP A. (2018), "History as Organizing: Uses of the Past in Organization Studies", *Organization Studies*, vol. 39, n. 2, pp. 1663-1683.

Websites

<http://www.entopan.com>

<http://www.fondazioneadrianolivetti.it>

Mapping technology in silver economy field: A bibliometric analysis in business and management literature

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Framing of the research. "Technology is a vitally important aspect of the human condition (...)" (MacKenzie and Wajcman, 1999 p. 1). Theorists and scholars have discussed extensively how technology and technological advances have powerful social implications and significantly change the way we live our lives (e.g., Smith and Marx, 1994). Malone (1995) has pointed out that technological products, probably more than any other products, have the potential to shape and define modern life.

The technology industry has experienced unprecedented growth over the past decade (PwC, 2019) and has assumed a critical role in the economy and society in the wake of the Covid 19 pandemic crisis. Indeed, the increasing use of technology for regular daily activities (e.g., working, learning, shopping) has accelerated digital transformation and exacerbated inequalities in access to and use of technology (i.e., the digital divide). The importance of the social impact of technology has attracted the attention of policymakers and regulators. In this context, the European Commission has, for example, identified specific actions to improve digital inclusion, promote access to technology, or support the development of ICT assistive technologies.

The social impact of technological progress can be better read and interpreted by considering the characteristics of the current global social context. In this regard, the aging of the world's population is a particularly sensitive phenomenon in terms of digital inclusion and technological progress. The ratio of people aged 65 and older to people aged 20-64 will continue to rise to 59% by 2070, as this ratio increases, the workforce and productivity growth in Europe decrease. According to World Population Prospects (2019), one in four citizens in Europe and North America will be 65 or older by 2050. The 2021 Ageing Report (European Commission, 2020) declares aging pressures a global priority.

The prediction of a rapid and constant aging process in the coming decades, coupled with the rapid digitization of society, raises several challenges and opportunities for both silver people and the silver market. For example, from a social perspective, the low adaptability of older people to digital devices due to a lack of technological experience or their health status increases the risks of further social exclusion of seniors (Oget, 2021). At the same time, the use of assistive technologies in care could lead to the neglect of emotional support and individuality of the patient, exposing the elderly to the risk of dehumanized health care. From a purely economic perspective, the aging of the world's population is driving a new market promise called the "Silver Economy" (Oget, 2021). The Silver Economy refers to existing and emerging economic opportunities related to the production, consumption, and trade of goods and services relevant to an aging population (European Commission, 2015). Older people provide the impetus for the development of new goods and services as they engage in a wide range of activities (sports, cultural events, tourism, higher education, volunteering, etc.) to stay active and connected with family and friends and society at large (Eurostat, 2019). Against this backdrop, there are business opportunities related to technological innovations that could improve the well-being of older people and enable them to live more independently and longer. As Kohlbacher and Hang (2011) have recognized, the silver market is an excellent application for technological innovation to the extent that older people demand new, easy-to-use, and affordable products and services. In parallel with the relevance of the phenomenon, business and management scholars have begun to explore the relationships between the silver economy and technology (e.g., Laperche et al., 2019). To date, however, research contributions appear to be fragmentary and sparse, calling for a more systematic review of the existing literature and the definition of a research agenda that clarifies which lines of inquiry are useful to better understand the challenges and opportunities associated with the complex relationships between technological advances and the aging of the global population.

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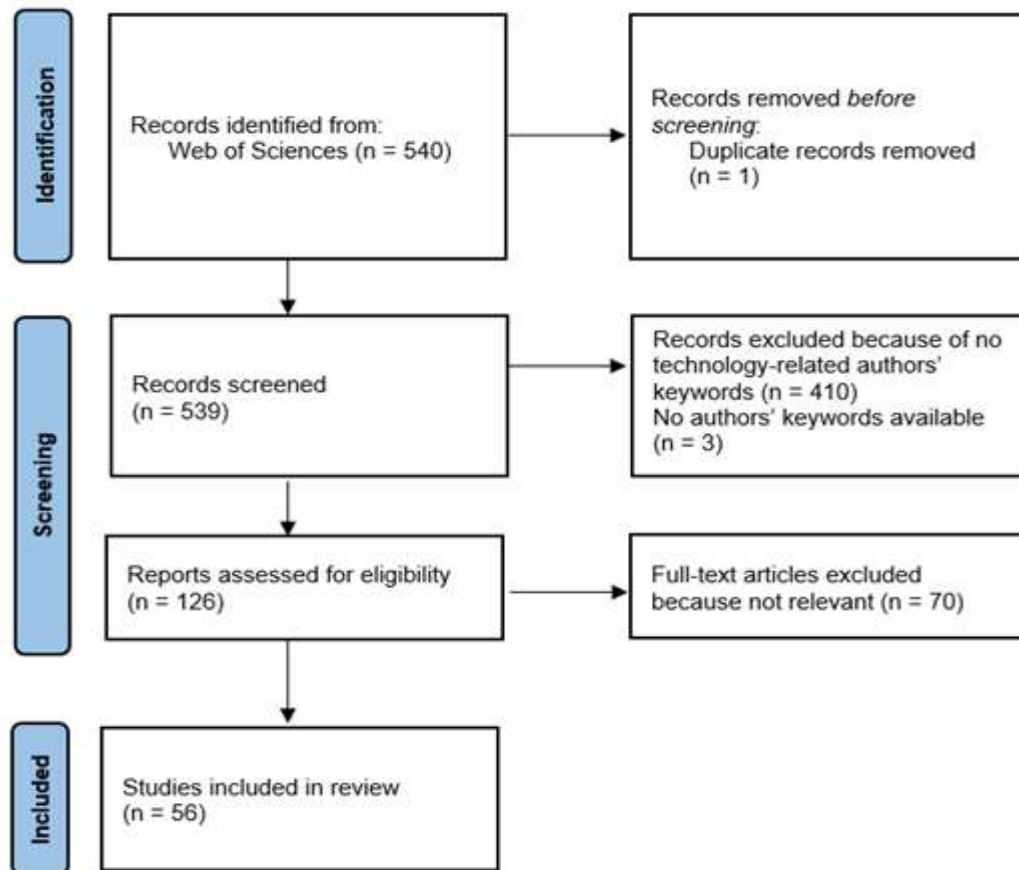
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Purpose of the paper. Based on a dataset from the Web of Science database for the period 1985-2022. To address the above gap, the paper aims to: (i) map the current state of technological innovation in the silver economy in business and management literature; (ii) discuss and trace the further research direction to turn silver into gold.

Methodology. We combined a systematic literature review and a quantitative bibliometric analysis. This approach is widely used in studies on knowledge management (Gaviria-Marin et al. 2019; Manesh et al. 2021), innovation (Klarin, 2019) (van Oorschot et al., 2018), and entrepreneurship (Rey-Martí et al. 2016). In particular, we used the package bibliometrix (Aria and Cuccurullo, 2017) in R-Studio to analyze the data, as it is specifically designed for this purpose.

Our first step was to conduct a query based on the mostly used terms in the field according to the PRISMA procedure (Moher et al., 2009) (Page et al., 2021). After reading several publications on the general topic and based on the authors' experience, we performed the following query on the Web of Science on January 28, 2022, using the operator "TS": "silver economy" OR "elderly economy" OR "longevity economy" OR "senior economy" OR "aging economy" OR "silver market" OR "elderly market" OR "longevity market" OR "aging market" OR "senior market" OR "silver society" OR "elderly society" OR "longevity society" OR "aging society" OR "senior society" OR "ageing economy" OR "ageing market" OR "ageing society" OR "population aging" OR "population ageing" OR "active aging" OR "active ageing" OR "healthy aging" OR "healthy ageing" OR "older people". We limited the search to articles and Proceedings written in English and belonging to the WoS categories Business and Management. We obtained 540 results. In the second step, we established the inclusion criteria to select the final list of articles to be included in our review (Correira et al. 2021; Moher et al., 2009) based on the specification of technology-related keywords. Then, four researchers conducted independent identification of relevant articles through the full-text analysis. Figure 1 shows the article flow according to the PRISMA method (Page et al., 2021).

Fig. 1: Flow diagram

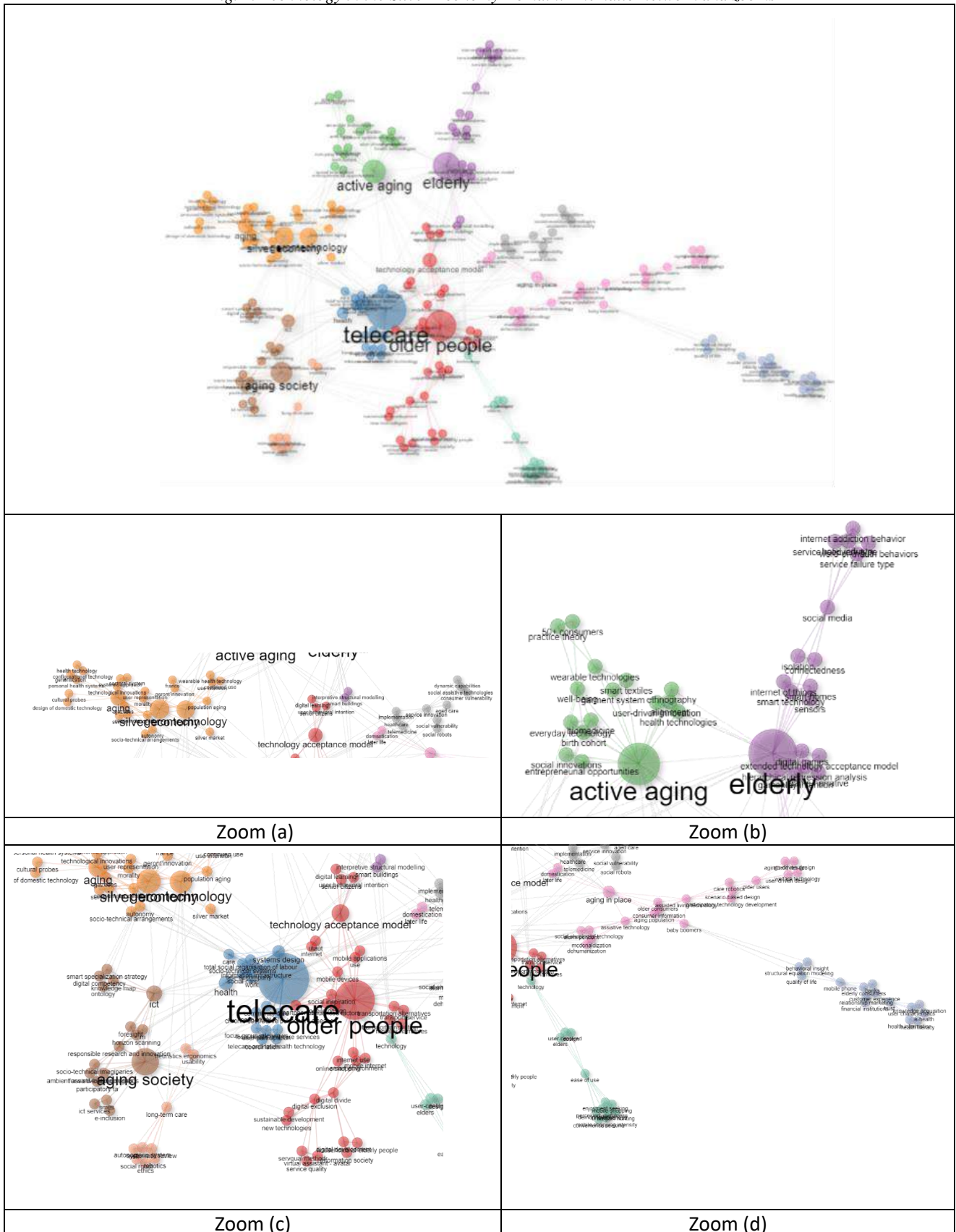


We examined the conceptual structure of the final dataset by analyzing the thematic or strategic maps (Cobo et al., 2011). In this method, a clustering algorithm is applied to the keyword network; each cluster in the thematic map corresponds to a topic (Aria and Cuccurullo, 2017). We selected the author's keywords to label the clusters. Since this method does not allow direct categorization of documents by topic, four researchers read the text independently and categorized the documents manually. Then, the researchers' categorizations were compared with the thematic map and thematic network to combine them.

Results. In this section, we present the conceptual structure of technology issues in the silver economy literature. Figure 2 illustrates the existence of several thematic groups (clusters), namely: Elderly and social media (purple); technology acceptance and use of mobile device (red); telecare implementation process (blue); silver economy and

gerontechnology (ocher); wearable technologies for active aging (green); ICTs for the development of the aging society (brown); assistive technologies for aging in place (pink); service innovation for aged care (grey); trust and senior online consumption (gray-blue); #human-machine interaction in long-term care (salmon); #senior-friendly mobile devices (turquoise).

Fig. 2: Technology in the Silver Economy Domain: Thematic Network and zooms



The identification of the above clusters allows us to map the current state of the business and management literature and identify potential links between research lines.

#Elderly and social media (purple), this cluster of studies relates to understanding the factors that influence older people's acceptance and intention to use smart technologies to ensure their independence and safety at home (Tirziu et al. 2020; Wong and Leung, 2016) or technologies in games to improve their mental and physical health (Wang and Xu, 2016) or social networking technologies and applications (e.g., Facebook) to avoid social isolation and stay in touch with family and friends (Matilainen et al., 2016). This group of studies has several connections with the technology acceptance and use of mobile device cluster (red).

#Technology acceptance and use of mobile device (red) reconceptualizes and integrates theoretical frameworks such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Macedo et al., 2013) to explore the relevant relationships between UTAUT, Internet use and acceptance, and positive effects on active aging (Macedo et al., 2013), and to investigate the acceptance and use of mobile devices and applications by older people from both technical and sociological perspectives (Klimova, 2019; Azzudin et al., 2018). This cluster is closely related to the group of studies on telecare.

#Telecare implementation process (blue). Contributions to this theme focus on the successful acceptance and use of telecare and, in contrast to the other approaches, on the relevance of the user-driven perspectives to make products and services more usable and acceptable because they accurately reflect the needs and capabilities of older people. For example, Bjørkquist et al. (2015) refer to the involvement of seniors and other potential users (health and care professionals, relatives of seniors, etc.) in the process of defining their needs and selecting appropriate telecare solutions to meet them.

#Silver economy and gerontechnology (ocher). The articles in this cluster are mainly related to the links between the promising silver market and the development of innovation. Here, innovation, including technology, is seen as a potential solution to the problems of aging and also as a driver of new market opportunities (Kohlbacher and Herstatt, 2011). The focus of this group of studies is heterogeneous and includes several research directions and theoretical approaches. Cukanova (2015) identifies digital consumption by seniors as the main stimulus for innovation and a prerequisite for the coming dynamization of businesses in the service sector (i.e., information technology services, online sales, transportation services, medical and nursing services and assistance, sports, culture and recreation, etc.). Laperche et al. (2019) examine the supply side of the silver market and assess the role of demographic aging on innovation development. More specifically, the authors go beyond the established concept of gerontechnology and introduce the concept of geront'innovation as a solution that combines multiple forms of innovation (i.e., product, process, organizational, and marketing innovations) that include but are not limited to technology. Similarly, Oget (2021) states that the most innovative part of this new market is its organizational and marketing innovations. Technological innovations are not a milestone for the silver economy and currently play only a minor role; rather, they reinforce and enable marketing and organizational innovations. Due to the complex nature of such innovations, both open innovation (Laperche et al., 2019) and networks (Laperche et al., 2019; Oget, 2021) are critical to their effective development. The science and technology studies (STS) approach is another relevant research direction that calls for a holistic interpretation of technology. The new role of technology as an obstacle or enabler of new practices and roles in seniors' lives thus replaces the traditional view of technology as an instrumental and passive object that only acquires meaning through the way people use it.

Some studies in this subset focus on the area of complex telecare systems (Leonardi et al., 2009; Gomez, 2015), while others focus on the assisted living environment as an enabler of autonomy and independent living for older people (Neven, 2015). Leonardi et al. (2009) broaden the focus from the needs of older people to the complex web of emotions and practices (daily routines) of independently living seniors as a basis for designing and developing acceptable and useful advanced home technologies. In the same vein, Gomez (2015) points to the ontological status of autonomy-enabled innovations for later life, asserting that such technologies must interact with the social and cultural context of older people and evolve accordingly to be concretely and meaningfully integrated into their lives. Against the backdrop of actor-network theory and other theories of user representation, Neven (2015) points to representations of users (i.e., people who want to live independently at home for as long as possible) as the basis for technology design and thus for further influence on use and practices, such that particular views of aging are "written into" the technology. This paper draws attention to the changes at the physical, virtual, and emotional levels that technologies bring to the home, focusing on two main effects. For example, on the one hand, technology enables greater and lasting autonomy for older people, especially at home; on the other hand, technology can undermine their emotional experience of being at home. The central positioning of the silver economy and gerontechnology cluster enables the connection between two other relevant study groups, namely ICTs for the development of the aging society and wearable technologies for active aging.

#ICTs for the development of the aging society (brown). Contributions in this cluster call for a participatory design for the integration of ICT to empower and improve the daily lives of older people (Bechtold et al. 2017), in line with the "e-Inclusion Strategy" developed by the European Union (Butt et al. 2021). This stream sees ICT as an enabler for achieving inclusion goals (De Paoli et al. 2010); (Bechtold et al. 2017). To this end, a more inclusive and holistic view of technology is needed (Bechtold et al. 2017) to better align technologies with the values, needs, and expectations of society as a whole and to inspire policy makers (Butt et al. 2021).

#Wearable technologies for active aging (green). Publications in this cluster view older people as an economic opportunity thanks to their longevity and vitality. Older people are not seen as a threat, but as a challenge that requires

rethinking the impact of aging on the economy and society as a whole (Barkovic and Erceg, 2017). In line with this approach, technology is becoming a tool to shape the lives of older people while promising improved quality of life and reduced public spending. These technologies support people who are aging but younger, more independent, and self-motivated (Lassen et al. 2015) to become true savvy tech operators (Loe, 2015). In summary, active aging technology is enabling older people to take responsibility for their own bodies rather than treating them as patients (Flick, 2020). This is also confirmed by the cluster's position on the map, which is quite isolated and on the opposite side of the cluster assistive technology for aging in place, which focuses on telecare.

#Assistive technology for aging in place. This cluster of topics relates to the use of and interaction with technology by older people at home. Some authors discuss the shortcomings and weaknesses associated with the adoption of ambient assistive technology, while others focus on solutions that enhance the use of technology as a means to support the independence of older adults.

#Service innovation for aged care. The studies included in this cluster focus on the implementation and delivery of health and social care innovations. Barlow et al. (2006) refer to telecare as a set of services (i.e., safety security and personal monitoring, and care-related information delivery) that bring care directly to the end user. From this perspective, it is important to achieve meaningful integration of telecare services into the overall care system based on the concept of resource integration and service ecosystem. Khaksar et al. (2016) explore how social robots (i.e., a new generation of assistive technologies) provide innovative services to reduce social vulnerability and improve the well-being of older people in elder care facilities. The authors refer to the social robot as a service innovator and catalyst for service innovation in elder care. It can provide new opportunities for personalization of services, improve social interaction and independence of older people, and enhance the quality of social services by supporting caregivers. From an organizational perspective, Khaksar et al. (2017) refer to service providers in elderly care and describe social robots as a means to transform and improve their existing business models, increase the quality of their services, and develop innovative service offerings. The authors state that service delivery through social assistive technologies supports the process of co-creation of value between service providers, caregivers, and people in need of assistance and improves well-being through transformative services (Ostrom et al., 2015).

#Human-Machine interaction in long-term care (salmon). The papers in this cluster identified a strong connection between the topic of telecare and long-term care. For example, Grzybowski et al. (2018) identify a model for assessing the benefits of smartphones for the elderly as a proxy for the benefits of mobile telecare, while Tan et al. (2021) identify technological risks and five ethical issues in the use of robotics and autonomous systems in long-term care.

#Trust and senior online consumption (gray-blue). Studies in this cluster demonstrate the relationship between trust among seniors and their willingness to use online services. The work relates to e-banking (Rajaobelina et al., 2020) and e-health services (Heldal et al., 2020). Rajaobelina et al. (2020) confirm the relationship between the cognitive, positive affective/sensory, negative affective, and social dimensions of the experience with mobile banking services and trust. In particular, for people over 65, the social dimension, which refers to the ability to interact with staff, is also relevant in the context of mobile services, especially when the complexity of the transaction increases and trust in the online service or in oneself decreases. Similarly, Heldal et al. (2020) found that lack of trust or skill affects seniors' eHealth literacy and thus their ability to recognize, understand, evaluate, and critically apply eHealth information to address the health problem. This is especially true when the symptoms or concerns are severe.

#Senior-friendly mobile devices (turquoise). This cluster includes two very specific studies on mobile device usability and online mobile shopping. The first, proposed by Iancu and Iancu (2020), provides a specific theoretical overview of the key features that should be built into mobile devices to meet the needs of older people. In particular, the authors argue that more user-friendly features are needed, both in terms of device design, menu, and applications, to improve the usability of mobile technology for older people. The second paper, by Hou and Elliott (2021), addresses how consumer demographic characteristics and motivations may influence mobile shopping intensity. In this context, the authors find that ease of use is among the most important drivers of online and mobile mobile shopping. These findings are consistent with the findings of the thematic analysis, which shows that the issues related to usability and mobile devices are niche and very specific topics.

In summary, the study that investigated the current state of technological innovation in the Silver Economy in the business and management literature aimed to determine the intellectual structure of the field in order to identify the main areas of interest and the evolution of the topic in recent years. In fact, our analysis revealed that there are several lines of research that indicate that the links between technology and the silver economy are a hot research topic. Among others, our study has revealed the existence of relevant and key thematic areas that are crucial for structuring a research field, such as telecare health, the use of social media by the elderly, or the development of assistive technologies. At the same time, our study highlights several fundamental issues related to gerontechnology, active aging, wearable technologies, and technology adoption. Interestingly, the analysis also highlights several emerging issues, such as service innovation for the implementation and delivery of health and social care innovations.

Further research should aim to transform the silver economy into a gold smart society. To achieve this, technological solutions must be socially motivated and specifically focused on improving social participation and social inclusion of silver in society. Therefore, it is important to explore technologies that drive and enable the social inclusion of silver people to promote both individual and community well-being.

Research limitations. The study is not free from limitations common to most qualitative studies of a similar nature. First, the study examines only proceedings and research articles published in journals, thus excluding the gray literature or books that might provide additional contributions to the topic. Second, although the sampling procedure relies on a wide range of keywords selected through a rigorous analysis of previous literature, the final selection might not be exhaustive and excludes a few residual research products. However, this does not affect the main objectives and results of the study. Third, the classification and discussion of the study directions identified by the systematic literature review are inevitably influenced by the researcher's bias. To mitigate this problem and increase the degree of objectivity, the discussion of the thematic groups and associated linkages results from the coordinated analysis of four researchers who independently examined the various identified study strands. These limitations may provide the basis for further research that adds to the debate and knowledge on this topic.

Managerial implications. The research topic appears relevant both to the theoretical development of the research field and in terms of practical implications for business managers, policymakers, institutional investors, and society as a whole. For business managers, the study provides comprehensive knowledge regarding the opportunities of technology for the silver market. In particular, the identification of key issue groups through the systematic literature enables companies to better understand how to respond to the social concerns of an increasingly relevant group of stakeholders and to take advantage of opportunities for technological innovation that better meet the demand for new products and services for older people. For policymakers interested in promoting the digital inclusion of vulnerable social groups, our paper provides an overview of the most pressing and prominent social issues facing seniors. For institutional investors (e.g., equity funds, pension funds) interested in incorporating socially responsible issues into capital allocation, the current study provides relevant information on the current and most important issues related to social and digital inclusion of the elderly.

Originality of the paper. This paper represents the first systematic literature review of the links between technology and the silver economy. Indeed, this strand of research is gaining increasing attention among business and management scholars due to the rapid and steady aging of the world's population and the growing importance of technology in modern society. The latter trend seems particularly timely in light of the recent Covid 19 pandemic crisis, which has further accelerated the digital transformation and increased the need for the use of technological tools. These contextual factors present new social challenges and opportunities for companies and business managers. In light of this, it seems highly relevant to conduct a comprehensive systematic literature review that highlights the current state of knowledge in technology and the silver economy and identifies potential lines for future research.

Keywords: technology; silver economy; innovation; older people; technological innovation, bibliometric analysis

References

- ARIA M., CUCCURULLO C. (2017), "Bibliometrix: An R-tool for comprehensive science mapping analysis", *Journal of Informetrics*, vol. 11, n. 4, pp. 959-975.
- AZUDDIN M., ABD MALIK S., ABDULLAH L.M. (2018), "The Influence Factors of Mobile Devices Adoption Among Older People", *International Journal of Information Technology Project Management (IJITPM)*, vol. 9, n. 3, pp. 20-33.
- BARLOW J., BAYER S., CURRY R. (2006), "Implementing complex innovations in fluid multi-stakeholder environments: experiences of 'telecare'", *Technovation*, vol. 26, n. 3, pp. 396-406.
- BECHTOLD U., CAPARI L., GUDOWSKY N. (2017), "Futures of ageing and technology-comparing different actors' prospective views", *Journal of Responsible Innovation*, vol. 4, n. 2, pp. 157-176.
- BJØRKQUIST C., RAMSDAL H., RAMSDAL K. (2015), "User participation and stakeholder involvement in health care innovation-does it matter?." *European Journal of Innovation Management*, vol. 18, n. 1, pp. 2-18.
- BOJANIĆ I.B., ERCEG A. (2017), "Silver economy: Demographic change and economic opportunity. Under the auspices of the President of the Republic of Croatia", *Interdisciplinary management research XIII*, pp. 1005-1020.
- COBO M., LÓPEZ-HERRERA A., HERRERA-VIDEIRA E., HERRERA F. (2011), "An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field", *Journal of Informetrics*, vol. 5, pp. 146-166.
- COMPAGNA D., KOHLBACHER F. (2015), "The limits of participatory technology development: The case of service robots in care facilities for older people", *Technological forecasting and social change*, vol. 93, pp. 19-31.
- CORREIRA LOUREIRO S., GUERREIRO J., TUSSYADIAH I. (2021), "Artificial intelligence in business: State of the art and future research agenda", *Journal of Business Research*, vol. 129, pp. 911-926.
- ČUKANOVÁ M. (2015), "Digital consumer in segment of seniors and their impact on dynamization of service enterprises", *Marketing Identity*, vol. 3, n. 1/2, pp. 26-34.

- COMPAGNA D., KOHLBACHER F. (2015), "The limits of participatory technology development: The case of service robots in care facilities for older people", *Technological forecasting and social change*, vol. 93, pp. 19-31.
- CORREIRA LOUREIRO S., GUERREIRO J., TUSSYADIAH I. (2021), "Artificial intelligence in business: State of the art and future research agenda", *Journal of Business Research*, vol. 129, pp. 911-926.
- ČUKANOVÁ M. (2015), "Digital consumer in segment of seniors and their impact on dynamization of service enterprises", *Marketing Identity*, vol. 3, n. 1/2, pp. 26-34.
- GAVIRIA-MARIN M., MERIGÓ J.M., BAIER-FUENTES H. (2019), "Knowledge management: A global examination based on bibliometric analysis", *Technological Forecasting and Social Change*, vol. 140, pp. 194-220.
- GÓMEZ D.L. (2015), "Little arrangements that matter. Rethinking autonomy-enabling innovations for later life", *Technological forecasting and social change*, vol. 93, pp. 91-101.
- GRZYBOWSKI W., MINKOWSKI A., OLSZEWSKI J. (2017, July), "Research Methods of Utility of Smartphones in Mobile Telecare", In *International Conference on Applied Human Factors and Ergonomics* (pp. 81-90). Springer, Cham.
- HELDAL I., BØRSHEIM I., FREDRIKSEN E.H., THERKILDSEN T. (2020, December), "Seniors in eHealth: Challenges for Knowledge Acquisition During Information Retrieval", In *ECKM 2020 21st European Conference on Knowledge Management* (p. 327). Academic Conferences International Limited.
- HOU J., ELLIOTT K. (2021), "Mobile shopping intensity: Consumer demographics and motivations", *Journal of Retailing and Consumer Services*, vol. 63.
- KHAKSAR S.M.S., KHOSLA R., CHU M.T., SHAHMEHR F.S. (2016), "Service innovation using social robot to reduce social vulnerability among older people in residential care facilities", *Technological Forecasting and Social Change*, vol. 113, pp. 438-453.
- KHAKSAR S.M.S., SHAHMEHR F.S., KHOSLA R., CHU M.T. (2017), "Dynamic capabilities in aged care service innovation: the role of social assistive technologies and consumer-directed care strategy", *Journal of services marketing*, vol. 31, n. 7, pp. 745-759.
- KLARIN A. (2019), "Mapping product and service innovation: A bibliometric analysis and a typology", *Technological Forecasting and Social Change*, vol. 149, 101067. <https://doi.org/10.1016/j.ribaf.2019.101067>.
- KLIMOVA B. (2018, October), "Acceptance and Use of Mobile Devices and Apps by Elderly People", In *Conference on e-Business, e-Services and e-Society* (pp. 30-36). Springer, Cham.
- KOHLBACHER F., HANG C.C. (2011), "Applying the disruptive innovation framework to the silver market", *Ageing international*, vol. 36, n. 1, pp. 82-101.
- KOHLBACHER F., HERSTATT C. (2011), "*The silver market phenomenon: Marketing and innovation in the aging society*" (pp. 279-294). Heidelberg: Springer.
- IANCU I., IANCU B. (2020), "Designing mobile technology for elderly. A theoretical overview", *Technological Forecasting and Social Change*, vol. 155, 119977. <https://doi.org/10.1016/j.techfore.2020.119977>.
- LAPERCHE B., BOUTILLIER S., DJELLAL F., INGHAM M., LIU Z., PICARD F., UZUNIDIS D. (2019), "Innovating for elderly people: the development of geront'innovations in the French silver economy", *Technology Analysis & Strategic Management*, vol. 31, n. 4, pp. 462-476.
- MACEDO I.M., PINHO J.C., LIAO M. (2013), "Investigating The Impact Of Internet Usage And Acceptance On Active Ageing Among Older Adults", 6TH Annual Euromed Conference of the Euromed Academy of business.
- MALONE M.S. (1995), "*The microprocessor: A biography*" (p. 133). Telos.
- MANESH M.F., PELLEGRINI M.M., MARZI G., DABIC M. (2020), "Knowledge management in the fourth industrial revolution: Mapping the literature and scoping future avenues", *IEEE Transactions on Engineering Management*, vol. 68, n. 1, pp. 289-300.
- MATILAINEN S., SCHWARTZ D.G., ZELEZNIKOW J. (2016, June), "Facebook and the elderly: the benefits of social media adoption for aged care facility residents", In *International Conference on Group Decision and Negotiation* (pp. 127-139). Springer, Cham.
- MOHER D., LIBERATI A., TETZLAFF J., ALTMAN D.G., PRISMA Group*. (2009), "Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement", *Annals of internal medicine*, vol. 151, n. 4, pp. 264-269.
- MORAN P., GHOSHAL S. (1996), "Bad for Practice: A critique of the Transaction Cost Theory", *Academy of Management Review*, vol. 21, n. 1, pp. 13-47.
- NEVEN L. (2015). By any means? Questioning the link between gerontechnological innovation and older people's wish to live at home. *Technological forecasting and social change*, n. 93, pp. 32-43.
- OGET Q. (2021), "When economic promises shape innovation and networks: A structural analysis of technological innovation in the silver economy", *Journal of Innovation Economics Management*, vol. 2, pp. 55-80.
- OSTROM A.L., PARASURAMAN A., BOWEN D.E., PATRÍCIO L., VOSS C.A. (2015), "Service research priorities in a rapidly changing context", *Journal of service research*, vol. 18, n. 2, pp. 127-159.
- PAGE M.J., MCKENZIE J.E., BOSSUYT P.M., BOUTRON I., HOFFMANN T.C., MULROW C.D., MOHER D. (2021), "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews", *International Journal of Surgery*, vol. 88, 105906, doi.org/10.1016/j.ijso.2021.105906.

- PRITCHARD G. W., BRITAIN K. (2015), "Alarm pendants and the technological shaping of older people's care: between (intentional) help and (irrational) nuisance", *Technological Forecasting and Social Change*, vol. 93, pp. 124-132.
- PWC (2019), "PwC's 22nd CEO Survey: Technology trends report 2019",
- RAJAABELINA L., BRUN I., LINE R., CLOUTIER-BILODEAU C. (2020), "Not all elderly are the same: fostering trust through mobile banking service experience", *International Journal of Bank Marketing*, vol. 39, n. 1, pp. 85-106
- REY-MARTÍA., RIBEIRO-SORIANO D., PALACIOS-MARQUÉS D. (2016), "A bibliometric analysis of social entrepreneurship", *Journal of Business Research*, vol. 69, n. 5, pp. 1651-1655.
- SMITH M.R., MARX L. (Eds.). (1994), "*Does technology drive history?: The dilemma of technological determinism*", Mit Press.
- TAN S.Y., TAEIHAGH A., TRIPATHI A. (2021), "Tensions and antagonistic interactions of risks and ethics of using robotics and autonomous systems in long-term care", *Technological Forecasting and Social Change*, vol. 167, 120686, doi.org/10.1016/j.techfore.2021.120686.
- TIRZIU E., TUDORA E., GHEORGHE-MOISII, M. (2020), "Healthy Ageing Supported By Smart Home Technologies", 35TH International Business Information Management Association Conference (IBIMA).
- VAN OORSCHOT J.A., HOFMAN E., HALMAN J.I. (2018), "A bibliometric review of the innovation adoption literature", *Technological Forecasting and Social Change*, vol. 134, pp. 1-21.
- WANG Q., SUN X. (2016), "Investigating gameplay intention of the elderly using an Extended Technology Acceptance Model (ETAM)", *Technological Forecasting and Social Change*, vol. 107, pp. 59-68.
- WONG J.K.W., LEUNG J.K. (2016), "Modelling factors influencing the adoption of smart-home technologies", *Facilities*, vol. 34 n. 13/14, pp. 906-923

Cultural institutions and digitalization: when the Third Sector bets on digital

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Framing of the research. *Digital transformation is not just about technology (Tabrizi et al., 2019): it indicates a combination of cultural, organisational, social, creative and managerial changes, associated with applications of digital technology, in all aspects of human society (Stolterman and Croon Fors, 2004). Digital transformation affects the entire architecture of the organisation; no longer just a symbol of innovation but a paradigm of transformation, including social transformation (Poggiani and Tedeschi, 2014). In this perspective, non-profit organisations represent a very fertile ground as a model of multistakeholder organizations that embrace public benefit purposes across the economic, social and/or environmental dimensions (Mato-Santiso et al., 2021). Despite these advantageous features, the digitalisation of non-profit organisations is still an under investigated research field. Indeed, existing studies on this topic (e.g., Wolf, 2020) point out that operators understand the importance of adapting their activities, the potential of technology and the relevance of digitisation for the Third Sector but the lack of skills and the use of digital technology without a strategic approach is an obstacle (SAGE, 2021) to the growth of these organisations.*

Since the Third Sector is composed of a multitude of entities that carry out very different activities (Defourny, 2013), it was chosen to focus this work exclusively on the cultural sector. According to the latest ISTAT census “Non-profit sector structure and profiles” on Italian non-profits (ISTAT, 2021), 63.3% of the bodies operating in the country carry out their main activity in the field of culture, sport and recreation. Making mention of the cultural sector, the framework this paper refers to is the one provided by David Throsby (2001) who explores the various meanings of the term “culture”. The definition is the most functional oriented: the term “culture” denotes certain activities that are undertaken by people, and the products of those activities, which have to do with intellectual, moral and artistic aspects of human life. In such usage, the word is more likely to occur as an adjective than as a noun, as in “cultural good”, “cultural institutions”, “cultural industries” or the “cultural sector of the economy”. Throsby developed the Concentric circles model of the cultural industries (Throsby, 2001) that became the basis for classifying the creative industries in Europe, providing a comprehensive model that allows to understand the “fabric” of the cultural context of a country and allows to establish whether an organisation can be classified as a cultural institution.

Despite the growing interest in digital transformation, further enhanced by the advent of the COVID-19 pandemic which forced all the organisations to rethink their business model (Sneider and Sternfels, 2020), there is a lack of theoretical contributions which study the digitalization process of non-profit organizations operating in the cultural sector. By acknowledging this gap, the present study aims to contribute to the body of knowledge on digital transformation, focusing non-profit cultural institutions, paying attention to the decision to make a change in a digital perspective, to the processes that are put in place and to the relationship with the human resources of the organization and the audience.

Purpose of the paper. *This paper aims to investigate the digitalisation process of non-profit organizations operating in the cultural sector. The focus is placed on the “Courtyard of the Gentiles”, a non-profit foundation committed to promoting arts and culture, both nationally and internationally, which is closely connected with the Pontifical Council for Culture. The organization has been opening up to digital for the past few years and for this reason it represents an exemplary case for this study. The findings uncover the reasons driving the decision to invest in digital in order to head toward a digital transformation and the changes that are being implemented and the future perspectives. From the theoretical perspective, the aim of this work is to make up for the lack of scholars contribution on digital transformation of non-profit organizations operating in the cultural sector; instead, as far as the operational aspects are concerned, the aim is to outline a roadmap to provide professionals with the first steps to take in order to embark on a path of change based on digital transformation.*

Methodology. *The research adopts qualitative, case study-based techniques and involves various levels of analysis (Yin, 1984). A single case has been chosen to fill the lack of studies on the digitalisation process of non-profit organizations operating in the cultural sector. The cultural institution chosen was the “Courtyard of the Gentiles” Foundation, a non-profit organization under the Italian law and based in Rome. Pursuing social solidarity aims, the “Courtyard of the Gentiles” is committed to promoting culture, in cooperation with universities, research institutes, art foundations and international organizations. The Foundation was set up to promote dialogue between believers and non-believers on the major issues and challenges facing contemporary society such as freedom, ethics, legality, the*

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environment, faith, art and new technologies. It carries out these tasks in cooperation with the Pontifical Council for Culture and its internal structures; indeed, the “Courtyard of the Gentiles” was born on the initiative of Cardinal Gianfranco Ravasi, as a department of the Vatican Dicastery over which he presided. Through events, meetings and opportunities for discussion, it is committed to creating and nurturing a constructive dialogue, involving men and women - from the worlds of academia, journalism, religion, politics and culture - in a space open to the pluralism of ideas. The Foundation proved to be an exemplar case to explore the need to revise the strategic orientation by adopting a long-term innovative vision. The case was selected for: (a) the willingness to undertake a path of change based on digital transformation; (b) the presence in the cultural sector, in which it operates through the Third Sector approach; (c) the media coverage of the initiatives promoted by the Foundation, and (d) the resonance that this organization already has on the territory, which can facilitate the reception of policy indications that will support future choices of public decision-makers.

The case analysis has been conducted through a multi-layered process; besides, the researcher is conducting field research at the “Courtyard of the Gentiles” Foundation, as part of the industrial Ph.D. programme. The researcher conducted two in-depth online interviews involving the Chairwoman of the “Courtyard of the Gentiles” Foundation (CC) and the Head of Marketing and Communication (GT). Each interview lasted around one hour. Questions dealt with the digitization process, obstacles and benefits of digital transformation and the expected and achieved results. The interviews were conducted on videoconferencing platforms and digitally recorded. For data analysis, field-notes and audio-recordings were transcribed verbatim. The content analysis of the collected data was carried out by the researcher. At the end of the transcription work, the researcher processed and interpreted the results obtained in order to identify a common line. The material was critically analyzed in order to provide managerial implications that might be useful to professionals in the same field.

Results. From the documentary analysis and from what has been learned from the interviews carried out during this survey, it clearly emerges that non-profit organizations, in particular those operating in the cultural sector, suffer from a serious delay in digitization and in digital transformation. This deficit is structural in the sector and, although it has been clear for some time to those working in the sector, the COVID-19 pandemic has highlighted the need for an acceleration in this direction. From the case study, it can be seen that the organization, having managed to take this opportunity to implement a digital transformation process - already active but in an embryonic phase - benefited from the results “we were prompted to accelerate our transformation process by the COVID-19 pandemic, which strongly impacted our ways of working and gave a positive boost” (GT). Awareness emerged from the interviews about the meaning of digital transformation, which is far from being a mere online transposition of what has been done offline rather than the “simple” use of technological tools: digital transformation “is a change of mentality and therefore approaching digital not only as a mere tool, but as a *modus operandi* involving all functions and all activities of the organization” (GT).

DEFICIT IN THE SECTOR - The sector deficit survey touched on several issues that affect the life of the organization in different ways. In both interviews the lack of adequate funds was mentioned, which also leads to difficulties in procuring these funds. Indeed, this is also confirmed in the literature (Dees et al., 2002) where it is found that for non-profit organizations is not enough creating value for a customer in order to identify the source of income (for-profit organizations); non-profit organizations must operate simultaneously on two different businesses, one linked to the activities they carry out in their own operating area, the other linked to the area in which they collect resources to finance these activities.

Furthermore, it was reported a certain resistance from the organization’s human resources (from the top management to the staff) to accept changes that impact on the way they work. This point is closely related to a topic that has been particularly stressed in an interview: the lack of training of human resources “the people involved in the life of the Foundation do not have sufficient knowledge of the tools and possibilities that digital can offer” (GT).

REASONS DRIVING THE DECISION - The privileged interviewees were asked what motivated their decision to invest in digital and thus to expose themselves to a process of change. In the first case, the desire to participate directly in the digital transformation in an active way and not to be subjected to it was reported: “It is clear that we will not be the protagonists of the digital transformation, as well as technology companies, but we could be in the context of the things we do [...] to be present, to develop new ideas, to go a little bit further in the context of the things that are proposed to us, maybe even do it with greater awareness” (CC). In the second case, the need emerged to broaden the target audience both in terms of age groups and in terms of cultural groups of the population: the motivation was therefore to reach a wider audience, the network audience, with a particular focus on young people who are more easily reachable on the net. In both cases, it is clear that one of the motivations was rather ‘survival instinct’, a compulsory choice driven by the advent of the COVID-19 pandemic; having found it impossible to carry out one’s activities in the traditional way, to go to one’s place of work, as always has been done, the possibility of relying on digital tools and systems became essential in order to guarantee the continuation of activities and to continue to exist.

PREVIOUS ACHIEVEMENT - In this study we considered significant to also investigate whether, from the point of view of the privileged respondents, steps had already been taken towards digitalization and, if so, to present them. Responses were positive, as both internal and external actions were reported, with satisfactory and “unexpected” (GT) results towards the latter. Internal processes included: electronic invoicing with digital data storage, the use of data sharing platforms and software for simultaneous working, (minimal) experimentation with home working, and the use of videoconferencing platforms for operational meetings and for the Board of Directors meetings.

As far as external communication is concerned, the actions presented were: transposition of some initiatives previously only in presence on digital platforms, massive investment in the search engine positioning of the website, SEO implementation and use of online advertising tools, production of targeted content, study and analysis of digital tools. From these results it is easy to understand the 'delay' in the reception of digital technology, even with reference to operational processes that are now widespread on a large scale. "These are all small changes, but in an extremely traditional environment they are decisive and the first step towards a digital evolution."(GT)

The main limits concern internal processes and therefore the whole architecture of the organization since, as will be shown in the next point, the greatest difficulties are not to be found in the introduction of a new technology but rather in its acceptance by human resources since this would entail the adoption of new working models up to the rethinking of the whole business model.

DIFFICULTIES EXPERIENCED - The organization under review, in the figures of the two privileged respondents involved for this survey, reported difficulties in the first implementation of a possible digital transformation. These difficulties are strongly linked to the lack of familiarity, knowledge and training of human resources towards the tools and possibilities directly related to the digital world. The interviews revealed that this issue is emphasized by the average age of the organization's employees, which makes them more hostile to innovation. In addition, there is a structural lack of funds and difficulty in finding them. Finally, it emerged a lack of intrinsic need to work with shared systems "The Foundation is small reality which is not helpful because the greater the number of people who need to stay in touch with each other and work in synergy, the greater the pressure to find tools that allow this" (GT).

FUTURE PERSPECTIVES FOR THE THIRD SECTOR - On this point, the answers of the interviews did not touch each other: on the one hand, fundraising was still mentioned, on the other hand, the solution was identified in a change of mentality. The perspective can be synthesized as follows: learning to use digital technology as a transversal working tool within the non-profit sector; Using digital tools and online presence to increase fundraising through new channels, innovative strategies and reaching a wider audience; working on the training of human resources operating in the sector but also "accustoming" the target audience. "It is always a two-way relationship: in order to be able to bring this kind of innovation outside, there must be a target audience ready to understand, to receive the language of digital". (GT) Significantly, the need to maintain an active space "in presence" also emerges, a need that is linked to the specificity of the field of action "We have to be very open to innovations, to know how to translate them into our business practices and maybe the challenge will be to maintain a core that must not be lost because we work in the field of culture, I can say the promotion of culture, [...] and culture has aspects that are material and those aspects must be preserved." (CC)

Therefore, given the delay in the digitization process compared to for-profit organizations and given the peculiarities of the sector, there is an urgent need to develop a strategy and a tailor-made approach to guide these entities through a transformative path that is sustainable in the long term and brings benefits both internally and to the community within which they are embedded.

Research limitations. The main limitation of this study is that only one case is being investigated. Sample size was chosen due to time constraints. It is certainly more appropriate to extend the sample of analysis in order to generalize the results to a larger population; this activity, indeed, is part of the next objectives of this research, which will involve at least 15 case studies based on digitalization to identify best practices and investigate the pathways through which these best practices can be scaled up and replicated in other contexts; in addition, a survey of at least 150 organisations operating in the Third Sector will be carried out in order to understand the awareness that operators have about the key mechanisms to achieve a successful BMI. The final aim is also to enrich the scientific literature and to provide managerial implications for professionals and policy advices to public decision-makers.

Managerial implications. All the major non-profit organizations in Italy (Forum Terzo Settore, Italia Non Profit, Tiresia, etc.) agree that the Third Sector has delayed too long in tackling the issue of digital technology and that organizations are struggling to find a systemic way to take advantage of the opportunities of digital transformation in a strategic way, functional to their mission. Therefore, this paper may be useful for managers who need to review their strategic orientation and who wish to undertake a path of change and development based on digital transformation that covers the entire business model and therefore extended to all activities and functions of the company. From what emerged from this work, the essential element, the first investment to be made, in order to start a significant process of digital transformation is the training of the personnel working with the organisation. Investment in "digital culture" must precede the adoption of software and technological tools. Training and coaching of staff can now be easily incorporated into the business by outsourcing this process with the support of ad hoc companies or consultants. Clearly, this point inevitably relates to the organisation's ability to make financial resources available or to launch a fundraising campaign in order to reach this goal. The alternative could be represented by the insertion of a specific figure within the team, with the role of trainer (this would then be continuous training and not a spot intervention) but this could have two different implications: the first one is the cost linked to the permanent insertion of a resource, the second one is the risk linked to a boomerang effect by the staff that could not welcome or recognise in the "new colleague" the authority needed to make the training intervention effective. With that point made, it is noted that, depending on the level of progress in the organization's digitization process, the first steps that can be taken relate to:

- the digitization of the documents;
- electronic invoicing with digital data storage;

- use of sharing platforms for document transmission (e.g. Google drive, Cisco Webex, Dropbox, etc.);
 - use of software to work simultaneously and remotely;
 - videoconferencing platforms for operational meetings;
 - calendar sharing.
- Once these internal activities have been implemented, the focus can shift to digital communication:
- creation of the website
 - writing ad hoc contents for digital spaces;
 - writing targeted contents for the audience of the net (e.g. young people, people from different countries, people with different cultural backgrounds, etc.);
 - eventual presence on social networks (Facebook, Instagram, Twitter, LinkedIn) according to the audience and the contents;
 - study and analysis of digital communication trends.

Originality of the paper. This paper highlights that a real transformation able to guarantee the sustainable, resilient and dynamic development of the Third Sector can only pass through the innovation of the business model based on a renewed strategic approach of the entities. From a theoretical point of view, the work contributes to the enrichment of the literature by representing a trait d'union between different concepts. Scholars, indeed, have explored these three theories - non-profit organisations, cultural institutions and digital transformation - individually or, at most, in pairs. Actually, as said, there is a lack of theoretical contributions which study the digitalization process of non-profit organizations operating in the cultural sector, and this is what this work aims to provide. From an operational point of view, this document is a first draft containing the initial steps that a small non-profit organisation can take to launch a digitalisation process.

Keywords: non-profit; cultural sector; cultural institutions; digitalization; digital transformation; business model

References

- DEES G. et al. (2012), "Reflections and insights on teaching social entrepreneurship: An interview with Greg Dees", *Enterprising nonprofits: A toolkit for social entrepreneurs*, vol. 186, pp. 442-452.
- DEFOURNAY J. (2013), "Third Sector", *Handbook on the Economics of Reciprocity and Social Enterprise*, Edward Elgar Publishing, Cheltenham – Northampton.
- ISTAT (2020), "Istituzioni non profit: struttura e profili del settore", <https://www.istat.it/it/archivio/262507>.
- MCKINSEY (2020), "From surviving to thriving: Business after coronavirus", <https://www.mckinsey.com/featured-insights/future-of-work/from-surviving-to-thriving-reimagining-the-post-covid-19-return>.
- MATO-SANTISO V. et al. (2021), "Managing Multi-Stakeholder Relationships in Nonprofit Organizations through Multiple Channels: A Systematic Review and Research Agenda for Enhancing Stakeholder Relationship Marketing", *Public Relations Review*, vol. 47, n. 4, p. 102074.
- SAGE INTACCT (2021), "Nonprofit Technology Trends Report 2021", <https://faas.bakertilly.com/nonprofit-technology-trends-report-2021>.
- POGGIANI A., TEDESCHI G. (2014), "La trasformazione digitale come matrice di crescita", *Accenture Looking Forward*, vol. 8, p. 4.
- STOLTERMAN E., CROON FORS A. (2004), "Information Technology and the Good Life", *Information Systems Research*, vol. 143, pagg. 687-92.
- TABRIZI B. et al. (2019), "Digital Transformation Is Not About Technology", *Harvard Business Review*, <https://hbr.org/2019/03/digital-transformation-is-not-about-technology>.
- THROSBY D. (2001), "Economics and culture", Cambridge University Press, Cambridge.
- WOLF M. (2020), "Digital Social Innovation: from efficiency to effectiveness in digitalization", <https://doi.org/10.5281/ZENODO.3824301>.
- YIN R.K. (1984), *Case study research: design and methods*, Sage Publications, London.

Websites

<https://faas.bakertilly.com>
<https://hbr.org>
<https://it.scribd.com/home>
<https://link.springer.com>
<https://uk.sagepub.com/en-gb/eur/home>
<https://zenodo.org>
<https://www.accenture.com/it-it>
<https://www.cambridge.org>
<https://www.elgaronline.com>

<https://www.istat.it/it/>

<https://www.mckinsey.com>

<https://www.sageintacct.com>

<https://www.sciencedirect.com>

<http://www.sinergiejournal.it>

<http://www.societamanagement.it>

The Foundation of Italian Startups Growth: Preliminary Evidence

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Framing of the research. *Startups play a crucial role in today economy as they are a source of innovation, technological development, job creation and, in turn, economic growth (Carree and Thurik, 2010). Although startups have suffered the Covid-19 crisis as most of the economic sectors, their role in innovating products and processes now appears to be even more relevant due to their ability to find smart solutions to complex problems (Giones et al., 2020). At the end of 2019, the startups economy was worth \$3 trillion globally (Herrmann et al., 2020) covering several economic sectors both in manufacturing and services, with most of the new ventures working in the field of technology management and IT. Europe accounts for 36% of the world startups, preceded by US with 45% (Baroudy, 2020). Within the European contest, Italy remains laggard rather than Germany or France where venture capital (VC) investments in startups overcome Italian investments by ten times (Sifted.eu, 2021), even if the number of new ventures is rapidly increasing showing a positive trend in the Italian startups' economy. In 2020, indeed, VC investments have increased by 55% in Italian startups with respect to 2019, for a total of €569 million (Ernst & Young & VC Hub Italia, 2021), and this trend will grow in the next years.*

Purpose of the paper. *Due to the increasing birth rate of such new ventures, several countries have started to regulate the startups with the aim of protecting them and foster the creation and growth of the startups ecosystems, as too many of them still fail (Patel, 2015). For this reason, our aim is to understand which factors influence startups growth. Given that previous literature has found that the antecedents of start-up growth lay in different levels of analysis (i.e., firm-level, investor-level, territorial-level) we try to measure the impact of these factors on the sales of Italian startups in order to understand what drive their growth in the Italian context.*

At territorial level, the context in which startups are embedded may act as a facilitator or an obstacle depending on the entrepreneurial vocation of the area, its bureaucracy and regulations, the quality of the infrastructures, public support and market conditions (Feldman, 2001). For example, Silicon Valley is considered as the best startups' ecosystem in the world according to Startup Genome (Herrmann et al., 2020), achieving excellence in training talents, funding new ventures, sharing knowledge, market reach, and startups performance. Its perfect conditions to support the growth of tech companies is shown by the fact that many tech giants, such as Google, Apple, Facebook, Netflix, eBay, and Adobe have grown and proliferated in the area. Although its expertise covers several different business areas, the environment of Silicon Valley is particularly favorable for tech companies as it is characterized by innovation, risk-taking, and collaborations. Similarly, the Italian district of the eyewear industry in the Veneto region is a well-established productive system that, besides supporting market incumbents, has favored the development of startups in the sector, such as Kering Eyewear that was funded in 2014 and thanks to embeddedness with the district has grown exponentially and today it partners with companies like Gucci and Cartier. These examples show that well-recognized and successful industrial districts give ventures the possibility to build strong relationships with an established productive system (partners, investors, suppliers, talents) that has built and kept its success over time, hence offering the best conditions for those startups to grow (Moran, 2005). Such successful agglomeration of knowledge and relationships can be thought as a "made in effect", which reflects the industrial tradition and history of a given area and appears to be beneficial to startups' growth and success.

At firm-level that human capital is a key driver for startups success. In the early stages, indeed, the startups' team is usually composed by few people and their characteristics can determine if and how startups are able to brilliantly overcome the embryonic, dynamic stage of life. Team members education (Pinelli et al., 2020), their experience (Muñoz-Bullon et al., 2015), gender or cultural diversity (Balachandran et al., 2019; Rocha and van Praag, 2020) influence the relationship among them, their ability to develop successful strategies, set an effective organization, overcome conflicts, and attract investors. For example, entrepreneurs who have already run companies are usually

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more successful in starting new ventures due to their expertise in managing conflicts or to eventual positive previous experience that may signal potential success to investors (Courtney et al., 2017). Other examples show that keeping cohesion in the management is vital for startups, as many of them fail following leadership transition (Wasserman, 2008). For these reasons, the understanding of what drives startups' performance can hardly be decoupled from team characteristics. Research has evidenced that experience, gender and cultural diversity are among the most important factors impacting work ties (Azoulay et al., 2017), strategic choices, decision-making (DeTienne, 2010) and, in turn, venture growth (Bamford et al., 2000; Mathias et al., 2015). Moreover, these factors are determinant as they "persist in a company well beyond the founding phase" (Mathias et al., 2015) and so they determine the success of a company. Given such path-dependence effect, it is fundamental to understand what can be the best possible team composition that may guarantee present and future success. Agree with this lens, we focus on the impact of such team characteristics on startups' success.

Finally, at investor-level startups need to attract funds from investors in the first phases of their life (Van Osnabrugge and Robinson, 2000). New ventures usually go through several stages of investments depending on the growth of the company (Picken, 2017). Typically, the first phase is called seed. In this stage, startups need to collect the number of resources necessary to develop the business idea, hence making it marketable. After that, other rounds of funds raising follow (so called round, round b, round c, and round d) that correspond to growing stages of the startups' maturity (Cavallo et al., 2019). Finally, the process ends with the exit (the startup is acquired by a larger firm) or with an initial public offering (IPO) through which the company enters the stock market (Nanda and Rhodes-Kropf, 2013). Along the different stages, startups may attract different kinds of investors, such as incubators, accelerators, VCs, CVCs, business angels. By funding startups, investors become partners, acquiring shares and thus enter the governance of young ventures. In turn, they influence startup choices, their innovation and growth strategies (Galloway et al., 2017). Investors may offer mere financial resources (e.g., business angels) or also knowledge and capabilities (e.g., VCs, accelerators) (Benson and Ziedonis, 2009), they may also differ in terms of the number of companies they finance and their portfolio strategies. While it is clear that these factors influence startups growth in terms of fundraising (Davila et al., 2003), it is less clear whether they also influence the startups' ability to increase sales. However, there are plenty of examples of startups that failed in increasing their sales, nonetheless they had received financing from investors (Nanda and Rhodes-Kropf, 2013). Previous studies have shown that VCs and private equity funds should find a balance in the number of startups to finance, as "increasing the number of firms in the portfolio dilutes the quantity and quality of managerial advice to each entrepreneurial venture" (Bernile et al., 2007). So, investors should avoid funding too many companies but rather they should carefully identify the ones with which they could build solid and fruitful relationship, thus guaranteeing highest likelihood of success (Narayanan & Lévesque, 2019). In line with this perspective, we assess the impact of portfolio size on startups success to understand the effectiveness of Italian startups' investors in balancing their portfolios.

Finally, we argue that a third aspect is worth of being investigated: startups board size. Extensive research has been conducted on the impact of board size on firm performance, finding both a positive relationship (Dalton et al., 1999) or a negative one (Guest, 2009) between the two. The managerial explanation behind the positive impact of board size on firm performance is that a higher number of members guarantees different perspectives in the board, and a high monitoring of independent members on dependent ones (Dalton et al., 1999). On the contrary, large board size may have negative impact on firm performance as they stiffen the organizational structure thus generating inefficiencies (Di Pietra et al., 2008). These opposite findings are associated with different cultural contexts and different firm characteristics. Board composition, indeed, varies a lot depending on the cultural and industrial context, and there is not a one-size-fits-all conclusion (Guest, 2009). Within startups, boards are mainly composed by founders and investors, whose interest may agree or collide, having a tremendous impact on new ventures success (Blagburn, 2016). However, this relationship has rarely been analyzed in Italy, where studies have found that board size has a negative impact on small companies' performance, while it has no impact in larger firms (Di Pietra et al., 2008). For these reasons, analyses are needed to investigate this relationship in Italian startups, where there has been a lack of investigation.

Methodology. The research is conducted in two steps. First, it snaps a picture of the startups' situation in Italy, observing their geographical and industrial distribution, and the average dimension. Second, we analyze the effect of the variables related to regional context, team characteristics and governance structure on startups' performance. At the moment of the data collection (February 2021), startups registered to the CCIAA were 12,050. We merged this dataset with the once provided by the database *Analisi Informatizzata delle Aziende Italiane (AIDA)* to include additional useful variables in the analysis. After this step, we ended up with a sample of 11,842 Italian startups founded between 2013 and 2020 and belonging to 75 different industries grouped into 18 categories, meaning that our dataset accounts for about the 98% of the firms registered in the Italian innovative startups official register. On average, Italian startups are still small, counting 1.5 directors/managers and providing job to 1.5 employees in 2019. Nevertheless, startups size grows in time, as this value is increasing with respect to 2018 (1.26) and 2017 (1.12). For example, the larger startup in 2017 had 65 employees, while in 2019 the number has grown to 246.

Variables

Table 1 shows the indicators selected to measure the constructs discussed in Section 2 and Section 3. Startup growth is the dependent variable (DV), measured by startups sales that indicates the ability of young ventures of growing in the

market. The other indicators in Table 1 are instead independent variables (IV), as we want to assess whether they influence or not startups sales.

We analyze the geographical belonging of startups to a given area of the country (North-West, North-East, Center, South of Italy) and whether they operate into sectors related to an established and traditional productive context that favor them, and whether this relation influence the startups' growth. To capture such relation, for each startup we assessed whether the industry to which they belong is classifiable as one belonging to Made in Italy. For example, we associated the textile industry to Made in Italy, while we did not include the software industry in it. In this way, we built a dummy variable that has value 1 if the company belongs to Made in Italy, and 0 if not.

Tab. 1: Variables selected for the analysis

Variable Type	Indicator	Description	Measure	Source
Startup growth	Sales	Performance	Euros	AIDA
Regional context	Made in Italy	Structural embeddedness to local network	Dummy (0-1)	Elaboration on CCIAA
	North-West	Belonging to North-West Italian regions	Dummy (0-1)	CCIAA
	North-East	Belonging to North-East Italian regions	Dummy (0-1)	CCIAA
	Center	Belonging to Center Italian regions	Dummy (0-1)	CCIAA
	South	Belonging to South Italian regions	Dummy (0-1)	CCIAA
Team characteristics	Share of female members	Gender diversity	Multi-categorical	CCIAA
	Share of foreign members	Cultural diversity	Multi-categorical	CCIAA
	Share of young members	Experience	Multi-categorical	CCIAA
Governance structure	Number of managers and directors	Board size	Number	AIDA
	Number of firms in corporate group	Portfolio size	Number	AIDA
	Financial shareholder	Presence of VC, PE, business angels among shareholders	Dummy (0-1)	Elaboration on AIDA

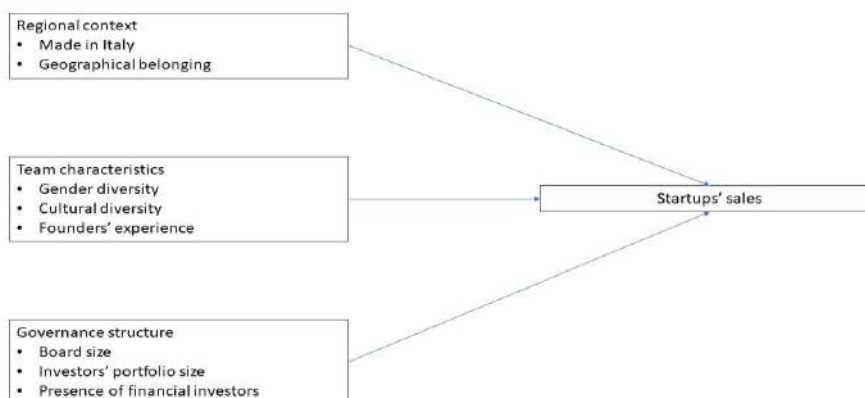
In order to capture gender and cultural diversity, we use respectively the share of female and foreign members in the team, while the share of young members measure the experience of the founder as we assume that older members are more experienced than their younger peers.

Except for startup growth, variables related to governance structures are the only one collected in the database AIDA. To assess the size of the board of directors we considered the number of professional managers and directors, while the number of firms within the same group measures the portfolio size of the investor, whether it is a VC, a CVC, an accelerator, or another kind of investor. Finally, the presence of a financial shareholder is measured by a dummy variable that indicates whether the startup is financed by a VC, a CVC, a private equity fund or a business angel.

Empirical Model

Besides, the mere description of the Italian startups' economy, our aim is to assess which factors drive Italian startups' growth, in terms of sales performance. To do that we implement an econometric model based on an OLS regression that allows to understand whether the impact of the variables related to regional context, team characteristics or governance structure on startups' performance is positive, negative, or not significant. Starting from the original database of 11,842 startups, we selected only some of them in the econometric analysis for two reasons. First, most of the startups were founded in 2020 and data about their sales are clearly not available. Second, many of the remaining startups still do not report any data since they still have to start selling their products being in the fundraising phase. At the end, a total number of 1,465 startups reported all the data on which our analysis is based. The conceptual model is represented in Figure 1.

Fig. 1: Conceptual model



Results. Table 2 shows the results of the regression analysis. Our analysis demonstrates that two variables per group have a significant impact on the startups' performance. In particular, the significant coefficients are the ones associated to the following variables: Made in Italy, belonging to Center Italy regions, gender diversity, founder experience, board size, and investor portfolio size. All these variables are associated with increasing results in startups sales, except for investor portfolio size. An explanation is needed for the regional variables "North-East", "Center", and "South", as they are studied compared to the baseline category "North-West". This means that, on average, startups located in the Center regions have registered better sales performance than startups located in the North-West regions, while there is no significant difference with startups located in the North-East and in the South of the country. Interestingly, we show that startups belonging to well-established industrial sectors associated to Made in Italy, perform better than the others on average. This means that working within traditional sectors still represent a good investment for young entrepreneurs, that can find support in an established network of relevant players that have built their success over the years. In addition, this result is encouraging for the traditional Italian industrial sectors as it shows that it is being able to innovate itself and that young ventures are able to give momentum for the future.

The gender diversity variable is also associated with higher performance, meaning that the higher the diversity of the team, the higher the sales of the startups. As far as founder experience is concerned, the negative coefficient should be interpreted positively, as it assumes lower values when founders are more experienced. Therefore, the experience of the team is another factor associated with better startups' performance. On the other side, we find no impact of cultural diversity on startups' performance.

Variables expressing governance structure also show interesting results. Board size is positively associated with startups' sales, while the presence of financial investors shows no significant relation. Finally, the investor portfolio size shows an inverted U-shape relationship. Indeed, while the linear parameter shows a significant and positive relation with sales, the quadratic parameter shows a significant and negative impact. This is an interesting result in line with literature according to which investors should avoid investing in too many ventures diluting managerial efforts spent for each startup (Bernile et al., 2007). Rather, they should find the right balance in terms of number of ventures in the group. The inverted U-shape relation between portfolio size and startups' sales, indeed, means that increasing the number of startups in portfolio generates positive outcomes for startups' performance until a point after which diluting investments into more and more startups generate negative outcomes due to a limited support that investors can give to each startup.

Tab. 2: Output of the OLS model. Sales is the dependent variable. * $p < 0,1$; ** $p < 0,05$; *** $p < 0,01$

Group	Variable	Coefficient
Regional context	Made in Italy	0.316***
	North East	0.084
	Center	0.329**
	South	0.143
Team characteristics	Gender diversity	0.094*
	Cultural diversity	0.113
	Founder experience	-0.166***
Governance structure	Board size	0.069*
	Investors portfolio size	0.016*
	(Investors portfolio size) ²	-0.010**
	Presence of financial investors	-0.109
Number of observations = 1,465		Prob > F = 0.000
		R ² = 0.024

Research limitations. The study is not exempt from limitations. First, given that this study is presented as an extended abstract, it represents first evidence that should be much more refined and developed both theoretically and empirically. We recognize that clear research question and hypotheses should be developed upon a clearly defined theoretical framework. In addition, further analysis could validate our results as a robustness check. Although this factors still represent strong limitations, we believe these first results leave space for promising research.

Managerial implications. The distribution of Italian startups is somehow homogeneous in the national macro-areas, except for the North-West regions that show a higher concentration (34% out of four macro-areas), due to the driving role of Milan, considered as the most innovative Italian city (2thinknow, 2021). In line with startups' innovative vocation, the 48% of such ventures (out of 11,842 startups under consideration) works in ICT-related contexts, while manufacturing represents the third group (16% after scientific and professional activities at 23%). Finally, 22% of the companies work in economic sectors related to Made in Italy. This data represents a relevant information giving an idea about the entrepreneurial process that characterizes the traditional Italian economic sectors.

In this sense, the study also aims at understanding which factors drive their growth in terms of sales performance. Focusing on a sample of 1,465 young ventures, our analysis shows that startups' performance is positively influenced by their belonging to Made in Italy sectors. In other words, entrepreneurs that found startups belonging to well-established traditional economic sectors are more likely to improve their performance relying on a network of relevant stakeholders that have built their success over time. Therefore, tradition, conceived as the "stock of knowledge, competencies, materials, manufacturing processes, signs, values and beliefs pertaining to the past" (De Massis et al., 2016), becomes an advantage for them, but startups still bring innovation to these economic activities.

Regarding team characteristics, we also find interesting results. Gender diversity is indeed associated with a better startups' performance. This result shows that teams composed by a balanced number of female and male members are able to facilitate working ties and decision-making, reducing tensions in the organization. These factors, in turn, drive startups to achieve better performance. As an extensive literature already showed (Cassar, 2014; Courtney et al., 2017), we also find that team experience is a fundamental driver of startups' performance, as more experienced co-founders are aware of possible problems and conflicts, have previously established fruitful relationship, and developed that know-how that boosts the startups' growth. In this sense, the fact that many startups fail is not necessarily to be intended as the failure of the whole startups' system. Rather, it signals that failure is part of the natural entrepreneurial process (Cassar, 2014).

Finally, our analysis has assessed the impact of governance factors on startups' performance. While results show that the presence of a financial shareholders (e.g., business angels, CVC) does not necessarily drive startups' performance - but it may drive its ability to raise funds - the board size is associated with increasing sales. An increasing number of board members, indeed, guarantees different perspectives, higher control, and a broader set of possible strategies aimed at improving the startup performance. In conclusion, we have analyzed the impact of the portfolio size of the startup investor on its performance. Due to conflicting results provided by previous literature (Dalton et al., 1999; Di Pietra et al., 2008), we tested for an inverted U-shape relationship. According to several scholars, indeed, investors should find the right number of ventures to invest, avoiding an exaggerated number of investments that may lead them to disperse efforts on too many different activities, hence losing attention on those activities that are relevant for them (Ocasio & Joseph, 2005). In line with this view, we find that startups' performance grows in increasingly larger portfolios until a point after which the investor is not anymore able to allocate the right amount of time, attention, and resources that increase the startup likelihood to improve their sales.

Originality of the paper. This paper aims to understand what drives Italian startups performance. It is an attempt to consider variables representing both internal and external contexts thus giving a complete overview of the phenomenon. In addition, we find the interesting result of an Inverted U-shape between investors portfolio size and startups' performance.

Keywords: startups; regional context; team founders characteristics; startups governance

References

- 2thinknow. (2021), Innovation City Index 2021.
- AZOULAY P., LIU C.C., STUART T.E. (2017), "Social influence given (Partially) deliberate matching: Career imprints in the creation of academic entrepreneurs", *American Journal of Sociology*, vol. 122, n. 4, pp. 1223-1271.
- BALACHANDRAN C., WENBERG K., UMAN T. (2019), "National culture diversity in new venture boards: The role of founders' relational demography", *Strategic Entrepreneurship Journal*, vol. 13, n. 3, pp. 410-434.
- BAMFORD C.E., DEAN T.J., MCDOUGALL P.P. (2000), "An examination of the impact of initial founding conditions and decisions upon the performance of new bank start-ups", *Journal of Business Venturing*, vol. 15, n. 3, pp. 253-277.
- BAROUDY K. (2020), "Europe's start-up ecosystem: Heating up, but still facing challenges", *McKinsey & Company*,: <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/europes-start-up-ecosystem-heating-up-but-still-facing-challenges>.
- BENSON D., ZIEDONIS R.H. (2009), "Corporate venture capital as a window on new technologies: Implications for the performance of corporate investors when acquiring startups", *Organization Science*, vol. 20, n. 2, pp. 329-351.
- BERNILE G., CUMMING D., LYANDRES E. (2007), "The size of venture capital and private equity fund portfolios", *Journal of Corporate Finance*, vol. 13, n. 4, pp. 564-590.
- BLAGBURN N. (2016), "Why startup board matter", *Technovation*, vol. 57, pp. 45-46.
- CARREE M.A., THURIK A.R. (2010), "The Impact of Entrepreneurship on Economic Growth", *Handbook of Entrepreneurship Research*, https://doi.org/10.1007/978-1-4419-1191-9_20.
- CASSAR, G. (2014), "Industry and startup experience on entrepreneur forecast performance in new firms", *Journal of Business Venturing*, Elsevier Inc., vol. 29, n. 1, pp. 137-151.
- CAVALLO A., GHEZZI A., DELL'ERA C., PELLIZZONI E. (2019), "Fostering digital entrepreneurship from startup to scaleup: The role of venture capital funds and angel groups", *Technological Forecasting and Social Change*, Elsevier, vol. 145, August 2018, pp. 24-35.
- COURTNEY C., DUTTA S., LI Y. (2017), "Resolving Information Asymmetry: Signaling, Endorsement, and Crowdfunding Success", *Entrepreneurship: Theory and Practice*, vol. 41, n. 2, pp. 265-290.
- CRESSY R. (1996), "Growth and Survival of Startup Businesses: Model and Tests on U. K. Data", *Small Business Economics*, vol. 8, n. 1, pp. 49-58.
- DALTON D.R., DAILY C.M., JOHNSON J.L., ELLSTRAND A.E. (1999), "Number of Directors and Financial Performance: A Meta-Analysis", *Academy of Management Journal*, vol. 42, n. 6, pp. 674-686.

- DAVILA A., FOSTER G., GUPTA M. (2003), "Venture capital financing and the growth of startup firms", *Journal of Business Venturing*, vol. 18, n. 6, pp. 689-708.
- DETIENNE D.R. (2010), "Entrepreneurial exit as a critical component of the entrepreneurial process: Theoretical development", *Journal of Business Venturing*, Elsevier Inc., vol. 25 N. 2, pp. 203-215.
- ERNST & YOUNG (2020), "L'impatto dell'emergenza Covid-19 sulle startup e sull'ecosistema dell'innovazione in Italia", https://www.ey.com/it_it/news/2020/07/l-impatto-dell-emergenza-covid-19-sulle-startup.
- ERNST & YOUNG (2021), *EY Venture Capital Barometer 2020 - Italia*.
- EUROPEAN COMMISSION (2019), Regional Competitiveness Index 2019, https://ec.europa.eu/regional_policy/en/information/maps/regional_competitiveness/.
- FARMBROUGH H. (2019), "New Report Identifies Key Characteristics Of Successful Startup Entrepreneurs", *Forbes.Com*.
- FELDMAN M.P. (2001), "The entrepreneurial event revisited: Firm formation in a regional context", *Industrial and Corporate Change*, vol. 10, n. 4, pp. 861-891.
- GALLOWAY T.L., MILLER D.R., SAHAYM A., ARTHURS J.D. (2017), "Exploring the innovation strategies of young firms: Corporate venture capital and venture capital impact on alliance innovation strategy", *Journal of Business Research*, Elsevier Inc., vol. 71, pp. 55-65.
- GIONES F., BREM A., POLLACK J.M., MICHAELIS T.L., KLYVER K., BRINCKMANN J. (2020), "Revising entrepreneurial action in response to exogenous shocks: Considering the COVID-19 pandemic", *Journal of Business Venturing Insights*, Elsevier Ltd, vol. 14, May, p. e00186.
- GUEST P.M. (2009), "The impact of board size on firm performance: Evidence from the UK", *European Journal of Finance*, vol. 15, n. 4, pp. 385-404.
- HERRMANN B., MARMER M., DOGRULTAN E., HALTSCHKE D. (2020), The Global Startup Ecosystem Report, <https://startupgenome.com/reports/gser2020>.
- HYYTINEN A., PAJARINEN M., ROUVINEN P. (2015), "Does innovativeness reduce startup survival rates?", *Journal of Business Venturing*, vol. 30, n. 4, pp. 564-581.
- KURPUWEIT S., WAGNER S.M. (2020), "Startup Supplier Programs: A New Model for Managing Corporate-Startup Partnerships", *California Management Review*, vol. 62, n. 3, pp. 64-85.
- DE MASSIS A., FRATTINI F., KOTLAR J., PETRUZZELLI A.M., WRIGHT M. (2016), "Innovation through tradition: Lessons from innovative family businesses and directions for future research", *Academy of Management Perspectives*, <https://doi.org/10.5465/amp.2015.0017>.
- MATHIAS B.D., WILLIAMS D.W., SMITH A.R. (2015), "Entrepreneurial inception: The role of imprinting in entrepreneurial action", *Journal of Business Venturing*, Elsevier B.V., vol. 30, n. 1, pp. 11-28.
- MORAN P. (2005), "Structural vs. relational embeddedness: Social capital and managerial performance", *Strategic Management Journal*, vol. 26, n. 12, pp. 1129-1151.
- MUÑOZ-BULLON F., SANCHEZ-BUENO M.J., VOS-SAZ A. (2015), "Startup team contributions and new firm creation: the role of founding team experience", *Entrepreneurship and Regional Development*, Taylor & Francis, vol. 27, pp. 80-105.
- NANDA R., RHODES-KROPF M. (2013), "Investment cycles and startup innovation", *Journal of Financial Economics*, vol. 110, n. 2, pp. 403-418.
- NARAYANAN M., LÉVESQUE M. (2019), "Distributing Start-Up Equity: A Theoretical Foundation for an Emerging Practice", *Journal of Small Business Management*, vol. 57, n. 3, pp. 1066-1085.
- OCASIO W., JOSEPH J. (2005), "An Attention-Based Theory of Strategy Formulation: Linking Micro- and Macroperspectives in Strategy Processes", *Strategy Processes*, vol. 22, n. 5, pp. 39-61.
- VAN OSNABRUGGE M., ROBINSON R.J. (2000), *Angel Investing: Matching Startup Funds with Startup Companies--The Guide for Entrepreneurs and Individual Investors*, edited by John Wiley & Sons.
- PATEL N. (2015), "90% Of Startups Fail: Here's What You Need To Know About The 10%", *Forbes*, January, <https://www.forbes.com/sites/neilpatel/2015/01/16/90-of-startups-will-fail-heres-what-you-need-to-know-about-the-10/#1fdafaf66792>.
- PICKEN J.C. (2017), "From startup to scalable enterprise: Laying the foundation", *Business Horizons*, "Kelley School of Business, Indiana University", vol. 60, n. 5, pp. 587-595.
- DI PIETRA R., GRAMBOVAS C.A., RAONIC I., RICCABONI A. (2008), "The effects of board size and 'busy' directors on the market value of Italian companies", *Journal of Management & Governance*, vol. 12, n. 1, pp. 73-91.
- PINELLI M., CAPPÀ F., FRANCO S., PERUFFO E., ORIANI R. (2020), "Too Much of Two Good Things: Effects of Founders' Educational Level and Heterogeneity on Start-Up Funds Raised", *IEEE Transactions on Engineering Management*, vol. In press <https://doi.org/10.1109/TEM.2020.2991607>.
- PURANAM P., SINGH H., ZOLLO M. (2003), "A bird in the hand or two in the bush? Integration trade-offs in technology-grafting acquisitions", *European Management Journal*, vol. 21, n. 2, pp. 179-184.
- ROCHA V., VAN PRAAG M. (2020), "Mind the gap: The role of gender in entrepreneurial career choice and social influence by founders", *Strategic Management Journal*, vol. 41, n. 5, pp. 841-866.
- SIFTED.EU. (2021), "The 28 Italian startups to watch, according to top VCs", <https://sifted.eu/articles/italy-startups-vc/>.

- WAGNER J., STERNBERG R. (2004), "Start-up activities, individual characteristics, and the regional milieu: Lessons for entrepreneurship support policies from German micro data", *Annals of Regional Science*, vol. 38, n. 2, pp. 219-240.
- WASSERMAN N. (2008), "The Founder 's Dilemma", *Harvard Business Review*, n. February, pp. 1-9.
- ZHAO Y.L., LIBAERS D., SONG M. (2015), "First product success: A mediated moderating model of resources, founding team startup experience, and product-positioning strategy", *Journal of Product Innovation Management*, vol. 32, n. 3, pp. 441-458.

Corporate social entrepreneurship and Open Innovation: evidences from ENI case

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Framing of the research. *The Covid-19 pandemics, like many disruptive global events, allows historical narratives in which three distinct periods are emerging: 1) life before COVID-19; 2) life during COVID-19; and 3) an emerging “new normal” life as we learn to live with COVID and its many new variants. This is the period that humanity is living in now and this period has strongly impacted the way companies operated, survived, and worked in the recent past and the way companies will operate, survive, and work soon.*

Luckily, many companies and entrepreneurs were able to survive during quarantines, social distancing, and institutional closures, starting or accelerating in some cases the way to do business. When such sudden and powerful forces occur, there will inevitably be survivors who can adapt to the change and there will be those who go extinct because of an inability to cope with the new world order. As a “new normal” begins to emerge from the chaos resulting from these forces, companies of differing sizes and across many industries are struggling to find ways to meet the changing needs of their target market constituents (Liñán et al., 2020; Doern et al., 2019).

For years, sustainability has become a priority increasingly playing a key role in the strategic choices of all actors, which look for economic, social, and environmental sustainability and shared value creation (Porter and Kramer, 2011) to preserve well-being for future generations. In this context the United Nations adopted the 2030 Agenda for Sustainable Development, since 2015, defining a set of goals, called the Sustainable Development Goals (SDGs).

In the resolution adopted by the General Assembly, it is stated that the UN “call[s] upon all businesses to apply their creativity and innovation to solving sustainable development challenges” (United Nations, General Assembly 2015, p. 29). Some authors sustain those sustainable challenges can represent business opportunities for social innovations and entrepreneurship can be an important enabler for sustainable development (Schmiedeknecht, 2020). At the same time, today social impact is an important part of corporate strategy to protect and create value (Mennel and Wong, 2015), and social approach is ever relevant in corporate strategy because society expects more and more that companies are socially responsible (Snider et al. 2003; Herrera, 2015). As highlighted by Sauser et al., (2018), companies can play a key role in the development and recovery of communities in crises, and during the Covid pandemic, business initiatives that have intertwined social purpose (e.g., Social Entrepreneurship) also have played an important role (Liñán et al., 2020).

Social innovations addressing social, economic, and environmental challenges are increasingly recognized as crucial drivers of social changes and today represent an important target for innovation and related policies on national and international levels, including the United Nations’ Sustainable Development Goals (SDGs) (Cuntz et al., 2020). Social entrepreneurs aim to explore market opportunities and to create new (innovative) sustainable solutions for economic, social, and/or environmental challenges and they are being seen as problem-solvers in the areas covered by the 17 SDGs (Schmiedeknecht, 2020). According to Antadze and Westley (2012), Social innovation has the potential to address complex social and environmental problems where conventional problem-solving frameworks have been ineffective. In this sense, forces, and disruptive events, like Covid-19, became an opportunity for the development of start-up and new companies and for the reorganization of established companies through corporate entrepreneurship initiatives aimed to solve sustainable development challenges (Li and Liu, 2014). At the same time, literature about social innovation goes beyond the context of organizations operating in the social fields. Some studies (Osburg, 2014; Mirvis et al., 2016) show that social innovation is becoming a central theme in corporate discussions regardless of the specific sector of activity.

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In this scenario also the social impact generated by large companies has evolved (Serafeim, 2014), and today the commitment of large corporations to generate social impact is growing in importance (Hewitt, 2020). The emergence from Covid-19 also highlighted the need to define in the western world, a new social contract that requires a social and ethical commitment, from large corporations (Ross, 2021; p.30).

Purpose of the paper. *In this work we focus on the topics of Corporate Social Entrepreneurship (Urbano et al., 2022) and Corporate Social Innovation, intended as an approach that solves social problems and creates value for the company (Hemingway, 2005; Miller et al.; 2008; Austin and Reficco, 2009).*

As highlighted by Austin and Reficco (2009), corporate social entrepreneurship (CSE) emerges from and builds on three other conceptual frameworks: entrepreneurship, corporate entrepreneurship, and social entrepreneurship. Through search for keywords on Scopus and Web of Science, it was emerged like today the literature about corporate social entrepreneurship and corporate social innovation is not getting much scholarly interest. While issues related to social innovation (in the business area) and social entrepreneurship are receiving more attention.

At the same time, some researchers highlighted the necessity to conduct new studies on future scenarios of corporate entrepreneurship (Urbano et al., 2022), and some scholars have already analyzed the relationship between Corporate Entrepreneurship and a new humane approach to entrepreneurship (Kim, 2022).

Building on the analysis of the literature about Corporate Entrepreneurship (Zahra et al., 1995; Dess et al., 2003; Narayanan et al., 2009; Phan et al., 2009; Bierwerth et al., 2015; Urbano et al., 2022), Corporate Social Entrepreneurship (Hemingway, 2005; Austin and Reficco, 2009) new entrepreneurship approaches like Human Entrepreneurship (Kim, K.C., 2016; Vesce, 2018; Parente et al., 2018; 2020) Social Entrepreneurship (Peredo and McLean, 2006; Swanson and Zhang, 2012; Huybrechts and Nicholls, 2012), Social Innovation (Nicholls et al., 2015; Martinez et al., 2017; Gasparin et al., 2020) and Corporate Social Innovation (Herrera, 2015; Mirvis et al., 2016; Vrontis et al., 2021), we would like to highlight the opportunity of Corporate Social Entrepreneurship in the “new world”, to make business and achieve the SDGs.

Open Innovation is a management approach used by large companies (Chesbrough, 2006). As highlighted by Liñán (2020), the relationship between open innovation and organizational change is having a great development in recent years. Today, some large companies are leveraging an approach to innovation that integrates open innovation and the development of employees’ business ideas (corporate entrepreneurship), based on the interrelation of a dual dimension, inbound, and outbound (Fernandes et al. 2019). Within large industrial companies, the open innovation model must include the commercialization of business ideas and opportunities identified by employees (Alsos et al. 2011). An important role in this direction, for large firms, is played for example by the development of business incubators (Alsos et al. 2011). Today, in practice many companies are adopting open innovation and corporate entrepreneurship approaches to implement sustainable strategy growth (see for example Youth in Action for Sustainable Development Goals), although in the literature, to our knowledge, not much attention has been paid to this phenomenon. This study postulates that social entrepreneurship in the “new normal” era is part of corporate entrepreneurship and, through an open innovation approach, corporate social entrepreneurship can become a fundamental way to do business for large companies. Based on these premises, the aim of the work is to analyze as the corporate social entrepreneurship can play a strategic role, in the sustainable growth of the firm, in line with SDGs. More specifically this study has the goal to analyze how established companies are promoting adherence to the SDGs through corporate entrepreneurship initiatives led by the open innovation approach.

Methodology. *The methodology research that will be applied is qualitative methodology, specifically a case study methodology (Yin, 1994, 2002). The study focuses on the Italian context and using a qualitative approach, we investigate how a company leader in the energy sector, is re-organizing activities and processes in promoting social entrepreneurship projects. More specifically the study investigates internal projects of social innovation promoted by the ENI and initiatives aimed to identify and support young startups with a social vocation. Given the recent development of this phenomenon, we chose to use the methodology of the Case Study, as it allows an in-depth exploration, from multiple perspectives, of the richness and complexity of the phenomenon of interest (Lichtman, 2014; Yin, 2018). To develop a data collection in this case study we draw on multiple methods of data collection including interviews, document review, observation, surveys, life history. This approach is to obtain a triangulation, critical in attempting to obtain an in-depth understanding of the phenomenon under study.*

To adopt this methodology, an initial analysis of the literature is deemed necessary, about the meaning, implications, and relationships between the concepts of Social Innovation, Social Corporate Innovation, Corporate Entrepreneurship, Social Corporate Entrepreneurship, new entrepreneurship approach, and Open Innovation. This analysis is necessary to frame the reference scenario in which to analyze the case identified.

With a turnover of 44 billion euros (2020), ENI is the second largest company in Italy. It operates within the energy sector, and due to the nature of its business, it is at the forefront of environmental issues. Eni is concretely committed to a “Socially Equitable Energy Transition, to preserve the planet and promote access to energy resources efficiently and sustainably for all” (ENI Report, 2020).

To develop better solutions in this direction, and to support the achievement of other social challenges, ENI has decided to launch the ENI-Joule program. ENI-Joule is the ENI group’s “school of entrepreneurship”, whose mission is to support the growth of sustainable businesses through two paths, Human Knowledge and Energizer. The two paths are dedicated respectively to the training of a new generation of entrepreneurs and the acceleration of startups, in blended mode, in presence and distance.

Through the analysis of the ENI-Joule case we want to analyze how through the development of an innovation strategy based on the integration of Corporate Entrepreneurship and Open Innovation (talents and startups), a corporate can pursue the realization of the SDGs and achieve at the same time social purpose and corporate purpose (Nien-he, et al. 2018). In a nutshell, the objective of this paper is to highlight how an approach to innovation, based on an intertwining of Corporate Entrepreneurship and Open Innovation, can evolve towards the generation of social impact.

Results. This paper contributes to understanding the role of big companies in the accomplishment of SDGs and from a theoretical point of view contribute to providing insight into the integration of the existing theories and practices of corporate entrepreneurship, social entrepreneurship, innovation, and social innovation to demonstrate that a combination of these two concepts can be useful for fostering organizational success and value of big enterprises

The study has made it possible to identify like the social approach of corporate entrepreneurship can support the business development and achievement of SDGs. The paper has both theoretical and practical implications. From a theoretical point of view, the paper contributes to corporate entrepreneurship, especially on corporate social entrepreneurship, and research showing the role of open innovation as an approach to support corporate social entrepreneurship. From a practical point of view through the use of a case method, the paper provides evidence about good practice and about the strategic role of corporate social entrepreneurship, to make an innovative business in “new world” by a large company. Our goal is to contribute to the development of the literature on corporate entrepreneurship and social impact, filling a gap currently present in the literature. The possible result of this work also wants to have a practical implication, highlighting how through strategies of corporate social entrepreneurship based on open innovation approach, a large company can support the firm performances and the achievement of SDGs.

Research limitations. The research is based on the analysis of a single case study. The case is limited to Italian firm only. The social dynamics and the role of corporate entrepreneurship in the entrepreneurial arena are strongly influenced by the institutional system in which the firm operates.

Managerial implications. Paper has both theoretical and practical implications. From a theoretical point of view, the paper contributes to corporate entrepreneurship, especially on corporate social entrepreneurship, and research showing the role of open innovation as an approach to support corporate social entrepreneurship. From a practical point of view through the use of a case method, the paper provides evidence about good practice and about the strategic role of corporate social entrepreneurship, to make an innovative business in “new world” by a large company.

Originality of the paper. We think that is important to consider the role of social entrepreneurship in the large corporate context. In the literature, much attention is given to social entrepreneurship, at the same time we believe it is important to explore deeply the phenomenon in the corporate context. In our opinion, corporate social entrepreneurship can play a key role in corporate success and the achievement of sustainable development goals.

Keywords: Corporate entrepreneurship; Corporate social entrepreneurship; Social entrepreneurship; open innovation; social impact; sustainable development goals.

References

- ALSOS G.A., HYTTI U., LJUNGGREN E. (2011), “Stakeholder theory approach to technology incubators”, *International Journal of Entrepreneurial Behavior & Research*, vol. 17, n. 6, pp. 607-625.
- ANTADZE N., WESTLEY F., (2012), “Impact Metrics for Social Innovation: Barriers or Bridges to Radical Change?”, *Journal of Social Entrepreneurship*, vol. 3, n. 2, pp. 133-150.
- AUSTIN J.E., REFICCO E.A., (2009), “Corporate Social Entrepreneurship”, *Oekologisches Wirtschaften*, vol. 2.
- BIERWERTH M., SCHWENS C., ISIDOR R., KABST, R. (2015), “Corporate entrepreneurship and performance: A metaanalysis”, *Small Business Economics*, vol. 45, n. 2, pp. 255-278.
- CHESBROUGH H., CROWTHER A.K., (2006), “Beyond high tech: Early adopters of open innovation in other industries”, *R&D Management*, vol. 36, n. 3, pp. 229-236.
- CUNTZ A., FORAY D., MOSTOVOVA E., (2020), “On the economics of social innovation: a conceptual framework and its policy implications”, *Innovation organization & management*, n. 22, pp. 469-487.
- DESS G., IRELAND R., ZAHRA S., JANNEY J., FLOYD S. (2003), “Emerging Issues in Corporate Entrepreneurship”, *Journal of Management*, vol. 29, n. 3, pp. 351-378.
- DOERN R. (2019), “Special issue on entrepreneurship and crises: business as usual? An introduction and review of the literature”, *Entrepreneurship & Regional Development*, vol. 31, n. 5, pp. 400-412.
- ENI REPORT (2020), “Eni for 2020. Neutralità carbonica al 2050”. <https://www.eni.com/assets/documents/ita/sostenibilita/2020/Eni-for-2020-neutralita-carbonica-al-2050.pdf>
- FINI R., GRIMALDI R., MARZOCCHI G.L., SOBRERO M. (2012), “The Determinants of Corporate Entrepreneurial Intention Within Small and Newly Established Firms”, *Theory and Practice*, vol. 36, n. 2, pp. 387-414.
- FERNANDES C., FERREIRA J.J., PERIS-ORTIZ M. (2019), “Open innovation: past, present and future trends”, *Journal of Organizational Change Management*, vol. 32, n. 5, pp. 578-602.
- GASPARIN M., GREEN W., LILLEY S., QUINN M., SAREN M., SCHINCKUS C. (2020), “Business as unusual: A business model for social innovation”, *Journal of Business Research*, vol. 125, n. 6.

- HEMINGWAY C.A., (2005), "Personal Values as A Catalyst for Corporate Social Entrepreneurship", *Journal of Business Ethics*, vol. 60, pp. 233-249.
- HEWITT A. (2020), "Four Ways Corporations Can Achieve Authentic Social Impact", *Stanford Social Innovation Review*, 2020.
- HERRERA M.E.B. (2015), "Creating competitive advantage by institutionalizing corporate social innovation", *Journal of Business Research*, vol. 68, pp. 1468-1474.
- HOWALDT J., DOMANSKI D., KALETKA C. (2016), "Social Innovation: Towards a new innovation paradigm", *RAM. Revista de Administração Mackenzie*, vol. 17, n. 6, pp. 20-44.
- HUYBRECHTS B., NICHOLLS A., (2012), "Social Entrepreneurship: Definitions, Drivers and Challenges" In: VOLKMANN C., TORKASKI K., ERNST K. (eds) *Social Entrepreneurship and Social Business*.
- KELLERMANN F.W., EDDLESTON K.A. (2006), "Corporate Entrepreneurship in Family Firms: A Family Perspective", *Entrepreneurship, Theory and Practice*, vol. 30, n. 6, pp. 809-830.
- KIM K.C., (2016), "White book. Humane Entrepreneurship", Available at: https://docs.wixstatic.com/ugd/cc1725_c642180108094a59b1c53bb81a8b6d2b.pdf.
- LI D., LIU J., (2014), "Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China", *Journal of Business Research*, vol. 67, n. 1, pp. 2793-2799.
- LICHTMAN M., (2014), *Qualitative research for the social sciences*. Thousand Oaks, CA: Sage.
- LINAN F., JAEN I., (2020), "The Covid-19 pandemic and entrepreneurship: some reflections", *International Journal of Emerging Markets*, vol. 10.
- MARTINEZ F., O'SULLIVAN P., SMITH M., ESPOSITO M. (2017), "Perspectives on the role of business in social innovation", *Journal of Management Development*, vol. 36, n. 5.
- MCKELVIE A., MCKENNY A.F., LUMPKIN G.T., SHORT J.C. (2014), "Corporate Entrepreneurship in Family Businesses: Past Contributions and Future Opportunities", in Melin L., Nordqvist M., Sharma P. (Eds.), *The SAGE Handbook of Family Business*, Sage, Los Angeles, CA.
- MILLER D.T., PHILLIS Jr., DEIGLMEIER K. (2008), "Rediscovering Social Innovation", *Stanford Social Innovation Review*, vol. 6, n. 4, pp. 34-43.
- MIRVIS P., HERRERA M. E. B., GOOGINS B., ALBAREDA L. (2016), "Corporate social innovation: How firms learn to innovate for the greater good", *Journal of Business Research*, vol. 69, n. 11, pp. 5014-5021.
- MENNEL J., WONG N. (2015), *Driving corporate growth through social Impact. Four corporate archetypes to maximize your social impact*, Deloitte. <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/strategy/us-strategy-operations-social-impact-corporate-archetypes.pdf>
- NARAYANN V., YANG Y., ZAHRA S. (2009), "Corporate venturing and value creation: A review and proposed framework", *Research Policy*, vol. 38, n. 1, pp- 58-76.
- NICHOLLS A., SIMON J., GABRIEL M. (2015), "Introduction: Dimensions of Social Innovation", In: Nicholls A., Simon J., Gabriel M. (eds) *New Frontiers in Social Innovation Research*, Palgrave Macmillan, London.
- NIEN-HE H., MEYER M., RODIN D., VAN'T KLOOSTER J. (2018), "The Social Purpose of Corporations", *Journal of the British Academy*, vol. 6, n. 1, pp. 49-73.
- OSBURG T. (2014), "Sustainable Entrepreneurship: A Driver for Social Innovation", In Weidinger C., Fischer F., SCHMIDPETER R., (Eds.), *Sustainable Entrepreneurship. Business success through sustainability*, Heidelberg: Springer-Verlag, Berlin.
- PARENTE R., ELTARABISHY A., VESCI M., BOTTI A. (2018), "The epistemology of humane entrepreneurship: Theory and proposal for future research agenda", *Journal of Small Business Management*, vol. 56, n. 3.
- PARENTE R., EL TARABISHY A., BOTTI A., VESCI M., FEOLA R. (2020), "Humane entrepreneurship: Some steps in the development of a measurement scale", *Journal of Small Business Management*, vol. 59, n. 7.
- PEREDO A.M., MCLEAN M. (2006), "Social entrepreneurship: A critical review of the concept", *Journal of World Business*, vol. 41, pp. 56-65.
- PERIS-ORTIZ M., LINAN F. (2019), "Organizational change in open innovation (OI)", *Journal of Organizational Change Management*, vol. 32, n. 5, pp. 493-495.
- PHAN P., UCBASARAN D., TAN W. (2009), "Corporate Entrepreneurship: Current Research and Future Directions", *Journal of Business Venturing*, vol. 24, n. 3, pp. 197-205.
- PORTER M.E., KRAMER M.R. (2011), "The Big Idea: Creating Shared Value", *Harvard Business Review*, vol. 89, pp. 2-17.
- ROSS A. (2021), *The Raging 2020s: Companies, Countries, People - and the Fight for Our Future*, Henry Holt and Co., New York.
- SAUSER B., BALDWIN C., POURREZA S., RANDALL W., NOWICKI D. (2018), "Resilience of small- and medium-sized enterprises as a correlation to community impact: an agent-based modeling approach", *Natural Hazards*, vol. 90, n. 1, pp. 79-99.
- SCHMIEDEKNECHT M.H. (2020), "Social Innovation and Entrepreneurship Supporting the Sustainable Development Goals (SDGs)-Fostering Social Value Creation", In: IDOWU S., SCHMIDPETER R., ZU L. (eds) *The Future of the UN Sustainable Development Goals. CSR, Sustainability, Ethics & Governance*. Springer, Cham.

- SCUOTTO V., LE LOARNE LEMAIRE S., MAGNI D., MAALAOUI A. (2022), “E xtending knowledge-based view: Future trends of corporate social entrepreneurship to fight the gig economy challenges”, *Journal of Business Research*, vol. 139, pp. 1111-1122.
- SERAFEIM G. (2014), “The Role of the Corporation in Society: An Alternative View and Opportunities for Future Research”. *Harvard Business School Working Paper*, vol. 14, n. 110.
- SNIDER J., HILL R.P., MARTIN D. (2003), “Corporate social responsibility in the 21st century: A view from the world’s most successful firms”, *Journal of Business Ethics*, vol. 48, n. 2, pp. 175-187.
- SWANSON L.A., ZHANG D.D., (2012), “Social Entrepreneurship” in Burger-Helmchen T. (ed.), *Entrepreneurship - Gender, Geographies and Social Context*, IntechOpen, London.
- UNITED NATIONS, (2015), *Transforming Our World: The 2030 Agenda for Sustainable Development*, United Nations, (A/70/L.1).
- URBANO D., TURRO A., WRIGHT M. (2022), “Corporate entrepreneurship: a systematic literature review and future research agenda”, *Small Business Economy*, Article in Press.
- VESCI M. (2018), *Imprenditorialità strategica. Una nuova prospettiva*, Giappichelli, Torino.
- VOLERY T., MAZZAROL T., (2015), “The evolution of the small business and entrepreneurship field: A bibliometric investigation of articles published in the International”, *Small Business Journal. International Small Business Journal*, vol. 33, n.4, pp. 374-396.
- VRONTIS D., MOREA D., BASILE G. BONACCI I., MAZZITELLI A. (2021), “Consequences of technology and social innovation on traditional business model”, *Technological Forecasting and Social Change*, vol. 170, n. 120877.
- YIN R.K. (1994), *Case Study Research: Design and Methods, 2nd Ed., Applied Social Research Methods Series*, Sage Publications, Inc., Thousand Oaks, California, USA.
- YIN R.K. (2002), *Case Study Research: Design and Methods, 3rd Ed., Applied Social Research Methods Series*, Sage.
- YIN R.K. (2018), *Case study research and applications: Design and methods (6th ed.)*, Thousand Oaks, CA: Sage.
- ZAHRA S.A., (1995), “Corporate entrepreneurship and financial performance: The case of management leveraged buyouts”, *Journal of Business Venturing*, vol. 10, n. 3, pp. 225-247.
- ZAHRA S.A., NEUBAUM D.O., HUSE M. (2000), “Entrepreneurship in medium-size companies: Exploring the effects of ownership and governance systems”, *Journal of Management*, vol. 26, n. 5, pp. 947-976.

Websites

<https://www2.deloitte.com>
<https://www.eni.com>
<https://idea360.com/>
<https://open.joule.eni.com/>
<http://www.sinergiejournal.it>
<https://ssir.org/>
<https://www.who.int/>
<https://youthinactionforsdgs.idea360.com/>

When resilience relies on an heterogeneity of entrepreneurial decision-making profiles: Innovative Start-ups in Emilia Romagna.

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Framing of the research. *In the current debate on entrepreneurship and resilience, scholars underline that companies need to be able to quickly react to shocks, especially when market is unpredictable. Companies can face several challenges opening opportunities for new positions and new business models, but these challenges can turn to risks as well. In such a context, resilience plays an important role in the definition of the entrepreneurial success (Hayward et al., 2010).*

Managerial and economic literature offers different definition of resilience and makes clear the variety of disciplines dealing with this concept (Martin and Sunley, 2015). A recent literature review on resilience has underlined the multidimensional meaning of the concept (Ramezani and Camarinha-Matos, 2020).

Resilience can be the capability of a company to recover from shocks. In this regard, the ability of entrepreneurs to understand the needs of their business and searching for new opportunities, i.e., preparedness, play a central role (Rapaccini et al., 2020). In defining and exploiting new economic opportunities, entrepreneurial decision-making has an important role (Shepherd et al., 2015). Decision-making is a complex process for entrepreneurs, and this process follows the decision maker's needs and expectations and even the decision maker's perception of a situation. Entrepreneurial decision - making thus describes how personal characteristics, emotions, and experiences (positive and negative) influence entrepreneurs' decision. Therefore, it is important to assess the factors that influence the process of opportunity evaluation and how it can be affected since it is highly subjective.

According to Forlani and Mullins (2000), risks are represented by uncertain outcomes and potential losses caused by specific behaviors or actions. The variability of the potential loss, its significance, and the degree of its uncertainty can influence the entrepreneurial risk perception. In facing radical changes and shocks, innovative entrepreneurs have to deal with new and uncertain situations. To grasp opportunities is an intentional act asking for awareness in opportunities that might determine them desirable and feasible (Krueger, 2000). We expect therefore to find entrepreneurs with a low level of risk perception (Expectation 1) and high level of opportunity evaluation (Expectation 2) recovering from shocks.

Resilience can be defined as the capability of a firm to maintain a desirable state. Despite, the entrepreneurs try to be rational as much as possible, the capability to strategically act in order to maintain the business on a desirable state relates to the entrepreneurs' personality affecting their decisions. Specifically, individual characteristics that might have a positive influence on innovative start-ups' activities as the locus of control and self-efficacy. Locus of control is defined as the individuals' conviction that the results of their actions are under or beyond their control (Schjoedt and Shaver, 2012). Therefore, they can be internal, coming from their behavior or individual characteristics, or they can be external and unpredictable, coming from fate (Rotter 1966 cited in Schjoedt and Shaver, 2012). Locus of control is unidimensional, and it is related to the principle of reinforcement (Shaver, 2004). Individuals are more willing to repeat behaviors that have gratified them previously. Moreover, due to the uncertainty of start-up's activities, we can expect entrepreneurs with a higher conviction in personal efficacy, thus high locus of control, who decide to face such a challenging situation (Expectation 3), that would either increase during a crisis like this one (Kroeck et al., 2020). Another individual characteristic that influences entrepreneurial choices is self-efficacy. Even if the two concepts seem similar, self-efficacy differs from the previous one because it is related to feasible levels of performance, instead, locus of control is related to obtaining results in addition to performance levels (Cassar and Friedman, 2009). Self-efficacy influence people's effort since it is linked to expectations, goals and motivation.

Entrepreneurial self-efficacy (ESE) defines the confidence of a person in accomplishing tasks (Cassar and Friedman, 2009). People with high self-efficacy perform better in that specific tasks since it is related to more concentration in performing the tasks (Forbes, 2005). Moreover, they are more willing to face challenging problems and they are less intimidated by obstacles or complications (Forbes, 2005). Tasks can be various, general, or specific,

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but in our research, the focus is on the entrepreneurial one. Specifically, the role of ESE in entrepreneurial investment in new ventures. Therefore, we would expect that self-efficacy is the necessary condition for resilience (Expectation 4).

Resilience is defined as well as the capability of a company to show adaptation capabilities. Adaptation refers to the ability of a system to deviate from the original path and reroute the whole structure (Linnenluecke, 2017). Following Hmieleski & Baron (2008), entrepreneurs who can learn and adapt to change are the ones characterised by a creation perspective. The authors show that there are two main perspectives related to opportunity exploitation allowing entrepreneurs to adapt to changes. The first one is the discovery perspective, where opportunities are independent of entrepreneurs. Entrepreneurs create and develop strategic plans to exploit opportunities. Here, there is a sort of prevention focus that is characterized by protection, safety, responsibility, and avoid of losses (Higgins, 2002). On the other hand, the creation perspective takes into consideration the uncertainty that entrepreneurs have to face in the economic context. Entrepreneurs do not have any reliable information to make decisions about opportunities exploitation and they need to be able to manage uncertainty. In this context, entrepreneurs with a creative perspective will deviate from the original business opportunity if the reality of an indefinite future spreads out (Hmieleski and Baron, 2008). Combining each perspective with the entrepreneurial exploitation process and focusing on our context, we expect that prevention focus entrepreneurs try to prevent change or allow only slight changes in the strategic plan (Hmieleski and Baron, 2008). They are not able to capitalize on and exploit fast-moving opportunities. Following these relations, we might expect a positive effect on resilience from entrepreneurs' promotion focus rather than entrepreneurs' prevention focus that might prevent new venture formation (Expectation 5).

Purpose of the paper. This study explores which factors have guided entrepreneurial reactions during Covid-19, by applying a multi-dimensional framework. Our research aims to understand the entrepreneurial decision-making processes behind the strategic choices building up a resilient business. Considering the complexity of the topic and the several elements that might influence the process, we focused on some entrepreneurial cognition factors to better understand how decisions are made. Starting from more contextual factors, we analysed risk perception, opportunity exploitation and opportunity evaluation, while concerning the individual factors, we analysed heuristics & biases (causation - effectuation and optimism), and more personal characteristics, as the locus of control and self-efficacy. It focused on the decision to enter new opportunities and the decision to remain in the market. By applying the developed framework, the research selected eight psychological factors clustered into three categories. Starting from the contextual factors, the study measured risk perception, opportunity evaluation and opportunity exploitation, in order to define the perception of the context, the ability to recognize opportunities and how entrepreneurs exploit them, with a prevention or promotion focus. Exploiting the meaning of resilience, the personal characteristics were measured, defining locus of control and self-efficacy, as the entrepreneurial confidence in their future results and capabilities. This analysis offers additional insights into the individual-level factors that influence entrepreneurial decision-making processes during crisis resilience in a completely new context. Moreover, this research offers methodological contributions since it clarifies the use of the fsQCA method and fuzzy logics in management studies. The different decision-making profiles might help entrepreneurs and institutions, increasing their awareness of decision-making processes.

Methodology. The dataset was based on the Innovative start-ups registered in the Chamber of Commerce's of the Emilia-Romagna region, among the worst hit in the north of Italy. Innovative start-ups play a central role in our economic system and they support innovation, employment growth and economic development. The register counts 935 innovative start-ups, of which 685 had active contact details, 158 entrepreneurs responded to the survey (23% response rate). A survey was elaborated and distributed by e-mail from the end of October till the end of December 2020, at the peak of a second wave for Italy. We performed back translation in order to distribute the survey in English and Italian.. The survey is composed of 38 questions. The largest part is 7-point Likert scales with binary questions (yes or no). The Likert variables were validated through Cronbach's alpha test. To capture the complexity of the topic, fsQCA methodology was conducted, one of the most prominent methods based on qualitative comparative analysis to investigate complex causality (Kraus et al., 2018; Li et al., 2020). Rather than investigating a condition's effect related to the outcome, fsQCA allows categorising relevant conditions into configurational paths, thus logical propositions, that can lead in different ways to the same result (Ragin, 2008; Kraus et al., 2018; Stroe et al., 2018). After defining the 158 responses as selected cases, we identified the psychological variables and the educational level as the nine conditions for the outcomes. In order to measure resilience we decide to use Entry & Exit decisions as the outcome. In a complex context as the actual one, it is more difficult to evaluate an entry or exit decision. Entrepreneurs might be more affected by the consequences that Covid-19 have left in the environment, and their perception of the companies' perspective might be different, considering the presence of other internal factors that normally influence the entrepreneurial decision-making process. To measure the willingness of entrepreneurs to enter in new markets, we followed the research of Richardson and Ariffin (2019). However, we tailored their research to our sample, testing entrepreneurs' willingness to invest in new business opportunities related to Covid-19, rather than testing the willingness to enter in new countries. On the other hand, according to DeTienne et al., (2008), to measure the willingness to exit the market, we tried to understand the entrepreneurs' perception and their self-analysis on the consequences that Covid-19 had and will have for their economic future. Asking to rate from 0, as the intention to leave the market, to 10, as the intention to stay in the market, thinking about their plan for the future of their business.

Finally, computing the calibration, we followed the direct method proposed by Ragin (2008), based on previous knowledge and percentile methods. After we analysed the necessary conditions, then we computed the truth table and logical minimization, analysing the complex solution for each model to obtain sufficient conditions.

Results. By analyzing all average demographic characteristics of the respondents, the research identified our “innovative start-up type” as a company founded in 2019 that operates in the service sector. Its activity is focused on software production and IT consultancy, and it is operating locally, but it might be open internationally. At the same time, our “entrepreneur-type” is a male between 46-50 years old, with a master’s degree. He is a novice entrepreneur with no previous experiences in start-ups or a maximum of 1-2 experiences. He is the CEO and at the same time the owner of the company, covering this position for less than 5 years. The Covid-19 did not have a strong impact on the revenues, the highest frequency remained the same or increased, especially the ones involved in food-supply, MedTech, IT, software and marketing (Prohorovs, 2020). The same results were for the increase in the number of employees, on average there was an increase of 20%. Overall, entrepreneurs were not satisfied with the government’s policies. The largest part did not benefit from any government’s policies. Entrepreneurs undertook some activities to respond to the pandemic, mostly increasing R&D efforts or new product launches, moving all or some employees to remote working, increasing marketing spending, and raising additional capital/equity. On average, they did not invest in CSR activities to support the community.

Concerning the configurations founded with the Entry and Remain model, we underline some similarities among the analysed configurations. All entrepreneurs that follow those configurations are characterized by optimism, high confidence, and opportunity evaluation. Therefore, they believe to obtain more positive respect to negative results, being willing to face also “negative” situations. On the other hand, they are confident in their abilities and the results of their activities, thinking to have control of them. Moreover, they are able to recognize opportunities that are feasible and desirable where someone else is not able to. The entrepreneur with configurations n.1 and n.5 has a high perception of uncertainty that leads to a causation logic. Therefore, he/she follows a specific analysis and planned strategy to operate. Those planned strategies are based on opportunity recognition which is present in those configurations. Therefore, we decide to call the entrepreneur “Prudent” decision-maker, since he/she plans the activities influenced by the uncertain context. Even in this case, configurations n.2 and n.7, the entrepreneur follows a causation logic, planning the strategy. This entrepreneurial logic is supported by the presence of a degree and a prevention focus characterized by protection and avoiding losses. The entrepreneur exploits opportunities only following an exploitation plan; thus, he/she tries to prevent change or allows only slight changes in the strategic plan. Since in this case, the perception of risk does not influence the outcome, and the peculiarity that emerges is the relevance of strategic plans, we call the entrepreneur “Organized” decision-maker. With configuration n.3, the entrepreneur perceives high uncertainty but following an effectuation logic. Therefore, the entrepreneur engages a non-predictive strategy, defining what can be done with the available instruments and desirable results. This entrepreneurial logic might be supported by the presence of a degree. In this case, where the prevention or promotion focus is not relevant, the presence of a degree might lead to an effectuation logic in a highly uncertain context. Therefore, the peculiarities of this entrepreneur are high-risk perception and effectuation logic. For this reason, we call the entrepreneur “Flexible” decision-maker. Differently from the others, in configuration n. 4 and n.6, none of the two entrepreneurial logic prevails on the other. The only difference is the presence of a degree that in this case does not lead to a specific peculiarity. A possible way to identify this entrepreneur is to call him/her “Balanced” decision-maker since does not have a proper entrepreneurial logic, but both are present and depends on the situation.

Research limitations. The study presents some limitations in terms of geographical settings, enterprises specificity, time span and model used. Specifically, the sample focused on 158 entrepreneurs of a specific type of companies in a specific area, i.e., Emilia Romagna, Italy. Therefore, further research is necessary to deeply understand the topic, for instance studying the non-occurrence of the outcomes or including additional conditions.

To obtain a more complete analysis, further research should focus on a larger sample, different geographical settings, or different types of entrepreneurs. For future research it would be interesting to evaluate whether the causal configurations found in this study remain static over time, computing the analysis on the same innovative start-ups after one year. This is particularly interesting considering the dynamic nature of resilience (Conz and Magnani, 2020).

Managerial implications. Self-efficacy is the necessary condition for resilience and the result cannot be achieved without its presence. This suggests that the confidence of a person in accomplishing tasks support him/her to manage shocks better and build up a resilient organization. The paper, in this preliminary version, tries to guide researchers and practitioners in the developing of a roadmap for managing shocks and lead firms to more resilient outcomes. Considering the complexity of the topic and the several elements that might influence the process, we focused on some entrepreneurial cognition factors to better understand how decisions are made. The study helps to define the determinants of some entrepreneurial reactions during Covid-19. Specifically, the ones implemented by innovative start-ups in the Emilia - Romagna area. Although in conformity with previous research on the topic, this analysis offers additional insights into the individual-level factors that influence the decision to enter new opportunities related to Covid-19 or stay in the market as the future perspective of the company. Each denomination defines a type of decision-maker and a related decision-making style that impact the strategic reactions of the investigated innovative start-ups in this disruptive context. However, depending on the type of decision-making employed and the outcome to achieve, the result differs. It is important to highlight that we are not able to define which is the optimal combination of conditions, but simply the combination of conditions that lead to the occurrence of resilient outcomes. However, entrepreneurs might benefit from this distinction, increasing their awareness that decision-making processes depend on different combinations of entrepreneurs’ individual characteristics. They can recognize themselves on a specific denomination of decision-makers and consolidate the awareness of their lacks and qualities. Therefore, they might focus on those

conditions that lead to those innovative reactions when combined, to be better prepared in case of another disruptive crisis.

Originality of the paper. Exploiting the meaning of resilience, the paper assesses how innovative start-ups handle with shocks and radical changes. In such a context, the variety of decision-making factors affecting resilience is often a neglected topic and it needs more attention. We considered different dimensions leading to resilience outcomes in relation to decision-making factors, like risk perception, opportunity evaluation and opportunity exploitation. These factors depend on the entrepreneur's characteristics but also on heuristics & biases, as causation and effectuations, and optimism, that is an entrepreneur's attitude. Lastly, the personal characteristics as the locus of control and self-efficacy referring to the entrepreneurial perceptions of their capabilities and results are crucial factors as well. By taking into account these different dimensions of entrepreneurial decision-making, findings underline the heterogeneity of profiles embedding resilient capabilities and supporting firms to face challenges.

The study contributes to the literature on entrepreneurial decision-making processes and resilience, framing how individual psychological factors affect entrepreneurial reactions during crisis in different ways.

Keywords: entrepreneurship; decision-making; resilience; COVID-19

References

- ANTONIETTI R., GAMBAROTTO F. (2020), "The role of industry variety in the creation of innovative start-ups in Italy", *Small Business Economics*, vol. 54, n. 2, pp. 561-573.
- BACHMANN A.K., MARAN T., FURTNER M., BREM A., WELTE M. (2020), "Improving entrepreneurial self-efficacy and the attitude towards starting a business venture", *Review of Managerial Science*.
- BARON R.A. (2006), "Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities", *Academy of management perspectives*, vol. 20, n. 1, pp. 104-119.
- COELHO P.R., MCCLURE J.E. (2005), "Learning from failure", *American Journal of Business*, vol. 10, n. 1, pp. 13-20.
- CONZ E., MAGNANI G. (2020), "A dynamic perspective on the resilience of firms: A systematic literature review and a framework for future research", *European Management Journal*, vol. 38, n. 3, pp. 400-412.
- DOERN R., WILLIAMS N., VORLEY T. (2019), "Special issue on entrepreneurship and crises: Business as usual? An introduction and review of the literature", *Entrepreneurship & Regional Development*, vol. 31, n. 5-6, pp. 400-412.
- GIONES F., BREM A., POLLACK J.M., MICHAELIS T.L., KLYVER K., BRINCKMANN J. (2020), "Revising entrepreneurial action in response to exogenous shocks: Considering the COVID-19 pandemic", *Journal of Business Venturing Insights*, vol. 14, e00186.
- KRAUS S., RIBEIRO-SORIANO D., SCHÜSSLER M. (2018), "Fuzzy-set qualitative comparative analysis (fsQCA) in entrepreneurship and innovation research - the rise of a method", *International Entrepreneurship and Management Journal*, vol. 14, n. 1, pp. 15-33.
- KUCKERTZ A., BRÄNDLE L., GAUDIG A., HINDERER S., MORALES REYES C.A., PROCHOTTA A., STEINBRINK K.M., BERGER E.S.C. (2020), "Startups in times of crisis - A rapid response to the COVID-19 pandemic", *Journal of Business Venturing Insights*, vol. 13, e00169.
- LI Y., LING L., ZHANG D., WU J. (2020), "Lead investors and information disclosure: A test of signaling theory by fuzzy-set qualitative comparative analysis approach", *Managerial and Decision Economics*.
- LINNENLUECKE M.K. (2017), "Resilience in business and management research: A review of influential publications and a research agenda", *International Journal of Management Reviews*, vol. 19, n. 1, pp. 4-30.
- MANFIELD R.C., NEWAY L.R. (2018), "Resilience as an entrepreneurial capability: integrating insights from a cross-disciplinary comparison", *International Journal of Entrepreneurial Behavior & Research*, vol. 24, n. 7, pp. 1155-1180.
- MARTIN R., SUNLEY P. (2015), "On the notion of regional economic resilience: conceptualization and explanation", *Journal of Economic Geography*, vol. 15, n. 1, pp. 1-42.
- PIDDUCK R.J., SHAFFER M.A., ZHANG Y., CLARK D.R. (2020), "Unpacking the emergence of born global founders: A careers perspective", *Journal of Small Business Management*, pp. 1-41.
- RAGIN C. (2008), *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. University of Chicago, IL: Chicago Press.
- RAMEZANI J., CAMARINHA-MATOS L.M. (2020), "Approaches for resilience and antifragility in collaborative business ecosystems", *Technological Forecasting and Social Change*, vol. 151, pp.119846.
- RAPACCINI M., SACCANI N., KOWALKOWSKI C., PAIOLA M., ADRODEGARI F. (2020), "Navigating disruptive crises through service-led growth: The impact of COVID-19 on Italian manufacturing firms", *Industrial Marketing Management*, vol. 88, pp. 225-237.
- SCHNEIDER C.Q., WAGEMANN C. (2012), *Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis*. Cambridge University Press.
- SHEPHERD D.A., WILLIAMS T.A., PATZELT H. (2015), Thinking About Entrepreneurial Decision Making: Review and Research Agenda. *Journal of Management*, vol. 41, n. 1, pp. 11-46.
- STROE S., PARIDA V., WINCENT J. (2018), Effectuation or causation: An fsQCA analysis of entrepreneurial passion, risk perception, and self-efficacy. *Journal of Business Research*, vol. 89, pp. 265-272.
- ZHAO H., SEIBERT S.E., HILLS G.E. (2005), The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions", *Journal of Applied Psychology*, vol. 90, n.6, pp. 1265-1272.

Analisi delle policy attuate per affrontare il problema dell'inquinamento atmosferico nelle aree urbane

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Inquadramento della ricerca. *L'inquinamento atmosferico in ambienti urbani è diventato un importante problema di ricerca negli ultimi decenni, ed ha portato alla realizzazione di diversi studi sulla qualità dell'aria nelle città (Borrego et al., 2003; Buccolieri et al., 2011; Amorim et al., 2013; Salmon et al., 2013). In Europa, le emissioni di inquinanti atmosferici sono diminuite sostanzialmente negli ultimi anni, con un conseguente miglioramento della qualità dell'aria (Rafael et al., 2018) grazie alle policy che sono state adottate nel tempo. Tuttavia, le concentrazioni di inquinanti atmosferici sono ancora troppo elevate. In molte città, infatti, si osservano ancora superamenti degli standard di qualità dell'aria (EEA, 2016). Il massiccio aumento delle emissioni di inquinanti atmosferici dovuto alla crescita economica ed industriale nel secolo scorso ha reso la qualità dell'aria un problema ambientale di primo ordine (D'amato et al., 2013). Per questo motivo molti ricercatori come Amesho et al., (2021), Gu et al., (2021), Ribeiro et al., (2021) hanno realizzato delle analisi sulla qualità dell'aria nelle zone urbane ed hanno identificato le policy adottate o adottabili per contrastare il problema. Le città sono attualmente al centro della gestione della qualità dell'aria, con l'obiettivo di migliorare l'ambiente urbano e la qualità della vita dei cittadini (Viana et al., 2020) e per farlo hanno bisogno di strategie pianificate basate su un insieme di policy che devono orientare le azioni delle aziende, dei cittadini e delle amministrazioni. Il paper si è concentrato sulla rilettura degli articoli pubblicati dal 1995 al 2021 riguardanti l'inquinamento atmosferico nelle aree urbane attraverso la classificazione delle politiche ambientali descritta dall'OCSE (2004). Per gestire e cercare di ridurre l'inquinamento atmosferico nelle aree urbane sono fondamentali le policy che possono orientare tutta la società verso scelte sostenibili. La rilettura della letteratura esistente riguardante l'inquinamento urbano e le policy è fondamentale per definire un quadro completo e chiaro delle politiche adottate e dei risultati raggiunti per orientare le future decisioni riguardanti le politiche ambientali.*

Obiettivo del paper. *L'obiettivo del paper è quello di analizzare la letteratura esistente, che ha come oggetto di studio l'inquinamento urbano, riletta attraverso le policy adottate e adottabili per affrontare il problema della qualità dell'aria. Il paper tenta di fornire un quadro completo della letteratura esistente e cerca di identificare le migliori policy attuate fino ad oggi per contrastare l'inquinamento atmosferico nelle aree urbane e il conseguente cambiamento climatico. Il paper ha l'obiettivo di far emergere dalla letteratura quali siano le migliori pratiche dal punto di vista delle policy e delineare, possibilità di future ricerche orientate ad approfondire la relazione tra queste e l'inquinamento urbano, fornendo indicazioni su come queste ricerche potrebbero essere sviluppate.*

Metodologia. *Gli articoli rilevanti sono stati identificati grazie alla consultazione del database Scopus e all'utilizzo di parole chiave quali: Pollutant sourc*, Urban area*, Climate change, Air quality. Gli articoli presi in considerazione sono stati solamente quelli in lingua inglese. L'output di questa ricerca consiste in 146 articoli scientifici, pubblicati dal 1995 al 2021, che affrontano i temi sopra elencati con diversi scopi, in località diverse e secondo discipline scientifiche diverse. Il focus della ricerca è descrivere le policy migliori per affrontare il tema dell'inquinamento urbano; sono stati selezionati solo gli articoli che descrivono congiuntamente le osservazioni riguardanti l'inquinamento atmosferico e la qualità dell'aria nelle zone urbane e le policy che sono state adottate per affrontare il problema. Per identificare gli articoli idonei sono state considerate le policy descritte dalla classificazione delle politiche ambientali OCSE del 2004: Direct Regulation, Market-based Measures, Market Creation e Public Participation. La Direct Regulation include tutte le leggi di Comando e controllo, gli Standard e le limitazioni; le Market-based Measures includono tasse ambientali, finanziamenti pubblici e incentivazioni; la Market Creation include l'istituzione del diritto di proprietà, la creazione di nuovi business models e lo scambio di emissioni; infine, la Public Participation include la partecipazione volontaria pubblica ai processi decisionali e le informazioni (Roshandel Arbatani et al., 2016). Dopo aver definito le categorie di policy sono stati analizzati tutti gli articoli della ricerca e sono stati selezionati 44 articoli che descrivono allo stesso tempo l'inquinamento atmosferico urbano e una o più policy come risposta alle problematiche descritte. Per analizzare le policy e i temi principali presenti negli articoli è stata realizzata una matrice, presentata nella sezione dei risultati, che descrive la combinazione di oggetto di studio e policy*

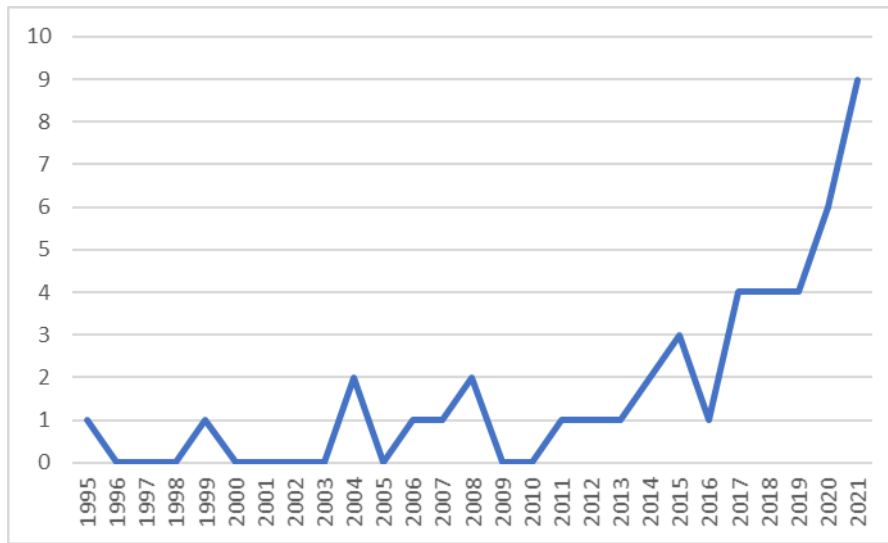
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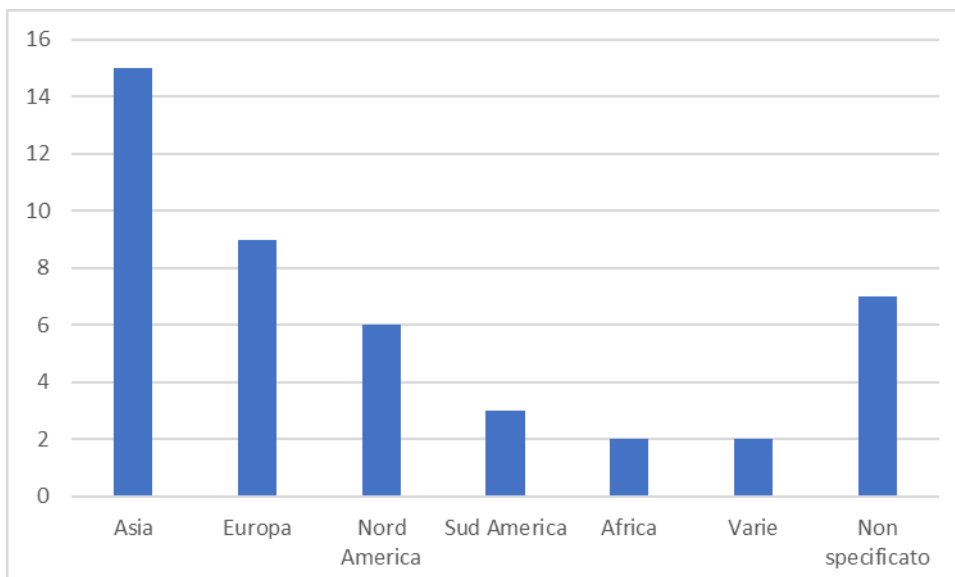
analizzata in ogni articolo preso in esame. La matrice è stata utile ad evidenziare quali siano le problematiche legate all'inquinamento urbano più discusse e quali siano state, fino ad ora, le policy adottate per affrontare il problema dell'inquinamento urbano. I 44 articoli identificati sono stati pubblicati tra il 1995 ed il 2021 e l'andamento delle pubblicazioni nel tempo viene presentato dal grafico che segue.

Graf. 1: Pubblicazioni nel tempo degli articoli analizzati. Rielaborazione dati degli autori



Il grafico mostra un andamento oscillante nel tempo, con un forte aumento negli ultimi anni. Ciò dimostra la rilevanza dell'argomento, perché l'inquinamento atmosferico in ambienti urbani con una popolazione densa è diventato un importante problema di ricerca negli ultimi decenni (Borrego et al., 2003; Buccolieri et al., 2011; Amorim et al., 2013; Salmon et al., 2013). Gli studi sono stati effettuati nei seguenti paesi: 15 in Asia (9 in Cina, 1 in Iran, 1 in Malesia, 1 in Corea, 1 in Libano, 1 in India, 1 in Nepal), 6 in Nord America (5 in USA e 1 in Canada), 3 in Sud America (2 in Brasile e 1 in Cile), 2 in Africa, 9 in Europa (2 in più paesi dell'Europa, 1 in Polonia, 1 in Italia, 1 in Spagna, 2 in Portogallo, 1 Ci-pro, 1 nel Regno Unito), in 7 articoli non è stato descritto il Paese in cui è stata condotta la ricerca e 2 articoli in vari Paesi del mondo.

Graf. 2: Articoli pubblicati per aree geografiche. Rielaborazione dati degli autori



Dal grafico 2 è possibile osservare la distribuzione degli articoli secondo l'area geografica di studio. In Asia sono stati pubblicati più articoli in assoluto riguardanti l'inquinamento urbano e le policy adottate, perché il problema è più critico nei paesi orientali, come descritto dal report "World Air Quality Report 2020" realizzato da IQAir Group, che analizza la concentrazione di $PM_{2,5}$ grazie alle osservazioni delle stazioni di monitoraggio presenti in tutto il mondo. Nel 2020 i 9 Paesi con la concentrazione di $PM_{2,5}$ in atmosfera più alta sono stati: Bangladesh, Pakistan, India, Mongolia, Afghanistan, Oman, Qatar, Kirgizstan e Indonesia (IQAir, 2020), tutti situati in Asia e ciò dimostra la

crescente preoccupazione e l'interesse ad analizzare il livello di inquinamento urbano in queste aree e la ricerca di soluzioni efficaci per fronteggiare il problema.

Risultati. I risultati della ricerca descrivono lo sforzo delle amministrazioni locali e della società di realizzare azioni che contribuiscano a ridurre l'inquinamento urbano. Le policy presenti negli articoli sono state analizzate attraverso la classificazione delle politiche ambientale OCSE del 2004: *Direct regulation*, *Market-based measures*, *Market creation* e *Public participation*. È stata realizzata una matrice che combina le policy utilizzate negli articoli e gli oggetti di studio analizzati negli articoli, che sono *Qualità dell'aria*, *Inverdimento urbano*, *Inquinamento derivante dal traffico veicolare*, *Inquinamento dell'acqua*, *Sviluppo urbano e inquinamento*. Tra le colonne delle policy è stata aggiunta una sezione delle policy integrate, perché in alcuni casi gli articoli non hanno identificato un'unica policy come soluzione ma la combinazione di più policy.

Tab. 1: Matrice della tipologia di policy e oggetto di studio. Rielaborazione dati degli autori

		Tipologia di policy				
		Direct regulation	Market-based measures	Market creation	Public participation	Policy integrate
Oggetto di studio	Qualità dell'aria	22	1		2	10
	Inverdimento urbano	3				
	Inquinamento derivante dal traffico veicolare	2				1
	Inquinamento dell'acqua	1				
	Sviluppo urbano e inquinamento	1				1

La tabella 1 rappresenta la matrice definita dall'incrocio delle due variabili: oggetto di studio e policy adottata. Il 65,9% degli articoli ha descritto la *Direct regulation* come policy per affrontare l'inquinamento urbano, il 27,3% ha descritto l'utilizzo di policy integrate per affrontare l'inquinamento, il 4,5% la *Public participation*, il 2,3% le *Market-based measures* e nessun articolo ha considerato la *Market creation* per affrontare l'inquinamento urbano. Il 79,5% degli articoli ha avuto come oggetto di studio predominante la qualità dell'aria, il 6,8% degli articoli hanno trattato il tema dell'inverdimento urbano e di inquinamento derivante dal traffico dei veicoli, il 4,5% degli articoli ha tratto la relazione tra inquinamento e sviluppo urbano, infine, il 2,3% degli articoli ha descritto l'inquinamento dei corsi d'acqua. Il 50% degli articoli ha considerato come oggetto di studio la qualità dell'aria e ha descritto come policy per affrontare l'inquinamento urbano la *Direct regulation*. Ciò dimostra la preoccupazione crescente della qualità dell'aria e l'importanza della regolamentazione che serve a porre limiti all'inquinamento atmosferico ed a controllare le emissioni in atmosfera. Il 22,7% degli articoli descrive la qualità dell'aria e le politiche integrate come soluzione per affrontare il problema dell'inquinamento urbano. Le altre combinazioni della matrice sono residuali perché hanno una percentuale inferiore al 7%: il 6,8% degli articoli descrive l'inverdimento urbano e la *Direct regulation*, il 4,5% l'inquinamento derivante dal traffico e la *Direct regulation*, il 4,5% descrive la qualità dell'aria e la *public participation* come metodo per affrontare il problema, infine, il 2,3% degli articoli descrive la combinazione tra inquinamento dell'acqua e *Direct regulation*, la combinazione tra sviluppo urbano e *Direct regulation*, qualità dell'aria e *Market based measures*, inquinamento derivante dal traffico e policy integrate e sviluppo urbano e policy integrate. Nessun articolo ha considerato le *Market based measures* combinate ai temi dell'*Inverdimento urbano*, dell'*Inquinamento derivante dal traffico veicolare*, dell'*Inquinamento dell'acqua* e dello *Sviluppo urbano*. Nessun articolo ha preso in considerazione la *Market creation* come policy per affrontare il problema dell'inquinamento atmosferico urbano, che potrebbe essere, invece, un nuovo metodo per affrontare il problema analizzato e contrastarlo anche attraverso il mercato delle emissioni. Inoltre, nessun articolo ha descritto la combinazione tra *Public participation* e i temi dell'*Inverdimento urbano*, dell'*Inquinamento derivante dal traffico veicolare*, dell'*Inquinamento dell'acqua* e dello *Sviluppo urbano*. Infine, nessuno degli articoli ha considerato le *Policy integrate* e i temi dell'*Inverdimento urbano* e dell'*Inquinamento dell'acqua*. Questi temi potrebbero essere analizzati in futuro per verificare i risultati che potrebbero essere ottenuti in materia di riduzione dell'inquinamento atmosferico urbano.

Dai risultati emersi è possibile osservare la presenza sostanziale di policy basate sulla regolamentazione diretta, seguite dalle policy integrate. Diversamente, le misure basate sul mercato e quelle basate sulla partecipazione pubblica risultano le meno utilizzate, e addirittura nessun paper si è concentrato sulla creazione di mercati per ridurre l'inquinamento atmosferico nelle aree urbane. Tuttavia, questi tre tipi di politiche avrebbero il più elevato potenziale di innovazione. Consentono infatti agli attori del mercato che operano nelle aree urbane di collegare il beneficio delle politiche di tutela ambientale con i vantaggi reputazionali e di business. Sono politiche che possono favorire nuove opportunità per le imprese, possono creare nuovi spazi di mercato, generare nuovi modelli di business per nuovi prodotti e servizi legati all'ambiente e possono promuovere l'accettabilità sociale delle imprese da parte di tutte le parti interessate. Infine, consentono l'utilizzo delle regole di mercato come fattori di incentivazione per l'innovazione tecnologica e gestionale sostenibile. Incentivare l'adozione di politiche di mercato potrebbe agire da fattore abilitante per la creazione di nuovi modelli di business, nuove opportunità di green jobs nelle aree urbane, per lo sviluppo di

nuove competenze e soluzioni tecnologiche in grado di conciliare obiettivi di “qualità” con opportunità di sviluppo. Questo risultato potrebbe essere rafforzato attraverso l'adozione di politiche orientate a coinvolgere nei processi decisionali dei policy maker gli stakeholder, tra i quali le imprese che potrebbero fornire un contributo essenziale in funzione dell'efficacia della lotta al cambiamento climatico.

Limiti della ricerca. I limiti della ricerca sono definiti dall'impossibilità di avere un quadro omogeneo e comparabile delle ricerche realizzate; ogni articolo descrive una rilevazione particolare di uno o più inquinanti in una o più aree geografiche in periodi di tempo diversi. Ogni studio indaga una relazione specifica tra area geografica, clima, periodo di riferimento e sviluppo urbano. Manca la collaborazione tra le autorità locali, regionali e nazionali volte a realizzare scelte coordinate per affrontare e ridurre il problema dell'inquinamento urbano. C'è bisogno di metodologie standard e comparabili per l'analisi della qualità dell'aria. La condivisione dei risultati ottenuti dalle politiche realizzate è fondamentale per definire le best practices e realizzare congiuntamente le azioni integrate utili per ridurre nel modo più efficace possibile l'inquinamento atmosferico nelle aree urbane. Le future linee di ricerca potrebbero riguardare uno studio delle migliori combinazioni di policy da adottare in base alle diverse caratteristiche climatiche e in base ai livelli di inquinamento atmosferico, così da poter definire un quadro standard che i Paesi dovrebbero tenere in considerazione grazie ad una combinazione di policy adeguata e più efficiente per raggiungere l'obiettivo della riduzione delle emissioni di inquinanti in atmosfera e il miglioramento della qualità dell'aria e della salute umana.

Implicazioni manageriali. La review pone diversi suggerimenti manageriali, sia di natura pubblica che privata di impresa.

- 1) *Implicazioni in chiave di policy pubbliche.* Le policy che sono state trattate in modo specifico rispetto alla riduzione dell'inquinamento atmosferico nelle aree urbane sono state soprattutto la Direct regulation e le Policy integrate. Diversamente, le altre categorie di policy sono state prese in considerazione soltanto in maniera residuale, e non paiono rappresentare quelle considerate più efficaci per le amministrazioni di governo pubbliche. In realtà, come evidenziato sopra, si tratta di politiche che potrebbero avere il più elevato potenziale di innovazione, e che potrebbero favorire il raggiungimento dei maggiori risultati. Una prima indicazione riguarda dunque un'attenzione maggiore che i policy maker dovrebbero porre nella promozione di tali iniziative.
- 2) *Implicazioni di natura manageriale per le imprese.* Il quadro delle politiche pone in evidenza un ruolo attivo marginale giocato dalle imprese, soprattutto quelle di piccole e medie dimensioni, che nelle aree urbane hanno una loro rilevanza in termini di contributo alle emissioni e agli impatti diretti e indiretti sulla qualità dell'aria. Traffico legato ai servizi (es. approvvigionamento delle attività commerciali), consumi energetici e scarichi in atmosfera legati alle strutture presenti in questi contesti urbani, sono solo alcuni esempi di come queste attività possono impattare in termini di contributo alla qualità dell'aria. Le imprese dovrebbero allora rispondere alle politiche adottabili dai policy maker in due direzioni: implementando strumenti di gestione innovativi orientati a governare la regolamentazione in materia di politiche pubbliche e trovando soluzioni organizzative e gestionali in grado di rispondere ai vincoli imposti dalle amministrazioni; dall'altra parte, stimolando i policy maker a superare la logica del “command and control” anche nella gestione delle problematiche di qualità dell'aria nelle aree urbane, e arrivando a promuovere politiche di coordinamento e partnership pubblico-private per la ricerca di soluzioni innovative in questi contesti.
- 3) *Stimolo alla misurazione dell'efficacia delle politiche in chiave di contributo all'Agenda 2030.* I risultati raggiunti grazie all'adozione delle policy possono determinare importanti obiettivi nell'ambito degli SDGs 11 e 13 dell'Agenda 2030. Per questo motivo è utile che in modo coordinato policy maker e attori privati promuovano sistemi per il monitoraggio delle iniziative promosse su scala locale al fine di valutare l'effettiva efficacia su questi goal delle politiche adottate.

Originalità del paper. L'originalità del paper riguarda il collegamento effettuato tra il tema delle fonti dell'inquinamento atmosferico nelle aree urbane e le policy adottabili. Grazie alla review effettuata è stato fornito un quadro completo delle politiche adottate fino ad oggi ed i relativi risultati ottenuti, e delle politiche che potrebbero essere ancora promosse. È stato descritto il ruolo dei policy makers ma anche della società e delle imprese, fondamentale per raggiungere gli obiettivi di riduzione delle emissioni in atmosfera e di cambiamento climatico nelle aree urbane, anche grazie all'attuazione di politiche che ad oggi non sono ancora state considerate.

Parole chiave: policy, inquinamento atmosferico, aree urbane

Riferimenti

- ABBASS R.A., KUMAR P., EL-GENDY A. (2018), “An overview of monitoring and reduction strategies for health and climate change related emissions in the Middle East and North Africa region”, *Atmospheric Environment*, vol. 175, pp. 33-43.
- ABDULLAH A.M., USMANI R.S.A., PILLAI T.R., MARJANI M., HASHEM I.A.T. (2021), “An Optimized Artificial Neural Network Model using Genetic Algorithm for Prediction of Traffic Emission Concentrations”, *International Journal of Advanced Computer Science and Applications*, vol. 12, n. 6, pp. 797-807.

- ACHILLEOS S., EVANS J.S., YIALLOUROS P.K., KLEANTHOUS S., SCHWARTZ J., KOUTRAKIS P. (2014), "PM10 concentration levels at an urban and background site in Cyprus: The impact of urban sources and dust storms", *Journal of the Air & Waste Management Association*, vol. 64, n. 12, pp. 1352-1360.
- AL-THANI H., KOÇ M., ISAIFAN, R.J. (2018), "A review on the direct effect of particulate atmospheric pollution on materials and its mitigation for sustainable cities and societies", *Environmental Science and Pollution Research*, vol. 25, n. 28, pp. 27839-27857.
- AMANN M., PUROHIT P., BHANARKAR A.D., BERTOK I., BORKEN-KLEEFELD J., COFALA J., HEYES C., KIESEWETTER G., KLIMONT Z., LIU J., MAJUMDAR D., NGUYEN B., RAFAJ P., RAO P.S., SANDER R.P., SCHÖPP W., SRIVASTAVA A., VARDHAN B.H. (2017), "Managing future air quality in megacities: A case study for Delhi", *Atmospheric Environment*, vol. 161, pp. 99-111.
- AMESHO K.T.T., LIN, Y.C., GONG Z.W., CHOU F.C., CHENG P.C., WANG T.N., CHEN P.S., CHEN K.S., CHANG K.L., LEE C. H. (2021), "Assessment of PM2.5 Chemical Composition and Air Quality Monitoring: Implications of Air Pollutants Emissions from a Night Market in Kaohsiung City, Taiwan", *Aerosol Air Qual. Res.*, vol. 21, n. 12.
- AMORIM J.H., RODRIGUES V., TAVARES R., VALENTE C., BORREGO C. (2013), "Emission and dispersion modelling of Lisbon air quality at local scale", *Sci. Total Environ.*, 461-462, pp. 541-551.
- ANEJA V.P., WANG B., TONG D.Q., KIMBALL H., STEGER J. (2006), "Characterization of Major Chemical Components of Fine Particulate Matter in North Carolina", *Journal of the Air & Waste Management Association*, vol. 56, n. 8, pp. 1099-1107.
- ARKSEY H., O'MALLEY L. (2005), "Scoping studies: towards a methodological framework", *International Journal of Social Research Methodology: Theory and Practice*, vol. 8, n. 1, pp. 19-32.
- BAAYOUN A., ITANI W., EL HELOU J., HALABI L., MEDLEJ S., EL MALKI M., MOUKHADDER A., ABOUJAOUDE L.K., KABAKIAN V., MOUNAJED H., MOKALLED T., SHIHADDEH A., LAKKIS I., SALIBA N.A. (2019), "Emission inventory of key sources of air pollution in Lebanon", *Atmospheric Environment*, vol. 215.
- BARNES C.S., ALEXIS N.E., BERNSTEIN J.A., COHN J. R., DEMAINE G. J., HORNER E., LEVET-IN E., NEL A., PHIPATANAKUL W. (2013), "Climate Change and Our Environment: The Effect on Respiratory and Allergic Disease", *Review and feature article*, vol. 1, n. 2, pp. 137-141.
- BORHANI F., SHAFIEPOUR MOTLAGH M., STOHL A., RASHIDI Y., EHSANI A. H. (2021), *Tropospheric Ozone in Tehran, Iran, during the last 20 years*, Environmental Geochemistry and Health.
- BORREGO C., TCHEPEL O., COSTA A.M., AMORIM J.H., MIRANDA A. I. (2003), "Emission and dispersion modelling of Lisbon air quality at local scale", *Atmos. Environ.*, vol. 37, pp. 5197-5205.
- BUCCOLIERI R., SALIM S.M., LEO L.S., DI SABATINO S., CHAN A., LELPO P., DE GENNARO G., GROMKE C. (2011), "Analysis of local scale trees atmosphere interaction on pollutant concentration in idealized street canyons and application to a real urban junction", *Atmos. Environ.*, vol. 45, pp. 1702-1713.
- CĂLĂMAR, A.N., GĂMAN, G.A., KOVACS, M., PUPĂZAN, D., LORAND, T. (2017), "Analysis of pollutant imissions generated by bone meal production", *Quality - Access to Success*, vol. 18, pp. 178-183.
- CALVERT J.G., BAI Y., SLANINA J., BROWN R.H., LI S.M., TSUJINO Y., GROSSE H.J., DUAN Y.Q., JIANG S., MOON K.C., CVITAS T., LEE Y.Y., MIN S., SHIM S.G., SINGH O.N., TANG X., THAKRE R., JIQUN W., QUN C., ZHU T., HU M. (1995), "Local air pollution in fast developing countries", *Pure and Applied Chemistry*, vol. 67 n. 8-9, pp. 1407-1410.
- CHEN H., CHEN W. (2019), "Potential impact of shifting coal to gas and electricity for building sectors in 28 major northern cities of China", *Applied Energy*, vol. 236, pp. 1049-1061.
- CHEN B., DU K., WANG Y., CHEN J., ZHAO J., WANG K., ZHANG F., XU L. (2012), "Emission and Transport of Carbonaceous Aerosols in Urbanized Coastal Areas in China", *Aerosol Air Qual. Res.*, vol. 12, pp. 371-378.
- CHEN T., LI M., LUO L., DENG S., ZHOU R., CHEN D. (2020), "Simulating the effects of land urbanization on regional meteorology and air quality in Yangtze River Delta, China", *Applied Geography*, vol. 120.
- D'AMATO G., BAENA-CAGNANI, C.E., CECCHI, L., ANNESI-MAESANO I., NUNES C., ANSOTEGUI I., D'AMATO M., LICCARDI G., SOFIA M., CANONICA G. W. (2013), "Climate change, air pollution and extreme events leading to increasing prevalence of allergic respiratory diseases", *Multidisciplinary Respiratory Medicine*, vol. 8 n. 2.
- D'AMBRA L., CRISCI A., MECCARIELLO G., DELLA RAGIONE L., PALMA R. (2021), "Evaluation of the social and economic impact of carbon dioxide (CO₂) emissions on sustainable mobility using cumulative ordinal models: trend odds mode", *Socio-Economic Planning Sciences*, vol. 75.
- DE FATIMA ANDRADE M., YNOUE R.Y., FREITAS E.D., TODESCO E., VELA A.V., IBARRA S., MARTINS, J.A., CARVALHO V. S.B. (2015), *Air quality forecasting system for South-eastern Brazil*, Frontiers in Environmental Science.
- DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA) (2007), *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*, Volume 1, London.
- ELIASSON, J. (2018), *Congestion Pricing*, The Routledge Handbook of Transport Economics. Editors J. Cowie, and S. Ison.
- EUROPEAN ENVIRONMENT AGENCY (EEA) (2016), *Air Quality in Europe - 2016 Report*, Publications Office of the European Union, Luxembourg.

- FIERRAVANTI A., FIERRAVANTI E., COCOZZA C., TOGNETTI R., ROSSI S. (2017), *Eligible reference cities in relation to BVOC-derived O₃ pollution*, *Urban Forestry & Urban Greening*, vol. 28, December 2017, pp. 73-80.
- GARZÓN C., DOMINIE W., GORDON M. (2014), "Pollution-Free Housing for All: Coalition-Based Research, Education, and Advocacy for Healthier Housing in Transportation and Land Use Planning in the San Francisco Bay Area", *Environmental Justice*, vol. 7, n. 6, pp. 186-190.
- GU S., GUENTHER A., FAIOLA C. (2021), "Effects of Anthropogenic and Biogenic Volatile Organic Compounds on Los Angeles Air Quality", *Environmental Science & Technology*, vol. 55, n., 18, pp. 12191-12201.
- HEALY R. M., SOFOWOTE U., DEBOSZ Y. S. J., NOBLE M., JEONG C.H., WANG J. M., HILKER N., EVANS G. J., DOERKSEN G., JONES K., MUNOZ A. (2017), "Ambient measurements and source apportionment of fossil fuel and biomass burning black carbon in Ontario", *Atmospheric Environment*, vol. 161, pp. 34-47.
- IQAir (2020), *World Air Quality Report*, Region & City PM_{2.5} Ranking, pp. 10-13.
- JI D., LI L., PANG B., XUE P., WANG L., WU Y., ZHANG H., WANG Y. (2017), "Characterization of black carbon in an urban-rural fringe area of Beijing", *Environmental Pollution*, vol. 223, pp. 524-534.
- MOLINA L.T., MOLINA M.J., SLOTT R.S., KOLB C.E., GBOR P.K. MENG F., SINGH B.R., GALVEZ O., SLOAN J.J., ANDERSON P., TANG X., HU M., XIE S., SHAO M., ZHU T., ZHANG Y.H., GURJAR B.R., ARTAXO P.E., OYOLA P., GRAMSCH E., HIDALGO D., GERTLER A.W. (2004), "Air quality in selected megacities", *Journal of the Air & Waste Management Association*, vol. 54, n. 12, pp. 1-73.
- MOLINA M.J., MOLINA L.T. (2004), "Megacities and atmospheric pollution", *Journal of the Air & Waste Management Association*, vol. 54, n. 6, pp. 644-680.
- MOODLEY K.G., SINGH S., GOVENDER S. (2011), "Passive monitoring of nitrogen dioxide in urban air: A case study of Durban metropolis, South Africa", *Journal of Environmental Management*, vol. 92, n. 9, pp. 2145-2150.
- LEVAC D., COLQUHOUN H., O'BRIEN K.K. (2010), "Scoping studies: advancing the methodology", *Implementation Science*, vol. 5, n. 1.
- LONGHURST J.W.S., IRWIN J.G., CHATTERTON T.J., HAYES E.T., LEKSMONO N.S., SYMONS J.K. (2008), "The development and operation of the United Kingdoms air quality management regime", *WIT Transactions on Ecology and the Environment*, vol. 116, pp. 149-157.
- NOWAK D., CRANE D., STEVENS J. (2006), "Air pollution removal by urban trees and shrubs in the United States", *Urban For. Urban Green.*, vol. 4, pp. 115-123.
- OCSE (2004), *Key Environmental Indicators*, Direzione Ambientale OCSE Parigi, Francia.
- O'NEILL, M.S., KINNEY, P.L., COHEN, A.J. (2008), "Environmental equity in air quality management: Local and international implications for human health and climate change", *Journal of Toxicology and Environmental Health - Part A: Current issues*, vol. 71, n. 9-10, pp. 570-577.
- OLIVEIRA M.A., TOMLINSON S.J., CARNELL E.J., DORE A.J., SERRANO H.C., VIENO M., CORDOVIL C.M. D.S., DRAGOSITS U., SUTTON M.A., BRANQUINHO C., PINHO P. (2020), "Nitrogen and sulfur deposition over a region in SW Europe based on a regional atmospheric chemical transport model", *Atmospheric Environment*, vol. 223.
- PUTERO D., CRISTOFANELLI P., MARINONI A., ADHIKARY B., DUCHI R., SHRESTHA S.D., VERZA G.P., LANDI T.C., CALZOLARI F., Busetto M., AGRILLO G., BIANCOFIORE F., DI CARLO P., PANDAY A.K., RUPAKHETI M., BONASONI P. (2015), "Seasonal variation of ozone and black carbon observed at Paknajol, an urban site in the Kathmandu Valley, Nepal", *Atmospheric Chemistry and Physics*, vol. 15, n. 24, pp. 13957-13971.
- QUÉRÉ S., LEVASSEUR A. (2020), "Bottom-up versus top-down hands-on options for measuring GHG and pollutants in smart cities", *WIT Transactions on Ecology and the Environment*, vol. 249, pp. 285-293.
- RAFAEL S., VICENTE B., RODRIGUES V., MIRANDA A.I., BORREGO C., LOPES M. (2018), "Impacts of green infrastructures on aerodynamic flow and air quality in Porto's urban area", *Atmospheric Environment*, vol. 190, pp. 317-330.
- RESTREPO E. C., (2021), "Nitrogen Dioxide, Greenhouse Gas Emissions and Transportation in Urban Areas: Lessons From the Covid-19 Pandemic", *Frontiers in Environmental Science*, vol. 9.
- RIBEIRO F.N.D., UMEZAKI A.S., CHIQUETTO J.B., SANTOS I., MACHADO P.G., MIRANDA R.M., ALMEIDA P.S., SIMÕES A.F., MOUETTE D., LEICHSENRING A.R., UENO H.M. (2021), "Impact of different transportation planning scenarios on air pollutants, greenhouse gases and heat emission abatement", *Science of The Total Environment*, vol. 781.
- ROMERO H., IHL M., RIVERA A., ZALAZAR P., AZOCAR P. (1999), "Rapid urban growth, land-use changes and air pollution in Santiago, Chile", *Atmospheric Environment*, vol. 33, n.s 24-25, pp. 4039-4047.
- ROSHANDEL ARBATANI, T., LABAFI, S., ROBATI, M. (2016), "Effects of social media on the environmental protection behaviour of the public (Case study: Protecting Zayandeh-rood river environment)", *International Journal of Environmental Research*, vol. 10, n. 2, pp. 237-244.
- SÁ E., MARTINS H., FERREIRA J., MARTA-ALMEIDA M., ROCHA A., CARVALHO S., FREITAS S., BORREGO C. (2016), "Climate change and pollutant emissions impacts on air quality in 2050 over Portugal", *Atmospheric Environment*, vol. 131, pp. 209-224.
- SALMON J.A., WILLIAMS D.E., LAING G., KINGHAM S., DIRKS K., LONGLEY I., HENSHAW G.S. (2013), "Emission and dispersion modelling of Lisbon air quality at local scale", *Sci. Total Environ.*, n. 443, pp. 287-298.

- SALVADOR P., MOLERO F., FERNANDEZ A.J., TOBÍAS A., PANDOLFI M., GÓMEZ-MORENO F.J., BARREIRO M., PÉREZ N., MARCO I.M., REVUELTA M.A., QUEROL X., ARTÍÑANO B. (2019), "Synergistic effect of the occurrence of African dust outbreaks on atmospheric pollutant levels in the Madrid metropolitan area", *Atmospheric Research*, vol. 226, pp. 208-218.
- SELMI W., WEBER C., RIVIÈRE E., BLOND N., MEHDI L., NOWAK D. (2016), "Air pollution removal by trees in public green spaces in Strasbourg city", *France, Urban For. Urban Green.*, vol. 17, pp. 192-201.
- SIM S., JEONG S., PARK H., PARK C., KWAK K., LEE S., KIM C.H., LEE S., CHANG J.S., KANG H., WOO J. (2020), "Co-benefit potential of urban CO₂ and air quality monitoring: A study on the first mobile campaign and building monitoring experiments in Seoul during the winter", *Atmospheric Pollution Research*, vol. 11, N. 11, pp. 1963-1970.
- SIMEONOVA E., CURRIE J., NILSSON P., WALKER R. (2018), *Congestion Pricing, Air Pollution and Children's Health*. Cambridge, MA: National Bureau of Economic Research.
- SONG M., LI X., YANG S., YU X., ZHOU S., YANG Y., CHEN S., DONG H., LIAO K., CHEN Q., LU K., ZHANG N., CAO J., ZENG L., ZHANG Y. (2021), "Spatiotemporal variation, sources, and secondary transformation potential of volatile organic compounds in Xi'an, China", *Atmospheric Chemistry and Physics*, vol. 21, n. 6, pp. 4939-4958.
- STONE J.B., MEDNICK A.C., HOLLOWAY T., SPAK S.N. (2007), "Is compact growth good for air quality?", *Journal of the American Planning Association*, vol. 73, n. 4, pp. 404-418.
- TALLIS M., TAYLOR G., SINNETT D., FREER-SMITH P. (2011), "Estimating the removal of atmospheric particulate pollution by the urban tree canopy of London, under current and future environments", *Landsc. Urban Plann.*, vol. 103, pp. 129-138.
- TAO W., LIU J., BAN-WEISS G.A., HAUGLUSTAIN D.A., ZHANG L., ZHANG Q., CHENG Y., YU Y., TAO S. (2015), "Effects of urban land expansion on the regional meteorology and air quality of eastern China", *Atmospheric Chemistry and Physics*, vol. 15, n. 15, pp. 8597-8614.
- TONG Z., BALDAUF R.W., ISAKOV V., DESHMUKH P., ZHANG K.M. (2016), "Roadside vegetation barrier designs to mitigate near-road air pollution impacts", *Sci. Total Environ.*, vol. 541, pp. 920-927.
- U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) (2018), *Review of the Primary National Ambient Air Quality Standards for Oxides of Nitrogen*, 40 CFR Part 50, Federal Register. 83, n. 75.
- VIANA M., DE LEEUW F., BARTONOVA A., CASTELL N., OZTURK E., GONZÁLEZ ORTIZ A. (2020), "Air quality mitigation in European cities: Status and challenges ahead", *Environment International*, vol. 143.
- XIAO H.W., WU J.F., LUO L., LIU C., XIE Y.J., XIAO H.Y. (2020), "Enhanced biomass burning as a source of aerosol ammonium over cities in central China in autumn", *Environmental Pollution*, vol. 266.
- ZHAO Q., ZOU C., GAO Q., ZHANG S., LI X. (2018), "Temporal and Spatial Exposure of Gaseous Pollutants and Its Influence Factors in Shandong Province", *IOP Conference Series: Earth and Environmental Science*, vol. 186, n. 3.
- ZIOŁA N., BŁASZCZAK B., KLEJNOWSKI K. (2021), "Long-Term eBC Measurements with the Use of MAAP in the Polluted Urban Atmosphere (Poland)", *Atmosphere*, vol. 12, n. 7.

L'impatto dell'economia circolare sulla performance economica: una prospettiva basata sull'autodeterminazione

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Inquadramento della ricerca. *L'economia circolare si differenzia dal tradizionale modello lineare di produzione basato sul "take-make-waste" in quanto un approccio sistemico in cui i rifiuti generati dai processi di produzione e consumo diventano input per altri processi produttivi, generando un ciclo chiuso che imita i sistemi naturali ambientali (Ellen MacArthur Foundation, 2013). L'economia circolare si basa su tre principi: eliminare gli sprechi e l'inquinamento, mantenere in uso prodotti e materiali e rigenerare i sistemi naturali (Ellen MacArthur Foundation, 2019). In questo senso, il concetto di economia circolare è considerato una soluzione in grado di armonizzare la crescita economica e la tutela ambientale poichè si basa sulla neutralizzazione dei rifiuti derivanti dalla produzione e vendita di beni (Fernandez de Arroyabe et al., 2021; Ghisellini et al., 2016; Ranta et al., 2018). Fatta eccezione per alcuni studi, la letteratura si è concentrata principalmente sullo studio dei vantaggi che l'economia circolare porta alle aziende per diverse ragioni: l'economia circolare contribuisce alla creazione di valore aziendale (Centobelli et al., 2020), migliora i processi produttivi (Lieder e Rashid, 2016) e migliora l'efficienza delle risorse (Kristoffersen et al., 2020). Tuttavia, l'adozione di attività di economia circolare può comportare anche insidie. Infatti, altri studi hanno rilevato che le attività di riciclaggio, alla base dell'economia circolare, richiedono notevoli sforzi da parte dell'intera azienda (Centobelli et al., 2020; Ghisellini et al., 2018), e che tutte le attività legate all'economia circolare richiedono una notevole quantità di investimenti iniziali (Liu e Bai, 2014). Inoltre, i diversi processi e le routine consolidate delle aziende potrebbero risultare inadeguati per supportare le nuove attività di economia circolare (Navarro et al., 2020), pertanto potrebbe essere necessario un ripensamento dell'intero processo produttivo e dell'intera supply chain con importanti conseguenze sull'intera filiera (Frey et al., 2013; Lieder e Rashid, 2016). Quindi, mentre l'interesse accademico e manageriale si è concentrato sui benefici delle attività di economia circolare, gli svantaggi associati alle attività di economia circolare sono stati per lo più trascurati. Pertanto, è necessaria una comprensione più completa degli effetti delle attività di economia circolare, compresi sia i vantaggi che gli svantaggi.*

Obiettivo del paper. *Lo scopo del lavoro è dimostrare che esiste una soglia oltre la quale qualsiasi attività di economia circolare aggiuntiva porta benefici alle imprese via via ridotti, mostrando quindi una relazione di tipo U rovesciata tra performance economica e numero di attività di economia circolare intraprese, che possiamo definire come ampiezza dell'economia circolare adottata nelle aziende. La motivazione di tale meccanismo è che i consumatori potrebbero percepire che quando vengono dedicati sforzi eccessivi alle attività di economia circolare dovuti ad esempio alla necessità di trasformare l'intera struttura aziendale in funzione di tale paradigma, altri obiettivi potrebbero essere penalizzati. In questo senso, adottiamo la prospettiva dell'autodeterminazione (self-determination) (Deci e Ryan, 2012; Ryan e Deci, 2000), che spiega che le azioni delle persone si basano sulla necessità di soddisfare dei bisogni intrinseci di essere soddisfatte facendo attività positive per una certa causa - in questo caso risolvendo le questioni ambientali - come fondamento per scoprire gli effetti delle pratiche di economia circolare.*

Metodologia. *Ai fini della nostra analisi, i dati sono stati ottenuti dal portale open data dell'Unione Europea (European Union, 2012) del 2017 condotta in 28 Stati dell'Unione europea e pubblicata come "Flash Eurobarometer 441: European SMEs and the Circular Economy", che ha riguardato 10.618 PMI con meno di 250 dipendenti. L'indagine fa parte della serie Flash Eurobarometer, cioè interviste telefoniche tematiche ad hoc condotte dalla Commissione Europea. Un totale di 10.618 soggetti sono stati intervistati telefonicamente a settembre 2017, avendo 2016 come anno di riferimento. Gli intervistati sono stati selezionati in base alla loro posizione manageriale nell'azienda. La variabile dipendente, cioè la performance economica delle singole aziende osservate, è misurata come variazione del fatturato totale (Performance Economica) rispetto all'anno precedente. La nostra variabile indipendente è Attività di Economia Circolare, ed è stata creata come somma delle singole attività di economia circolare intraprese dall'azienda, e può assumere valori compresi tra 0 e 5. Le possibili attività di economia circolare intraprese dalle imprese sono le seguenti: (1) ripensare l'utilizzo dell'acqua per ridurre al minimo l'uso e massimizzare il riutilizzo; (2)*

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utilizzare energia rinnovabile; (3) ripianificare l'utilizzo di energia per ridurre al minimo i consumi; (4) ridurre al minimo i rifiuti attraverso il riciclo, il riuso o vendita a un'altra società e (5) riprogettando prodotti e servizi per ridurre al minimo l'uso di materiali o utilizzando materiali riciclati. Poiché ogni attività è codificata dicotomicamente nel database, assume il valore di 1 se l'azienda ha implementato l'attività di economia circolare o è in procinto di implementarla, e 0 altrimenti. La nostra variabile ci consente quindi di misurare l'ampiezza delle azioni di economia circolare intraprese da ciascuna azienda come somma delle attività intraprese. Il termine quadratico (Attività di Economia Circolare Squared) è stato aggiunto anche per testare la relazione a forma di U. Inoltre, sono state incluse nell'analisi anche diverse variabili di controllo: i settori industriali (attività estrattiva; produzione; elettricità, gas, vapore e aria condizionata; approvvigionamento idrico, fognature e gestione dei rifiuti; edilizia; commercio all'ingrosso e al dettaglio; servizi di alloggio e ristorazione; informazione e telecomunicazioni) secondo i codici Nace; la dimensione dell'azienda in termini di numero di dipendenti e la durata della vita dell'azienda. Sono state incluse anche le spese di R&S dell'azienda (R&S Investment), misurate come percentuale dei ricavi dell'anno precedente investiti in attività di R&D. È stato incluso anche fattore di ponderazione del campione post-stratificazione (Wex - Weight Extrapolated Population) per adeguare ciascun campione nazionale in proporzione alla sua quota nella popolazione totale dell'Unione europea di età pari o superiore a 15 anni (sulla base dei dati sulla popolazione pubblicati da EUROSTAT nell'Annuario statistico regionale). La Tabella 1 riassume le variabili considerate nello studio.

Tab. 1: Descrizione delle variabili

Variabile	Tipo	Descrizione
Performance Economica	Categorica	Variazione del fatturato rispetto all'anno precedente
Attività di Economia Circolare	Discreta	Numero di attività di economia circolare intraprese
Nace 1	Dummy	Attività estrattiva
Nace2	Dummy	Manufatturiero
Nace3	Dummy	Elettricità, gas, vapore e aria condizionata
Nace4	Dummy	Approvvigionamento idrico, fognature, gestione dei rifiuti
Nace5	Dummy	Costruzioni
Nace6	Dummy	Commercio all'ingrosso e al dettaglio
Nace7	Dummy	Trasporto e stoccaggio
Nace8	Dummy	Servizi di alloggio e ristorazione
Nace9	Dummy	Informazione e comunicazione
Dimensione	Discrete	Numero di dipendenti
Anni di vita	Categorica	Anzianità dell'azienda rispetto alla fondazione
Investimenti R&D	Categorical	Fatturato investito in attività di R&D
Wex	Continua	Weight Extrapolated Population (Enterprises)

Risultati. L'analisi è stata condotta eseguendo una regressione logistica ordinata (Agresti, 2006), data la natura categorica della variabile dipendente. Abbiamo eseguito il test dei fattori di inflazione variabile (VIF) per verificare l'assenza di multicollinearità. I valori VIF non sono superiori a 1,0, e quindi inferiori al valore massimo raccomandato accettato di 10 (Cappa e Pinelli, 2020; Franco et al., 2020), confermando quindi l'assenza di multicollinearità (Lorenz, Neter, Wasserman, & Kutner, 1986) La Tabella 2 mostra i risultati dell'analisi. Il Modello 1 include solo le variabili di controllo. Il Modello 2 aggiunge la variabile indipendente Attività di Economia Circolare e infine il Modello 3 include anche l'effetto quadratico Attività di Economia Circolare Squared. Nel Modello 2 la variabile indipendente Attività di Economia Circolare ha un effetto positivo e significativo sulla variabile dipendente Performance Economica ($\beta = .056$, $p < 0.01$). Nel Modello 3, abbiamo un effetto significativo e negativo per il termine quadratico Attività di Economia Circolare Squared ($\beta = -.026$, $p < 0.01$) e un effetto lineare positivo per Attività di Economia Circolare ($\beta = .166$, $p < 0.01$), evidenziando una relazione a forma di U rovesciata tra ampiezza delle attività di economia circolare e aumento del fatturato e confermando quindi la nostra ipotesi. Attribuiamo i nostri risultati alla teoria dell'autodeterminazione (self-determination theory) (Deci e Ryan, 2012; Ryan e Deci, 2000), secondo la quale i consumatori reagiscono positivamente agli investimenti che un'azienda fa per soddisfare le loro crescenti preoccupazioni ambientali (Ba et al., 2013; Hussainey e Salama, 2010; Testa et al., 2019). Tuttavia, investimenti troppo massicci possono essere percepiti dai consumatori come fonte di distrazione per le aziende, che potrebbero trascurare altre attività fondamentali come il miglioramento della qualità del prodotto, l'innovazione del prodotto e l'assistenza clienti, che richiedono quindi uno sforzo da parte delle imprese. Infatti, secondo l'attention-based view, un'azienda coinvolta in troppe attività di natura differente potrebbe perdere il suo principale focus strategico (Ocasio e Joseph, 2005).

Tab. 2: Regressione logistica ordinata con errori robusti; "Performance Economica" è la variabile dipendente. Numero di osservazioni = 9488. *, ** e *** indicano $p < 0.10$, $p < 0.05$ e $p < 0.01$ rispettivamente

	Modello 1	s.e.	Modello 2	s.e.	Modello 3	s.e.
Attività di Economia Circolare			.056***	.015	.166***	.044
Attività di Economia Circolare Squared					-.026***	.010
Nace1	-.494*	.279	-.521*	.287	-.522*	.289
Nace2	.029	.072	.015	.077	.008	.077
Nace3	-.376	.244	-.378	.265	-.354	.263
Nace4	-.209	.194	-.314	.212	-.303	.212
Nace5	-.066	.074	-.059	.080	-.060	.080
Nace6	-.063	.056	-.048	.060	-.054	.060
Nace7	-.042	.090	-.005	.095	.000	.095
Nace8	-.062	.087	-.051	.096	-.049	.096
Nace9	-.060	.102	-.023	.112	-.022	.112
Dimensione	.000*	.000	.001*	.000	.001*	.000
Anni di vita	-.160***	.039	-.163***	.045	-.163***	.045
Investimenti R&D	-.118***	.010	-.115***	.012	-.114***	.012
Wex	.000	7.90e-06	.000***	8.72e-06	.000***	8.71e-06
Pseudo - R2	0.0067		0.0070		0.0073	

I risultati dello studio sono in linea con quanto affermato dalla letteratura precedente, in cui numerosi studi hanno dimostrato l'impatto positivo delle attività di economia circolare, mentre altri ne hanno evidenziato le controindicazioni. In questo senso, il presente lavoro riconcilia i precedenti contributi considerando che esistono sia vantaggi che svantaggi, e identifica la soglia alla quale ogni attività aggiuntiva di economia circolare può essere dannosa per le prestazioni aziendali. In questo senso, data l'importanza dell'economia circolare nel risolvere i crescenti problemi ambientali e per rispondere alle principali sfide che riguardano i nostri tempi, è importante che le aziende capiscano quale sia l'equilibrio ottimale nell'ampiezza delle loro attività di economia circolare. I nostri risultati possono essere di stimolo per i manager ad essere più aperti e favorevoli verso l'adozione di attività di economia circolare, pur mantenendo il giusto equilibrio che può sia soddisfare i clienti che migliorare il fatturato aziendale.

Limiti della ricerca. Lo studio non è esente da limitazioni, tuttavia offrono spunti interessanti per sviluppare future ricerche. In primo luogo, il dataset si concentra sui paesi dell'Unione Europea, mentre studi futuri potrebbero esplorare ciò che accade in altre regioni al fine di definire ulteriormente il giusto equilibrio per le attività di economia circolare in ogni area del mondo. Inoltre, il dataset è stato costruito attraverso sondaggi e si basa quindi sull'autovalutazione, mentre potrebbe essere interessante raccogliere dati di diversa natura oppure condurre interviste per effettuare ulteriori analisi oppure per convalidare questi risultati. In terzo luogo, il nostro dataset fornisce un set di osservazione di un anno, limitando così l'analisi dell'effetto delle attività di economia circolare sul fatturato nel tempo.

Incoraggiamo pertanto i futuri ricercatori a considerare orizzonti temporali più lunghi, che consentirebbero quindi di isolare l'effetto reciproco degli aumenti di fatturato sulle attività di economia circolare. Inoltre, potrebbero essere utilizzate altre variabili per misurare la performance economica. Infine, poiché questa ricerca è stata condotta con dati provenienti da piccole e medie imprese, studi futuri potrebbero analizzare ciò che accade nel contesto di aziende più grandi.

Implicazioni manageriali. Oltre a contribuire ad una migliore conoscenza scientifica del fenomeno, il nostro studio è di potenziale interesse anche per i manager. Nello specifico, suggerisce il livello ottimale in termini di numero di attività di economia circolare da intraprendere. Al fine di massimizzare gli effetti positivi sulle prestazioni economiche, aumentare il numero di attività di economia circolare è vantaggioso in termini di produzione e aumento delle entrate, favorite dalla reazione positiva dei consumatori, ma troppi sforzi in economia circolare risultano essere meno vantaggiosi. Inoltre, considerando il crescente interesse per l'economia circolare, può essere estremamente utile per i manager sapere che esiste una soglia oltre il quale le attività di economia circolare presentano controindicazioni. Inoltre, invitiamo i manager che desiderano adottare attività di economia circolare a pianificare attentamente una corretta "adoption strategy" e considerare come le attività di economia circolare potrebbero potenzialmente influenzare le prestazioni economiche.

I nostri risultati sono di potenziale interesse anche per i policy maker. Considerando le numerose sfide che interessano la nostra epoca (Foray et al., 2012; Williams e Whiteman, 2021, 2021; Wright e Nyberg, 2017), una maggiore comprensione dei benefici economici dell'economia circolare, oltre a quelli sociali e ambientali, incoraggerà ulteriormente l'adozione di pratiche legate all'economia circolare da parte delle imprese che potrebbero ricevere questi vantaggi economici. Pertanto, le attività di economia circolare può rivelarsi un mezzo efficace per ottenere benefici per tutti e tre i pilastri della sostenibilità: economico, sociale e ambientale (Cappa et al., 2020; Cappa et al., 2020).

Originalità del paper. Basandoci sulla teoria dell'autodeterminazione (self-determination theory) (Deci e Ryan, 2012; Ryan e Deci, 2000) dimostriamo che, se vogliamo cogliere l'effetto complessivo delle azioni di economia circolare, adottare la prospettiva del consumatore potrebbe essere utile a questo scopo. In secondo luogo, il nostro studio fornisce un quadro più completo degli effetti delle azioni di economia circolare sulla performance economica

delle imprese, riconciliando così i risultati precedenti che consideravano solo il singolo effetto positivo o negativo. In particolare, l'effetto delle attività di economia circolare viene disaggregato: da un lato aumentano le entrate come risultato di una percezione positiva da parte dei consumatori in virtù del crescente interesse verso le problematiche ambientali. D'altra parte, un sovraccarico di attività intraprese ha un effetto disturbante sulla percezione dei consumatori perché ritengono che uno sforzo eccessivo azioni di economia circolare richiede investimenti significativi che possono ostacolare le altre attività strategiche di un'azienda e mitigare l'effetto dell'ampiezza delle attività di economia circolare sulla performance economica dell'azienda. In terzo luogo, mentre gli studi precedenti si sono concentrati sull'impatto che l'economia circolare ha su altre dimensioni delle prestazioni aziendali - come il coinvolgimento degli stakeholder (Castellani et al., 2015; Jakhari et al., 2019; Williams e Whiteman, 2021; Zhang e Zhu, 2019), la costruzione di supply chain di tipo "green" (Ardito et al., 2019; Secundo et al., 2020; Zhu et al., 2010), il valore di mercato (Aboulamer, 2018), la performance manifatturiera (Mishra et al., 2019), la riduzione dell'uso di materiali per unità di output (Cainelli et al., 2020) e l'impatto ambientale (Elia et al., 2017) - il nostro studio si focalizza sull'impatto delle attività di economia circolare sul fatturato. In questo modo è possibile cogliere gli effetti immediati dell'ampiezza delle attività di economia circolare sui consumatori. In effetti, l'impatto sui benefici ambientali e sociali è ben chiaro, a differenza degli effetti sulle prestazioni economiche.

Parole chiave: economia circolare, performance economica, self-determination theory

Bibliografia

- AGRESTI A. (2006), *An Introduction to Categorical Data Analysis: Second Edition*, John Wiley e Sons, Wiley.
- ABOULAMER A. (2018), "Adopting a circular business model improves market equity value", *Thunderbird International Business Review*, vol. 60, n. 5, pp. 765-769.
- ARDITO L., PETRUZZELLI A. M., PASCUCCI F., PERUFFO E. (2019), "Inter-firm R&D collaborations and green innovation value: The role of family firms' involvement and the moderating effects of proximity dimensions", *Business Strategy and the Environment*, vol. 28, n. 1, pp. 185-197.
- BA S., LISIC L.L., LIU Q., STALLAERT J. (2013), "Stock Market Reaction to Green Vehicle Innovation", *Production and Operations Management*, vol. 22, n. 4, pp. 976-990.
- CAINELLI G., D'AMATO A., MAZZANTI M. (2020), "Resource efficient eco-innovations for a circular economy: Evidence from EU firms", *Research Policy*, vol. 49, n. 1, p. 103827
- CAPPA F., PINELLI M. (2020), "Collecting money through blockchain technologies: first insights on the determinants of the return on Initial Coin Offerings", *Information Technology for Development*, vol. 27, n. 3, pp. 561-578, 1-18.
- CAPPA F., ROSSO F., CAPALDO A. (2020), "Visitor-sensing: Involving the crowd in cultural heritage organizations", *Sustainability (Switzerland)*, vol. 12, n. 4, pp. 1-14. <https://doi.org/10.3390/su12041445>
- CAPPA F., ROSSO F., GIUSTINIANO L., PORFIRI M. (2020), "Nudging and Citizen Science: The Effectiveness of Feedback in Energy-Demand Management", *Journal of Environmental Management*, vol. 269, p. 110759.
- CASTELLANI V., SALA S., MIRABELLA N. (2015), "Beyond the throwaway society: A life cycle-based assessment of the environmental benefit of reuse", *Integrated Environmental Assessment and Management*, vol. 11, n. 3, pp. 373-382.
- CENTOBELLI P., CERCHIONE R., CHIARONI D., DEL VECCHIO P., URBINATI A. (2020), "Designing business models in circular economy: A systematic literature review and research agenda", *Business Strategy and the Environment*, vol. 29, n. 4, pp. 1734-1749.
- DECI E.L., RYAN R.M. (2012), "Self-determination theory in health care and its relations to motivational interviewing: A few comments", *International Journal of Behavioral Nutrition and Physical Activity*, vol. 9, n.1, pp. 1-6.
- ELIA V., GNONI M.G., TORNESE F. (2017), "Measuring circular economy strategies through index methods: A critical analysis", *Journal of Cleaner Production*, n. 142, pp. 2741-2751.
- ELLEN MACARTHUR FOUNDATION. (2013), "Towards the circular economy, economic and business rationale for an accelerated transition", *Ellen MacArthur Foundation*. <https://doi.org/10.1162/108819806775545321>
- ELLEN MACARTHUR FOUNDATION. (2019), "Completing the picture - How the Circular Economy tackles climate change". *Ellen MacArthur Foundation*.
- FERNANDEZ DE ARROYABE J. C., ARRANZ, N., SCHUMANN M., ARROYABE M. F. (2021), "The development of CE business models in firms: The role of circular economy capabilities", *Technovation*, n. 106, p. 102292.
- FORAY D., MOWERY D., NELSON R. (2012), "Public R&D and social challenges: What lessons from mission R&D programs?", *Research Policy*, vol. 41, n. 10, pp. 1697-1792.
- FRANCO S., CAROLI M.G., CAPPA F., DEL CHIAPPA G. (2020), "Are you good enough? CSR, quality management and corporate financial performance in the hospitality industry", *International Journal of Hospitality Management*, n. 88, p. 102395.
- FREY M., IRALDO F., TESTA F. (2013), "The determinants of innovation in green supply chains: evidence from an Italian sectoral study", *R&D Management*, vol. 43, n. 4, pp. 352-364.

- GHISELLINI P., CIALANI C., ULGIATI S. (2016), "A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems", *Journal of Cleaner Production*, n. 114, pp. 11-32.
- GHISELLINI P., RIPA M., ULGIATI S. (2018), "Exploring environmental and economic costs and benefits of a circular economy approach to the construction and demolition sector. A literature review", *Journal of Cleaner Production*, n. 178, pp. 618-643.
- HUSSAINEY K., SALAMA A. (2010), "The importance of corporate environmental reputation to investors", *Journal of Applied Accounting Research*, vol. 11, n. 3, pp. 229-241.
- JAKHAR S.K., MANGLA S.K., LUTHRA S., KUSI-SARPONG S. (2019), "When stakeholder pressure drives the circular economy", *Management Decision*, vol. 57, n. 4, pp. 904-920.
- KRISTOFFERSEN E., BLOMSMA F., MIKALEF P., LI J. (2020), "The smart circular economy: A digital-enabled circular strategies framework for manufacturing companies", *Journal of Business Research*, n. 120, pp. 241-261.
- LIEDER M., RASHID A. (2016, March 1), "Towards circular economy implementation: A comprehensive review in context of manufacturing industry", *Journal of Cleaner Production*, n. 115, pp. 36-51
- LIU Y., BAI Y. (2014), "An exploration of firms' awareness and behavior of developing circular economy: An empirical research in China", *Resources, Conservation and Recycling*, n. 87, pp. 145-152.
- LORENZ F., NETER J., WASSERMAN W., KUTNER M.H. (1986), "Applied Linear Statistical Models", *Journal of the American Statistical Association*, vol. 81, n. 396 P. 1126. 08
- MISHRA S., SINGH S.P., JOHANSEN J., CHENG Y., FAROOQ S. (2019), "Evaluating indicators for international manufacturing network under circular economy", *Management Decision*, vol. 57, n. 4, pp. 811-839.
- NAVARRO D., CANTERO R., VALLS E., PUIG R. (2020), "Circular economy: The case of a shared wastewater treatment plant and its adaptation to changes of the industrial zone over time", *Journal of Cleaner Production*, n. 261 P. 121242.
- OCASIO W., JOSEPH J. (2005), "An Attention-Based Theory of Strategy Formulation: Linking Micro- and Macroperspectives in Strategy Processes", *Advances in Strategic Management*, vol. 22, n. 5, p. 2005. [https://doi.org/10.1016/S0742-3322\(05\)22002-8](https://doi.org/10.1016/S0742-3322(05)22002-8)
- RAINVILLE D.A. (2021), "Stimulating a more Circular Economy through Public Procurement: Roles and dynamics of intermediation", *Research Policy*, vol. 50, n. 4, p. 104193.
- RANTA V., AARIKKA-STENROOS L., MÄKINEN S.J. (2018), "Creating value in the circular economy: A structured multiple-case analysis of business models", *Journal of Cleaner Production*, n. 201, pp. 988-1000.
- RYAN R.M., DECI E.L. (2000), "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being", *American Psychologist*, vol. 55, n. 1, pp. 68-78.
- SECUNDO G., NDOU V., VECCHIO P., DEL, DE PASCALE G. (2020), "Sustainable development, intellectual capital and technology policies: A structured literature review and future research agenda", *Technological Forecasting and Social Change*, n. 153 P.119917.
- TESTA F., SARTI S., FREY M. (2019), "Are green consumers really green? Exploring the factors behind the actual consumption of organic food products", *Business Strategy and the Environment*, vol. 28, n.2, pp. 327-338.
- WILLIAMS A., WHITEMAN G. (2021), "A call for deep engagement for impact: Addressing the planetary emergency", *Strategic Organization*, vol. 19, n. 3, pp. 526-537
- WRIGHT C., NYBERG D. (2017), "An inconvenient truth: How organizations translate climate change into business as usual", *Academy of Management Journal*, vol. 60, n. 5, pp. 1633-1661.
- ZHANG F., ZHU L. (2019), "Enhancing corporate sustainable development: Stakeholder pressures, organizational learning, and green innovation", *Business Strategy and the Environment*, vol. 28, n. 6, pp. 1012-1026.
- ZHU Q., GENG Y., LAI K. HUNG. (2010), "Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications", *Journal of Environmental Management*, vol. 91, p. 6, pp. 1324-1331.

Sostenibilità nelle global supply chains: uno schema di analisi della letteratura

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Inquadramento della ricerca. Nel 2015, tramite l'Agenda 2030 e i 17 Sustainable Development Goals (SDGs), l'ONU ha richiamato l'attenzione dei 193 Stati membri sulla necessità di coordinare le proprie azioni di promozione degli obiettivi di sostenibilità globale. Il raggiungimento di tali obiettivi ha richiesto e tuttora richiede numerosi sforzi da parte di differenti stakeholder (Lumpkin e Bacq, 2019; Scherer e Voegtlin, 2020). L'Agenda 2030 incoraggia la cooperazione tra i governi nazionali, le imprese e le organizzazioni della società civile affinché i SDG siano raggiunti. Inoltre, la pressione dell'opinione pubblica e, in particolare, dei consumatori spinge già da tempo le multinazionali ad attivare alleanze con governi e organizzazioni non governative affinché risorse, conoscenze ed esperienze possano essere condivise verso un obiettivo comune, così come formulato nel diciassettesimo obiettivo dell'Agenda 2030: "Partnership for the goals".

È oggi opinione diffusa che le sfide di sostenibilità richiedano azioni coordinate a livello sia globale sia locale, incoraggiando le imprese operanti in differenti regioni del mondo a coinvolgere le proprie catene di fornitura e a monitorare l'impatto sociale e ambientale dei loro processi produttivi. A tal fine, diversi schemi regolativi sono adottati dalle imprese principali e dai loro fornitori e subfornitori. Primi fra tutti, i codici di condotta che, formulati all'interno delle imprese, costituiscono un utile strumento di governance che impone ai propri partner il rispetto di determinati requisiti per la protezione ambientale, la salvaguardia dei diritti dei lavoratori e della comunità locale. Le regolamentazioni civili (quali ad esempio gli standard internazionali e globali, i programmi di certificazione e di labeling) rappresentano invece il risultato di numerose iniziative multi-stakeholder (Doh et al., 2019; Ioannou e Serafeim, 2012). Tali strumenti regolatori di natura privata e civile tentano di colmare un vuoto lasciato dalle legislazioni nazionali che, di rado, sono intervenute in tema di sostenibilità, dando vita ad una governance without government (Rosenau et al., 1992). Il fenomeno, definito in molteplici modi, quali "public governance deficit", "institutional void", "public regulatory gap" (Gugler e Shi 2009; Mayer e Gereffi, 2010; Parmigiani e Rivera-Santos, 2013; Scherer et al., 2014), attira l'attenzione degli studiosi specialmente nello studio dei contesti istituzionali di paesi in via di sviluppo. Difatti, tali contesti presentano sistemi di legislazione e politiche ancora troppo deboli e poco efficaci per lo sviluppo di un modello sostenibile.

Nell'ultimo decennio, le multinazionali hanno mostrato un crescente impegno nell'adozione di pratiche sostenibili, integrando il concetto di sostenibilità nelle loro strategie e nei loro processi organizzativi (PwC, 2019). Tipicamente, le grandi imprese hanno adottato codici di condotta interni per monitorare l'operato dei propri fornitori, servendosi anche di sistemi di auditing. Tuttavia, studi empirici dimostrano alcuni limiti nell'efficacia di tali regole, specialmente in quei contesti considerati istituzionalmente distanti da quelli in cui esse vengono formulate (Kolk e Van Tulder, 2002). A tal proposito, Kostova, Roth e Dacin (2008) parlano di decoupling dei fornitori e sub-fornitori nel processo di adozione delle pratiche imposte dalle imprese principali. La causa risiede in una logica occidentale che tipicamente caratterizza i codici di condotta aziendali (Wijen, 2014). Le difficoltà consistono in primo luogo nella mancanza di risorse finanziarie, umane e capacità tecniche che supportino i fornitori nell'osservanza delle pratiche imposte. Da una parte, le multinazionali chiedono ai propri partner prodotti a basso costo, di alta qualità e con tempi di commercializzazione brevi al fine di salvaguardare la propria competitività sul mercato. Dall'altra, tuttavia, impongono requisiti ambientali e sociali che provocano nuovi costi di produzione (come, ad esempio, quelli legati all'acquisto di macchinari green o al miglioramento delle condizioni lavorative degli impiegati), costi di certificazione e audit. Le imprese principali dovrebbero sostenere i nuovi costi insieme ai propri fornitori, evitando così che essi eludano le normative ambientali e sociali. Tuttavia, ciò accade di rado e rappresenta uno dei motivi per cui i fornitori non rispettano gli standard e le certificazioni richiesti, venendo così esclusi dalle trattative di mercato (Lee et al., 2012).

Alla luce dei motivi fin qui riportati, le partnership che coinvolgono differenti stakeholder e che coordinano plurimi interessi, sembrano offrire una soluzione alternativa ai fini dell'implementazione di un modello sostenibile

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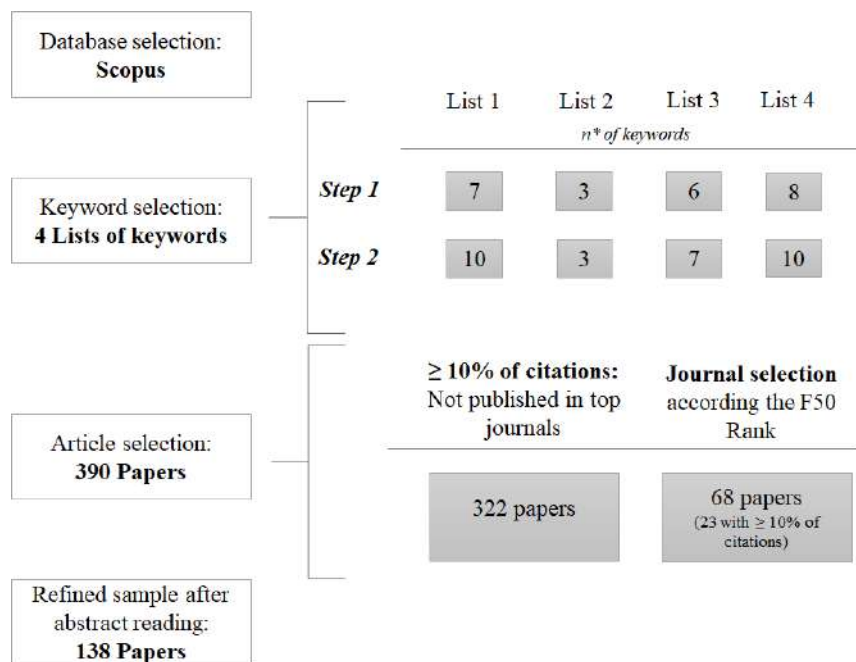
nelle global supply chain. In effetti, tali partnership hanno lo scopo di formulare schemi di regolamentazione di portata internazionale e globale (standard, certificazioni, linee guida). Essi forniscono dunque una risposta più efficiente ai codici di condotta aziendali e, allo stesso tempo, agiscono più celermente rispetto alle regolamentazioni pubbliche (Vogel, 2008). Christensen, Morsing e Thyssen (2017, p. 3) definiscono gli standard globali di sostenibilità come “shared, authoritative, and recognized reference points at both local and global levels of operation”.

Obiettivo del paper. Il presente lavoro si pone l'obiettivo di ricercare quali siano i differenti livelli di governance impegnati nell'implementazione di pratiche di sostenibilità aziendale e come questi siano influenzati e, allo stesso tempo, influenzino distinti contesti istituzionali. A tal fine, viene offerta una revisione della letteratura interpretando la ricerca con due chiavi di lettura, attinenti rispettivamente agli studi di International Corporate Governance e Institutional Theory. Vengono utilizzate due chiavi di lettura distinte per analizzare come, le multinazionali, coinvolte in strutture di governance multilivello e, operanti in contesti istituzionali caratterizzati da sistemi di capitalismo differenti, possano implementare pratiche sostenibili all'interno delle loro catene di fornitura. In particolar modo, il presente studio investiga fino a che punto i livelli di governance privati e civili possano sostituire o integrare la governance pubblica nelle sfide di sostenibilità globale. La ricerca, ancora in fieri, ha dunque lo scopo di costruire un framework integrativo che metta alla luce le possibili intersezioni concettuali e teoriche dei due flussi di studi e quale sia la loro interazione nel percorso verso la sostenibilità aziendale.

Metodologia. Per effettuare la revisione della letteratura sono rispettati i principi di affidabilità, replicabilità e trasparenza richiesti per condurre una review di tipo integrativo (Snyder, 2019; Torracco, 2005). Sono state eseguite le seguenti fasi:

1. selezionare Scopus come database;
2. selezionare le keyword;
3. selezionare le riviste su cui limitare l'ampiezza della revisione della letteratura;
4. selezionare i paper attinenti all'oggetto di questa ricerca.

Fig. 1: Costruzione del dataset



Per la selezione delle keyword il processo ha richiesto due step (Cuccurullo, Aria e Sarto, 2016). Prima di tutto, sono state create quattro liste di keyword attinenti ai seguenti campi semantici: Supply Chain, Internationalization, Sustainability e Self-regulation. Le keyword sono state scelte dopo aver effettuato ripetute attività di brainstorming tra gli autori e ricerche di sinonimi su WordReference.com. In seguito, sono state inserite le keyword selezionate nelle stringhe di ricerca su Scopus utilizzando gli operatori Boolean e ottenuto un primo dataset. Sono state analizzate le keyword più frequenti usate dagli autori dei paper del dataset ottenuto per aver certezza che le keyword scelte nel primo step fossero adatte (Cuccurullo, Aria e Sarto, 2016). Infine, sono state aggiunte nuove keyword alle liste e la medesima ricerca è stata riprodotta su Scopus, ottenendo il dataset finale composto da 3.445 paper.

Nella fase successiva sono stati selezionati i paper del dataset pubblicati sulle riviste classificate nella F50 Rank, e quelli che, seppur non pubblicati sulle riviste della F50, avessero ricevuto almeno il 10% delle citazioni (Dagnino, Picone, e Ferrigno, 2021). Questa modalità di selezione della letteratura garantisce di considerare i paper pubblicati recentemente su riviste di maggior prestigio che, per tale ragione, verosimilmente influenzeranno il dibattito. Al contempo, la scelta di includere nel database anche i paper più citati assicura che siano considerati lavori non

pubblicati su riviste ritenute prestigiose, ma che hanno contribuito al tema in modo rilevante. E' stato così ottenuto un dataset composto da 390 paper, sono stati letti tutti gli abstract e rimossi quei paper non conformi al tema di ricerca.

Una volta ottenuto il dataset finale composto da 138 paper, ogni paper è stato letto e categorizzato attingendo, da una parte, alla tassonomia proposta da Aguilera, Marano, e Haxhi (2019), e dall'altra, attingendo alla categorizzazione proposta da Donnelly e Manolova (2020). In particolar modo, utilizzando la chiave di lettura International Corporate Governance sono stati categorizzati i paper a seconda del filone di ricerca di appartenenza in: Corporate Governance of the MNC, MNC Governance e Comparative Corporate Governance of the MNC. Utilizzando la chiave di lettura di Institutional Theory, sono stati categorizzati i paper in: Formal e Informal Institution; combinando il filone di ricerca istituzionale economico (North, 1990) e sociologico (Scott, 1995).

Risultati attesi. Questo lavoro in fieri intende elaborare un framework integrativo (Torraco, 2005; Snyder, 2019). L'obiettivo è costruire una matrice che permetta di integrare gli studi della ricerca riguardanti International Corporate Governance (Aguilera et al., 2019) e Institutional Theory (North 1990; Scott, 1995), portando alla luce quali siano le possibili interazioni tra essi.

Da una parte, gli studi su International Corporate Governance hanno focalizzato la loro attenzione sull'identificazione delle più significative lenti teorico-concettuali che caratterizzano i sistemi di governance delle multinazionali, le cui attività e operazioni trovano luogo in più regioni del mondo. Dall'altra parte, gli studi su Institutional Theory hanno investigato come i contesti istituzionali influenzino l'agire delle multinazionali attingendo alle prospettive di sociologia ed economia istituzionale. Secondo la prospettiva di sociologia istituzionale (Scott, 1995), le istituzioni sono supportate da tre pilastri (regolativo, normativo e cognitivo), mentre gli economisti istituzionali hanno distinto le istituzioni in formali e informali. Integrando queste due prospettive, Donnelly e Manolova (2020) hanno identificato le istituzioni formali supportate da un pilastro regolativo, mentre le istituzioni informali supportate dal pilastro normativo e cognitivo. Difatti, gli economisti osservano che, i sistemi legislativi rappresentano quella fonte di coercizione capace di controllare la logica utilitaristica degli individui e delle imprese (North, 1990); per tale motivo, secondo la loro prospettiva, le istituzioni formali trovano fondamento nel pilastro regolativo (Scott, 1995). Tuttavia, sebbene i sociologi riconoscano l'importanza dei sistemi regolativi, essi affermano che le istituzioni non rappresentano solo sistemi di regole e sanzioni, ma piuttosto anche aspettative normative, sistemi simbolici, regole culturali e sociali.

In tal modo, i risultati attesi di questo lavoro in itinere tentano di identificare se gli attori coinvolti lungo le catene di fornitura, disperse in differenti strutture di governance e in molteplici contesti istituzionali, rispettino le pratiche di sostenibilità poiché gli sono imposte dai sistemi legali, poiché si sentono moralmente obbligati o ancora, poiché le considerano (data la loro standardizzazione) costrutti sociali in cui potersi identificare e trovare legittimazione. Viene dunque analizzato lo stato dell'arte su quali siano i meccanismi di governance e quali quelli istituzionali che permettono (o inibiscono) alle multinazionali di trasferire pratiche sostenibili ai propri fornitori globali.

Enfatizzando entrambi i filoni di ricerca, si intende scoprire quali siano le possibili intersezioni teoriche e concettuali che hanno investigato il tema della sostenibilità nelle global supply chain. La rilevanza del tema viene messa in luce: (a) attirando un'attenzione maggiore riguardo l'implementazione di pratiche sostenibili nel business imprenditoriale; (b) integrando contributi concettuali e teorici che finora sembrano essere emersi separatamente; (c) per ultimo, scoprendo eventuali gap di ricerca e fornendo implicazioni pratiche per i manager delle catene di fornitura e per gli attori politici che sempre più sono richiamati alla regolamentazione su temi di sostenibilità.

Limiti della ricerca. Nonostante gli sforzi nell'elaborare una revisione che copra esaurientemente la letteratura sul tema, la strategia seguita per la costruzione del dataset e l'interpretazione dei contributi possono essere affetti da bias interpretativi degli autori, specialmente con riguardo alla fase di selezione degli articoli. Inoltre, il lavoro è focalizzato sul contesto delle global supply chain. Estendendo il tema dell'implementazione di pratiche sostenibili all'interno di un contesto di più ampia portata si potrebbe accrescere la conoscenza sul tema e portare alla luce nuovi spunti di riflessione.

Implicazioni pratiche. Il presente lavoro attinge al concetto di ruolo politico delle imprese (Scherer e Palazzo, 2011): le multinazionali contribuiscono alla regolamentazione globale su temi di sostenibilità e forniscono beni pubblici, rendendo i confini tra il dominio pubblico e privato opachi. Tuttavia, il contributo che le multinazionali sono chiamate a dare deve anche adattarsi al contesto locale e istituzionale in cui esse operano. Per tale motivo, appare di particolare interesse per i decisori politici acquisire abilità nel supportare la creazione di sistemi di governance che agiscano nei differenti tipi di contesti istituzionali e coordinare la propria azione con attori privati e civili nell'implementazione di uno sviluppo sostenibile globale e locale. In particolar modo, i decisori politici dovrebbero essere interessati ad affrontare vari ordini di sfide sostenibili nelle global supply chain:

1. verificare l'abilità delle multinazionali di veicolare la diffusione di pratiche sostenibili su più livelli (globale, nazionale e locale);
2. verificare come e fino a che misura le interazioni tra i sistemi di governance privata, civile e pubblica abbiano un impatto sociale, positivo o negativo. Ad esempio, studi empirici (Lee et al., 2012) mostrano come gli standard globali e internazionali limitano l'accesso al mercato a piccoli produttori operanti in economie emergenti che non possiedono sufficienti risorse e capacità per conformarsi a pratiche sostenibili dei processi produttivi. A tal riguardo, le istituzioni pubbliche locali sarebbero chiamate a fornire sussidi e incentivi che supportino tale cambiamento.

Dunque, si contribuisce alla conversazione riguardante l'evoluzione di sistemi di governance pubblici-privati che si pongono l'obiettivo di formulare schemi di regolamentazione di rilievo globale su temi ambientali e sociali

(Abbott e Snidal, 2010). I partner all'interno di tali sistemi dovrebbero collaborare in processi di problem solving, decision making, management, e learning per raggiungere un cambiamento sociale significativo (Doh et al., 2019).

Infine, questa ricerca ha notevoli implicazioni pratiche anche per i manager, specialmente i supply chain manager, se presenti in impresa. Affinché l'intera catena di fornitura diventi sostenibile, essi sono chiamati a rispondere alle pressioni dei vari stakeholder sia nei paesi sviluppati in cui le imprese principali operano, sia nei paesi in via di sviluppo, dove la maggior parte delle operazioni di fornitura ha luogo.

Originalità del paper. Sebbene scandali riguardanti lo sfruttamento minorile, gli orari di lavoro disumani e i disastri ambientali non siano una novità, tali aspetti continuano a rappresentare una significativa preoccupazione per gli stakeholder. Difatti, monitorare l'impatto sociale e ambientale delle global supply chain richiede sforzi e costi molto alti, portando alla luce problemi di agenzia tra le imprese principali e i loro fornitori e subfornitori (Wilhelm et al., 2016). Asimmetria informativa, costi di monitoraggio, comportamenti opportunistici e arbitraggio sono tutti elementi che caratterizzano i rapporti di fornitura e pongono difficili sfide all'adozione di pratiche sostenibili. Oltre ai problemi di governance, la questione diventa più ardua: non tutte le organizzazioni reagiscono allo stesso modo in un dato contesto istituzionale. Scott (1995, p. 118) sostiene che la diffusione di una pratica potrebbe essere influenzata "by the characteristics, not of the propagator, but the adopting organization".

Il lavoro che si intende condurre si impegna ad investigare sul ruolo delle multinazionali all'interno dei differenti livelli di governance e come tali imprese riescano a imporre sistemi di controllo formali e informali nelle global supply chain dispiegate in multipli contesti istituzionali e normativi. Numerosi studi si sono dedicati ad indagare riguardo come le multinazionali distribuiscano diritti e potere tra i differenti stakeholder coinvolti nelle global supply chain: l'approccio Global Commodity Chain (Gereffi, 1994; Gereffi et al., 2001) e le sue evoluzioni Global Value Chain (Gereffi et al., 2005; Gereffi e Lee 2012; Mayer e Gereffi, 2010) e Global Production Network (Coe e Yeung, 2015, 2019) ne sono la prova. Tuttavia, il focus di questi filoni di ricerca ha interessato principalmente strutture di governance private, dedicando soltanto di recente attenzione ad altri assetti governativi, come ad esempio le iniziative multi-stakeholder di carattere civile. La diffusione di strutture di governance civili è un fenomeno crescente che tenta di porre rimedio ai limiti della governance pubblica formulando schemi di regolamentazione (standard internazionali e globali, certificazioni) che forniscono linee guida nel percorso verso la sostenibilità (Scherer et al., 2014). A tal riguardo, alcuni studiosi hanno cominciato a parlare di uno standards market (Reinecke et al., 2012) a causa della loro eccessiva proliferazione e diversità (Christensen et al., 2017). Wijen (2014) critica anche la natura universalistica di tali standard, mostrando l'incapacità di tali forme di regolamentazione di rispondere a differenti esigenze dei contesti istituzionali. Dunque, tante ad oggi sono ancora le domande riguardo l'efficacia delle regole civili come strumento sostitutivo o complementare della legge pubblica (Mayer e Gereffi, 2010). Gli standard e i programmi di certificazione ed etichettatura, data la rilevanza internazionale, riescono con difficoltà ad adattarsi alle esigenze di paesi caratterizzati da sistemi di capitalismo differenti. Col presente paper si intende combinare i contributi che i due filoni di ricerca, Governance e Institutional, hanno separatamente fornito al tema della sostenibilità nelle global supply chain, portando alla luce le possibili intersezioni concettuali e teoriche e le loro interazioni.

Parole chiave: Sustainability; Global Supply Chains; Governance; Institution; Regulation.

Bibliografia

- ABBOTT K.W., SNIDAL D. (2010), "International regulation without international government: Improving IO performance through orchestration", *Review of International Organizations*, vol. 5, n. 3, pp. 315-344.
- AGUILERA R.V., MARANO V., HAXHI I. (2019), "International corporate governance: A review and opportunities for future research", *Journal of International Business Studies*, vol. 50, n. 4, pp. 457-498.
- CHRISTENSEN L.T., MORSING M., THYSSEN O. (2017), "License to critique: A communication perspective on sustainability standards", *Business Ethics Quarterly*, vol. 27, n. 2, pp. 239-262.
- COE N.M., YEUNG H.W.C. (2015), *Global production networks: Theorizing economic development in an interconnected world*, Oxford University Press.
- COE N.M., YEUNG H.W.C. (2019), "Global production networks: mapping recent conceptual developments", *Journal of Economic Geography*, vol. 19, n. 4, pp. 775-801.
- CUCCURULLO C., ARIA M., SARTO F. (2016), "Foundations and trends in performance management. A twenty-five years bibliometric analysis in business and public administration domains", *Scientometrics*, vol. 108, n. 2, pp. 595-611.
- DAGNINO G.B., PICONE P.M., FERRIGNO G. (2021), "Temporary competitive advantage: a state-of-the-art literature review and research directions", *International Journal of Management Reviews*, vol. 23, n. 1, pp. 85-115.
- DOH J.P., TASHMAN P., BENISCHKE M.H. (2019), "Adapting to grand environmental challenges through collective entrepreneurship", *Academy of Management Perspectives*, vol. 33, n. 4, pp. 450-468.
- DONNELLY R., MANOLOVA T.S. (2020), "Foreign location decisions through an institutional lens: A systematic review and future research agenda", *International Business Review*, vol. 29, n. 4, p. 101690.
- GEREFFI G., HUMPHREY J., STURGEON T. (2005), "The governance of global value chains", *Review of International Political Economy*, vol. 12, n. 1, pp. 78-104.

- GEREFFI G., KORZENIEWICZ M. (Eds.) (1994), *Commodity chains and global capitalism* (No. 149). ABC-CLIO.
- GEREFFI G., KAPLINSKY R. (2001), "Introduction: Globalisation, value chains and development", *IDS bulletin*, vol. 32, n. 3, pp. 1-8.
- GEREFFI G., LEE J. (2012), "Why the world suddenly cares about global supply chains", *Journal of Supply Chain Management*, vol. 48, n. 3, pp. 24-32.
- GUGLER P., SHI J.Y. (2009), "Corporate social responsibility for developing country multinational corporations: lost war in pertaining global competitiveness?", *Journal of Business Ethics*, vol. 87, n. 1, pp. 3-24.
- IOANNOU I., SERAFEIM G. (2012), "What drives corporate social performance? The role of nation-level institutions", *Journal of International Business Studies*, vol. 43, n. 9, pp. 834-864.
- KOLK A., VAN TULDER R. (2002), "The effectiveness of self-regulation: Corporate codes of conduct and child labour", *European Management Journal*, vol. 20, n. 3, pp. 260-271.
- KOSTOVA T., ROTH K., DACIN M.T. (2008), "Institutional theory in the study of multinational corporations: A critique and new directions", *Academy of Management Review*, vol. 33, n. 4, pp. 994-1006.
- LEE J., GEREFFI G., BEAUVAIS J. (2012), "Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries", *Proceedings of the National Academy of Sciences*, vol. 109, n. 31, pp. 12326- 12331.
- LUMPKIN G. T., BACQ S. (2019), "Civic wealth creation: A new view of stakeholder engagement and societal impact", *Academy of Management Perspectives*, vol. 33, n. 4, pp. 383-404.
- MAYER F., GEREFFI G. (2010), "Regulation and economic globalization: Prospects and limits of private governance", *Business and Politics*, vol. 12, n. 3, pp. 1-25.
- NORTH D.C. (1990), *Institutions, institutional change and economic performance*, Cambridge, England: Cambridge University Press.
- PARMIGIANI A., RIVERA-SANTOS M. (2015), "Sourcing for the base of the pyramid: Constructing supply chains to address voids in subsistence markets", *Journal of Operations Management*, vol. 33, pp. 60-70.
- REINECKE J., MANNING S., VON HAGEN O. (2012), "The emergence of a standards market: Multiplicity of sustainability standards in the global coffee industry", *Organization Studies*, vol. 33, n. 5-6, pp. 791-814
- ROSENAU J.N. (1992), Governance, order and change in world politics. In J. Rosenau & E.O. Czempiel (Eds.), *Governance without Government* (pp. 1-29), Cambridge: Cambridge University Press.
- SCHERER A.G., PALAZZO G. (2011), "The new political role of business in a globalized world: A review of a new perspective on CSR and its implications for the firm, governance, and democracy", *Journal of Management Studies*, vol. 48, n. 4, pp. 899-931.
- SCHERER A.G., PALAZZO G., MATTEN D. (2014), "The business firm as a political actor: A new theory of the firm for a globalized world", *Business & Society*, vol. 53, n. 2, pp. 143-156.
- SCHERER A.G., VOEGTLIN C. (2020), "Corporate governance for responsible innovation: Approaches to corporate governance and their implications for sustainable development", *Academy of Management Perspectives*, vol. 34, n. 2, pp. 182-208.
- SCOTT W. R. (1995), *Institutions and organizations*, Thousand Oaks, CA: Sage.
- SNYDER H. (2019), "Literature review as a research methodology: An overview and guidelines", *Journal of Business Research*, vol. 104, pp. 333-339.
- TORRACO R.J. (2005), "Writing integrative literature reviews: Guidelines and examples", *Human Resource Development Review*, vol. 4, n. 3, pp. 356-367.
- VOGEL D. (2008), "Private global business regulation", *Annual Review of Political Science*, vol. 11, pp. 261-282.
- WIJEN F. (2014), "Means versus ends in opaque institutional fields: Trading off compliance and achievement in sustainability standard adoption", *Academy of Management Review*, vol. 39, n. 3, pp. 302-323.
- WILHELM M.M., BLOME C., BHAKOO V., PAULRAJ A. (2016), "Sustainability in multi-tier supply chains: Understanding the double agency role of the first-tier supplier", *Journal of Operations Management*, vol. 41, pp. 42-60.

Siti internet

<https://www.pwc.com/gx/en/services/sustainability/sustainable-development-goals/sdg-challenge-2019.html>

La sostenibilità nei porti turistici del Mediterraneo: il ruolo delle certificazioni

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Inquadramento della ricerca. La sostenibilità dei porti commerciali è da tempo oggetto di studio in letteratura, in ragione dei notevoli impatti economici, sociali e ambientali sui territori circostanti (Asgari et al., 2015; López-Navarro et al., 2015; Hou e Geerlings, 2016; Ashrafi et al., 2019; Hossain et al., 2021). Assai meno esplorato è invece il tema della sostenibilità dei porti turistici e dei marina, le strutture specializzate che, nell'ambito del turismo nautico, forniscono riparo alle imbarcazioni garantendo loro un approdo - anche di lunga durata - insieme ad una varietà di ulteriori servizi rivolti sia alle imbarcazioni (rifornimento di acqua, carburante ed energia elettrica, manutenzione, refitting, ecc.) sia ai diportisti e agli equipaggi (ristorazione e ricettività, strutture commerciali, parcheggi e autonoleggio, servizio navetta, attività sportive, intrattenimento, ecc.) (Luković, 2013; Lam González et al., 2015; Benevolo e Spinelli, 2021). La sostenibilità dei porti turistici risulta meritevole di approfondimento poiché anche queste infrastrutture - nonostante le dimensioni normalmente più contenute - possono generare le medesime tipologie di esternalità dei porti commerciali (Kovačić e Luković, 2007). Facciamo riferimento, in particolare, a importanti impatti ambientali, spesso sottovalutati anche dagli stessi marina manager (Petrosillo et al., 2010), quali: la contaminazione del mare a causa delle acque di sentina o di lavaggio delle imbarcazioni, delle vernici e dei prodotti anti-vegetativi; l'introduzione di specie aliene nell'ecosistema marino; le emissioni sonore; i fumi generati dai motori; la generazione e dispersione di microplastiche; la generazione di rifiuti solidi; ecc. (Kasum et al. 2009; Łapko et al., 2019). Significative sono anche le ricadute a livello sociale, in particolare per ciò che riguarda le problematiche di salute e sicurezza sul lavoro, nonché l'interazione tra turistici nautici e residenti (Kovačić et al., 2011).

Il presente studio colma in parte questo gap di ricerca, indagando le pratiche di sostenibilità dei porti turistici. L'analisi si concentra su un aspetto peculiare di tali pratiche, ossia il conseguimento di certificazioni di qualità, di sostenibilità ambientale e di sostenibilità sociale (d'ora in avanti "certificazioni"). Si tratta, come noto, di riconoscimenti che attestano il soddisfacimento da parte dell'impresa di una serie di requisiti previsti da uno standard, emanato da un Ente terzo rispetto tanto ai soggetti valutati quanto ai valutatori a cui è affidata l'attività di audit. La valenza della certificazione dipende quindi, in buona parte, dalla rilevanza a livello nazionale e internazionale dell'Ente che ha emanato lo standard e che "garantisce" la completezza e rilevanza dei contenuti nonché, attraverso l'accreditamento dei soggetti certificatori, l'affidabilità del meccanismo di verifica (Turriziani e Vecchio, 2018).

Si è scelto un approccio deliberatamente inclusivo, associando alle certificazioni più direttamente legate alla sostenibilità "in senso stretto" - quindi riferite a tematiche ambientali o sociali - anche quelle che valutano i sistemi di gestione della qualità. Il tema della qualità di processi e prodotti, infatti, è fortemente legato a quello della sostenibilità e rientra in un più ampio approccio "responsabile" da parte delle imprese.

Obiettivo del paper. La ricerca si propone di valutare la diffusione delle certificazioni tra i porti turistici del Mediterraneo. Oggetto specifico di analisi sono state le più note certificazioni disponibili a livello internazionale, quali le diverse ISO, la SA8000, la OHSAS 18001, l'EMAS ecc. Abbiamo incluso nel novero delle certificazioni considerate anche il riconoscimento della Bandiera Blu - rilasciata dalla Foundation for Environmental Education - che, pur seguendo un processo in parte diverso rispetto agli esempi sopra menzionati, ne ricalca comunque la logica e presenta contenuti pienamente riconducibili all'ambito della qualità e dell'attenzione ai temi sociali e ambientali. Si tratta, inoltre, della forma di riconoscimento della "qualità" di un porto turistico maggiormente nota all'interno dell'opinione pubblica e della comunità dei diportisti (Pencarelli et al., 2016). Nel presente contributo si dà conto esclusivamente dei risultati riferiti alle certificazioni sopra menzionate. Tuttavia sottolineiamo che l'analisi è stata estesa a un altro insieme di riconoscimenti specifici per la portualità turistica, che rispondono a logiche e meccanismi differenti. Facciamo riferimento a strumenti quali il Gold Anchor Scheme, l'attestazione RINA Marina Excellence, l'IMCI System nonché altri aventi diffusione in specifici contesti nazionali. I sistemi di classificazione menzionati condividono l'obiettivo di fornire una sorta di "rating" del porto rispetto ad una determinata scala di valori (espressa in termini di

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numero di ancore, timoni, ecc.), in maniera analoga a quanto da tempo presente nel settore della ricettività. Abbiamo tenuto traccia di questi riconoscimenti poiché la valutazione del porto, seppur legata in misura rilevante al portafoglio dei servizi offerti, sempre più spesso prende in considerazione anche aspetti legati alla gestione della qualità, alla sostenibilità ambientale, alla sicurezza e salute dei luoghi di lavoro, ecc.

Oltre alla diffusione delle certificazioni, ci è proposto di valutare quanto e come il loro possesso venga valorizzato dai porti turistici nell'ambito delle attività di comunicazione esterna. È infatti fondamentale che le imprese turistiche valorizzino al meglio il loro impegno su questi fronti, alla luce della crescente sensibilità degli stakeholder e, in particolare, dei turisti, nei confronti dei temi della qualità e sostenibilità (Tölkes, 2018).

Metodologia. L'obiettivo di ricerca è stato perseguito attraverso una rilevazione indiretta del fenomeno, ossia verificando la presenza nei siti web dei porti turistici di un rimando esplicito al possesso delle certificazioni (rimando rappresentato, in primo luogo, dall'ostentazione del marchio della certificazione conseguita). La scelta di questo approccio trova giustificazione nella ragionevole ipotesi che un'impresa che abbia conseguito una certificazione lo comunichi agli stakeholder - in particolare i clienti - attraverso i propri canali di comunicazione. Se è vero che l'ottenimento di una certificazione comporta, in primo luogo, benefici interni all'organizzazione in termini di incremento dell'efficienza ed efficacia delle attività, è altrettanto vero che è normalmente utilizzato anche come strumento per rimarcare il proprio impegno in termini di qualità e sostenibilità nei confronti degli interlocutori esterni, sempre più sensibili rispetto a queste tematiche (Calabrò, 2009; Turriziani e Vecchio, 2018).

All'interno del mix di strumenti di comunicazione a disposizione dei porti turistici, si è scelto di concentrare l'attenzione sul sito web poiché - come rilevato da Benevolo e Spinelli (2019) - esso rappresenta uno degli strumenti più efficaci per raggiungere una platea di clienti frammentata, geograficamente dispersa, spesso in mobilità ed estremamente esigente quale quella dei diportisti. Il sito web, infatti, costituisce una piattaforma attraverso cui il porto informa, comunica, interagisce con i suoi interlocutori e realizza promozione, vendita e distribuzione dei suoi prodotti, raggiungendo un'audience vasta e internazionale con contenuti ricchi e adattabili (Benevolo e Spinelli, 2018).

L'analisi ha avuto ad oggetto un vasto campione di porti turistici nel Mar Mediterraneo. Nel selezionare tali porti ci si è scontrati - come rilevato già da Luković (2012) - con l'assenza di fonti di dati aggiornate, complete e affidabili relativamente alla consistenza della portualità turistica nei diversi Paesi del Mediterraneo e alle caratteristiche dei porti stessi. Poiché il focus della ricerca è sulla presenza dei riferimenti alle certificazioni nella comunicazione web, si è scelto di fare riferimento a una directory di porti che garantisse una copertura quanto più capillare dell'intero Mediterraneo e che fosse rivolta ai soggetti di domanda, ovvero i diportisti. È stata a tal fine utilizzata *Yachting Pages Superyacht Directory (Mediterranean, Europe Africa and Middle East 2021-2022 edition)*, un catalogo di porti e fornitori di servizi per la nautica estremamente diffuso tra i turisti nautici essendo disponibile online nonché distribuito gratuitamente in versione cartacea nei porti turistici di tutto il mondo. La scelta di questa fonte di dati presenta vantaggi. In primo luogo, la directory include porti in tutti i principali Paesi del bacino del Mediterraneo. Secondariamente, lo sforzo economico richiesto ad un porto per essere incluso nella directory può essere considerato una proxy del suo impegno in comunicazione e della sua proiezione internazionale; di conseguenza, i porti ivi compresi rappresentano un campione particolarmente significativo rispetto ai nostri obiettivi.

Per garantire maggiore omogeneità all'analisi e aggirare problemi linguistici, si è scelto di esaminare solamente la versione in inglese dei siti; questa scelta, inoltre, ha permesso di focalizzare ulteriormente lo studio sui porti che più direttamente si rivolgono ad una clientela internazionale e, quindi, presentano un profilo più elevato e complesso. Dai 265 porti inclusi nella directory sono stati quindi esclusi quelli il cui sito web non fosse reperibile, non fosse funzionante o non avesse la versione in inglese. Il campione finale include 225 porti, molto eterogenei tra loro e con un numero di posti barca che varia da 10 a 1600. I porti sono localizzati in tutte le principali destinazioni di turismo nautico nel Mediterraneo: Italia (76 porti), Croazia (37), Spagna mediterranea (31), Francia mediterranea (27), Turchia (18), Grecia (16), Malta (6), Montenegro (6), Cipro (3), Gibilterra (3) e Tunisia (2). Poiché per la quasi totalità del campione l'inglese non è la lingua ufficiale del Paese di localizzazione, la realizzazione di una versione del sito in tale lingua risulta una deliberata scelta di marketing, confermando la validità di questo criterio di inclusione nel campione.

L'esplorazione dei siti è avvenuta nel mese di novembre 2021. Per ciascun sito si è analizzata la presenza di un richiamo esplicito - grafico e/o testuale - ad eventuali certificazioni conseguite, rilevando a quali certificazioni fosse riferito e distinguendo se avvenisse solo in home page e/o anche in sezioni interne del sito dedicate ai temi della qualità e sostenibilità, ove vengono fornite ulteriori informazioni.

Risultati. Un primo risultato della ricerca è relativo al numero di porti che dichiarano sul sito di possedere almeno una certificazione. Come riportato nella Tabella 1, si tratta di poco meno della metà del campione ma con fortissime oscillazioni a livello internazionale.

Tab. 1 Porti con almeno una certificazione

Paese	Porti nel campione	Porti con almeno una certificazione
Cipro	3	1 (33%)
Croazia	37	27 (73%)
Francia	27	7 (26%)
Gibilterra	3	0
Grecia	16	11 (69%)
Italia	76	20 (26%)
Malta	6	0
Montenegro	6	3 (50%)
Spagna	31	17 (55%)
Tunisia	2	1 (50%)
Turchia	18	15 (83%)
TOTALE	225	102 (45%)

Alcuni Paesi risultano particolarmente “virtuosi”, in particolare due importanti *player* nel mercato del turismo nautico quali Turchia e Croazia; in altri Paesi, quali Malta e Gibilterra, nessun porto è invece certificato. Molte altre importanti destinazioni di turismo nautico si trovano in una posizione intermedia; tra di esse spicca in negativo il caso dell’Italia dove solo un porto su quattro dichiara il possesso di almeno una certificazione. Una tale variabilità, oltre che essere ricondotta alle specifiche scelte manageriali dei gestori dei marina, può trovare giustificazione anche in una caratteristica strutturale propria della portualità turistica in Turchia e Croazia. In entrambi i Paesi, infatti, sono molto diffuse le reti di porti (in particolare, la rete turca Setus Marinas, il croato ACI - Adriatic Croatia International Club e la rete D-Marin, presente in entrambi i Paesi). Il fatto di appartenere ad una rete costituisce indubbiamente un punto di forza per un marina rispetto all’ottenimento di una certificazione. Infatti, se vi è nei vertici della rete una sensibilità rispetto ai temi della qualità e della sostenibilità, è possibile gestire a livello aggregato tanto la condivisione delle best practice necessarie per soddisfare gli standard di accreditamento, quanto l’impegno economico legato ai costi di ottenimento e mantenimento delle certificazioni. Inoltre, politiche di comunicazione condivise a livello di rete portano a una omogenea valorizzazione dei riconoscimenti ottenuti all’interno dei siti dei singoli approdi. A conferma di ciò, si evidenzia come i porti delle reti sopra citate ostentino di norma il possesso di ben 4 o 5 certificazioni diverse. In parziale contraddizione con quanto sopra affermato, rileviamo tuttavia il caso della rete Marinedi, che riunisce 13 porti italiani ma non fa alcuna menzione di certificazioni, né nel sito di gruppo né nei siti (tra loro estremamente omogenei) dei singoli porti.

All’interno del campione, le best practice possono essere identificate in due porti italiani con ben 6 certificazioni (Marina di Portisco e Venezia Certosa Marina) e in tre porti con 5 certificazioni (Marina di Capri, Puerto de Alcúdia - Spagna e Marina Ibiza - Spagna). I 102 porti con certificazioni hanno conseguito in media 2,8 riconoscimenti. Si è verificato se il numero di certificazioni fosse correlato positivamente alla dimensione del porto (espressa in termini di posti barca), a sua volta potenziale indicatore di una maggior grado di complessità e “managerialità” nella gestione del porto stesso; si è testata questa ipotesi - su un sottoinsieme di 221 porti per i quali i dati erano disponibili - con una analisi di correlazione utilizzando il test τ di Kendall, scelto poiché in grado di gestire distribuzioni di dati non parametriche e con una variabile (nel nostro caso, il numero di certificazioni) concentrata intorno a pochi valori. Il risultato mostra, come ipotizzato, una correlazione positiva e statisticamente significativa tra dimensione e certificazioni conseguite (Kendall $\tau=0.094$; $p<0.05$ one-tailed). Tuttavia, l’intensità di tale correlazione è molto bassa, lasciando intendere un ruolo più significativo di altri fattori firm-specific nel determinare l’impegno dei porti per il conseguimento di certificazioni; pensiamo, in particolare, al grado di consapevolezza e sensibilità verso queste tematiche dei manager e dei proprietari del porto.

Venendo alle tipologie di certificazioni riscontrate, la Tabella 2 riporta il numero complessivo e la suddivisione per Paese dei porti che comunicano il possesso di uno specifico riconoscimento.

Tab. 2: Diffusione delle certificazioni

Certificazione	Diffusione complessiva	Paese	Porti certificati
ISO 14001	78	Cipro	1
		Croazia	25
		Francia	3
		Grecia	5
		Italia	14
		Montenegro	3
		Spagna	14
		Turchia	13
ISO 9001	71	Cipro	1
		Croazia	25
		Francia	3
		Grecia	6
		Italia	9
		Montenegro	3
		Spagna	11
		Turchia	13
Bandiera Blu	71	Cipro	1
		Croazia	24
		Francia	5
		Grecia	11
		Italia	15
		Montenegro	2
		Spagna	6
		Turchia	6
ISO 45001	27	Cipro	1
		Croazia	4
		Grecia	4
		Italia	8
		Montenegro	1
		Spagna	5
		Turchia	4
ISO 5001	19	Croazia	19
EMAS	10	Italia	1
		Spagna	9
ISO 13687	2	Italia	1
		Spagna	1
ISO 27001	1	Italia	1
SA 8000	3	Italia	3

Le due certificazioni più diffuse sono la ISO 9001 e la ISO 14001; la prima, come noto, definisce i requisiti di un "Sistema di gestione della qualità" mentre la seconda fissa gli analoghi requisiti di un "Sistema di gestione ambientale". Si tratta in entrambi i casi di certificazioni molto diffuse e il cui impatto sulle pratiche gestionali è stato ampiamente apprezzato, soprattutto quando conseguite congiuntamente (Aba, Badar, 2013); tuttavia, queste certificazioni non presentano elementi specifici riferiti al settore della portualità turistica. Solo due porti possono vantare la ISO 13687, che definisce gli standard di qualità e servizio per i porti turistici, e nessuno ha conseguito la ISO 21406, che impone ulteriori e più stringenti requisiti ai porti turistici che vogliono qualificarsi "di lusso". Analogamente, nessun porto ha conseguito la certificazione Port Environmental Review System (PERS), assegnata dalla ECO Sustainable Logistic Chain Foundation - ad oggi - solo a (grandi) porti commerciali.

È piuttosto diffusa la Bandiera Blu, un riconoscimento i cui 38 requisiti (23 imperativi e 15 suggeriti) coprono un ampio spettro di tematiche riconducibili al perseguimento di politiche di qualità e sostenibilità: educazione ambientale e informazione; gestione ambientale; servizi e sicurezza; qualità delle acque; responsabilità sociale d'impresa; partecipazione sociale. La Bandiera Blu inoltre, come già richiamato, è senza dubbio il riconoscimento maggiormente noto a soggetti di domanda, sulla scorta dell'elevata visibilità degli omonimi riconoscimenti attribuiti alle migliori spiagge.

Si riscontra una diffusione piuttosto marginale di altre due certificazioni ISO: la ISO 45001, che analizza i “Sistemi di gestione per la salute e sicurezza sul lavoro”, e - per una rete di 19 porti croati - la ISO 50001, che ha ad oggetto invece i “Sistemi di gestione dell’energia”. Si tratta di due temi di grande importanza in un’ottica di sostenibilità e responsabilità sociale, che sono tuttavia solo marginalmente presidiati dai porti turistici. Sul tema della dignità, qualità e sicurezza del lavoro, si annoverano peraltro anche tre porti italiani, che hanno conseguito la certificazione SA 8000.

Il tema della tutela ambientale, presidiato soprattutto attraverso la ISO 14001, risulta coperto anche - nel caso di 10 porti, quasi esclusivamente spagnoli - attraverso l’Eco-Management and Audit Scheme (EMAS), i cui elementi portanti sono un sistema di gestione ambientale e una dichiarazione ambientale con finalità di rendicontazione.

In ultimo, un porto italiano (considerabile una best practice in quanto dotato di ben 6 certificazioni), ostenta anche il conseguimento della ISO 27001, che certifica il “Sistema di gestione della sicurezza delle informazioni”.

L’analisi ha infine valutato la modalità di comunicazione delle certificazioni nell’ambito del sito web del porto turistico; i risultati sono riportati nella Tabella 3.

Tab. 3: Modalità di comunicazione delle certificazioni

Paese	Richiamo alle certificazioni solo in homepage	Richiamo alle certificazioni solo in una sezione specifica	Richiamo alle certificazioni in homepage e in una sezione specifica
Cipro	-	-	1
Croazia	3	5	19
Francia	1	5	1
Grecia	3	3	5
Italia	13	5	2
Montenegro	2	1	-
Spagna	5	6	6
Tunisia	-	1	-
Turchia	1	12	2
TOTALE	28	38	36

I porti croati ottengono nuovamente i risultati migliori, poiché nella maggior parte dei casi valorizzano i riconoscimenti ottenuti tanto in home page quanto in una sezione specifica del sito. In questo modo, le politiche di qualità e sostenibilità dispiegano appieno il loro potenziale comunicativo: il visitatore del sito ha modo innanzitutto di notare, normalmente nella parte bassa del sito, i riferimenti ai riconoscimenti ottenuti e può approfondire l’analisi ritrovando informazioni più ampie e contestualizzate nella specifica sezione del sito stesso. Opposta è la situazione dei porti italiani, che si limitano spesso al semplice richiamo in home page, normalmente attraverso il logo della certificazione. Poco efficace è anche, a nostro modo di vedere, il comportamento di molti porti turchi e francesi che richiamano le certificazioni esclusivamente in una sezione interna al sito, perdendo quindi la visibilità propria dell’esposizione in home page.

Limiti della ricerca. Da un punto di vista metodologico, il principale limite della ricerca è aver indagato in maniera indiretta il conseguimento delle certificazioni da parte dei porti turistici, rilevando il fatto che ne rendessero conto all’interno dei propri siti web. Sebbene sufficientemente giustificato, questo approccio non permette di escludere la presenza di strutture che, pur avendo conseguito una certificazione, non lo comunicano attraverso il sito web.

La scelta di considerare solamente la versione in inglese dei siti potrebbe in prima battuta costituire un’ulteriore limite della ricerca. Tuttavia, solo 16 siti (il 6% dell’universo considerato) sono stati esclusi dal campione perché privi di una versione in tale lingua; inoltre, il fatto di aver considerato la versione in inglese potrebbe aver ridotto il numero di siti con una sezione dedicata ad hoc ai temi di qualità e sostenibilità (poiché il sito in inglese potrebbe non essere completo come quello nella lingua locale) ma non limita di per sé la possibilità per le strutture di inserire almeno in homepage il richiamo grafico alle certificazioni conseguite.

Infine, individuiamo un possibile elemento di criticità nella modalità di selezione del campione: la scelta della directory Yachting Pages ha infatti ristretto l’universo osservato ai porti ivi inclusi, a fronte peraltro di significativi vantaggi già richiamati nella descrizione della metodologia. Future estensioni della ricerca potrebbero prevedere approfondimenti in specifici ambiti territoriali, facendo ricorso a fonti di dati più circoscritte ma maggiormente complete, quali le Pagine Azzurre che elencano tutti i porti turistici italiani.

Implicazioni manageriali. I risultati dello studio suggeriscono un livello di adozione delle certificazioni ancora limitato e molto eterogeneo a livello internazionale. Circa la metà dei porti analizzati comunica il possesso di almeno una certificazione, sebbene non sempre specifica per il comparto della portualità, quali la ISO 9001 e la ISO 14001. Praticamente assenti sono invece la ISO 13687 e la ISO 21406, concepite espressamente per certificare la qualità dei porti. A parziale compensazione di ciò, si rileva la buona diffusione della Bandiera Blu, conseguita da poco più di un quarto dei porti considerati.

Nel complesso, emerge in impegno limitato dei marina manager nei confronti dell’ottenimento di questo tipo di riconoscimenti, con un focus su certificazioni dalla consolidata diffusione e immagine. Una prima motivazione può essere di matrice culturale: non si coglie il potenziale contributo che le certificazioni possono dare alla gestione del porto e al suo posizionamento, attraverso un’azione tanto interna sui processi organizzativi e la qualità dei servizi

offerti, quanto esterna sull'immagine del porto nella percezione del cliente. Una seconda motivazione può essere ricondotta alle difficoltà nel processo di ottenimento e mantenimento delle certificazioni stesse, legate sia al soddisfacimento dei requisiti richiesti sia ai costi monetari e organizzativi associati al processo stesso. Rispetto alle motivazioni sopra riportate, è importante ricordare come i porti turistici siano generalmente gestiti da imprese di piccole o medie dimensioni; la letteratura ha infatti ampiamente verificato come nelle imprese minori siano presenti maggiori resistenze e difficoltà nell'implementazione di pratiche di sostenibilità. Ciò si deve, in particolare, alla minor disponibilità di risorse finanziarie, alla minor consapevolezza dei benefici derivanti da un impegno verso la sostenibilità, nonché al più ridotto grado di managerialità nei meccanismi gestionali e di governo, che rende più difficile affrontare i complessi ed esigenti percorsi che portano al conseguimento delle certificazioni (Chassé e Boiral, 2017; Jansson et al., 2017; Schimidt et al., 2018).

È tuttavia fondamentale che i marina manager superino tali resistenze e si impegnino maggiormente nel conseguimento delle certificazioni e nella comunicazione di tali riconoscimenti; si tratta infatti di una scelta ormai imprescindibile, considerando il crescente livello di competizione nel settore (Dikeç e Töz, 2017; Janković e Vlašić, 2018; Benevolo e Spinelli, 2019) - che richiede continua innovazione e miglioramento dei processi e dei prodotti - nonché le sempre più marcate richieste del mercato. La "pressione" che un porto turistico riceve dai suoi stakeholder è senza dubbio minore rispetto a quella di un porto commerciale; più contenuto è infatti l'impatto potenziale a livello ambientale e sociale che viene associato ad un porto turistico (Battistella et al., 2021); tuttavia, l'intera filiera della nautica si deve rapidamente adeguare alla crescente domanda di qualità e sostenibilità da parte dei turisti nautici (Benevolo, 2011; Pencarelli e Forlani, 2007): così come i cantieri hanno da tempo risposto in termini di innovazione tecnologica "green" (Pencarelli et al., 2014), altrettanto dovrebbero fare i porti turistici.

Nel quadro dei fattori sopra esposti, un potenziale sviluppo della presente ricerca potrebbe indagare in maniera diretta la conoscenza i marina manager che hanno delle certificazioni e le motivazioni del loro mancato o limitato ottenimento; le risultanze dello studio costituirebbero a loro volta un utile punto di partenza per accompagnare gli operatori portuali verso maggiori livelli di adozione e comunicazione di tali riconoscimenti.

Con riferimento specifico alla situazione dei porti italiani, il deciso ritardo che emerge dai dati implica per i marina manager la necessità di un ancor più deciso cambio di passo. Rispetto ai principali Paesi concorrenti nel mercato del turismo nautico mediterraneo (Croazia Francia e Spagna in primis), appare minore (e molto contenuta in termini assoluti) la diffusione tanto delle certificazioni a maggior valenza "interna", quali le ISO9001 e ISO 14001, quanto di quelle con forte ruolo comunicativo, come la Bandiera Blu. Ciò rappresenta senza dubbio un punto di debolezza per i nostri porti nel confronto con i competitor internazionali, spesso già favoriti da livelli di costo più bassi nonché da politiche fiscali particolarmente attrattive, soprattutto per l'acquisito o la locazione di ormeggi a lungo termine. Nel nostro Paese risulta quindi ancora più urgente un'opera di sensibilizzazione e supporto nei confronti dei marina manager rispetto a questi strumenti. Da questo punto di vista, stupisce il già menzionato ruolo "passivo" della rete Marinedi che, a differenza di analoghe realtà turche o croate, non si è attivata per diffondere tra i suoi associati la "cultura" della certificazione.

Originalità del paper. Lo studio si colloca nel filone delle analisi delle pratiche di sostenibilità da parte delle infrastrutture portuali e presenta diversi elementi di originalità. In primo luogo, oggetto di analisi sono i porti turistici, un comparto quasi del tutto inesplorato a fronte della relativa abbondanza di studi riferiti ai porti commerciali. Inoltre, rappresenta la prima analisi delle certificazioni di qualità, sociali ed ambientali nei porti turistici, tema invece approfondito da diversi studi con riferimento ai porti commerciali (Hlača et al., 2008; Pantouvakis e Dimas, 2010; Bin Yahya, 2019).

Parole chiave: sostenibilità; certificazioni; qualità; ISO; Bandiera Blu; porti turistici

Bibliografia

- ABA E.K., BADAR M.A. (2013), "A Review of the Impact of ISO 9000 and ISO 14000 Certifications", *Journal of Technology Studies*, vol. 39, n. 1, pp. 42-50.
- ASGARI N., HASSANI A., JONES D., NGUYE H.H. (2015), "Sustainability ranking of the UK major ports: Methodology and case study", *Transportation Research Part E: Logistics and Transportation Review*, n. 78, pp. 19-39.
- ASHRAFI M., ACCIARO M., WALKER T.R., MAGNAN G.M., ADAMS M. (2019), "Corporate sustainability in Canadian and US maritime ports", *Journal of Cleaner Production*, vol. 220, pp. 386-397.
- BATTISTELLA C., ATTANASIO G., CICERO L., PREGHENELLA N. (2021), "Modelli di business sostenibili delle PMI. Sfide nel settore del turismo nautico", *Quaderni di ricerca sull'artigianato*, n. 2, pp. 253-283.
- BENEVOLO C. (2011), "Problematiche di sostenibilità nell'ambito del turismo nautico in Italia", *Impresa Progetto-Electronic Journal of Management*, n. 2, pp. 1-17.
- BENEVOLO C., SPINELLI R. (2019), "The use of websites by Mediterranean tourist ports", *Journal of Hospitality and Tourism Technology*, vol. 10, n. 2, pp. 190-204.
- BENEVOLO C., SPINELLI R. (2018), "Evaluating the quality of web communication in nautical tourism: a suggested approach", *Tourism and Hospitality Research*, vol. 18, n. 2, pp. 229-241.

- BENEVOLO C., SPINELLI R. (2021), "Benefit segmentation of pleasure boaters in Mediterranean marinas: A proposal", *International Journal of Tourism Research*, vol. 23, n. 1, pp. 134-145.
- BIN YAHYA N. (2019), "Adopting a Green Port Standard for World's Sustainability", *Journal of Arts & Social Sciences*, vol. 2, n. 2, pp. 1-11.
- CALABRÒ G. (2009), *La certificazione nel settore turistico*, Franco Angeli, Milano.
- CHASSÉ S., BOIRAL O. (2017), "Legitimizing corporate (un) sustainability: A case study of passive SMEs", *Organization & Environment*, vol. 30, n. 4, pp. 324-345.
- DIKEÇ G., & TÖZ A.C. (2017), "The impact of perceived service quality on satisfaction: An application on Marina customers in Turkey", *Journal of ETA Maritime Science*, vol. 5, n. 3, pp. 242-257.
- HLAČA B., AKSENTIJEVIĆ S., TIJAN E. (2008), "Influence of ISO 27001: 2005 on the port of Rijeka security", *Pomorstvo/Journal of Maritime Studies*, vol. 22, n. 22, pp. 245-258.
- HOSSAIN T., ADAMS M., WALKER T.R. (2021), "Role of sustainability in global seaports", *Ocean & Coastal Management*, vol. 202, n. 105435.
- HOU L., GEERLINGS H. (2016), "Dynamics in sustainable port and hinterland operations: A conceptual framework and simulation of sustainability measures and their effectiveness, based on an application to the Port of Shanghai", *Journal of Cleaner Production*, vol. 135, pp. 449-456.
- JANKOVIĆ S., VLAŠIĆ D. (2018), "Developing a benchmarking methodology for marina business", *Tourism in Marine Environments*, vol. 13, n. 2-3, pp. 141-154.
- JANSSON J., NILSSON J., MODIG F., HED VALL G. (2017). "Commitment to sustainability in small and medium-sized enterprises: The influence of strategic orientations and management values", *Business Strategy and the Environment*, vol. 26, n. 1, pp. 69-83.
- KASUM J., BOŽIĆ FREDOTOVIĆ K., VIDAN P. (2009), "How nautical tourism ports affect the environment", *WIT Transactions on Ecology and the Environment*, vol. 127, pp. 123-133.
- KOVAČIĆ M., GRŽETIĆ Z., BOŠKOVIĆ D. (2011), "Nautical tourism in fostering the sustainable development: A case study of Croatia's coast and island", *Tourismos*, vol. 6, n. 1, pp. 221-232.
- KOVAČIĆ M., LUKOVIĆ T. (2007), "Spatial characteristics of planning and construction of nautical tourism ports", *Geoadria*, vol. 12, n. 2, pp. 131-147.
- LAM GONZÁLEZ Y.E., DE LEÓN LEDESMA J., LEÓN GONZÁLEZ C.J. (2015), "European nautical tourists: Exploring destination image perceptions", *Tourism & Hospitality Management*, vol. 21, n. 1, pp. 33-49.
- LÓPEZ-NAVARRO M.Á., TORTOSA-EDO V., LLORENS-MONZONÍS J. (2015), "Environmental management systems and local community perceptions: The case of petrochemical complexes located in ports", *Business Strategy and the Environment*, vol. 24, n. 4, pp. 236-251.
- LUKOVIĆ T. (2012), "Nautical tourism and its function in the economic development of Europe", in Kasimoglu M. (Ed.), *Visions for Global Tourism Industry. Creating and Sustaining Competitive Strategies*, InTech, Rijeka, pp. 399-430.
- LUKOVIĆ T. (2013), *Nautical tourism*, CABI, Boston MA.
- ŁAPKO A., STRULAK-WÓJCIKIEWICZ R., LANDOWSKI M., WIECZOREK R. (2019), "Management of waste collection from yachts and tall ships from the perspective of sustainable water tourism", *Sustainability*, vol. 11, n. 121.
- PANTOUVAKIS A., DIMAS A. (2010), "Does ISO 9000 series certification matter for the financial performance of ports? Some preliminary findings from Europe", *Maritime Policy & Management*, vol. 37, n. 5, pp. 505-522.
- PENCARELLI T., FORLANI F. (2007), *Turismo nautico e porti turistici. Quali prospettive nelle Marche?*, Quattroventi, Urbino.
- PENCARELLI T., SPLENDIANI S., DINI M. (2014), "Eco-design e sostenibilità nella nautica da diporto: il caso della Regione Marche", *Sinergie Italian Journal of Management*, n. 94, pp. 97-114.
- PENCARELLI T., SPLENDIANI S., FRABONI C. (2016), "Enhancement of the "Blue Flag" Eco-label in Italy: an empirical analysis", *Anatolia*, vol. 27, n. 1, pp. 28-37.
- PETROSILLO I., VASSALLO P, VALENTE D, MENSA J.A., FABIANO M., ZURLINI G. (2010), "Mapping the environmental risk of a tourist harbor in order to foster environmental security: Objective vs. subjective assessments", *Marine Pollution Bulletin*, vol. 60, pp. 1051-1058.
- SCHMIDT F.C., ZANINI R.R., KORZENOWSKI A.L., SCHMIDT JUNIOR R., XAVIER DO NASCIMENTO K.B. (2018), "Evaluation of sustainability practices in small and medium-sized manufacturing enterprises in Southern Brazil", *Sustainability*, vol. 10, n. 7, 2460.
- TÖLKES C. (2018), "Sustainability communication in tourism - A literature review", *Tourism Management Perspectives*, vol. 27, pp. 10-21.
- TURRIZIANI L., VECCHI V. (2018), "Le certificazioni sociali e ambientali", in Sciarelli S, Sciarelli M., *Il governo etico d'impresa*, Wolters Kluwer, Milano; pp. 389-402.

Le strategie di sostenibilità delle PMI del made in Italy per incrementare la fiducia degli stakeholder

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Inquadramento della ricerca. *L'interesse per la sostenibilità come paradigma per chi si occupa di management si è sviluppato inizialmente in riferimento alla dimensione ambientale, poi considerando anche quella sociale (Kumar et al., 2012). Secondo Porter e van Der Linde (2002), la sostenibilità rappresenta un'opportunità per le aziende e non semplicemente una fonte di costi. Alcuni studi hanno dimostrato che la comunicazione di sostenibilità è rilevante per aumentare la reputazione di un'azienda (Bronn e Vrioni, 2011; Mark-Herbert e Von Schantz, 2007) e che un impegno responsabile può essere positivo anche dal punto di vista degli indicatori finanziari (Miles e Covin, 2001). In questa prospettiva, però, è importante considerare la tendenza di alcune grandi aziende a nascondere i propri comportamenti negativi attraverso una comunicazione non trasparente: è il fenomeno del greenwashing (Delmas e Cuerel Burbano, 2011; Grant, 2009). Il contributo delle imprese può manifestarsi attraverso una condotta responsabile, che si declina nei concetti di Corporate Social Responsibility (Siano, 2012; Lindgreen and Swaen, 2010), Corporate Social Performance (Sciarelli, 2012; Sethi, 1975) Social Accountability (Gilbert e Rasche, 2007; Laufer, 2003) e Corporate Sustainability (Salzmann et al., 2005). Secondo Carroll (1979) la responsabilità sociale va definita considerando quattro categorie di dimensioni: economica, legale, etica e discrezionale. In particolare, le responsabilità economiche sono quelle relative alla produzione di beni e servizi richiesti dalla società; la responsabilità legale implica il rispetto di leggi e regolamenti; la dimensione etica riguarda una serie di comportamenti non definiti dalle leggi ma che servono per il rispetto della società; infine, la responsabilità discrezionale è relativa alle attività di volontariato (si pensi ai contributi filantropici).*

Secondo Orsato (2006) è possibile distinguere quattro strategie, di cui due strategie (Eco-Efficiency e Environmental Cost Leadership) sono legate alla riduzione dei costi mentre le altre due (Beyond Compliance Leadership ed Eco-Branding) si riferiscono a una strategia di differenziazione generica:

- *Eco-efficienza: l'obiettivo è aumentare la produttività e diminuire i costi e, allo stesso tempo, l'impatto ambientale;*
- *Environmental Cost Leadership: l'obiettivo è combinare costi inferiori con un minore impatto sull'ambiente.*
- *Beyond Compliance Leadership: è importante migliorare il processo organizzativo, ma anche far conoscere ai clienti quali sono gli sforzi dell'impresa attraverso certificazioni, codici aziendali e investimenti ambientali non redditizi;*
- *Eco-Branding: questa strategia parte dalla premessa che i consumatori devono capire quali sono i benefici derivanti dall'acquisto;*

Un altro ambito importante è quello relativo al consumatore verde, cioè il consumatore che presta attenzione ai comportamenti ambientali delle imprese, premiando quelle imprese che si mostrano più sensibili al tema ecologico e sociale. Gilg et al. (2005) hanno identificato quattro tipi di consumatori: gli ambientalisti impegnati, cioè coloro sono più rispettosi dell'ambiente; gli ambientalisti tradizionali, che sono molto attenti all'ambiente, ma che (ad esempio) non riciclano i loro rifiuti (hanno quindi un'attenzione parziale); gli ambientalisti occasionali, che mostrano un modesto contributo alla causa ambientale; e i non ambientalisti. Finisterra Do Paço e Barata Raposo (2010) definiscono invece tre tipologie di consumatori: non impegnati, attivisti verdi e indefiniti. Shrum et al. (1995) rappresentano i consumatori green come opinion leader, interessati a scoprire nuovi prodotti e le loro caratteristiche. Essi tendono a ricercare con attenzione le informazioni sui prodotti poiché non sono impulsivi durante il processo di acquisto. Un approccio favorevole alla questione verde non significa automaticamente essere un consumatore attento: Pastore e Barbarossa (2012), ad esempio, hanno studiato i cosiddetti consumatori soggettivisti, che si mostrano interessati ai problemi ecologici, ma che, allo stesso tempo, non acquistano prodotti sostenibili.

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Secondo un rapporto del 2019 di Accenture, il 62% dei consumatori vogliono rassicurazioni da parte delle imprese, attraverso una comunicazione maggiormente trasparente, sulle posizioni e sugli approcci che le stesse hanno sulle tematiche della sostenibilità ambientale, sociale e sulle condizioni dei propri dipendenti.

L'impresa moderna è, dunque, chiamata a rendere conto del proprio impatto sia sull'ambiente che sulla società e può far riferimento ad alcuni Standard a livello internazionale (UNI EN ISO 14001 per i sistemi di gestione ambientale, UNI EN 13428 per la progettazione degli imballaggi, UNI EN 13429 per il riutilizzo degli imballaggi, UNI EN 13430 per il recupero e riciclo dei materiali, UNI EN 13431 per il recupero energetico degli imballaggi e UNI EN 13432 per biodegradazione e compostaggio).

Alcuni studi hanno dimostrato l'impatto positivo della ISO 14001 sulle prestazioni ambientali (Boiral e Henri, 2012). Davis (1991) ha invece studiato la sua influenza positiva sui profitti. Gli studi sul ruolo di OHSAS 18001 (standard di tipo sociale, riguardante in particolare la gestione della salute e della sicurezza sul lavoro) sono stati condotti da Abad, Lafuente e Vilajosana (2013) che ne hanno specificato l'importanza nel raggiungimento della sicurezza; Lo, Pagell, Fan, Wiengarten e Yeung (2014) hanno dimostrato un legame tra il possesso di questa certificazione e il miglioramento in termini di sicurezza, produttività del lavoro e redditività.

Da questo punto di vista alcune imprese fanno riconoscere da organismi terzi il proprio impegno e il proprio impatto ambientale e sociale ottenendo alcune certificazioni. Di particolare rilevanza, nei processi aziendali, risultano:

- 1 LCA - Life Cycle Assessment (strumento per analizzare qual è l'impatto ambientale di un prodotto durante il suo ciclo di vita, si veda il recente Tam et al., 2022);*
- 2 S-LCA- Social Life cycle Assessment (per valutare l'impatto sociale di un prodotto durante il suo ciclo di vita, serve a migliorare le performance sociali);*
- 3 LCC - Life Cycle Costing (per il calcolo del costo economico dell'intero Ciclo di Vita di un prodotto o servizio);*
- 4 EPD - Environmental Product Declaration (etichetta che certifica le prestazioni ambientali del prodotto nel suo ciclo di vita).*

Questo processo di certificazione da parte di organismi terzi mira soprattutto a comunicare agli stakeholder, fornendo una maggiore garanzia di veridicità e aumentando la credibilità, che le strategie e i processi produttivi sviluppati in ottica di corporate sustainability sono realmente implementati e non sono frutto di operazioni di spin doctoring (Gregory, 2002), che invece spesso tendono a manipolare le informazioni aziendali per ottenere un vantaggio di immagine e rappresentando una realtà inesistente (Baccarani e Golinelli, 2015).

*Diventa dunque necessario per le imprese, nella prospettiva della Resource-Based Value (Alvarez e Busenitz, 2001), costruire una corporate reputation, quale risorsa competitiva per la crescita della fiducia nell'impresa (Busacca, Castaldo 2002, Castaldo, 2007) e della **brand awareness** (Cassia et al., 2017), realizzando una crescita delle performance aziendali (Dowling, 2001, Fombrun, 1996), in termini sia commerciali che di creazione del valore (Porter, 1980, Priem, 2007).*

Al fine di creare valore per gli stakeholder dell'impresa è fondamentale dunque generare o accrescere il valore della fiducia nelle scelte strategiche che l'impresa ha attuato per cambiare il proprio modello di business in ottica di corporate sustainability.

Obiettivo del paper. *Il presente studio, al fine di contribuire all'attuale ed importante dibattito della letteratura di management sulle strategie delle imprese per una crescita sostenibile, si pone l'obiettivo di verificare se e con quali strategie le PMI italiane sviluppano e valorizzano la sostenibilità, come le imprese del Made in Italy implementano il concetto di sostenibilità al loro interno e come valorizzano alcune o la maggior parte delle azioni per la sostenibilità, intraprese dalle stesse imprese, per generare fiducia nei propri clienti (consumer o business), creando valore condiviso e sostenibile per gli stakeholder.*

Metodologia. *Il presente lavoro si basa su una metodologia di tipo qualitativo, attraverso l'analisi di diversi casi di studio (multiple case study) con scopo sia esplorativo che esplicativo o causale (Yin, 1993, 2003), che permetterà di realizzare altresì una comparazione tra i diversi business model orientati alla sostenibilità, utilizzati dalle imprese della casistica, e le relative strategie di corporate reputation, attuate per la creazione di valore per i clienti e di valore condiviso con tutti gli stakeholder.*

Dopo una preliminare analisi, in diverse regioni italiane, di una casistica estesa di PMI italiane, che si sono distinte per le scelte strategiche orientate alla sostenibilità e alla valorizzazione del Made in Italy, è stata selezionata una limitata casistica di imprese, in alcune regioni dell'Italia e soprattutto nelle regioni di Puglia e Basilicata, che hanno già realizzato, in questi ultimi anni, investimenti mirati allo sviluppo di una cultura della sostenibilità sia all'interno dell'organizzazione sia all'esterno, verso i clienti (consumer e/o business) e gli altri stakeholder.

Inoltre, il presente lavoro in itinere si focalizza sul concetto di sostenibilità applicato all'interno delle imprese, con un focus sulle strategie che le stesse imprese possono implementare per far conoscere agli stakeholder le proprie azioni e creare fiducia negli stessi.

Infatti, sono stati individuati, nelle azioni e nelle scelte strategiche delle imprese, alcuni elementi fondamentali per poter realizzare una cross case analysis e per comprendere come le scelte strategiche delle imprese della casistica stanno generando valore e creando fiducia negli stakeholder.

Tali elementi fondamentali sono rappresentati in primis dal valore della sostenibilità esplicitato nella mission aziendale, e nella comunicazione interna ed esterna dei valori aziendali; dalla realizzazione dei prodotti sostenibili ottenuti in seguito ad accordi di filiera corta, a chilometro zero, valorizzando il Made in Italy (Götze et al., 2019) e le materie prime del territorio, nonché valorizzando i legami con il territorio di origine; dal riutilizzo degli scarti di

produzione in un'ottica di economia circolare e attraverso investimenti in processi o prodotti innovativi per la sostenibilità, ottenendo le rispettive certificazioni di sostenibilità da parte di enti di certificazione.

Le suindicate azioni, quindi, rappresentano alcuni elementi fondamentali su cui poter basare l'osservazione delle strategie delle imprese, che vogliono creare valore condiviso e sostenibile, generando fiducia nel pubblico degli stakeholder (Barile, 2009, Siano, 2012).

In un secondo momento la presente ricerca approfondirà (con l'opportuna triangolazione delle fonti) l'analisi comparativa sia con l'ampliamento della casistica sia con l'analisi delle performance commerciali ed economico finanziarie delle imprese selezionate, in modo da poter valutare anche la risposta degli stakeholder e la creazione del valore.

Risultati. Da una prima fase di confronto della letteratura di management analizzata e da una preliminare analisi delle imprese della casistica selezionata si può delineare che tutte le imprese analizzate, nell'ultimo decennio, hanno preso consapevolezza del valore della sostenibilità e si stanno sempre più orientando strategicamente verso la valorizzazione di alcuni elementi fondamentali, individuati nel presente lavoro, per la realizzazione di business model attenti alla sostenibilità e alla condivisione di tale valore con gli stakeholder, attraverso un percorso strategico di comunicazione, per la crescita della fiducia nell'impresa e per l'aumento della propria reputazione (Cowan et al., 2020). Infatti, pur essendo le imprese selezionate di dimensioni e settori diversi, localizzate in regioni diverse, si può già evincere che tutte hanno intrapreso e stanno realizzando un percorso di cambiamento per la valorizzazione della sostenibilità sia all'interno sia verso l'esterno, a beneficio dei clienti, sempre più attenti ed esigenti, e di tutti gli altri stakeholder.

In alcuni casi selezionati è evidente una valorizzazione maggiore della sostenibilità sin dall'enunciazione nella Mission aziendale, in altre esclusivamente nel sito web o attraverso la comunicazione delle certificazioni ottenute in materia di prodotti, packaging o processi sostenibili; in altre imprese, invece, attraverso forti investimenti in innovazione dei processi produttivi o dei prodotti o negli accordi di filiera per gli approvvigionamenti delle materie prime, con particolare valorizzazione dell'origine proveniente dai territori di localizzazione delle stesse imprese, in modo da garantire un minore impatto sull'ambiente, generando valore nell'economia del territorio e accrescendo la fiducia negli stakeholder.

Le PMI analizzate, in questa fase preliminare della ricerca, sono imprese familiari, manifatturiere, longeve, legate spesso alla storia dei valori familiari, con un management rappresentato spesso da giovani, con forti investimenti innovativi nei processi produttivi e in sostenibilità, appartenenti sia al settore del Food, sia della Salute e Igiene, nonché al settore della produzione di carta e di packaging.

Inoltre si evidenzia che il segmento di mercato a cui si rivolgono le imprese della casistica sono sia il B2C sia il B2B, come riportato nella tabella seguente.

E' particolarmente interessante precisare che la casistica delle imprese, anche se limitata numericamente, è diversificata nel settore di appartenenza (agroalimentare, prodotti del benessere e salute, produzione di carta, etc), nelle dimensioni e, come già accennato, è diversificata anche nel territorio della sede aziendale (Puglia e Basilicata).

Nella seguente tabella si riporta la sintesi di una preliminare valutazione qualitativa, in termini di intensità, su una scala di valori a 5 passi (1 min, 5 max), per ogni singolo elemento fondamentale presente nelle azioni delle imprese della casistica per la realizzazione di un modello di gestione che valorizzi le scelte strategiche per la sostenibilità e la creazione di fiducia negli stakeholder.

Case studies Elementi fondamentali	A (Food, B2C e B2B)	B (Cartiera e packaging, B2B)	C (Food, B2C)	D (Salute e Igiene, B2C e B2B)
VALORI SOSTENIBILITA' NELLA MISSION	5	2	4	5
MATERIE PRIME UTILIZZATE	5	4	5	4
LAVORAZIONE/RIUTILIZZO SCARTI	2	5	1	3
ECONOMIA CIRCOLARE	3	4	1	3
PRODOTTI SOSTENIBILI	5	4	4	4
PACKAGING SOSTENIBILE	4	4	3	5
COMUNICAZIONE SOSTENIBILITA' CERTIFICAZIONI	5	3	3	5
MADE IN ITALY E FILIERE	5	4	4	5
INNOVAZIONE PER LA SOSTENIBILITA'	5	4	5	5
	5	4	5	4

Si può osservare che le imprese sin ora analizzate comunicano tutte in modo strategico l'importanza della sostenibilità, valorizzando più di uno degli elementi fondamentali individuati, come ad esempio le scelte strategiche di filiera o quelle relative all'innovazione dei processi di produzione o del packaging sostenibile o delle relative certificazioni ottenute.

Infatti, le imprese analizzate del settore agroalimentare, focalizzate su un segmento B2C, sono ad esempio particolarmente attente alla comunicazione web, social ed istituzionale delle scelte strategiche di corporate sustainability, nonché al packaging sostenibile o alla certificazione della filiera, grazie agli accordi di filiera stipulati

con i fornitori di materie prime del proprio territorio, promuovendo anche il valore del Made in Italy o del Made in Puglia/Basilicata.

Mentre le altre PMI analizzate, focalizzate su un segmento B2B o che realizzano una quota rilevante del fatturato di vendita come private label, comunicano maggiormente, sia nelle forme tradizionali sia attraverso una comunicazione web e social, le certificazioni ottenute in materia di sostenibilità ambientale o l'attenzione all'economia circolare e al riutilizzo degli scarti di produzione.

Tutte le imprese della casistica, sia focalizzate sul B2C che sul B2B, sono attente al packaging sostenibile e alle materie prime utilizzate, nonché agli investimenti in innovazione per il risparmio energetico o nei processi produttivi maggiormente orientati alla sostenibilità ambientale.

La valorizzazione del modello di business sostenibile (Evans et al., 2017), a monte, e la creazione di fiducia negli stakeholder, a valle, sono due strategie che solamente attraverso un vero processo di cambiamento e di miglioramento del modello di business è possibile attuare, realizzando quel processo di crescita del valore reputazionale dell'impresa e di crescita di valore condiviso tra l'impresa, gli stakeholder e il territorio circostante l'impresa (Porter, 2011).

Limiti della ricerca. Il presente studio in itinere presenta il limite principale di un'analisi di tipo qualitativo svolta su un numero limitato di casi aziendali, anche se appartenenti a territori e a settori economici diversi. L'estensione della casistica delle imprese analizzate e la comparazione dei diversi casi di studio permetterà, in seguito, di ridurre la possibilità di errore e di cattiva interpretazione dei risultati e di ottenere la generalizzazione analitica (Yin 1993, 2003) dei risultati della ricerca.

Implicazioni manageriali. Attraverso il presente progetto di ricerca, pertanto, si intende individuare innanzitutto gli elementi comuni che caratterizzano le strategie di sostenibilità e di relativa comunicazione nelle imprese del Made in Italy, appartenenti a diversi settori, territori, nonché diversificate per dimensioni e per segmenti di mercato, fornendo utili indicazioni per le imprese che stanno approcciando la tematica della sostenibilità nelle loro strategie. Si intende inoltre verificare se tali strategie, basate sulla presenza di pattern comuni, consentono alle imprese di generare un incremento della fiducia nei loro clienti e negli stakeholder, nonché un incremento della propria corporate reputation, contribuendo al miglioramento delle proprie performance e alla creazione del valore (Jingjing et al., 2021). Infine, grazie all'estensione delle osservazioni e delle analisi in profondità su una più ampia casistica di imprese, si potrà giungere ad una generalizzazione analitica dei risultati della presente ricerca, giungendo anche all'elaborazione di un possibile modello strategico per la sostenibilità, che incrementi la fiducia nei clienti e crei valore per tutti gli stakeholder.

Originalità del paper. L'originalità di questo lavoro risiede nell'analisi delle strategie applicate dalle piccole e medie imprese del Made in Italy, attraverso la focalizzazione, da parte delle stesse, su alcuni elementi fondamentali per la realizzazione di una strategia corporate sustainability, che possa generare valore per le stesse e per i propri stakeholder, attraverso azioni volte ad accrescere la fiducia e la reputazione delle stesse nei confronti degli stakeholder.

Parole chiave: Sostenibilità, Strategie, PMI, Made in Italy, Fiducia, Reputazione, Certificazioni, Packaging.

Bibliografia

- ABAD J., LAFUENTE E., VILAJOSANA J. (2013), "An assessment of the OHSAS 18001 certification process: Objective drivers and consequences on safety performance and labour productivity", *Safety Science*, vol. 60, pp. 47-56.
- ACCENTURE (2019), Delivering on the promise of sustainability", *Macroeconomic insight series*, vol. 3.
- ALVAREZ S., BUSENITZ L., (2001), "The Entrepreneurship of Resource-based Theory", *Journal of Management*, n. 6, pp. 755-775.
- BARILE S. (2009), *Management sistemico vitale. Decidere in contesti complessi*, vol. I, Giappichelli, Torino.
- BACCARANI C., GOLINELLI M.G. (2015), "The non-existent firm: relations between corporate image and strategy", *Sinergie*, n. 97, pp. 313-323.
- BOIRAL O., HENRI J.F. (2012), "Modelling the impact of ISO 14001 on environmental performance: a comparative approach", *Journal of Environmental Management*, vol. 99, pp. 84-97.
- BRONN P.S., VRIONI A.B. (2011), "Corporate social responsibility and cause-related marketing: an overview", *International Journal of Advertising*, n. 20, pp. 207-222.
- BUSACCA B., CASTALDO S. (2002), "Trust in market relationships. An interpretative model", *Sinergie*, n. 58, pp. 191-227.
- CARROLL A. (1979), "A three-dimensional conceptual model of corporate performance", *Academy of Management Review*, vol. 4, n. 4, pp. 497-505.
- CASSIA F., COBELLI N., UGOLINI M. (2017), "The effects of goods-related and service-related B2B brand images on customer loyalty", *The Journal of Business & Industrial Marketing*, vol. 32, n. 5, pp. 722-32.
- CASTALDO S. (2007), *Trust in Market Relationships*, Edward Elgar, Cheltenham, UK.
- COWAN K., GUZMAN F. (2020), "How CSR reputation, sustainability signals, and country-of-origin sustainability reputation contribute to corporate brand performance: An exploratory study", *Journal of business research*, vol. 117, pp. 683-693.

- DAVIS J. (1991), "A blueprint for green marketing", *The Journal of Business Strategy*, vol. 12, pp. 14-17.
- DELMAS M.A., CUEREL BURBANO V. (2011), "The drivers of greenwashing", *California Management Review*, n. 54, pp. 64-87.
- DOWLING G.R. (2001), *Creating Corporate Reputations: Identity, Image and Performance*, Oxford University Press.
- EVANS S., VLADIMIROVA D., HOLGADO M., FOSSEN K.V., YANG M., SILVA E.A., BARLOW C.Y. (2017), "Model innovation for sustainability: towards a unified perspective for creation of sustainable business models", *Business Strategy and the Environment*, vol. 26, n. 5, pp. 597-608.
- FINISTERRA DO PAÇO, A.M., BARATA RAPOSO, M.L. (2010), "Green consumer market segmentation: empirical findings from Portugal", *International Journal of Consumer Studies*, vol. 34, n. 4, pp. 429-436.
- FOMBRUN C. (1996), *Reputation: Realising Value from the Corporate Image*, Harvard Business School Press, Boston.
- GILG A., BARR S., FORD N. (2005), "Green consumption or sustainable lifestyles? Identifying the sustainable consumer", *Futures*, vol. 37, n. 6, pp. 481-504.
- GILBERT D.U., RASCHE A. (2007), "Discourse ethics and social accountability: The ethics of SA 8000", *Business Ethics Quarterly*, vol. 17, n. 2, pp. 187-216.
- GÖTZE F.; BRUNNER T.A., (2019), "Sustainability and country-of-origin: How much do they matter to consumers in Switzerland?", *British Food Journal*.
- GRANT J. (2009), *Green marketing. Il manifesto*. Francesco Brioschi Editore, Milano.
- GREGORY A. (2002), "To spin or not to spin. The ethics of public relations", lecture at the *Annual General Meeting of the Institute of Public Relations*, London, 2 may.
- JINGJING LI, YONGJIAN LI, HUA SONG, CHUNXING FAN, (2021), "Sustainable value creation from a capability perspective: How to achieve sustainable product design", *Journal of Cleaner Production*, vol. 312,
- KUMAR V., RAHMAN Z., KAZMI A.A., GOYAL P. (2012), "Evolution of sustainability as marketing strategy: beginning of new era", *Procedia - Social and Behavioral Sciences*, n. 37, pp. 482-489.
- LAUFER W.S. (2003), "Social Accountability and Corporate Greenwashing", *Journal of Business Ethics*, vol. 43, n. 3, pp. 253-261.
- LINDGREEN A., SWAEN V. (2010), "Corporate Social Responsibility", *International Journal of Management Reviews*, vol. 12, n. 1, pp. 1-7.
- LO C.K.Y., PAGELL M., FAN D., WIENGARTEN F., YEUNG A.C.L. (2014), "OHSAS 18001 certification and operating performance: The role of complexity and coupling", *Journal of Operations Management*, vol. 32, n. 5, pp. 268-280.
- MARK-HERBERT C., VON SCHANTZ C. (2007), "Communicating corporate social responsibility- Brand management", *Electronic Journal of Business Ethics and Organization Studies*, n. 12, pp. 4-11.
- ORSATO, R.J. (2006), "Competitive environmental strategies: when does it pay to be green?", *California Management Review*, vol. 48, n. 2, pp. 127-144.
- PORTER M.E., KRAMER M.R. (2011), "Creating shared value", *Harvard business review*, vol. 89, n. 1/2, pp. 62-77.
- PASTORE A., BARBAROSSA C. (2012), "Green consumer behaviour: an exploration of values held by "subjectivist" consumers", *Mercati e competitività*, n. 1, pp. 155-177.
- PRIEM RL. (2007), "A Consumer Perspective on Value Creation", *Academy of Management Review*, vol. 32, n. 1, pp. 219-235.
- SALZMANN O., IONESCU-SOMERS A., STEGER U. (2005), "The Business Case for Corporate Sustainability: Literature Review and Research Options", *European Management Journal*, vol. 23, n. 1, pp. 27-36.
- SCIARELLI M. (2012), *Corporate Social Performance. Il valore allargato nella prospettiva degli stakeholder*, Cedam, Padova.
- SETHI S.P. (1975), "Dimensions of Corporate Social Performance: An Analytical Framework", *California Management Review*, vol. 17, n. 3, pp. 58-64.
- SHRUM L.J., MCCARTY J.A., LOWREY T.M (1995), "Buyer characteristics of the green consumer and their implications for advertising strategy", *Journal of Advertising*, vol. 24, n. 2, pp. 71-82.
- SIANO A. (2012), "La comunicazione della sostenibilità per il management delle imprese", *Sinergie*, n. 89, pp. 3-23.
- TAM V.WY., ZHOU Y., ILLANKOON C.M, LE K.N. (2022), "A critical review on BIM and LCA integration using the ISO 14040 framework", *Building and Environment*, Vol.213.
- VOLLERO A. (2010), *E-marketing e Web communication. Verso la gestione della corporate reputation*, Giappichelli, Torino.
- VOLLERO A., SIANO A., PALAZZO M., ELVING W. (2011), "Corporate Communication and CSR, comparing Italian and Dutch Energy Companies on Anti-Greenwashing Strategies", In: *CSR Communication Conference 2011 Conference Proceedings*. Amsterdam, 26th-28th October, Ljubljana, Izdatelj, Faculty of Social Sciences.

Professionalization in family firm SMEs: board of directors and internationalization

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Framing of the research. Extant research has identified Board of directors' characteristics as an important catalyst for firm-level professionalization in general and internationalization in particular. This is particularly true for family-based, small and medium-sized enterprises (SMEs) where family centered goals tend to prevail and drive the choice of board members. We use a transaction cost theory approach to investigate whether or not Board professionalization can promote internationalization in family-based SMEs. Within the theoretical framework that we adopt, by board professionalization we refer to specific governance features that in family-based SMEs can mitigate family-related preferences that are not in line with efficiency and profitability goals.

To do so we use survey data from 328 Belgian family-based SMEs and investigate the role of different Board characteristics such as Board diversity, the overall experience and the intensity of Board activities. We argue that these measures of family "firm professionalization" contribute to more effective profit-oriented behaviors that in turn will increase firm export. We show that these results are stronger when the family-based SMEs have a family member as CEO, somehow conciliating the strengths of family leadership with professional management.

Purpose of the paper. The role of the Board is fundamental in all kind of firms but even more in the specific context of family-based SMEs where it is the locus where business and family-related goals are typically balanced (Basco and Voordeckers, 2015). This pivotal role of the board has been scarcely investigated with regards to internationalization where evidence is still fragmented. This study aims to fill this gap. From a Transaction Cost Theory perspective, the question then arises what governance mechanisms can be introduced to economize on this unique form of bounded rationality, which - if remaining unchecked - is likely to reduce the scope of entrepreneurial action to areas close to family heritage resources and activities. We test and prove that the presence of an effective Board leverage the family-based SME firm-specific advantages, while at the same time preventing these same advantages from turning into economic and strategic liabilities (Kano et al., 2021). Based on the data at hand, we analyze three aspects of Board professionalization: diversity, international experience and intensity of activities (Van den Heuvel et al., 2006).

From the theoretical point of view, we argue that a professional Board - as defined above - mitigates the pursue of noneconomic goals in family-based SMEs and we test these hypotheses in the context of international markets expansion.

By promoting board professionalization and family leadership at the same time, family SMEs promote the "best of the two worlds" (Sirmon et al., 2008) leveraging family firms strengths and mitigating the excessive emphasis placed on nurturing and safeguarding family-related goals (Verbeke and Kano, 2012), that typically lead to underestimate the benefits of international expansion (Kano and Verbeke, 2018).

We argue and empirically demonstrate that export performance in family SMEs is positively influenced by the some specific board features. We also show that there is also a positive interaction between professionalism and family leadership, providing support for other studies that argue in the same direction (D'Angelo et al. (2016). Without a coherent policy of openness towards external managers, diversity and board professionalization, where management couple the advantages of family involvement (e.g. long term approach to business) while avoiding its disadvantages (e.g. nepotism and localism) exporting is less effective in family SMEs.

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In other words, an effective board lowers the typical bias in family firms favors any resource or activity closely related to the family, and displays a negative affect versus resources and activities unrelated to the family. Such approach reinforces all those interests within the firms that support the view that nonfamily related resources and activities can lead to higher efficiencies and value creation for both the firm and the family than when sticking exclusively to family resources and family heritage activities.

With the current paper, we contribute to the ongoing debate on how the various specific traits of family firms affect family business internationalization and the scholarly discussion on the inherent heterogeneity that characterizes family firms (Arrègle et al., 2017). Building on studies recognizing the critical role of the Board of Directors for family SMEs' internationalization (e.g., Barroso et al., 2011; Calabrò and Mussolino, 2013; Sciascia et al., 2013). We address the specific question of which peculiar characteristics can help the family firm building on its firm-specific advantages while at the same time preventing them from becoming liabilities has remained largely unanswered (Bennedsen and Foss, 2015). The goal is not new. Some scholars have started investigating the mechanisms that allow family firms to pursue efficiency practices in the context of family firm internationalization. For instance, Arrègle, Naldi, Nordqvist and Hitt (2012) have shown that family firms with significant minority (nonfamily) shareholders tend to have a larger scale and scope of internationalization. As another example, Kraus and colleagues identified supposedly optimal configurations of external (non-family) resources that allow family firms to internationalize successfully (Kraus et al., 2016). Finally, Majocchi, D'Angelo, Forlani and Buck. (2018), investigating a large sample of European SMEs, found that employing family managers, with substantial international experience, lead to higher export levels.

This study not only complements the above stream of research by drawing attention to the role of the Board but also shows that some of the intrinsic characteristics of family firms - such as family leadership - are crucial and should not be dismissed when discussing the determinants of firm internationalization

Methodology. *To test our hypotheses we use a sample of 328 family SMEs. The data in this study comes from the Bel-First database of Bureau Van Dijk and a subsequent survey we conducted. The Bel-First database includes accounting and financial information on all active Belgian companies. We extracted data on a large sample of Belgian Family SMEs and, through a survey, we collected additional information on many corporate governance characteristics such as: ownership, governance, management, and export behaviors of family-based SMEs headquartered in Belgium. We capture internationalization with many measures but we focus on an entropy index which accounts for the different weight of sales in different countries by including simultaneously the number of countries and the distribution of foreign sales (D'Angelo et al., 2016). As a measure of board professionalization, we consider three sources of diversity: Nonfamily representation on the Board, Women's representation on the Board (to measure gender diversity), and Board age diversity. Nonfamily representation on the Board is the percentage of nonfamily directors sitting on the Board (Calabrò and Mussolino, 2013). Women's representation on the Board is calculated as the number of women directors divided by the total number of Board members (Torchia et al., 2018). Board age diversity is measured by the coefficient of variation of age computed as the ratio of the standard deviation of Board age to the mean of Board age (Ali et al., 2014). Board international experience was captured through the number of directors with previous work international experience divided by Board size (Zenou et al., 2020). Beside diversity and experience within the board, we also consider a further measure of the effectiveness of board activities: the Intensity of Board Activities. This aspect is measured through the number of Board meetings per year (Chou et al., 2013). We also considered as a moderating variable the presence of a Family CEO with a dummy variable equals to 1 if the CEO is a family member and 0 otherwise (Bauweraerts et al., 2019). To account for the impact of the other usual determinants of internationalization, we measured the following control variables: firm age, firm size, R&D intensity, liquidity, firm's productivity, the level of family ownership, the extent of foreign investors ownership, the firm's current generational stage, the board tenure and the owners' willingness to perpetuate family legacy across generations.*

Our empirical analysis used different methodologies but the main test uses a Tobit regression methodology so to accounts for the high percentage of zero values (30.18%) and for the upper and lower limits of our dependent variable (Bowen and Wiersema, 2004). This approach has been widely used both in management and more specifically in internationalization studies to address the censored nature and specific distribution of the entropy measure (D'Angelo et al., 2016; Majocchi et al., 2018).

Results. *Results are stable across the different models and overall tend to confirm our hypotheses with one notable exception. Findings show that the presence of non-family Board members, female representation on the Board, the Board members' prior international experience, as well as the intensity of Board activities increase internationalization of family-based SMEs. Contrary to our expectations, age-related diversity of the Board members in our sample did not appear to be associated with higher internationalization. This lack of significance of the age variable is worth to be noted and surely deserves further studies since age related variables are often used in family firms studies that address intergenerational issue.*

More in details, our study reveals that:

1. In family-based SMEs, the presence of nonfamily members and gender diversity on the Board of Directors is associated with higher levels of diversification in export (entropy). This finding suggests that Board diversity (i.e., involvement of nonfamily members and women on the Board) can generate new attitudes and new beliefs, challenging decision-makers' opinions and forcing them to consider the family business from a different point of view. Diversity fosters more comprehensive assessments of new strategic avenues for internationalization that align family needs with business ones. This result holds probably for any kind of firms but in family firms, that risk to be mainly family centered, the effect is particularly strong.

2. In family-based SMEs, the presence of more international experience on the Board of Directors is associated with higher levels of internationalization. Again, this result has been proved also in large listed firms (see Majocchi and Strange, 2012) but in family firms the role of international experience is crucial. This finding suggests that Board members' international experience can foster internationalization in family SMEs by complementing the firm's lack of knowledge within the international landscape, typical for SMEs. Moreover, international experience seems to prevent the emergence of family-driven decisions related to inexperience and negative affect bias. Board members with much international experience can help remove such dysfunctional and non-economic driven vision in the family-based SME aligning it to the specific needs of foreign markets and contributing to the design of more effective business models for those markets.

3. In family-based SMEs, the presence of a more active Board of Directors (in terms of frequency of meetings) is also associated with higher levels of internationalization. The risk in family firm is that board are just formal institutions that meet only to comply with regulatory requirements. Frequent meetings create opportunities to exchange information and discuss the challenges facing the firm, thereby also increasing the likelihood that family-driven decisions are questioned and possibly improved upon. A more active Board allows for more intense exchanges between the family owners and managers and the external members allowing the latter to be heard effectively. Regular meetings not only enhance the cohesion and understanding among members, thus fostering a positive and proactive work environment in the boardroom, but also generate more opportunities for Board members to develop empathetic relationships with the owning family and to improve proper accountability.

4. Finally, our results show that the previous findings are somehow amplified when family SMEs have a family leader. More specifically, we show that family SMEs with a family CEO internationalize less than family SMEs with a nonfamily CEO, but as Board diversity increases, as well its international experience and the intensity of its activities, the gap between family-led and nonfamily-led SMEs becomes smaller. At high levels of Board gender diversity, international experience and intensity of activities, SMEs with a family CEO show significantly higher levels of export. These firms are able to leverage their family business related strengths - promoted by the presence of a family CEO - while at the same time mitigating bounded rationality challenges through the presence of what we consider a professionalized Board. Our findings show that the road to family firm professionalization as far as internationalization is concerned are many and different. Family firms can hire an external managers but also can enhance the role of the board keeping a family CEO.

To ensure the validity of our findings, we conducted several robustness. First, we replicated our analyses with a more restricted measure of extra-regional foreign sales by computing the ratio of sales outside the EU divided by total sales. We opted for this indicator because internationalization sales of Belgian companies are mainly concentrated in EU countries that are relatively close geographically and institutionally, with this latter proximity largely due to the integrative function of the EU institutions. In our sample, sales in EU countries accounted for 42.74% of foreign sales. The Tobit regression analyses with this different dependent variable provide additional support to our initial findings. Second, we considered the potential non-random distribution of family CEOs and the endogeneity of CEO selection. Appointing a family versus nonfamily CEO is unlikely to be a random decision. Firms that internationalize less may be more inclined to appoint a family CEO. To address these issues, we employed a propensity-score matching method. The results confirm that companies with a family CEO internationalize less unless they also have high levels of nonfamily representation on the Board, women's representation on the Board and intensity of Board activities. Moreover, high levels of Board international experience positively moderates internationalization of firms with a family CEO. In contrast, Board age diversity has no impact. Third, we performed regression analyses using different econometric approaches. The results obtained with the traditional ordinary least squares (OLS) model were in line with our initial findings. Following Baum's (2008) recommendation, we also ran the regressions using a generalized linear model which is appropriate for modelling proportions such as those reported in our entropy index. The sign and the statistical significance of the parameters were unaffected.

Research limitations. As any study, also this study is not free from limitations. First, our empirical setting is limited to a single European country-of-origin, thus raising the issue of generalizability of our findings. Further studies could validate the results of this research in other institutional contexts. To somewhat alleviate the possible impact of this limitation, we also measure in the robustness section our dependent variable with only extra-European exports: our results do hold, but future studies based on multi-country contexts in terms of country-of-origin, would likely add new insight. This limitation prevented us from controlling for institutional factors shown to be important determinants of internationalization in family firms (Arrègle et al., 2017). Second, we were not able to control for different internationalization strategies, and we focused on exports as sole entry mode. Future research could contemplate investigating other entry modes, even though many family-based SMEs internationalize through exports only.

Managerial implications. An IB governance focus is important to identify the drivers of successful internationalization. By integrating this focus with insight from research on family firms, we have demonstrated how combinations of Board characteristics and the status of the CEO as a family versus nonfamily member can affect internationalization levels. As such, the findings of our study provide some concrete guidelines on how to craft a Board of directors in family SMEs to boost internationalization.

Originality of the paper. Our study contributes to the current scholarly debate on family firm internationalization by highlighting governance features that can mitigate family-related preferences incompatible with efficiency goals (Hennart, 2007; Kano and Verbeke, 2016). We show that family firms can indeed pursue successful internationalization strategies, leveraging their firm-specific advantages, if they are able to mitigate their exclusive focus on family related

goals with specific corporate governance mechanisms (Kano et al., 2021). We also provide actionable guidelines to family SMEs in crafting their governance decisions to implement successful internationalization and we show that the road leading to successful internationalization are multiple and diverse. Finally, on the empirical side, we also control for potential endogeneity, thereby addressing one of the most common problems in family business empirical studies (Arrègle et al., 2021).

Keywords: Family Firms; Internationalization; Board of Directors; SMEs; Transaction Cost Theory, Bifurcation Bias

References

- ALI M., NG Y.L., KULIK C.T. (2014), "Board age and gender diversity: A test of competing linear and curvilinear predictions", *Journal of Business Ethics*, vol. 125, n. 3, pp. 497-512.
- ARRÈGLE J.L., NALDI L., NORDQVIST M., HITT M.A. (2012), "Internationalization of family-controlled firms: A study of the effects of external involvement in governance", *Entrepreneurship Theory and Practice*, vol. 36, n. 6, pp. 1115-1143.
- ARRÈGLE J.L., DURAN P., HITT M.A., VAN ESSEN M. (2017), "Why is family firms' internationalization unique? A meta-analysis", *Entrepreneurship Theory and Practice*, vol. 41, n. 5, pp. 801-831.
- ARRÈGLE J.L., CHIRICO F., KANO L., KUNDU S.K., MAJOCCHI A., SCHULZE W.S. (2021), "Family firm internationalization: Past research and an agenda for the future", *Journal of International Business Studies*, vol. 52, n. 6, pp. 1159-1198.
- BARROSO C., VILLEGAS M.M., PÉREZ-CALERO L. (2011), "Board influence on a firm's internationalization", *Corporate Governance: An International Review*, vol. 19, n. 4, pp. 351-367.
- BASCO R., VOORDECKERS W. (2015), "The relationship between the board of directors and firm performance in private family firms: A test of the demographic versus behavioral approach", *Journal of Management & Organization*, vol. 21, n. 1, pp. 411-435.
- BAUM C.F. (2008), "Modelling proportions", *Stata Journal*, vol. 8, pp. 299-303.
- BAUWERAERTS J., SCIASCIA S., NALDI L., MAZZOLA P. (2019), "Family CEO and board service: Turning the tide for export scope in family SMEs", *International Business Review*, vol. 28, n. 5, pp. 1015-83.
- BENNEDSEN M., FOSS N. (2015), "Family assets and liabilities in the innovation process", *California Management Review*, vol. 58, n. 1, pp. 65-81.
- BOWEN H.P., WIERSEMA M.F. (2004), "Data analysis with discrete and censored dependent variables and truncated samples", In Bergh D., Ketchen D. (Eds.), *Research methodology in strategy and management* (pp. 87-134), Oxford: Elsevier.
- CALABRÒ A., MUSSOLINO D. (2013), "How do boards of directors contribute to family SME export intensity? The role of formal and informal governance mechanisms", *Journal of Management & Governance*, vol. 17, n. 2, pp. 363-403.
- CHOU H.I., CHUNG H., YIN X. (2013), "Attendance of board meetings and company performance: Evidence from Taiwan", *Journal of Banking & Finance*, vol. 37, n. 11, pp. 4157-4171.
- D'ANGELO A., MAJOCCHI A., BUCK T. (2016), "External managers, family ownership and the scope of SME internationalization", *Journal of World Business*, vol. 51, n. 4, pp. 534-547.
- KANO L., VERBEKE A. (2018), "Family firm internationalization: Heritage assets and the impact of bifurcation bias", *Global Strategy Journal*, vol. 8, n. 1, pp. 158-183.
- KANO L., CIRAVEGNA L., RATTALINO F. (2021), "The family as a platform for FSA development: Enriching new internationalization theory with insights from family firm research", *Journal of International Business Studies*, vol. 52, n. 1, pp. 148-160.
- KRAUS S., MENSCHING H., CALABRÒ A., CHENG C.F., FILSER M. (2016), "Family firm internationalization: A configurational approach", *Journal of Business Research*, vol. 69, n. 11, pp. 5473-5478.
- MAJOCCHI A., STRANGE R. (2012), "International diversification: The impact of ownership structure, the market for corporate control and board independence", *Management International Review*, vol. 52, n. 6, pp. 879-900.
- MAJOCCHI A., D'ANGELO A., FORLANI E., BUCK T. (2018), "Bifurcation bias and exporting: Can foreign work experience be an answer? Insight from European family SMEs", *Journal of World Business*, vol. 53, n. 2, pp. 237-247.
- SIRMON D.G., ARREGLE J.L., HITT M.A., WEBB J.W. (2008), "The role of family influence in firms' strategic responses to threat of imitation", *Entrepreneurship Theory and Practice*, vol. 36, n. 9, pp. 979-998.
- SCIASCIA S., MAZZOLA P., ASTRACHAN J.H., PIEPER T.M. (2013), "Family involvement in the board of directors: Effects on sales internationalization", *Journal of Small Business Management*, vol. 51, n. 1, pp. 83-99.
- TORCHIA M., CALABRÒ A., GABALDON P., KANADLI S.B. (2018), "Women directors contribution to organizational innovation: A behavioral approach", *Scandinavian Journal of Management*, vol. 34, n. 2, pp. 215-224.
- VAN DEN HEUVEL J., VAN GILS A., VOORDECKERS W. (2006), "Board roles in small and medium-sized family businesses: Performance and importance", *Corporate Governance: An International Review*, vol. 14, n. 5, pp. 467-485.

- VERBEKE A., KANO L. (2012), "The transaction cost economics theory of the family firm: Family-based human asset specificity and the bifurcation bias", *Entrepreneurship Theory and Practice*, vol. 36, n. 6, pp. 1183-1205.
- ZENOU E., ALLEMAND I., BRULLEBAUT B., GALIA F. (2020), "Board recruitment as a strategic answer: Do companies' strategies for innovation influence the selection of new board members?", *Strategic Change*, vol. 29, n. 1, pp. 127-139.

Strategia coopetitiva per lo sviluppo delle PMI: una proposta interpretativa

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Inquadramento della ricerca. Il processo di globalizzazione, l'incertezza tecnologica e le rapide fluttuazioni della domanda e dell'offerta, parallelamente l'accentuarsi della dinamica competitiva che caratterizza numerosi settori industriali hanno spinto le imprese, e soprattutto quelle di dimensione medio-piccola (PMI), a "mettersi insieme" per svolgere alcune attività e/o combinare alcune risorse (Dagnino, Picone e Ferrigno, 2021; Bouncken, Fredrich e Kraus, 2020; Granata, et al. 2016). Talora, tali processi - mirati a superare i limiti "della dimensione ridotta e della novità" (Bengtsson e Johansson, 2014: 401, ns. trad.ne) delle PMI coinvolgono anche imprese che competono negli stessi mercati. Da una parte, le conseguenze economiche della pandemia da Covid-19 e, dall'altra, l'accelerazione del processo di digitalizzazione, che la pandemia ha generato, sostengono tale tendenza, rendendo di fatto sempre più necessaria la connessione fra PMI contigue dal punto di vista geografico a diverse latitudini del globo (Crick e Crick, 2020; Gernsheimer, Kanbach e Gast, 2021; Ketchen e Craighead, 2020).

Si introduce in tal modo un concetto chiave negli studi di management contemporanei: l'opportunità sempre più pressante per le PMI di attivare relazioni di cooperazione con i rivali (Gnyawali e Park, 2009), ovvero relazioni di tipo competitivo (competitivo e cooperativo all'unisono). Infatti, come osservano Gnyawali e Park (2009), l'importanza strategica di formulare e implementare relazioni coopetitive sembra maggiore nelle PMI rispetto alle grandi imprese (Monticelli, Garrido e De Vasconcellos, 2018; Granata et al, 2016). Tale consapevolezza ha spinto alcuni studiosi a esplorare il tema della coopetizione nelle PMI (Kraus, Klimas, Gast e Stephan, 2019) muovendo da varie prospettive di analisi: antecedenti (Bengtsson e Johansson, 2014), gestione (Granata, Géraudel, Nicolosi e Garcia, 2017) e performance (Morris, Koçak e Ozer, 2007; Robert, Marques e Le Roy, 2009).

Obiettivo del paper. Se, da un lato, la ricchezza del dibattito in letteratura ha consentito di investigare vari aspetti relativi alla gestione delle relazioni coopetitive (Bengtsson e Kock, 2014; Bouncken, Gast, Kraus e Bogers, 2015; Dagnino e Minà, 2018, 2021; Minà e Dagnino, 2016, 2021), dall'altro, esso ha condannato la letteratura sulle relazioni fra le imprese alla frammentazione dei concetti chiave, soprattutto con riferimento alle PMI (Granata, Lasch, Le Roy, e Dana (2018). Si pone, dunque, la necessità di formulare un framework interpretativo sul ruolo della coopetizione per le PMI e le modalità attraverso le quali tale strategia viene disegnata e implementata. Tale framework diviene importante sia per comprendere il ruolo delle strategie coopetitive per le PMI sia anche per impostare un'agenda di ricerca che possa fungere da bussola per gli studi futuri.

Metodologia. Il lavoro adotta il framework-based review method. Muovendo dallo studio di Paul e Criado (2019), il framework-based review rappresenta uno schema caratterizzato da una struttura ben definita, si consideri, a titolo esemplificativo, il modello ADO - acronimo di antecedents, processes and outcomes - ossia antecedenti, processi e conseguenze; il modello delle 6W - Who, When, Where, How, What, and Why - che riprende le domande chiave nello studio di uno specifico topic, ossia chi, quando, dove, come; il framework TTCM - acronimo di Theory, Construct, Characteristics e Methodology - che tende a esplicitare aspetti chiave affrontati o tutt'ora mancanti nella letteratura esistente (Callahan, 2014; Paul e Rosado-Serrano 2019; Xie, Reddy e Liang, 2017). La scelta della review tematica basata sullo sviluppo di un framework ADO ha lo scopo di presentare uno schema teorico-interpretativo più robusto rispetto a singoli studi che, focalizzando l'attenzione su aspetti estremamente individuati, smarriscono la visione d'insieme delle variabili in gioco.

Risultati. Il framework considera quali variabili principali: (a) gli antecedenti delle relazioni competitive; (b) i processi di gestione delle relazioni competitive; (c) le conseguenze delle relazioni competitive. Il framework potrà essere ulteriormente arricchito dalle peculiarità delle relazioni coopetitive che coinvolgono le PMI con riguardo alla selezione del partner, alle strutture organizzative e al ruolo delle dynamic cooperation capabilities.

Antecedenti. Poiché la competizione e la cooperazione sono sostanzialmente antitetiche, esiste una tensione intrinseca fra di loro (Tidström, 2014). Di conseguenza, è importante comprendere in quali contesti competitivi è più probabile che le PMI decidano di implementare una strategia di coopetizione. Gli studiosi di strategia sostengono che il contesto laddove la coopetizione emerge è quello dei settori innovativi e dove la competizione è knowledge-based

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(Ritala, 2012; Ritala e Hurmelinna-Laukkanen, 2013; Ritala Golnam e Wegmann, 2014; Rusko, 2014; Yami e Neme, 2014; Ritala, Kraus e Bouncken, 2016). Dal momento che le PMI hanno tipicamente un ammontare limitato di risorse e soffrono la *cd. liability della dimensione* (Bengtsson e Johansson, 2014), esse non riescono a ottenere economie di scala soddisfacenti e sono focalizzate su alcune attività specifiche. Ne consegue che le dinamiche in un contesto caratterizzato da un vantaggio competitivo via via più temporaneo (Dagnino, Picone e Ferrigno, 2021) spingono le PMI a cooperare per ridurre le minacce competitive derivanti soprattutto delle grandi imprese, accedere a nuove fonti di conoscenza (Colombo, Laursen, Magnusson e Rossi-Lamastra, 2012) - necessarie per far fronte all'accorciamento del ciclo di vita del prodotto (Gnyawali, He e Madhavan, 2006, 2008; McCutchen e Swamidass, 2004), ai processi di convergenza tecnologica e inter-settoriale (Ranganathan, Ghosh e Rosenkopf, 2018), a regimi tecnologici discontinui (Cozzolino e Rothaermel, 2018; Ranganathan, Ghosh e Rosenkopf, 2018) - e per ottenere delle economie di scala (Boehe, 2013; Ulubaşoğlu, Akdiş, e Kök, 2009).

La cooperazione, ancorché attuata con dei rivali può migliorare la competitività delle PMI rafforzando i loro percorsi di crescita, le economie di scala e di apprendimento (Gnyawali e Park, 2009) e le probabilità di sopravvivenza (Bonel e Rocco, 2007; Lechner e Dowling, 2003). Sebbene la specializzazione delle PMI è un significativo punto di forza, proprio per effetto di tale divisione del lavoro emerge la necessità di combinare le attività fra numerose PMI per ottenere delle sinergie, sia operative sia legate alla conoscenza. Pertanto, le relazioni cooperative possono massimizzare i benefici della cooperazione, senza tuttavia eliminare i vantaggi della competizione in termini di incentivi e di miglioramento continuo.

Gestione delle relazioni cooperative tra le PMI. La gestione della strategia cooperativa richiama l'importanza di comprendere in che modo è possibile far coesistere aspetti collegati alla competizione e alla cooperazione in un'unica attività, dal momento che la simultaneità delle interazioni può dar luogo a tensioni interne. Alcuni studi richiamano la possibilità separare le attività laddove le imprese interagiscono in maniera conflittuale (Bengtsson e Kock, 2000), rispetto alle attività che si basano sulla cooperazione (Dowling, Roering, Carllin e Wisnieski, 1996: 155-167). Sulla base del contributo di Minà, Dagnino e Vagnani (2020) è possibile argomentare che, nelle relazioni cooperative tra PMI e grandi imprese che competono nello stesso mercato, la PMI approccia la relazione con una logica *from/to* (o *switch logic*). Nella prospettiva della PMI, la cooperazione può emergere allorché la grande impresa e la PMI hanno interessi convergenti che le inducono a unire i loro sforzi per raggiungere uno scopo comune. Pertanto, dal momento che la PMI avvia la relazione perché ha un deficit di risorse, imprese grandi e PMI intraprendono tali relazioni con l'obiettivo di condividere risorse e conoscenze (Bengtsson e Kock 2000; Long e Schiffman 1997). Si osserva però che, nella prospettiva delle PMI, le risorse disponibili per la competizione sono le stesse che si dedicano alla cooperazione e, ovviamente, sono limitate. Pertanto, in tal caso l'interazione fra competizione e cooperazione implica che un aumento della competizione potrebbe condurre a una riduzione della cooperazione e viceversa.

Viceversa, quando la relazione di cooperazione coinvolge due PMI, la competizione e cooperazione potrebbero essere combinate poiché la cooperazione fra imprese rivali non necessariamente riduce la concorrenza fra di loro. Le imprese possono continuare comunque a cooperare e competere simultaneamente, poiché le loro azioni possono avvenire in modo indipendente. In questa prospettiva, la logica *either/and* consente un numero significativo di alternative nel contemperare competizione e cooperazione. Da quanto appena riferito, è possibile osservare come, diversamente a quanto sostenuto da Bengtsson e Kock (2000) - secondo cui lo studio del comportamento cooperativo deve necessariamente venire condotto analizzando separatamente ciascun elemento (di cooperazione e di competizione), seguendo l'impostazione di Padula e Dagnino (2007), diviene impossibile, o comunque non sempre utile, separare due momenti in contraddizione. Ciò avviene perché la struttura cooperativa presenta una complessità interna che risulta di gran lunga superiore rispetto al caso in cui i singoli elementi di competizione e cooperazione vengono considerati separatamente.

Queste considerazioni richiamano alla gestione delle tensioni sottese alla strategia di cooperazione. In letteratura, si riconoscono tre principali modalità: a) la separazione temporale della cooperazione e della competizione; b) la separazione spaziale della cooperazione e della competizione; e c) la co-esistenza temporale e spaziale (Van de Ven e Poole, 1995) di cooperazione e competizione. Minà (2018) suggerisce che, se la relazione di cooperazione è ispirata dalla condivisione di risorse fra imprese rivali, è altresì opportuno che tale condivisione sia agevolata dall'utilizzo di unità organizzative separate, che enfatizzano le attività cooperative e competitive con le imprese rivali, o alternativamente che le imprese possano definire periodi di tempo specifici per svolgere, rispettivamente, attività competitive o cooperative con imprese rivali. Similmente avviene allorché gli antecedenti della cooperazione sono legati alla condivisione di conoscenze utili a plasmare la direzione del cambiamento tecnologico (Burgers, Hill e Kim, 1993). Ancora una volta, la complessità della gestione della competizione e della cooperazione con lo stesso partner è motivo per il quale le imprese investono in strutture collaborative separate, ad esempio laboratori condivisi, in modo che i lavoratori di entrambe le imprese si possano incontrare e possano condividere idee, conoscenze e abilità (Bengtsson e Johansson, 2014; Watanabe, Lei e Ouchi, 2009).

La scelta della separazione spaziale o temporale ha effetti anche sulle scelte di *organizational design*. Nello specifico, nella definizione di una strategia di cooperazione, la separazione spaziale implica che le imprese destinino unità organizzative separate e differenti. In tal modo, una prima unità si occuperà esclusivamente di cooperazione con l'unità organizzativa dell'impresa rivale, mentre una seconda unità verrà invece coinvolta esclusivamente in aspetti competitivi con l'impresa rivale. Proprio perché tale struttura organizzativa coinvolge due differenti unità organizzative, queste opereranno simultaneamente e in parallelo (Gnyawali, He e Madhavan, 2008).

Diversamente, nella definizione della strategia di coopetizione, la separazione temporale implica che le imprese destinano la medesima organizzativa a svolgere, rispettivamente attività cooperative e competitive con l'impresa rivale. Tuttavia, tale unità si occuperà prima di focalizzarsi sulla cooperazione e, solo successivamente, di competere con l'impresa rivale. Proprio perché tale struttura organizzativa coinvolge le medesime unità organizzative, esse debbono essere temporalmente separate nella loro operatività (Gnyawali, He e Madhavan, 2008).

Conseguenze delle relazioni coopetitive. Uno degli aspetti chiave nella letteratura in tema di strategia coopetitiva è di norma la disponibilità di informazioni insufficienti per poter antivedere la probabilità di accadimento e/o il risultato della combinazione di competizione e cooperazione. Com'è noto, la competizione è osservata come un gioco a somma zero, mentre la cooperazione è considerata come un gioco a somma positiva (fissa). È interessante notare che, allorché si formula una strategia coopetitiva, occorre altresì riflettere sul fatto che affrontare le tensioni coopetitive non è irrilevante per le imprese coinvolte (Le Roy e Czakon, 2016). Di conseguenza, la strategia coopetitiva potrebbe condurre sia alla creazione di valore sia all'appropriazione di valore sia anche alla distruzione di valore (Hamel, 1991; Ritala e Hurmelinna-Laukkanen, 2009).

La strategia coopetitiva è infatti concepita come la strategia che le imprese adottano quando assumono entrambe le posizioni (ovvero una combinazione di strategie competitive e cooperative) con i loro rivali. Se le imprese coopetitive - coerentemente con i contesti in cui operano - sono in grado di individuare modalità utili per gestire le tensioni fra competizione e cooperazione, ovvero le cd. "tensioni coopetitive" (Fernandez, Le Roy e Gnyawali, 2014), ci si aspetterebbe che esse abbiano maggior successo adottando una strategia coopetitiva rispetto all'adozione di una strategia non competitiva: una strategia competitiva oppure una strategia cooperativa. A tal riguardo, alcuni studi hanno osservato un effetto positivo della strategia coopetitiva sulle performance globali dell'impresa (Morris, Koçak e Ozer, 2007), o anche su taluni aspetti specifici, quali la performance economico-finanziaria (Lechner, Soppe e Dowling, 2016; Robert, Marques e Le Roy, 2009) e la performance innovativa incrementale (Ritala e Sainio, 2014). Altri studi hanno invece investigato le tensioni coopetitive che possono insorgere in relazione al perseguimento dell'innovazione sostenibile (Munten, Vanhamme, Maon, Swaen e Lindgreen, 2021).

Limiti della ricerca. *Dato il notevole fermento intellettuale che esiste da alcuni anni sul tema della strategia coopetitiva (Brandenburger e Nalebuff, 1996, 2021) e il suo rilievo per le PMI, il framework proposto è altresì utile per proporre un'agenda per la ricerca futura. In primo luogo, dal momento che i contesti istituzionali e settoriali possono palesare condizioni esterne importanti che le imprese debbono affrontare allorché adottano una strategia coopetitiva, si ritiene che sia sempre utile sviluppare analisi intersettoriali per esplorare le influenze reciproche fra settori industriali di un medesimo contesto istituzionale. Questo al fine di ottenere una migliore comprensione delle situazioni specifiche che supportano l'emergere e l'evoluzione della strategia coopetitiva. In tale ambito, si ritiene opportuno esaminare altresì se le relazioni coopetitive che coinvolgono le PMI avvengono con maggior probabilità fra imprese delle medesime dimensioni oppure fra imprese di dimensione diverse.*

In secondo luogo, lo studio sulla gestione delle relazioni coopetitive evidenzia che l'approccio cinese dello yin e yang supporta la coopetizione assumendo una logica either-and. Tuttavia, come mostrano Dagnino e Minà (2021), la logica either-and è supportata sia dall'impostazione filosofica taoista sia altresì dalla logica confuciana. In prima approssimazione, si può ritenere che l'impostazione confuciana emerga nella relazione fra una PMI e una grande impresa, mentre l'approccio taoista richieda un maggior bilanciamento di potere fra imprese. Tuttavia, la ricerca futura potrebbe esaminare le condizioni per le quali ci si attende che ciascuna logica specifica di coopetizione si affermi rispetto all'altra. Tale studio è utile per disvelare i rudimenti delle dinamiche coopetitive.

In terzo luogo, concentrandosi sulle tensioni che caratterizzano la strategia coopetitiva, si osserva che, se gli studi esistenti riconoscono l'importanza per le imprese di comprendere come affrontare tali tensioni, la letteratura non è stata sinora approfondita in maniera adeguata le varie tipologie di tensioni coopetitive che possono affiorare a seconda delle condizioni da cui scaturisce l'emergere e l'evoluzione della coopetizione. Inoltre, basandosi su Tidström (2014) con riferimento alle PMI la ricerca futura potrebbe ispezionare quali (diversi) tipologie di tensioni possono coesistere. Ancora una volta, si richiama l'importanza di focalizzare l'attenzione sulle dinamiche di potere che possono sbilanciare i rapporti coopetitivi fra PMI e grandi imprese.

Infine, occorrerebbe concentrarsi sullo studio delle motivazioni e delle fonti di vantaggio competitivo che inducono imprese in competizione - e specialmente PMI in competizione - a sviluppare delle relazioni cooperative di lungo termine (Gnyawali e Park, 2011), mentre rimane altresì poco chiaro in qual modo la strategia coopetitiva evolva dinamicamente nel tempo. Poiché la natura dell'interazione di cooperazione e competizione è intrinsecamente complessa, dinamica e instabile (Dagnino, 2009), ulteriori ricerche potrebbero prendere in considerazione la possibilità di identificare "percorsi tipici" della strategia coopetitiva, ovvero se esiste un ciclo strategico che può essere definito come "ciclo di vita della coopetizione". Lo sviluppo di routine orientate alla coopetizione a livello organizzativo e capacità di cooperazione dinamica potrebbe rivelarsi cruciale nel gettare le basi e nel favorire l'emergere del ciclo di vita della coopetizione.

Implicazioni manageriali. *Chen e Hambrick (1995) definiscono le PMI riferendosi a due caratteristiche: la dimensione dell'impresa e la quota di mercato detenuta. Sebbene tali caratteristiche siano concettualmente differenti, esse sono empiricamente correlate. Considerata l'attenzione alle relazioni coopetitive delle PMI, la questione di fondo riguarda se la dimensione rappresenta una variabile contingente nella relazione fra antecedenti della coopetizione e la strategia coopetitiva, e fra strategia coopetitiva e performance. In tale prospettiva, si propone un framework interpretativo che lega gli antecedenti delle strategie coopetitive, con la gestione e le conseguenze delle medesime strategie. Tale framework può divenire la base strumentale con la quale imprenditori e manager di PMI possano*

valutare la coerenza delle loro scelte strategiche e le relazioni causa-effetto fra alcune variabili: dimensione dell'impresa, antecedenti, logiche di coopetizione e risultati.

Originalità del lavoro. Questo studio accresce il dibattito sulle strategie di coopetizione in due modi. Da una parte, si propone un framework interpretativo della letteratura sulla coopetizione per poter rivelare i fattori critici di successo della coopetizione e, dall'altro, si mostra come la strategia di coopetizione possa essere utile a superare, almeno in parte, le problemi tipici del nanismo imprenditoriale delle PMI (Chin, Chan, e Lam, 2008), e di quelle italiane in particolare.

Parole chiave: Coopetition; PMI; quarta; quinta;

Bibliografia

- BENGTSSON M., JOHANSSON M. (2014), "Managing Coopetition To Create Opportunities For Small Firms", *International Small Business Journal*, vol. 32, n. 4, pp. 401-427.
- BENGTSSON M., KOCK S. (2000), "'Coopetition' in Business Networks-To Cooperate and Compete Simultaneously", *Industrial Marketing Management*, vol. 29, n. 5, pp. 411-426.
- BENGTSSON M., KOCK S. (2014), "Coopetition-Quo Vadis? Past Accomplishments and Future Challenges", *Industrial Marketing Management*, vol. 43, n. 2, pp. 180-188.
- BOEHE D. (2013), "Collaborate at Home to Win Abroad: How Does Access to Local Network Resources Influence Export Behavior?", *Journal of Small Business Management*, vol. 51, n. 2, pp. 167-182.
- BONEL E., ROCCO E. (2007), "Coopeting to Survive; Surviving Coopetition", *International Studies of Management and Organization*, vol. 37, n. 2, pp. 70-96.
- BOUNCKEN R.B., FREDRICH V., KRAUS, S. (2020), "Configurations of Firm-Level Value Capture in Coopetition", *Long Range Planning*, vol. 53, n. 1, 101869.
- BOUNCKEN R.B., GAST J., KRAUS S., BOGERS M. (2015), "Coopetition: A Systematic Review, Synthesis, and Future Research Directions", *Review of Managerial Science*, vol. 9, n. 3, pp. 577-601.
- BRANDENBURGER A.M., NALEBUFF B.J. (1996), "Universal Lessons Every Manager Can Learn from Andy Grove's Paranoia", *Harvard Business Review*, pp. 169.
- BRANDENBURGER A.M., NALEBUFF B.J. (2021), "The rules of co-opetition", *Harvard Business Review*, vol. 99, n. 1, pp 48-57.
- BURGERS W.P., HILL C.W., KIM W.C. (1993), "A Theory of Global Strategic Alliances: The Case of the Global Auto Industry", *Strategic Management Journal*, vol. 14, n. 6, pp. 419-432.
- CALLAHAN J.L. (2014), "Writing literature reviews: A reprise and update", *Human Resource Development Review*, vol. 13, n. 3, pp. 271-275.
- CHEN M.J., HAMBRICK D.C. (1995), "Speed, Stealth, and Selective Attack: How Small Firms Differ From Large Firms in Competitive Behavior", *Academy of Management Journal*, vol. 38, n. 2, pp. 453-482.
- CHIN K.S., CHAN B.L., LAM P.K. (2008), "Identifying and Prioritizing Critical Success Factors for Coopetition Strategy", *Industrial Management E Data Systems*, vol. 108, n. 4, pp. 437-454.
- COLOMBO M.G., LAURSEN K., MAGNUSSON M., ROSSI-LAMASTRA C. (2012), "Introduction: Small Business and Networked Innovation: Organizational and Managerial Challenges", *Journal of Small Business Management*, vol. 50, n. 2, pp. 181-190.
- COZZOLINO A., ROTHÄRMEL F.T. (2018), "Discontinuities, Competition, and Cooperation: Cooperative Dynamics Between Incumbents and Entrants", *Strategic Management Journal*, vol. 39, n. 12, pp. 3053-3085.
- CRICK J.M., CRICK D. (2020), *Coopetition and COVID-19: Collaborative Business-To-Business Marketing Strategies in a Pandemic Crisis*. *Industrial Marketing Management*, 88, 206-213.
- DAGNINO G.B. (2009), "Coopetition Strategy: A New Kind of Interfirm Dynamics for Value Creation", in DAGNINO G.B., ROCCO E. (Eds.), *Coopetition Strategy: Theory and Experiments and Cases* (Vol. 47, p. 45-63), Routledge.
- DAGNINO G.B., MINÀ A. (2018), "The Swinging Pendulum of Coopetition Inquiry", in Fernandez A.S., Chiambaretto P., Le Roy F., Czakon W. (Eds.), (2018), *The Routledge companion to coopetition strategies*. (pp. 68-80), Abingdon: Routledge.
- DAGNINO G.B., MINÀ A. (2021), "Unraveling the Philosophical Foundations of Co-Opetition Strategy", *Management & Organization Review*, vol. 7, n. 3, pp. 490-523.
- DAGNINO G.B., PICONE P.M., FERRIGNO G. (2021), "Temporary Competitive Advantage: A State-of-the-Art Literature Review and Research Directions", *International Journal of Management Reviews*, vol. 23, n. 1, pp. 85-115.
- DOWLING M.J., ROERING W.D., CARLIN B.A., WISNIESKI J. (1996), "Multifaceted Relationships Under Coopetition: Description and Theory", *Journal of Management Inquiry*, vol. 5, n. 2, pp. 155-167.
- FERNANDEZ A.S., LE ROY F., GNYAWALI D.R. (2014), "Sources and Management of Tension in Co-Opetition Case Evidence from Telecommunications Satellites Manufacturing in Europe", *Industrial Marketing Management*, vol. 43, n. 2, pp. 222-235.

- GERNSHEIMER O., KANBACH D.K., GAST J. (2021), “Coopetition Research-A Systematic Literature Review on Recent Accomplishments and Trajectories”, *Industrial Marketing Management*, vol. 96, pp. 113-134.
- GNYAWALI D.R., PARK B.J.R. (2011), “Co-Opetition Between Giants: Collaboration with Competitors for Technological Innovation”, *Research Policy*, vol. 40, n. 5, pp. 650-663.
- GNYAWALI D.R., HE J., MADHAVAN R. (2008), “Coopetition. *Promises and Challenges*”, *21st Century Management: A Reference Handbook*, pp. 386-398.
- GNYAWALI D.R., HE J.E., MADHAVAN R. (2006), “Impact of Co-Opetition on Firm Competitive Behavior: An Empirical Examination”, *Journal of Management*, vol. 32, n. 4, pp. 507-530.
- GNYAWALI D.R., PARK R. (2009), “Co-Opetition and Technological Innovation in Small and Medium-Sized Enterprises: A Multilevel Conceptual Model”, *Journal of Small Business Management*, vol. 47, n. 3, pp. 308-330.
- GRANATA J., GÉRAUDEL M., NICOLOSI A., GARCIA K. (2017), “Understanding the Evolution of Coopetition Among Smes in a Wine Cluster: A Social Capital Approach”, *International Journal of Entrepreneurship and Small Business*, vol. 31, n. 1, pp. 67-84.
- GRANATA J., GÉRAUDEL M., GUNDOLF K., GAST J., MARQUES, P. (2016), “Organisational innovation and coopetition between SMEs: a tertius strategies approach”, *International Journal of Technology Management*, vol. 71, n. (1-2), pp. 81-99.
- GRANATA J., LASCH F., LE ROY F., DANA L.P. (2018), “How do Micro-Firms Manage *Coopetition*? A Study of the Wine Sector in France”, *International Small Business Journal*, vol. 36, n. 3, pp. 331-355.
- HAMEL G. (1991), “Competition For Competence and Interpartner Learning within International Strategic Alliances. *Strategic Management Journal*, 12, n. (S1), pp. 83-103.
- KETCHEN JR, D.J.. CRAIGHEAD C.W. (2020), “Research at the Intersection of Entrepreneurship, Supply Chain Management, and Strategic Management: Opportunities Highlighted By COVID-19”, *Journal of Management*, vol. 46, n. 8, pp. 1330-1341.
- KRAUS S., KLIMAS P., GAST J., STEPHAN T. (2019), “Sleeping with Competitors: Forms, Antecedents and Outcomes of Coopetition of Small and Medium-Sized Craft Beer Breweries”, *International Journal of Entrepreneurial Behavior & Research*, vol. 25, n. 1, pp. 50-66.
- LE ROY F.E CZAKON, W. (2016), *Managing Coopetition: The Missing Link Between Strategy and Performance. Industrial Marketing Management*, vol. 53, n. 1, pp. 3-6.
- LECHNER C., DOWLING M. (2003), “Firm Networks: External Relationships as Sources for the Growth and Competitiveness of Entrepreneurial Firms”, *Entrepreneurship & Regional Development*, 15, n. 1, pp. 1-26.
- LECHNER C., SOPPE, B. E DOWLING, M. (2016), “Vertical Coopetition and the Sales Growth of Young and Small Firms”, *Journal of Small Business Management*, vol. 54, n. 1, pp. 67-84
- LONG M.M., SCHIFFMAN L.G. (1997), “Swatch Fever: An Allegory for Understanding the Paradox of Collecting”, *Psychology & Marketing*, 14, n. 5, pp. 495-509.
- MCCUTCHEN JR W.W., SWAMIDASS P.M. (2004), “Motivations for Strategic Alliances in the Pharmaceutical/Biotech Industry: Some New Findings”, *Journal of High Technology Management Research*, vol. 15, n. 2, pp. 197-214.
- MINÀ A., DAGNINO G.B. (2021), *Foundations of Coopetition strategy. A Framework of competition and cooperation*. Routledge-Giappichelli.
- MINÀ, A., DAGNINO G.B. (2016), “In Search of *Coopetition* Consensus: Shaping the Collective Identity of a Relevant Strategic Management Community”, *International Journal of Technology Management*, vol. 71, n. (1-2), pp. 123-154.
- MINÀ A., DAGNINO G.B., VAGNANI G. (2020), “An Interpretive Framework of the Interplay of Competition and Cooperation”, *Journal of Management and Governance*, vol. 24, n. 1, pp. 1-35.
- MONTICELLI J.M., GARRIDO I.L., DE VASCONCELLOS S.L. (2018), “Coopetition and Institutions: A Strategy for Brazilian Wineries Facing Internationalization”, *International Journal of Wine Business Research*, vol. 30, n. 1, pp. 74-95.
- MORRIS M.H., KOÇAK A., OZER A. (2007) “*Coopetition* as a Small Business Strategy: Implications for Performance”, *Journal of Small Business Strategy*, vol. 18, n. 1, pp. 35-56.
- MUNTEN P., VANHAMME J., MAON F., SWAEN V., LINDGREEN A. (2021), “Addressing tensions in coopetition for sustainable innovation: Insights from the automotive industry”, *Journal of Business Research*, vol. 136, pp. 10-20.
- PADULA G., DAGNINO G.B. (2007), “Untangling the Rise of Coopetition: The Intrusion of Competition in a Cooperative Game Structure”, *International Studies of Management & Organization*, vol. 37, n. 2, pp. 32-52.
- PAUL J., CRIADO A.R. (2020), “The art of writing literature review: What do we know and what do we need to know?”, *International Business Review*, vol. 29, n. 4, 101717.
- PAUL J., ROSADO-SERRANO A. (2019), “Gradual Internationalization vs Born-Global/International new venture models: A review and research agenda”, *International Marketing Review*, vol. 36, n. 6, pp. 830-858.
- RANGANATHAN R., GHOSH A., ROSENKOPF L. (2018), “Competition-Cooperation Interplay During Multifirm Technology Coordination: The Effect of Firm Heterogeneity on Conflict and Consensus in a Technology Standards Organization”, *Strategic Management Journal*, vol. 39, n. 12, pp. 3193-3221.

- RITALA P. (2012), Coopetition Strategy-When Is It Successful? Empirical Evidence on Innovation and Market Performance. *British Journal of Management*, 23(3), 307-324.
- RITALA P., SAINIO L.M. (2014), “Coopetition for Radical Innovation: Technology, Market and Business-Model Perspectives”, *Technology Analysis E Strategic Management*, vol. 26, n. 2, pp.155-169.
- RITALA P., HURMELINNA-LAUKKANEN P. (2009), “What’s in it for Me? Creating and Appropriating Value in Innovation-Related Coopetition”, *Technovation*, vol. 29, n. 12, pp. 819-828.
- RITALA P., HURMELINNA-LAUKKANEN P. (2013), “Incremental and Radical Innovation in Coopetition-The Role of Absorptive Capacity and Appropriability”, *Journal of Product Innovation Management*, vol. 30, n. 1, pp. 154-169.
- RITALA P., GOLNAM A., WEGMANN A. (2014), “Coopetition-Based Business Models: the Case of Amazon.com”, *Industrial Marketing Management*, vol. 43, n. 2, pp. 236-249.
- RITALA P., KRAUS S., BOUNCKEN R.B. (2016), “Introduction To Coopetition and Innovation: Contemporary Topics And Future Research Opportunities”, *International Journal of Technology Management*, vol. 71, n. (1-2), pp. 1-9.
- ROBERT F., MARQUES P., LE ROY F. (2009), “Coopetition Between SMEs: An Empirical Study of French Professional Football”, *International Journal of Entrepreneurship and Small Business*, vol. 8, n. 1, pp. 23-43.
- RUSKO R. (2014), “Mapping the Perspectives of Coopetition and Technology-Based Strategic Networks: A Case of Smartphones”, *Industrial Marketing Management*, vol. 43, n. 5, pp. 801-812.
- TIDSTRÖM A. (2014), “Managing Tensions in Coopetition”, *Industrial Marketing Management*, vol. 43, n. 2, pp. 261-271.
- VAN DE VEN A.H., POOLE M.S. (1995), “Explaining Development and Change in Organizations”, *Academy of Management Review*, vol. 20, n. 3, pp. 510-540.
- XIE E., REDDY K.S., LIANG J. (2017), “Country-specific determinants of cross-border mergers and acquisitions: A comprehensive review and future research directions”, *Journal of World Business*, vol. 52, n. 2, pp. 127-183.
- YAMI S.E, NEMEH A. (2014), “Organizing Coopetition For Innovation: The Case of Wireless Telecommunication Sector in Europe”, *Industrial Marketing Management*, vol. 43, n. 2, pp. 250-260.

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Women's entrepreneurship in the low-tech and high-tech innovative startups

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Framing of the research. *The Decree-Law 18 October 2012, n.179 introduces in the Italian legal system the concept of the innovative startup as a new innovative enterprise of a high technological value. In particular, the innovative startup can be defined as any company with shared capital (i.e. limited companies), including cooperatives, the shares, or significant registered capital shares of which are not listed on a regulated market nor on a multilateral negotiation system. The Law 179/2012 introduced measures to support the birth, growth, and maturity of these companies, having the aim both to contribute to the employment (in particular young employment), the growth of entrepreneurial initiatives conducive to innovation, and the development of a competitive ecosystem strengthening the relationships between universities and businesses, and the promotion of a sustainable growth strategy. To obtain the qualification of an innovative startup and to benefit from the different advantages, the enterprises must be in possession of certain requisites previewed from the DL 179/2012, art.25, c.2. Letter f, underlining that the innovative startup "has, as an exclusive or prevalent social object, the development, production and marketing of innovative products or services with high technological value"¹. Additionally, an innovative startup has to possess one of the required requirements: (i) R&D expenditure is equal to or greater than 15% of the higher value between cost and the total value of the production of the innovative startup; (ii) employment as employees or collaborators in any capacity, in a percentage equal to or greater than one-third of the total workforce, of personnel holding a doctoral degree or pursuing a doctorate at an Italian or foreign university, or has a degree and has carried out, for at least three years, certified research activities at public or private research institutes, in Italy or abroad; (iii) is the holder or depositary or licensee of at least one industrial property right relating to an industrial invention, a biotechnological invention, a topography of a semiconductor product or a new plant variety.*

As reported by the MISE (2021), in the second quarter the number of innovative startups registered in the special section of the Register of Companies according to Law 179/2012 increased by 1021 units (+8.1%) compared to the previous quarter. The share capital of startups grew compared to the first quarter (+58.8 million euros, +6.8% in percentage terms) reaching a share of 929.4 million euros; the average capital is 68,431 euros per company, down (-1.3%) on the previous quarter. In terms of dynamic sectors, it emerged that 75% of innovative startups provide services to businesses (in particular, the following specializations prevail: software production and IT consulting, 37.4%; R&D activities, 14.7%; information services activities, 8.7%), 16.6% work in manufacturing (of all: machinery manufacturing, 3%; manufacturing of computers and electronic and optical products, 2.5%), while 3% operates in commerce (MISE 2021).

Purpose of the paper. *Recent studies have highlighted the significant contribution of women entrepreneurs to the global economy and society (Elam et al., 2021). The results of the survey Global Entrepreneurship Monitor (GEM 2020), which involved 43 global economies, showed that women engaged in startups are about 274 million, 139 million have an entrepreneurial role (owner or manager) in consolidated enterprises and 144 million are informal investors. Unlike the previous literature (Xavier et al., 2013), female entrepreneurship is currently showing a growing trend representing 1/3 of global entrepreneurial growth (Elam et al., 2021). Therefore, the previously identified gender gap narrows, and women not only increasingly move closer to equality with men in terms of startup activities but are highly involved in business growth with a significant impact on the market and national economy (Elam et al., 2021). The female Total Entrepreneurial Activity (TEA) rate also improved by 11% (over 3/4 of the male rate).*

In the Italian context, the focus of this study, the evidence of GEM (2021) finds that Italy has the largest gender gap in terms of TEA rate (with a ratio of women/men equal to 0.3). Italy reports the highest rate (83.3%) of individual

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¹ <https://www.mise.gov.it/images/stories/Art25-dl179-2012.pdf>

enterprises in which women are seen to be involved in the role of female entrepreneurs. In terms of investment, the evidence shows that in Italy the average investment amounts of women entrepreneurs are 10% lower than the male counterpart suggesting that, although Italian female entrepreneurs are active in informal investments, not much funding in their business (Elam et al., 2021). Although globally women report, on average, 20% less confidence in their ability to start a business than men (54.7% women vs 66.2% men), in Italy women entrepreneurs reported higher rates of startup skills (67.2% women vs 54.5% men). Moreover, Italian businesswomen are less constrained by the possibility of bankruptcy (75.9% women vs 70% men).

Moving from the literature, the social stereotypes used to describe women and men differ in the vast majority of countries (Wood and Eagly 2002). It is possible to distinguish descriptive stereotypes (as men and women generally are) and prescriptive stereotypes (as men and women should be) (Shinnar et al., 2018). Men are seen as brave, aggressive, independent, or autonomous; while women as kind, caring, supportive, and expressive (Gupta et al., 2009). Gender-Role Orientation (GRO) is an important individual characteristic capable of influencing, in line with the interpretation of social stereotypes, attitudes, social behaviour, and career and work choices (Mueller and Dato-on 2013). Regarding this last aspect, particular attention was paid to entrepreneurship (Gorji and Rahimian 2011). Several studies have investigated whether women and men generally differ in their propensity to engage in entrepreneurship and, in particular, in entrepreneurial issues, such as concerning strategic decisions taken, financial resources acquisitions, and performance (Jennings and Brush 2013). In this direction, it has been shown that women and men are not as likely to engage in entrepreneurial activities (Allen et al., 2007; Kelley et al., 2017). The probability that women are involved in different forms of entrepreneurship is significantly lower than their male counterparts (Xavier et al., 2013). Studies carried out intending to understand whether there is a different approach between female and male entrepreneurship in terms of strategic decisions have shown that women-led enterprises tend to be over-represented in trade sectors retail and customer services based; while they tend to be under-represented in manufacturing, mining and business services (Kelley et al., 2011; Fairlie and Robb 2009). Other studies have found that women, compared to men, are more likely to pursue social and environmental activities (Hechavarría et al., 2012) and are less likely to engage in exports by preferring home-based activities (Orser et al., 2006). In terms of acquisitions of financial resources, it has been highlighted that women-led enterprises tend to be funded at a lower level and by different means than men-led enterprises (Jennings and Brush 2013). According to Alsos et al., (2006), women tend to operate at low levels of both debt and equity once they have passed the start-up phase, being less likely to use external financing during the start-up phase (Coleman and Robb 2012) and less inclined to use debt to finance ongoing operations (Orser et al., 2006). The empirical evidence reported in terms of performance shows a significant difference on many basic economic indicators such as company size, employment level, revenues, and profits, as well as growth rate. They show that women-led businesses do not perform better than men-led businesses (Jennings and Brush 2013). It was highlighted that by measuring the size of the company on the basis of assets (Coleman and Robb 2012), revenues (Alsos et al., 2006; Coleman and Robb 2012) and the number of employees (Fairlie and Robb 2009; Coleman and Robb 2012), women's businesses are smaller than men's businesses. In addition, women-led enterprises have a slower growth rate than those driven by their male counterpart (Alsos et al., 2006; Orser et al., 2006).

Focusing on innovative Italian startups, recent studies have shown that the financial performance of entrepreneurial activities led by women are not so different from those led by men in terms of company size, profitability, efficiency, structure, and financial management; while differences are attributable to the availability of financial resources, highlighting the smaller number of resources of women compared to men even in innovative startups (Demartini 2018). In this direction, the literature highlights that women have access to a more limited amount of seed capital and rely primarily on their own or family-owned capital (Unioncamere 2020). However, although there is empirical evidence on the comparison between female and male entrepreneurship in innovative startups in terms of performance (Demartini 2018), to the knowledge of the authors, no attention has been paid to the comparison of these performances according to their technological intensity. Intending to bridge this gap in the literature, this work aims to compare the entrepreneurial performance of women and men in Italian innovative startups distinct in technological terms. To reach the research objective, firstly, Italian innovative startups have been identified based on the Eurostat aggregations of the manufacturing industry in terms of technological intensity; secondly, gender comparison analyses were carried out in terms of performance in the two different technological levels identified (low-tech vs high-tech).

Methodology. The study develops a quantitative analysis based on secondary data. For the composition of the analysis sample, data are collated through the AIDA database of Bureau van Dijk. The analysis focuses on Italian innovative startups operating in the low-tech and high-tech sectors concerning the Eurostat aggregations of manufacturing industry attributable to the technological intensity and based on the classification of economic activities NACE Rev.2, up to 3-digit level (Table 1).

In the AIDA database, as of December 4, 2021, there are 13,714 Italian innovative startups. Considering the activity codes in Table 1, the sample includes 508 innovative low-tech startups and 367 high-tech, for a total of 875 enterprises and 1799 observations. An unbalanced panel covering a ten-year period (2011-2020). All the years available in the database are considered for having a broad time horizon.

From the AIDA database, we extracted the following variables used in our analysis. Return on Asset (ROA), an indicator of firm performance (Zona et al., 2015), measures investment efficiency and it is calculated as the ratio between operating income and total assets. ROA allows to obtain information on the operating profitability of the company, before considering tax and financial components and it is the most commonly used firm performance indicator (Adams and Ferreira 2009; Easterwood et al., 2012).

Tab. 1: Technological intensity Eurostat aggregations of manufacturing industry

<p><i>High-technology:</i></p> <ul style="list-style-type: none"> - <i>Manufacture of basic pharmaceutical products and pharmaceutical preparations (21);</i> - <i>Manufacture of computer, electronic and optical products (26);</i> - <i>Manufacture of air and spacecraft and related machinery (30.3)</i>
<p><i>Low-technology:</i></p> <ul style="list-style-type: none"> - <i>Manufacture of food products (10);</i> - <i>Manufacture of beverages (11);</i> - <i>Manufacture of tobacco products (12);</i> - <i>Manufacture of textiles (13);</i> - <i>Manufacture of wearing apparel (14);</i> - <i>Manufacture of leather and related products (15);</i> - <i>Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials (16);</i> - <i>Manufacture of paper and paper products (17);</i> - <i>Printing and reproduction of recorded media (18) excluding Reproduction of recorded media (18.2);</i> - <i>Manufacture of furniture (31);</i> - <i>Other manufacturing (32) excluding Manufacture of medical and dental instruments and supplies (32.5)</i>

Source: Eurostat (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:High-tech_classification_of_manufacturing_industries)

For an innovative startup, it is common to use growth-based measures to appreciate the firm performance. Growth-based performance measures are popular because growth is the most appropriate measure of performance for new ventures, (which are often loss-making) (Clarysse et al., 2011). While growth opportunities are measured in terms of Tobins' Q or Market-to-book ratio for listed firms, for unlisted and SMEs, and so, even more, considering innovative startups, the traditional proxy changes in sales growth or total asset. Sales Growth and Total Assets Growth measures the annual percentage change in turnover and total firm assets, respectively.

Leverage, as total financial debt over total assets, Cash_Stock, amount of liquidity held by the company, and Net Working Capital (NWC), the short-term liquidity of a business, are included in our analysis as financial capital variables (Campbell and Mínguez-Vera 2008). We also consider a variable related to non-repayable contributions (Grants) obtained by the company. This group of financial variables can be used for having a general idea of the firm's financial resources that could be invested in strategic projects, such as those related to innovation.

Tangibility represents the firm tangible assets, and it is measured by the ratio of properties, plants, and equipment to total assets. In contrast, Intangibles are firm resources and assets not embedded in physical assets. These variables group can affect the companies' ability to invest in innovative strategic projects.

As company size indicators we include Total Assets, Added Value per capita, and number of Employees (Campbell and Mínguez-Vera 2008). The variable Firm Age regards the number of years since the firm foundation (Low et al., 2015) and is a proxy for the reputation and track record a company gains on the market over the years.

Some other variables relating to human capital are considered in our study, such as Management Age and Number of Foreign Managers.

Results. Table 2 reports economic-financial and size indicators of Italian innovative startups with reference to the full sample analyzed. The values relating to the mean, median, standard deviation, minimum and maximum values of the variables considered in the analysis are shown in the table.

Tab. 2: Descriptive statistics of the full sample

	(1) <i>Mean</i>	(2) <i>Median</i>	(3) <i>SD</i>	(4) <i>Min</i>	(5) <i>2° quartile</i>	(6) <i>3° quartile</i>	(7) <i>Max</i>
ROA	-0.079	-0.017	0.287	-1.655	-0.155	0.041	0.574
Sales Growth	3.622	0.421	12.195	-1.000	-0.280	2.228	89.498
Total Assets Growth	1.977	0.329	5.536	-0.552	-0.001	1.489	38.999
Leverage	0.004	0.000	0.050	0.000	0.000	0.000	0.990
Cash stock	0.227	0.123	0.255	0.000	0.035	0.340	1.000
Net Working Capital	0.082	0.000	0.151	-0.533	0.000	0.119	0.863
Grants (000 €)	7.081	0.000	25.581	0.000	0.000	2.000	309.044
Tangibility	0.095	0.012	0.166	0.000	0.000	0.101	0.988
Intangibles	0.249	0.169	0.250	0.000	0.031	0.412	1.000
Total Assets (000 €)	343.800	107.343	781.053	0.079	29.602	344.357	12112.293
Added Value per capita (€)	28.008	21300	47269	-48480	1700	42640	466360
# Employees	1.173	0.000	2.786	0.000	0.000	1.000	28.000
Firm Age	1.293	1.000	1.191	0.000	0.000	2.000	5.000
Management Age (years)	46.929	47.000	10.821	23.000	39.000	54.000	83.667
# Foreign manager	0.019	0.000	0.137	0.000	0.000	0.000	1.000

Source: our elaboration from AIDA data

Table 3 shows the composition of the sample of innovative Italian startups distinguishing according to the presence of women in management. It reports the frequency of observations of startups without women in management (zero female presence) compared to their presence, in a range of 1 to 4, in management that at the most consists of 11 people.

Tab. 3: Female presence in the management of innovative startups

Whole sample			Startup High-Tech			Startup Low-Tech		
Female presence	Freq.	%	Female presence	Freq.	%	Female presence	Freq.	%
0	1,363	75.76	0	661	81.91	0	702	70.77
1	390	21.68	1	124	15.37	1	266	26.81
2	40	2.22	2	22	2.73	2	18	1.81
3	5	0.28				3	5	0.50
4	1	0.06				4	1	0.10
Tot. obs.	1,799	100.00	Tot. obs.	807	100.00	Tot. obs.	992	100.00

Source: authors processing on AIDA data

As shown in Table 3, in 24.24% of startups in the entire sample at least one woman plays a managerial role, in the case of low-tech startups the percentage exceeds 29%, while for high-tech startups it is just over 18%.

The following Table 4 presents the comparison of male vs female concerning economic-financial and dimensional indicators, considering: 1) startups without female presence, and 2) startups with at least one woman in the managerial role. The table shows the gender comparison for the whole sample (columns 1 and 2), then for the sub-sample of high-tech enterprises (columns 3 and 4) and finally for the sub-sample of low-tech enterprises (columns 5 and 6).

Regarding the business performance of the entire sample, ROA is more negative in startups with female presence than startups without female presence. Similarly, startups with a female presence show a lower capacity for growth, both in terms of sales growth and growth of total assets. Instead, the company size, in terms of total assets and number of employees, is greater in startups with a female presence. There are no differences in terms of tangible assets, while intangibles are greater in companies without a female presence.

Considering the value added per capita, women's enterprises adopt more complex production processes and show a higher level of working time, attributable to longer average collection and payment times. In terms of financial policies, there is a marginal use of financial debt in both groups, although in companies with no female presence there is an increased stock of cash. Startups with a female presence tend to be slightly more mature in terms of company age, also show a lower average management age and a higher presence of foreign managers.

Differences in performance (ROA and growth) between companies with or without a female presence are greater in high-tech companies than in low-tech companies. Women's startups perform less than men's, especially in high-tech firms. Intangibles in the high-tech sector are higher in female startups than in men, while the result is the opposite in the low-tech sector. There is a greater difference in cash stock and also a more complex production process (value added per capita) of male startups compared to women in the low-tech sector.

Tab. 4: Male vs female startup innovative, overall sample, sub-sample high-tech, sub-sample low-tech: descriptive analysis

	Total sample				Sub-sample high-tech enterprises				Sub-sample Low-Tech enterprises			
	Startup without female presence		Startup with at least 1 woman		Startup without female presence		Startup with at least 1 woman		Startup without female presence		Startup with at least 1 woman	
	(1)	(2)	(3)	(4)	(5)	(6)						
	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs
ROA	-0.070	1361	-0.104	436	-0.038	659	-0.080	146	-0.102	702	-0.116	290
Sales_growth	4.009	539	2.537	181	4.178	270	1.429	63	3.828	269	3.129	118
Total Assets growth	2.070	862	1.707	273	1.989	423	1.172	94	2.150	439	1.988	179
Leverage	0.005	1363	0.002	436	0.007	661	0.007	146	0.003	702	0.000	290
Cash_stock	0.235	1363	0.205	436	0.255	661	0.248	146	0.216	702	0.182	290
Net Working Capital	0.072	1363	0.113	436	0.057	661	0.083	146	0.087	702	0.128	290
Grants	6.460	1359	8.899	435	7.209	659	15.356	145	5.736	700	5.670	290
Tangibility	0.095	1363	0.095	436	0.063	661	0.044	146	0.125	702	0.120	290
Intangibles	0.259	1363	0.222	436	0.264	661	0.290	146	0.253	702	0.188	290
Total Assets	324.415	1363	400.666	436	303.475	661	376.237	146	344.678	702	412.966	290
# Employees	0.997	1262	1.681	411	0.952	607	1.403	139	1.039	655	1.824	272
Added Value per capita	26991	418	30297	172	35149	207	38103	67	18620	211	25316	105
Firm Age	2.280	1358	2.330	436	2.320	661	2.397	146	2.242	697	2.297	290
Management Age	47.085	1284	46.474	436	47.740	629	48.916	146	46.451	655	45.244	290
# Foreign manager	0.018	1363	0.023	436	0.021	661	0.014	146	0.015	702	0.028	290

Source: authors processing on AIDA data

An important aspect that emerges is the different number of women among innovative startups operating in high-tech sectors compared to those operating in low-tech sectors. In low-tech, there is a female incidence of about two times higher than high-tech. Growth rates of female startups are lower than those of men, in line with the prevailing literature (Alsos et al., 2006; Orser et al., 2006). However, even if this difference is found in both sub-groups, in the sub-sample of high-tech companies the female presence shows growth rates lower than double that of the male only startup group. In contrast, in the sub-sample of low-tech enterprises, this difference is minimal. In terms of ROA, there are worse performances in female startups compared to male ones. Although the literature shows the absence of dimensional differences (Demartini 2018) or smaller company size in women's enterprises (Alsos et al., 2006; Orser et al., 2006; Fairlie and Robb 2009; Coleman and Robb 2012), this research finds a larger size, in terms of total activity and number of employees, in startups with female presence and, above all, in low-tech ones.

Concerning the acquisition of financial resources, contrary to what is highlighted in other studies (Coleman and Robb 2012; Jennings and Brush 2013) it is interesting to note that the presence of women seems to be able to bring more funding to startups, especially at a loss. It can be assumed that these companies have been able to obtain a greater number of financial resources through participation in invitations to tender, startup competition and similar, of a national and/or international nature.

Research limitations. The limitation of this work stems from the fact that the conclusions reached are based on an exploratory analysis based on secondary data. However, the results open new directions of research based on primary data, in fact, a qualitative analysis could investigate, through in-depth interviews, decision-making processes, and antecedents in the growth paths of innovative startups with female presence, while quantitative analyses, based on ad hoc surveys, could deepen the study related to cause-effect relationships.

Managerial implications. This study is an initial exploratory analysis of a sample of innovative Italian startups operating in low-tech and high-tech sectors with a specific focus on gender differences. From a managerial point of view, this research underlines the necessity to sustain women entrepreneurship in the high-tech sectors, by trying to increase the pool of women, which might perceive less risk associated with startups and assume entrepreneurial activity. In this perspective, it may assume relevance the definition and implementation of targeted policies that go beyond simply reducing gender inequality and are mainly oriented to render the entrepreneurial initiatives accessible to women.

Originality of the paper. The analysis contributes to the existing literature on the phenomenon of women's entrepreneurship by examining the context of innovative startups in sectors of different technological intensity, high-tech vs low-tech, and improving the knowledge of the dynamics of such enterprises.

Keywords: women's entrepreneurship; innovative startup; low-tech sector; high-tech sector; performance; Italy.

References

- ADAMS R.B., FERREIRA D. (2009), "Women in the boardroom and their impact on governance and performance", *Journal of Financial Economics*, vol. 94, n. 2, pp. 291-309
- ALLEN I.E., LANGOWITZ N., MINNITI M. (2007), Global Entrepreneurship Monitor, 2006 report on women and entrepreneurship, GEM Consortia (pdf available <https://www.gemconsortium.org/>)
- ALSOS G.A., ISAKSEN E.J., LJUNGGREN E. (2006), "New venture financing and subsequent business growth in men-and women-led businesses", *Entrepreneurship theory and practice*, vol. 30, n. 5, pp. 667-686.
- CAMPBELL K., MÍNGUEZ-VERA A. (2008), "Gender diversity in the boardroom and firm financial performance", *Journal of Business Ethics*, vol. 83, n. 3, pp. 435-451.
- CLARYSSE B., WRIGHT M., VAN DE VELDE E. (2011), "Entrepreneurial origin, technological knowledge, and the growth of spin-of companies", *Journal of Management Studies*, vol. 48, n. 6, pp. 1420-1442
- COLEMAN S., ROBB A. (2012), "Gender-based firm performance differences in the United States: Examining the roles of financial capital and motivations", In *Global Women's Entrepreneurship Research*. Edward Elgar Publishing.
- DEMARTINI P. (2018), "Innovative female-led startups. Do women in business underperform?", *Administrative Sciences*, vol. 8, n. 4, pp. 1-15.
- EASTERWOOD J.C., INCE Ö.Ş, RAHEJA C.G. (2012), "The evolution of boards and CEOs following performance declines", *Journal of Corporate Finance*, vol. 18, n. 4, pp. 727-744.
- ELAM A.B., HUGHES K.D., GUERRERO M., HILL S., NAWANGPALUPI C. (2021), Global Entrepreneurship Monitor: Women's Entrepreneurship 2020/21: Thriving Through Crisis, Global Entrepreneurship Research Association (pdf available <https://www.gemconsortium.org/>)
- FAIRLIE R.W., ROBB A.M. (2009), "Gender differences in business performance: evidence from the Characteristics of Business Owners survey", *Small Business Economics*, vol. 33, n. 4, pp. 375-395.
- HECHAVARRIA D.M., INGRAM A., JUSTO R., TERJESEN S. (2012), "Are women more likely to pursue social and environmental entrepreneurship?", In *Global Women's entrepreneurship research*, Edward Elgar Publishing.
- GORJI M.B., RAHIMIYAN P. (2011), "The study of barriers to entrepreneurship in men and women", *Australian Journal of Business and Management Research*, vol. 1, n. 9, pp. 31-36.

- GUPTA V.K., TURBAN D.B., WASTI S.A., SIKDAR A. (2009), "The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur», *Entrepreneurship theory and practice*, vol. 33, n. 2, pp. 397-417.
- JENNINGS J.E., BRUSH C.G. (2013), "Research on women entrepreneurs: challenges to (and from) the broader entrepreneurship literature?", *Academy of Management Annals*, vol. 7, n. 1, pp. 663-715.
- KELLEY D.J., BAUMER B.S., BRUSH C. GREENE P.G., MAHDAVI M., MAJBOURI M., HEAVLOW R. (2017), Women's entrepreneurship 2016/2017 report. Global Entrepreneurship Research Association. (pdf available <https://www.gemconsortium.org/>)
- KELLEY D.J., BRUSH C.G., GREENE P.G., LITOVSKY Y. (2011), *Global Entrepreneurship Monitor, 2010 report: Women entrepreneurs worldwide*, London: Global Entrepreneurship Research Association (pdf available <https://www.gemconsortium.org/>)
- LOW D.C., ROBERTS H., WHITING R.H. (2015), "Board gender diversity and firm performance: Empirical evidence from Hong Kong, South Korea, Malaysia and Singapore", *Pacific-Basin Finance Journal*, vol. 35, pp. 381-401.
- MISE (2021), "Cruscotto di indicatori statistici sulle startup innovative" (pdf available https://www.mise.gov.it/images/stories/documenti/2_trimestre_2021_1.pdf)
- MUELLER S.L., DATO-ON M.C. (2013), "A cross cultural study of gender-role orientation and entrepreneurial self-efficacy", *International Entrepreneurship and Management Journal*, vol. 9, n. 1, pp. 1-20.
- ORSER B.J., RIDING A.L., MANLEY K. (2006), "Women entrepreneurs and financial capital", *Entrepreneurship Theory and Practice*, vol. 30, n. 5, pp. 643-665.
- SHINNAR R.S., HSU D.K., POWELL B.C., ZHOU H. (2018), "Entrepreneurial intentions and start-ups: are women or men more likely to enact their intentions?", *International Small Business Journal*, vol. 36, n. 1, pp. 60-80.
- XAVIER S.R., KELLEY D., KEW J., HERRINGTON M., VORDERWÜLBECKE A. (2013), Global Entrepreneurship Monitor: 2012 Global Report, GEM Consortia (pdf available <https://www.gemconsortium.org/>)
- WOOD W., EAGLY A.H. (2002), "A cross-cultural analysis of the behavior of women and men: implications for the origins of sex differences", *Psychological Bulletin*, vol. 128, n. 5, pp. 699-727.
- ZONA F., GOMEZ-MEJIA L.R., WITHERS M.C. (2015), "Board interlocks and firm performance: toward a combined agency-resource dependence perspective", *Journal of Management*, vol. 20, n. 10, pp. 1-30.

New “lenses” for exploitation and exploration strategies: a physiological approach

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Framing of the research. Kirzner (1973) defines the entrepreneur as a decision-maker who defines goals, directions and performance. Indeed, decision making is a cognitive phenomenon and it results from a complex process of consultation, which includes the fast assessment of potential and uncertainty results (Müller et al., 2009). An entrepreneurial opportunity is “an idea or dream that is discovered or created by [a decision maker] and that is revealed through analysis over time to be potentially lucrative” (Short et al., 2010: 55). Entrepreneurial opportunities, whether exogenous or endogenous constructed, are identified by alert decision-makers because their cognitive systems are “chronically activated”. In this study, we focus on alertness because it best represents the concept of recognizing the opportunity and making strategic decisions. More concretely, according to Kirzner (2009) we define “entrepreneurial alertness” as the degree to which decision makers perceive and anticipate the business opportunities associated with the current and future states of their business environment. Following this definition, EA is part of a key mechanism by which business opportunities are recognized, constructed and implemented (Kirzner, 1973). Thus, the decision process represents a central element in the definition of the outcomes (Danai et al., 2018). However, in the field of entrepreneurship literature, this issue is still underdeveloped. Moreover, the literature lacks empirical contributes on female decision makers.

Purpose of the paper. In this ongoing study we propose a physiological approach to study the characteristics of decision makers. More specifically, within the field of management, empirical studies have looked at only two hormones: testosterone and cortisol. Testosterone (T) is one of the most studied of the endocrine hormones, its levels affect both obvious physiological characteristics (e.g., muscle development) and more subtle attributes (e.g., brain development, structure, and processes) that may in turn affect cognitive and other psychological processes (Sundin et al., 2021; Archer, 2006; Book et al., 2001; McCabe and Fleeson, 2012; Mehta and Josephs, 2010; Soto and John, 2017). The other hormone is the steroid hormone cortisol (C), widely regarded as the stress hormone (Sapolsky, 1998), is released by the hypothalamic-pituitary-adrenal (HPA) axis in response to physical exertion (Mastorakos et al., 2005) and psychological stress (Dickerson and Kemeny, 2004). The influence of cortisol is “a double-edged sword” in the sense that cortisol may impair people’s ability to perform and attenuate overall organizational effectiveness but at the same time may increase the likelihood that people achieve leadership positions. Thus, in this study we propose the application of a physiological approach to measure entrepreneurial alertness, using the testosterone:cortisol ratio.

Methodology. The research methodology used is the multiple exploratory case study which aims to provide initial evidence on decisions in the innovative processes of exploration and exploitation and entrepreneurial alertness from a physiological perspective. Exploratory multi-case studies are supposed to answer the question ‘what are the mechanisms through which [phenomenon being researched] is occurring?’ These studies, although characterized as descriptive in nature, start from a position or perspective that arises from the literature pertaining to the topic being studied in order to obtain variables that are later used as the basis for case comparisons (Stake, 2013). Six case studies were conducted that fall within the limits considered by Yin (2009) and Eisenhardt (1989).

Six voluntary, right-handed, healthy female subjects aged 35-53 years participated in the study. Three subjects have a Ph.D., one a master’s degree, and two a bachelor’s degree. Two subjects work for companies and public research bodies. The selected subjects belong to the categories of female decision makers that operate across all the stages of the innovation process. Therefore, they make decisions in different areas of the innovation process: from basic research, to

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applied research, to development, production and marketing. Written informed consent was obtained before the study, and the trials were not considered clinical trials and were not recorded as such. Promptly after blood sampling, participants completed a questionnaire at the laboratory in which descriptive data such as age, height, and weight were assessed in order to characterize the case with corresponding hormone concentrations.

Results. This is an ongoing study. However, in this section we describe the first results of the analysis carried out on the single levels of testosterone and cortisol, along with their ratio: Testosterone/Cortisol (T/C). According to the literature on innovation and technology management (Geiger and Makri, 2006; Gilsing and Nooteboom, 2006), science, technology and product market strategies correspond to the sequence along the knowledge supply chain/innovation process (Van Looy et al., 2005). More concretely, an innovation strategy is a plan to create new solutions, or some product improvement, or a disruptive or breakthrough innovation. Within these strategies, March (1991) distinguishes between exploration and exploitation: exploration involves activities such as search, variation, risk taking, experimentation and discovery; exploitation involves activities such as refinement, efficiency, selection, implementation, and execution (March, 1991). Thus, exploitation and exploration are two possible behaviours when facing a decision-making problem. Consistent with some previous studies, an attempt is made to enrich this field with an interdisciplinary approach (Cucino et al., 2021a). Thus, we investigated which is the role of both the hormones in the behaviors of innovation actors that enact innovation strategies (exploitation and exploration). More concretely, exploration includes basic research and Applied research that are characterized by 'search, variation, risk taking, experimentation, and discovery (March, 1991); it requires a significant amount of uncertainty and risk since they are high experimental and exploratory stages (March, 1991). Both the stages are highly related to creativity. Exploration refers to the ability to create and subsequently adopt an entirely new production process which is new or radically changed compared to what already exists. In these stages, decision makers look for new opportunities to produce and commercialize products and services. They have to deal with market risk, they need to have the ability to interact with all the actors across the supply chain.

Our study supported what stated by March, (1991) by showing how decision makers that operate in the Basic Research stage, can present high levels of cortisol and high levels of testosterone. Also, decision makers belonging to Applied Research operate in a risk phase that is impaired by high testosterone and was benefited by low testosterone. Testosterone might contribute to the cortisol-induced deficit in decision-making in the uncertainty phase (Singh, 2021). The High level of testosterone along with a low-cortisol, in fact, characterize people prone to proactive, bold actions, which depend on some inclination toward risk and aggressiveness. These behaviors are also a core component of the leader stereotype (Eagly and Karau, 2002). Endogenous testosterone predicts aggressive or status-related behaviors, such as competitive motivation, when endogenous cortisol is low (Tackett, Herzhoff et al., 2014). If we consider the exploitative strategies, they refer to the ability of decision makers to improve and refine products or products that have already been invented. Therefore, the development is the systematic use of the knowledge or understanding gained from research or practical experience directed toward the production or significant improvement of useful products, services, processes, or methods, including the development of prototypes. The decision makers operating in the field of the Exploitation Development (LL) phases could present a low level of both the hormones. The decision makers who are closer to the market and the decision makers operating in the field of the Exploitation Commercialization stage are characterized by low testosterone and high cortisol. In fact, decision makers in the exploitation commercialization field operate in the "external" risk phase, linked to marketing on the market and must deal with the stress associated with unpredictable market demand, they must manage the interaction with all stakeholders along the supply chain, they have to deal with market risk. Thus, while Cortisol regulation might aid testosterone inhibition and enable safe decision-making in the risk phase (Singh, 2021), Cortisol is a proxy of work stress and anxiety (Karlsone et al., 2011)

Research limitations. This is an ongoing study. However, our study is not without limitations. Indeed, the lack of representation of the population leads us not to be able to draw strong relationships with the theory. However, exploratory studies are known to exist in the literature such as Boyatzis et al., (2012) that designed an exploratory study to evaluate the neural mechanisms involved in the memories of interactions with resonant and dissonant leaders (a follower-focused study). Although the authors are aware of this limitation, the aim of this work is to pave the way for large investigative studies that can lead to a quantitative analysis. Future research could orient itself on the study of further hormones not considered in the present study. Therefore, a future research question might be: what are the additional physiological elements that influence decision-making?

Managerial implications. Our study offers important implications for decision makers that operate across the innovation process, by showing how having a certain level of testosterone and cortisol can influence pattern recognition and can improve the behaviour of decision makers at anticipating, or predicting, future states of affairs (Kirzner, 1999). Scientists are continuously involved in collaborative projects, to develop scientific research or to promote the "third mission" understood as technology transfer of public engagement (Passarelli, 2017). Therefore, scientists must make important decision choices in the exploration of innovation and the study of hormones should allow researchers to work in uncertain situations because it stimulates the level of creativity (Newman et al., 2005). Furthermore, since scientists are used to proposing research results, they need to control their stress and anxiety due to intense work and high responsibilities. In other words, scientists should exhibit a high level of "entrepreneurial alertness" to catch new opportunities from both science and the market. Specifically, in our study, among the 6 cases, the Case 3 (a researcher that operates in applied science) presents the highest level of T/C as a measure of "entrepreneurial alertness". This result could suggest implications also for the opportunity recognition of academic entrepreneurs and sturtpoppers, in the early stages of firms' life cycle. Our results are coherent with Camuffo et al

(2020) who argue that entrepreneurs who behave like scientists could have better performances; in fact, they can better mitigate their biases or inaccuracy when they analyze market signals, thus reducing the likelihood of incurring false positives and false negatives. Using a scientific approach to develop and evaluate entrepreneurial ideas might constitute a paradigm-shift in entrepreneurship education.

Also Incubators and Venture capital can benefit from these results, especially when they select new startups, to support in their activities. More concretely, the company profile, as defined by its capacity for innovation and the personal, organizational and demographic characteristics of its members, affects the growth potential of the company. Therefore, the emotional reaction of its members to events in terms of concern, hope and optimism can influence business decision-making choices. Therefore, given the importance of individual physiological characteristics, the choice of venture capital financing should be directed towards entrepreneurs capable of controlling their emotional reaction to sources of stress (Kotsopoulos et al., 2022)

Our study offers important implications for decision makers within the TTO. Indeed, technology transfer professionals must be skilled in recognizing business opportunities to enhance the patent portfolio of universities. Within the technology transfer office, technology transfer professionals lead the knowledge transfer activities (Cucino et al., 2021b) and technological transfer professionals are involved in the innovation design process. Technology transfer professionals are actors who play a key role in defining innovation because they are able to “imagine the final product in its concrete use” (Miller et al., 2009); they participate to the creation of a powerful relationship with the industrial sector and they evaluate innovations together with the inventors to manage patenting processes (Miller et al., 2009). Then, technology transfer professionals are crucial in establishing a relationship of mutual trust with the licensee (Amidon, 1996). The professionals of technology transfer have countless tasks and that is why they are constantly under pressure. Our study shows how attention to the physical well-being (Kraemer et al., 2020) of technology transfer professionals can lead technology transfer professionals to appropriate exploitation and exploration strategies.

Finally, our study also offers important implications for policy makers. Indeed, policy makers who issue public funds to support business creation and expansion should pay more attention in choosing projects by paying attention to founders and entrepreneurial teams. In other terms, technology and market valuations are crucial in the selection phase, but the human capital of the enterprise also plays a crucial role in the exploration and exploitation process.

Originality of the paper. There are studies investigating the testosterone:cortisol ratio with the entrepreneurial opportunity (White et al., 2006) and entrepreneurial recognition (Nicolaou and Shane 2009), however, we identified some gaps: (1) none research in management has examined the association between alertness and testosterone:cortisol ratio as well as the neuroendocrine axis strictly associated with. (2) no studies performed physiological analyses of alertness with blood samples -most of them use saliva- (Sherman et al., 2015); (3) no study has associated testosterone:cortisol relationship with entrepreneurial alertness as a gender issue. Thus, several studies have found that the interaction of testosterone and cortisol in predicting state-relevant behaviors, such as risk-taking and the desire to compete after a loss, is not moderated by gender (Mehta and Josephs, 2010). A study conducted on women found that testosterone:cortisol ratio interacted in predicting reactive aggression, with higher testosterone associated with more reactive aggression but only for women with high cortisol (Denson et al., 2013). However, most of the analysis use saliva (Sherman et al., 2015) and no studies have associated testosterone:cortisol ratio with entrepreneurial alertness as a gender issue.

This study is one of the first exploratory studies that provide blood sample analysis and binds the relationship between testosterone: cortisol ratio in the female entrepreneurial alertness. We analyze their ratio (T/C), as a factor that could influence the alertness of decision makers, to recognize and to catch new opportunities, in the processes of exploration and exploitation.

Keywords: entrepreneurship alertness; innovation process, testosterone,cortisol; physiology

References

- AMIDON D.M. (1996), “Decade of perspective: a vision for the technology transfer profession”, *The Journal of Technology Transfer*, vol. 21, n. 1/2, pp. 5-8.
- ARCHER J. (2006), “Cross-cultural differences in physical aggression between partners: A social-role analysis”, *Personality and social psychology review*, vol. 10, n. 2, pp. 133-153
- BOOK A.S., STARZYK K.B., QUINSEY V.L. (2001), “The relationship between testosterone and aggression: a meta-analysis”, *Aggression and Violent Behavior*, vol. 6, pp. 579–599.
- BOYATZIS R.E., PASSARELLI A.M., KOENIG K., LOWE M., MATHEW B., STOLLER J.K., PHILLIPS M. (2012), “Examination of the neural substrates activated in memories of experiences with resonant and dissonant leaders”, *The Leadership Quarterly*, vol. 23, n. 2, pp. 259-272.
- CAMUFFO A., CORDOVA A., GAMBARELLA A., SPINA C. (2020), “A scientific approach to entrepreneurial decision making: Evidence from a randomized control trial”, *Management Science*, vol. 66, n. 2, pp. 564-586.
- CREWETHER B.T., OBMIŃSKI Z., COOK C.J. (2018), “Serum cortisol as a moderator of the relationship between serum testosterone and Olympic weightlifting performance in real and simulated competitions”, *Biology of sport*, vol. 35, n. 3, pp. 215.

- CUCINO V., DEL SARTO N., DI MININ A., PICCALUGA A. (2021b), "Empowered or engaged employees? A fuzzy set analysis on knowledge transfer professionals", *Journal of Knowledge Management*, vol. 25, n. 5, pp. 1081-1104.
- CUCINO V., PASSARELLI M., DI MININ A. CARIOLA A., (2021a), "Neuroscience approach for management and entrepreneurship: a bibliometric analysis", *European Journal of Innovation Management*, vol. 25, n. 6, pp. 295-319.
- DABBS JR J.M. (1990), "Salivary testosterone measurements: reliability across hours, days, and weeks", *Physiology & behavior*, vol. 48, n. 1, pp. 83-86.
- DANAI H.A., GHEZAVAT F., ARDAKANI F.M. (2018), "The Effects of Intellectual Capital on firm Performance in Exporting Companies", *Academy of Social Science Journal*, vol. 3, n. 6, pp. 1191–1198.
- DENSON T.F., MEHTA P.H., TAN D.H. (2013), "Endogenous testosterone and cortisol jointly influence reactive aggression in women", *Psychoneuroendocrinology*, vol. 38, n. 3, pp. 416-424.
- DICKERSON S.S., KEMENY M.E. (2004), "Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research. *Psychological bulletin*, vol. 130, n. 3, pp. 355.
- EISENHARDT K.M. (1989), "Building theories from case study research", *Academy of management review*, vol. 14, n. 4, pp. 532-550.
- GEIGER S.W., MAKRI M. (2006), "Exploration and exploitation innovation processes: The role of organizational slack in R&D intensive firms", *The Journal of High Technology Management Research*, vol. 17, n. 1, pp. 97-108.
- GILSING V., NOOTEBOOM B. (2006), "Exploration and exploitation in innovation systems: The case of pharmaceutical biotechnology", *Research policy*, vol. 35, n. 1, pp. 1-23.
- KARLSON B., EEK F., HANSEN Å.M., GARDE A.H., ØRBÆK P. (2011), "Cortisol variability and self-reports in the measurement of work-related stress", *Stress and Health*, vol. 27, n. 2, pp. e11-e24
- KIRZNER I.M. (1985), *Discovery and the capitalist process*, University of Chicago Press.
- KIRZNER I.M. (2009), "The alert and creative entrepreneur: A clarification", *Small Business Economics*, vol. 32, n. 2, pp. 145-152.
- KIRZNER, ISRAEL M. (1973), *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- KOTSOPOULOS D., KARAGIANAKI A., BALOUTSOS S. (2022), "The effect of human capital, innovation capacity, and Covid-19 crisis on Knowledge-Intensive Enterprises' growth within a VC-driven innovation ecosystem", *Journal of Business Research*, n. 139, pp. 1177-1191.
- KRAEMER W.J., RATAMESS N.A., HYMER W.C., NINDL B.C., FRAGALA M.S. (2020), "Growth hormone (s), testosterone, insulin-like growth factors, and cortisol: roles and integration for cellular development and growth with exercise", *Frontiers in endocrinology*, vol. 11, pp. 33.
- MARCH J.G. (1991), "Exploration and exploitation in organizational learning", *Organization science*, vol. 2, n. 1, pp. 71-87.
- MASTORAKOS G., PAVLATOU M., DIAMANTI-KANDARAKIS E., CHROUSOS G.P. (2005), "Exercise and the stress system", *Hormones (Athens)*, vol. 4, n. 2, pp. 73-89.
- MCCABE K.O., FLEESON W. (2012), "What is extraversion for? Integrating trait and motivational perspectives and identifying the purpose of extraversion", *Psychological science*, vol. 23, n. 12, pp. 1498-1505.
- MEHTA P.H., JOSEPHS R.A. (2006), "Testosterone change after losing predicts the decision to compete again", *Hormones and behavior*, vol. 50, n. 5, pp. 684-692.
- MEHTA P.H., JOSEPHS R.A. (2010), "Testosterone and cortisol jointly regulate dominance: Evidence for a dual-hormone hypothesis", *Hormones and behavior*, vol. 58, n. 5, pp. 898-906.
- MILLER F.A., SANDERS C.B., LEHOUX P. (2009), "Imagining value, imagining users: academic technology transfer for health innovation", *Social Science & Medicine*, vol. 68, n. 8, pp. 1481-1488.
- NICOLAOU N., SHANE S. (2014), "Biology, Neuroscience, and Entrepreneurship", *Journal of Management Inquiry*, vol. 23, n. 1, pp. 98–100.
- PANTON K.K., MIKKELSEN G., IRGENS W.Ø., HOVDE A.K., KILLINGMO M.W., ØIEN M.A., ÅSBERG A. (2019), "New reference intervals for cortisol, cortisol binding globulin and free cortisol index in women using ethinyl estradiol", *Scandinavian journal of clinical and laboratory investigation*, vol. 79, n. 5, pp. 314-319.
- PASSARELLI M. (2017), *Il management del trasferimento tecnologico: l'esperienza PoCN di Area Science Park*. EGEA spa.
- ROMERO MARTÍNEZ Á., LILA M., SARIÑANA GONZÁLEZ P., GONZÁLEZ BONO E., MOYA ALBIOL L. (2013), "High testosterone levels and sensitivity to acute stress in perpetrators of domestic violence with low cognitive flexibility and impairments in their emotional decoding process: A preliminary study", *Aggressive behavior*, vol. 39, n. 5, pp. 355-369.
- SHERMAN G.D., LERNER J.S., JOSEPHS R.A., RENSHON J., GROSS J.J. (2015), "The Interaction of Testosterone and Cortisol Is Associated With Attained Status in Male Executives", *Journal of Personality and Social Psychology*, vol. 110, n. 6, pp. 921.
- SHORT J.C., KETCHEN D.J., SHOOK C.L. (2010), "The concept of "opportunity" in entrepreneurship research: Past accomplishments and future challenges", *Journal of Management*, vol. 36, n. 1, pp. 40–65.
- SINGH V. (2021), "Role of Cortisol and Testosterone in Risky Decision-Making: Deciphering Male Decision-Making in the Iowa Gambling Task", *Frontiers in Neuroscience*, vol. 15.

- SLATCHER R.B., MEHTA P.H., JOSEPHS R.A. (2011), “Testosterone and self-reported dominance interact to influence human mating behavior”, *Social Psychological and Personality Science*, vol. 2, n. 5, pp. 531-539.
- SOLLBERGER S., EHLERT U. (2016), “How to use and interpret hormone ratios”, *Psychoneuroendocrinology*, vol. 63, pp.385-397.
- SOTO C.J., JOHN O.P. (2017), “The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power”, *Journal of personality and social psychology*, vol. 113, n. 1, pp. 117.
- STAKE R.E. (2013), *Multiple case study analysis*, Guilford press.
- SUNDIN Z.W., CHOPIK W.J., WELKER K.M., ASCIGIL E., BRANDES C.M., CHIN K., TACKETT J.L. (2021), “Estimating the associations between Big Five personality traits, testosterone, and cortisol”, *Adaptive Human Behavior and Physiology*, vol. 7, n. 3, pp. 307-340.
- TACKETT J.L., HERZHOF K., HARDEN K. P., PAGE-GOULD E., JOSEPHS R. A. (2014), “Personality× hormone interactions in adolescent externalizing psychopathology”, *Personality Disorders: Theory, Research, and Treatment*, vol. 5, n. 3, pp. 235.
- VAN LOOY B., MARTENS T., DEBACKERE K. (2005), “Organizing for continuous innovation: On the sustainability of ambidextrous organizations”, *Creativity and innovation management*, vol. 14, n. 3, pp. 208-221.
- WHITE R. E., THORNHILL S., HAMPSON E. (2006), “Entrepreneurs and evolutionary biology: The relationship between testosterone and new venture creation”, *Organizational Behavior and Human Decision Processes*, vol. 100, n. 1, pp. 21-34.
- YIN R.K. (2009), *Case study research: Design and methods* (vol. 5), sage.

Gender differences and tech-based entrepreneurship: a literature review and research agenda

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Framing of the research. *Despite the widespread recognition of the growing, positive contribution of female entrepreneurship in economic and social development processes, women are still less involved in high-growth entrepreneurship, especially in Europe, where their participation is lower than in most part of the world, and where they show some of the lowest rates of entrepreneurial perceptions (seeing new business opportunities, having the skills to start a new business, being undeterred by fear of failure), according to Women's Entrepreneurship GEM Report (2021). Gender gap in entrepreneurship and management is confirmed by the European Institute for Gender Equality, whose statistics show that across the EU, women business owners make up only 33.2% of self-employed people, and management boards are dominated by men (EIGE Report, 2021). This gap is somewhat larger in tech-based industries, where founding and managing a technology-based firm has been commonly considered to be a male affair (Green et al., 2003; Nelson and Levesque, 2007) and prominently within STEM fields (Poggesi et al., 2020), where women entrepreneurs are still strongly underrepresented (Dautzenberg, 2012; Tonoyan and Strohmeyer, 2021).*

Since the seminal contribution of Schwartz (1976), the debate surrounding women and entrepreneurship has grown up, focusing on their underrepresentation and their “marginalization” into sectors with low growth perspectives (Carter et al., 2000). There has been, among scholars as well as policymakers, a tendency to interpret this evidence as the expression of female structural weaknesses, to be fixed through specific programs aimed at training women to adopt prototypical entrepreneurial attitudes (Marlow, 2019). Despite this generalized view, a different perspective emerged in the same years, suggesting that female entrepreneurship specificities had to be considered as the result of a generalized gendered subordination (Fischer, 1993; Jennings and Brush, 2013).

Purpose of the paper. *Even though this topic has given rise to a substantial body of literature, there are relatively few studies dedicated to investigating the presence of women entrepreneurs in technology-based sectors. Except for a few recent works (Wheadon and Duval-Couetil, 2019; Poggesi et al., 2020) that propose a literature review on the topic of gender and technology entrepreneurship, there is currently no dedicated strand of research that, in the field of management, identifies the issue of gender differences with reference to high-tech entrepreneurship. This is even more surprising, when considering that today technology plays a pervasive role and that even mature industries are undergoing strong changes precisely because of the spread of new technologies related to STEM fields. This opens great opportunities from which, once again, women risk being excluded or marginalized. It is therefore important, in our opinion, to examine this issue in depth and take stock of the results of the research conducted so far.*

Given the above, our study has two overarching objectives. The first is to document the development of the body of work related to gender differences and high-tech entrepreneurship. The second is to assess its contributions vis-a-vis the broader corpus of literature on female entrepreneurship.

Methodology. *We decided to adopt bibliometric techniques already used by other authors for systematic review purposes (see for example Appio et al., 2017; Casprini et al., 2020). In particular, the analysis relied on 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). We recurred to VOSviewer 1.6.8 software (Van Eck e Waltman, 2010) since among the most flexible and useful to the research aim.*

The analysis followed different steps (Table 1). We used SCOPUS database, recurring to keywords linking the concepts of «gender», «new entrepreneurship» «technology/innovation». We excluded contributions of the current year (2022). The analysis was limited to international top level (based on Academic Journal Guide -ABS) publication sources. We manually refined the database: the authors read the abstracts, excluding those papers that appeared not focused on the core topic. The final core comprised 39 scientific contributions, but VOSViewer’s algorithm only considered 36 documents. Nonetheless, in our analysis, we also paid attention to the 3 excluded contributions.

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Tab. 1: Data collection procedure

Step	Action	No. Docs
1	Search (TITLE-ABS-KEY (“gender diff*”) OR (“gender div*”) OR (woman) OR (women) OR (female)) AND TITLE-ABS-KEY ((entrepren* OR (start-up*) OR (“new venture*”) OR (spin-off*) OR (“new business*”) OR (“new firm*”) OR (“nascent firm*”) OR (“new compan*”) OR (early-stage*) OR (pre-seed) OR (nhtv*) OR (spin-out*) OR (start*up) OR (startup*) OR (spinoff*) OR (spinout*)) AND TITLE-ABS-KEY ((tech* OR (innovat* OR (new AND product*) OR (high-tech*) OR (r&d) OR (invent*) OR (npd*) OR (“new process*”)))) AND (LIMIT-TO (DOCTYPE , “ar”)) AND (LIMIT-TO (SUBJAREA , “BUSI”)) AND (LIMIT-TO (LANGUAGE , “English”)) AND (EXCLUDE (PUBYEAR , 2022))	-
2	Selection of: - Articles or review - In English - Published on Journal	-
3	Definition of the timespan, with 2022 (year) excluded	723
4	Further selection of ABS sources (Association of Business School) following the Academic Journal Guide 2021 (3, 4 e 4*)	120
5	Cleaning of the database, through abstracts analysis (documents not attaining the aim of the study have been excluded)	39
7	Exclusion of 3 documents resulting as outliers when applying the bibliographic coupling analysis	36

Source: Authors

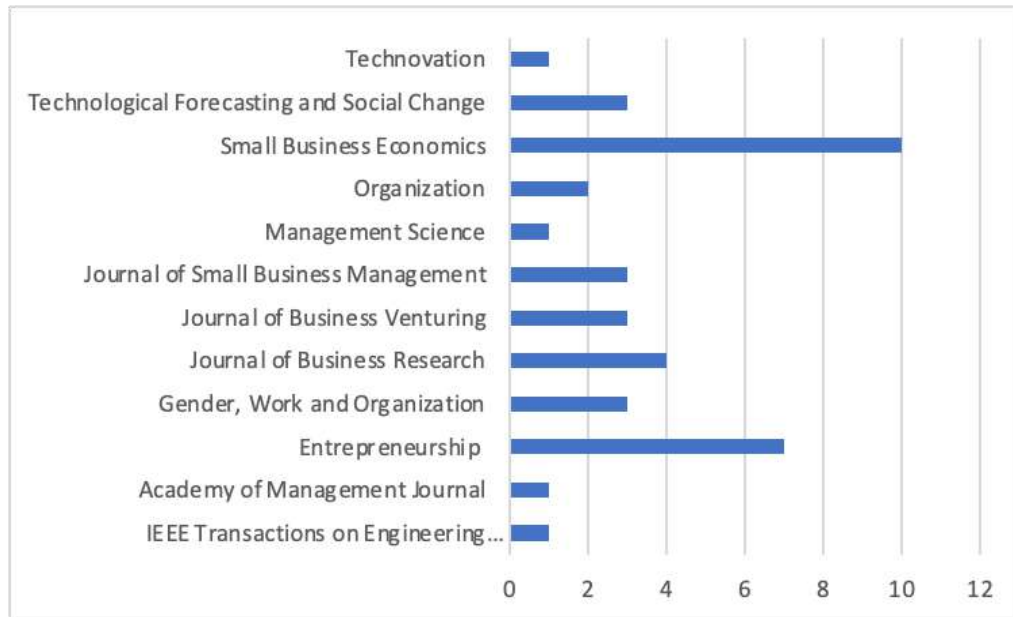
Results. Starting from the descriptive analysis of scientific production, the temporal distribution of the contributions covered by the intellectual core has shown a growing trend, in line with the growing importance that the issue of the gender gap has been assuming in recent years in the international debate in reference to STEM areas. (Figure 1).

Fig. 1: Trend of intellectual core



The analysis of the journals of the 39 core publications (gender gap and high-tech relationship) (Figure 2, Table 2) showed a strong receptivity of the specialized journals on the topics of small businesses and entrepreneurship. More markedly innovation-centered journals (Technovation and Technological Forecasting and Social Change) seem to have paid less attention to the relationship between entrepreneurship / high-tech innovation and gender diversity; even the citation analysis shows little influence of these contributions in terms of their impact on research on the topic.

Fig. 2: Main journals



Source: Authors' elaboration

Tab. 2: Main journals

Source	Documents	Citations
Small Business Economics	10	199
Entrepreneurship: Theory and Practice	4	235
Journal of Business Research	4	80
Entrepreneurship and Regional Development	3	175
Gender, Work and Organization	3	24
Journal of Business Venturing	3	889
Journal of Small Business Management	3	155
Organization	2	32
Technological Forecasting and Social Change	2	17
The Academy of Management Journal	1	418
IEEE Transactions on Engineering Management	1	16
International Small Business Journal	1	64
Management Science	1	2
Technovation	1	0

Source: Authors' elaboration

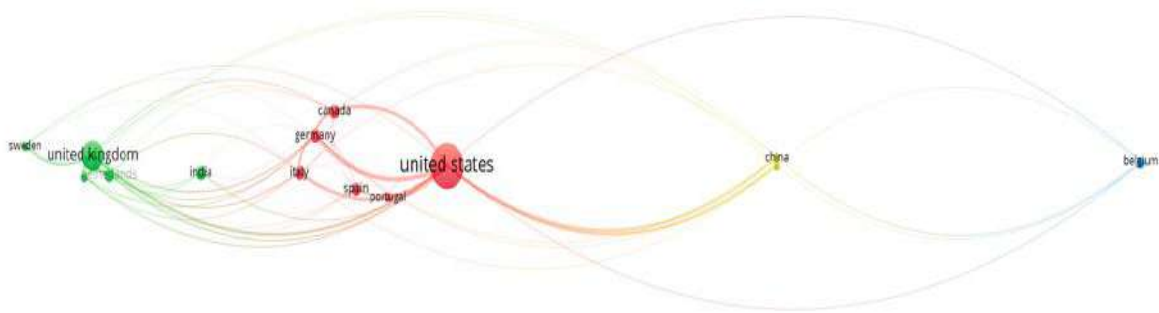
The most cited article is one of the first contributions, in chronological terms, "Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions", published in *The Academy of Management Journal* in 2004. However, this journal counts only this paper on the topic in the whole period of analysis.

Consistent with the journals analyzed, the main geographical area of reference of the authors of the selected contributions is largely Anglo-Saxon, with the United States and the United Kingdom leading, as represented in 20 and 9 papers, respectively. Italy ranks fifth with 2 articles by Italian authors (Figure 3).

The density map (Figure 4), obtained from a first analysis on recurring key words (Table 3), shows how some terms emerge to characterize the studies in a clear way: education, barriers, expectations, success, legitimacy. The density map is particularly useful for getting an overview of the areas of greatest interest: the color of each point in the map depends on the density of the elements at that point (between red and blue, by default). The greater the number of elements close to a point and the greater the weight of the elements, the closer the color of the point is to red. Conversely, the fewer the number of elements close to a point and the lower the weight of the elements, the closer the color of the point is to blue (Van Eck and Waltman, 2010).

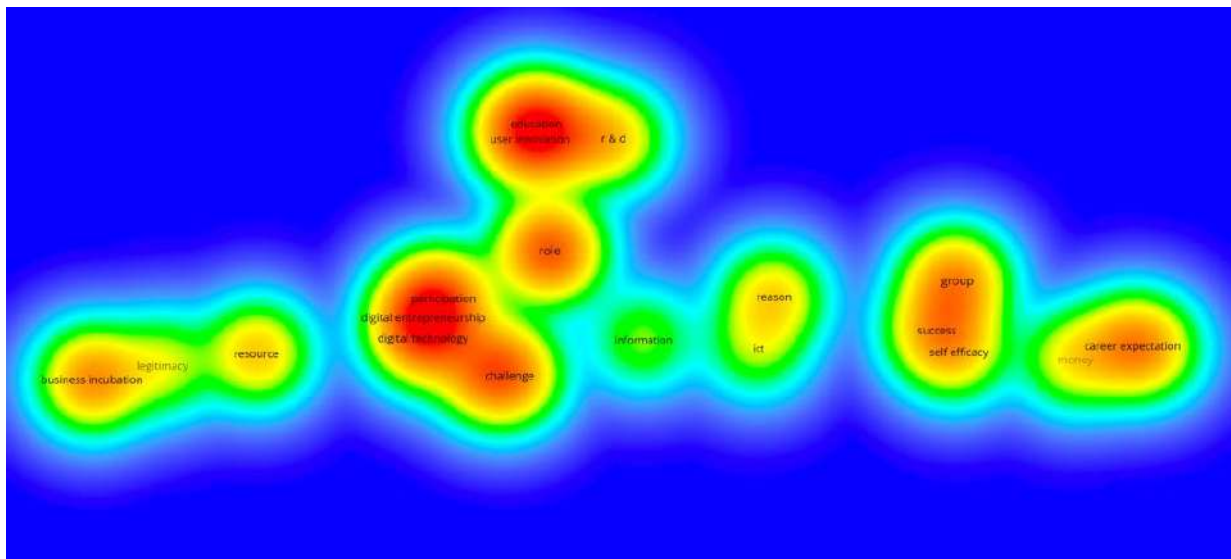
The focus on high-tech seems to confirm the general themes of the studies on female entrepreneurship, mentioned in the introduction, showing, as expected (considering the specific area of analysis), a strong incidence of issues related to digital.

Fig. 3: Authors' country of provenance



Source: Authors' elaboration

Fig. 4: Keywords co-occurrence



Source: Authors' elaboration

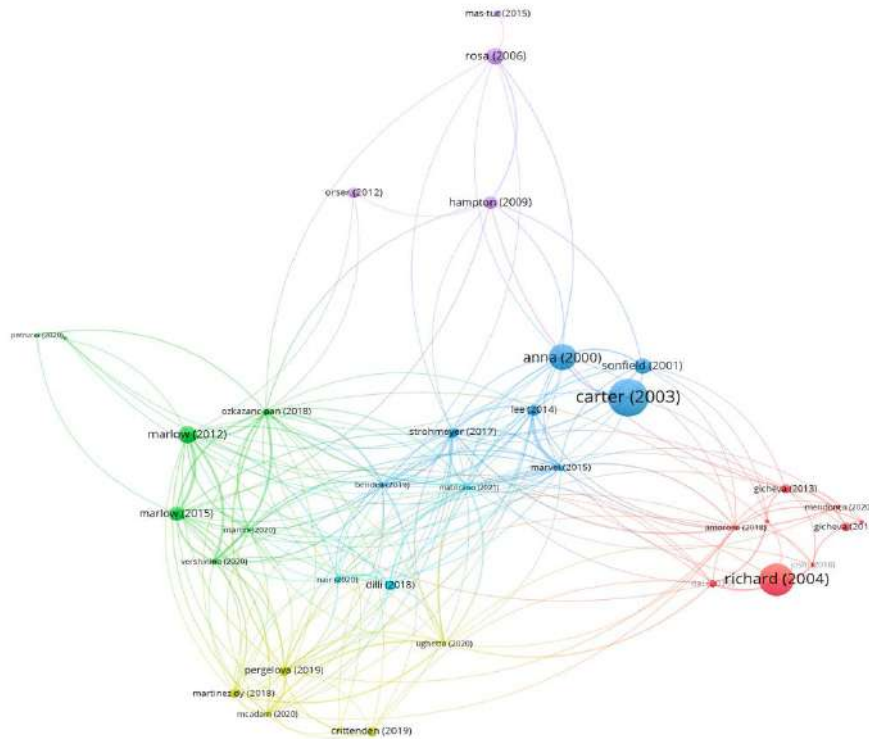
Tab. 3: Most recurring keywords

term	occurrences	term	occurrences
role	15	business incubation	6
group	11	money	6
education	10	participation	6
challenge	9	self efficacy	6
digital entrepreneurship	9	identity work	5
digital technology	9	innovation performance	5
barrier	8	legitimacy	5
career expectation	8	sale	5
resource	8	stage	5
r & d	7	engineering	4
reason	7	ict	4
success	7	information	4
user innovation	7		

Source: Authors' elaboration

The bibliographic coupling analysis, grouping the documents on the basis of shared references (the higher the overlap between the shared sources between two works, the more likely the two articles will be allocated to the same thematic group), highlighted 6 thematic clusters, identified in Figure 5 by the different colours.

Fig. 5: Bibliographic coupling



Source: Authors' elaboration

The study and analysis of the contributions in each of the 6 groupings allows to characterize the latter as represented in Table 4.

The most recurring themes in the analyzed literature are therefore the following:

- Factors that encourage women to start and expand new businesses, especially in technology-based sectors;
- Challenges and barriers encountered by female entrepreneurs in the various stages of setting up a business;
- Gender differences, entrepreneurial intentions and performance of a new business;
- Innovation and gender differences;
- The role and characteristics of women entrepreneurs in the research and allocation of resources, in networking skills and in the decision-making process in the management of technological initiatives;
- The barriers and problems encountered by women in starting businesses based on science, technology, engineering and mathematics (STEM);
- The role and contribution of women entrepreneurs to learning, R&D processes and the innovative performance of companies;
- The paths of legitimacy for successful entrepreneurs, with particular reference to high-tech companies.

Adopting as an interpretative model the Valencia and Lamolla (2005)'s scheme of the presence of women in entrepreneurial activities between 1990 and 2004 (which takes up the 1985 Gartner's scheme of the creation of new businesses), the thematic blocks emerged from citation analysis can be represented as in Figure 6.

Tab. 4: Bibliographic coupling clusters

Clus.	Tempo	N.	Articoli principali	Topics dominanti
1 Red	2004-2021	9	Biga-Diambeidou <i>et al.</i> , 2021; Dai <i>et al.</i> , 2019.	Gender diversity and composition of entrepreneurial teams in relation to innovative performance and / or R&D
2 Green	2012-2021	7	Vershinina <i>et al.</i> 2020; Ozkazanc-Pan e Muntean, 2018; Marlow e McAdam, 2015	Incubation, networking and interpersonal skills
3 Blu	2000-2019	7	Bendell <i>et al.</i> , 2019; Lee e Marvel, 2014 Strohmeyer <i>et al.</i> , 2017	Strategies, leadership and growth / performance (economic and innovative)
4 Yellow	2018-2020	6	McAdam <i>et al.</i> , 2020; Crittenden <i>et al.</i> , 2019; Martinez <i>et al.</i> , 2018	Legitimation and emancipation (with particular reference to emerging economies and digitalisation)
5 Purple	2006-2015	4	Orser <i>et al.</i> , 2012 Rosa e Dawson, 2006	Barriers, career advancement and access to resources
6 Light Blu	2018-2021	3	Dilli e Westerhuis, 2018	Training of women entrepreneurs

Source: Authors' elaboration

Fig. 6: Results of the bibliometric analysis

Individual dimension (Cluster 4, 5, and 6)	Organizational dimension (cluster 1 and 3)	Contextual dimension (cluster 2)
<ul style="list-style-type: none"> • Education • Barriers and obstacles • Legitimation • Emancipation 	<ul style="list-style-type: none"> • Entrepreneurial team composition • Strategy and performance 	<ul style="list-style-type: none"> • Relationship with context of reference

Source: Authors' elaboration

Figure 6 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.

From an individual perspective, gender diversity in relation to the technological and innovative dimension of business activities is interpreted with a strong reference to the individual determinants of the entrepreneur (woman). The issues addressed are i) the emerging ones, related to the issues of legitimizing the role of women and emancipation from gender stereotypes, with particular reference to digital transformation (cluster 4); ii) those, more consolidated, related to the difficulties of women entrepreneurs in accessing resources, and to the barriers - social and organizational - that slow down the career development of women managers (cluster 5); finally iii) those which, by privileging the education and training of women entrepreneurs, act as a link towards a more organizational dimension (cluster 6).

From an organizational perspective, gender diversity is identified as a determinant of organizational behavior. The issues are mainly related to i) strategic issues, with interesting implications in terms of leadership (cluster 3) and to ii) the impact of gender diversity on economic and/or innovative growth and performance of entrepreneurial activities (cluster 1).

Finally, with the contextual perspective, attention shifts to a more relational dimension; the concept of gender diversity in relation to technology and innovation is explored by highlighting the specificities that characterize women entrepreneurs in terms of interpersonal skills and stakeholder management (cluster 2).

Research limitations. This research has some limitations. The first is the selection of only ABS (Association of Business School) Journal ranking according to the Academic Journal Guide 2021 in 3, 4 and 4 * ranks. Future developments of the work should also take into consideration ranks 1 and 2. Widening the number of contributions under analysis could also decrease the heterogeneity of smaller clusters (e.g. 5 and 6) where the sharing of some references can derive from individual articles with very different focuses. The second limitation is related to the choice of scientific fields of investigation. Our analysis considers only the contributions present in the SCOPUS "Business Management and Accounting" category. This does not exclude that there may be interesting and useful works for the purpose of this study also within different disciplines (e.g. engineering). 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. Institutional attention and scholarly debate on gender inequality, with specific regards to the gap within the STEM (Science, Technology, Engineering and Mathematics) environment, appears particularly vibrant and intense (Berra and Cavalletto, 2020), and the topic of the gender gap in research and innovation publications has been specifically promoted by the European Commission (She Figures 2021).

Given the widespread policy interest in fostering the entrepreneurial and innovative activities of women in tech-based activities and sectors, we do think that our study, by offering an updated review of the body of literature on the relationships between gender and entrepreneurship in tech-based industries, may propose ideas for future research, also giving some practical hints.

As expected, the systematic literature review confirms that the masculinity embedded in the concept of entrepreneurship has made it difficult for women to successfully run a high growth business, particularly in tech-based industries. In these contexts, women entrepreneurs face greater difficulties in finding the necessary resources to develop their business initiative, due not only to cultural prejudices that limit their opportunities, but also to individual and contextual factors that make it more challenging to overcome barriers to access and participation. Most recent studies underline that it is not just a matter of unequal access to financial and social capital, as other forms of barriers may impede or make it harder to sustain growth. In this vein, Wheadon and Duval-Couetil suggest that "other forms of 'capital', including cognitive attributes and human capital, may provide a useful framework for broadening our research and programming around inclusivity in entrepreneurship and technology" (2019 p. 320).

Consistently, to attain significant increases in women participation and retention in technology fields, it seems necessary to refocus not only research, but also supporting policies: it is indeed important to target eliminating gender differences in individual resources, mainly in skills related to entrepreneurial activity learned on the field, i.e., through channels other than education (e.g., internships), and to create opportunities for women to network with other entrepreneurs. Finally, as gender roles are strongly embedded in cultural institutions, policies aiming to close the gap should target gender differences that emerge during the early stages of an individual's life, particularly at the family level.

Originality of the paper. *The literature on gender diversity and female entrepreneurship is extremely vast, albeit quite recent. However, to the best of the authors' knowledge, there are no systematic literature reviews on this topic specifically related to high-tech sectors and innovation.*

Keywords: *gender, female entrepreneurship, high-tech, innovation*

References

- AMATUCCI F.M. CRAWLEY D.C. (2011), "Financial self-efficacy among women entrepreneurs", *International Journal of Gender and Entrepreneurship*, vol. 3, n. 1, pp. 23-37.
- APPIO F.P., MARTINI A., MASSA S., TESTA S. (2017), "Collaborative network of firms: Antecedents and state-of-the-art properties", *International Journal of Production Research*, vol. 55, n. 7, pp. 2121-2134.
- BENDELL B.L., SULLIVAN D.M., MARVEL M.R. (2019), "A gender-aware study of self leadership strategies among high-growth entrepreneurs", *Journal of Small Business Management*, vol. 57, n. 1, pp.110-130.
- BERRA M., CAVALETTO G.M. (2020), "Overcoming the STEM gender Gap: From school to work", *Italian Journal of Sociology of Education*, vol. 12, n. 2, pp. 1-21.
- BIGA-DIAMBEIDOU M., BRUNA M.G., DANG R., L'HOCINE H. (2021), "Does gender diversity among new venture team matter for R&D intensity in technology-based new ventures? Evidence from a field experiment", *Small Business Economics*, vol. 56, n. 3, pp. 1205-1220.
- CARTER S., ANDERSON S., SHAW E. (2000), "Women's business ownership: a review of the academic, popular and internet literature with a UK policy focus", *ARPENT: Annual Review of Progress in Entrepreneurship*, Vol. 1, pp. 66.
- CASPRINI E., DABIC M., KOTLAR J., PUCCI T. (2020), "A bibliometric analysis of family firm internationalization research: Current themes, theoretical roots, and ways forward", *International Business Review*, vol. 29, n. 5, pp. 1-18.
- CRITTENDEN V.L., CRITTENDEN W.F., AJJAN H. (2019), "Empowering women micro-entrepreneurs in emerging economies: The role of information communications technology", *Journal of Business Research*, vol. 98, n. May 2019 pp. 191-203
- DAI Y., BYUN G. DING F. (2019), "The direct and indirect impact of gender diversity in new venture teams on innovation performance", *Entrepreneurship Theory and Practice*, vol. 43, n. 3, pp. 505-528.
- DAUTZENBERG K. (2012). "Gender differences of business owners in technology-based firms", *International Journal of Gender and Entrepreneurship*, vol. 4, n. 1, pp. 79-98.
- DILLI S., WESTERHUIS G. (2018), "How institutions and gender differences in education shape entrepreneurial activity: a cross-national perspective", *Small Business Economics*, vol. 51, n. 2, pp.371-392.
- FISCHER E.M., REUBER A.R., DYKE L.S. (1993) "A theoretical overview and extension of research on sex, gender, and entrepreneurship", *Journal of Business Venturing*, vol. 8, n. 2, pp. 151-168.
- GARTNER W. (1985), "A conceptual framework for describing the phenomenon of new venture creation", *Academy of Management Review*, vol. 10, n. 4, pp. 696-706.
- GLOBAL ENTREPRENEURSHIP MONITOR - GEM (2021). "Women's Entrepreneurship 2020/21 Thriving Through Crisis".
- GREENE P.G., HART M.M., GATEWOOD E.J., BRUSH C.G., CARTER N.M. (2003), "Women entrepreneurs: Moving front and center: An overview of research and theory", *Coleman White Paper Series*, vol. 3, n.1, pp. 1-47.
- KUBBEROD E., JONES S., PETTERSEN I.B. (2021), "Learning to not belong: entrepreneurial learning experiences of women high-tech entrepreneurs", *International Journal of Entrepreneurial Behavior & Research*, vol. 27, n. 8, pp. 1983-2008.
- JENNINGS J.E., BRUSH C.G. (2013), "Research on Women Entrepreneurs: Challenges to (and from) the Broader Entrepreneurship Literature?", *Academy of Management Annals*, vol. 7, n. 1, pp. 663-715.
- LEE I.H., MARVEL M.R. (2014), "Revisiting the entrepreneur gender-performance relationship: A firm perspective", *Small Business Economics*, vol. 42, n. 4, pp. 769-786.
- MARLOW S., McADAM M. (2015), "Incubation or induction? Gendered identity work in the context of technology business incubation", *Entrepreneurship, Theory and Practice*, vol. 39, n. 4, pp. 791-816.
- MARTIN L., WRIGHT L., BEAVEN Z. MATLAY H. (2015), "An unusual job for a woman? Female entrepreneurs in scientific, engineering and technology sectors", *International Journal of Entrepreneurial Behavior and Research*, vol. 21, n. 4, pp. 539-556.
- MARTINEZ D.A., MARTIN L., MARLOW S. (2018), "Emancipation through digital entrepreneurship? A critical realist analysis", *Organization*, vol. 25, n. 5, pp. 585-608.
- McADAM M., CROWLEY C., HARRISON R.T. (2020), "Digital girl: Cyberfeminism and the emancipatory potential of digital entrepreneurship in emerging economies", *Small Business Economics*, vol. 55, n. 2, pp. 349-362.
- NELSON T., LEVESQUE L.L. (2007), "The status of women in corporate governance in high-growth, high-potential firms", *Entrepreneurship Theory and Practice*, Vol. 31, n.2, pp. 209-232.
- ORSER B., RIDING A., STANLEY J. (2012), "Perceived Career Challenges and Response Strategies of Women in the Advanced Technology Sector", *Entrepreneurship & Regional Development*, vol. 24, n. 1-2, pp. 73-93.
- OZKAZANC-PAN B., MUNTEAN S.C. (2018), "Networking towards (in)equality: women entrepreneurs in technology", *Gender, Work and Organization*, vol. 25, n. 4, pp. 379-400.
- POGGESI S., MARI M., DE VITA L. FOSS L. (2020), "Women entrepreneurship in STEM fields: literature review and future research avenues", *International Entrepreneurship and Management Journal*, vol. 16, n. 1, pp. 17-41.
- ROSA P., DAWSON A. (2006), "Gender and the commercialization of university science: academic frontiers of spinout companies", *Entrepreneurship & Regional Development*, vol. 18, n. 4, pp. 341-66.
- STROHMEYER R., TONoyAN V., JENNINGS J.E. (2017), "Jacks-(and Jills)-of-all-trades: On whether, how and why gender influences firm innovativeness", *Journal of Business Venturing*, vol. 32, n. 5, pp. 498-518.
- TONOYAN V. STROHMEYER R. (2021), "Gender role (in-)congruity and resource-provider gender biases: a conceptual model", *International Journal of Gender and Entrepreneurship*, vol. 13, n. 3, pp. 225-242.

- VALENCIA S.M., LAMOLLA L. (2005), "The female entrepreneurship field: 1990-2004", 4th International Conference of the Iberoamerican Academy of Management, December, 8-11, Lisbon.
- VAN ECK N.J., WALTMAN L. (2010), "Software survey: VOSviewer, a computer program for bibliometric mapping", *Scientometrics*, vol. 84, n. 2, pp. 523-538.
- VERSHININA N., RODGERS P., TARBA S., KHAN Z., STOKES P. (2020), "Gaining legitimacy through proactive stakeholder management: The Experiences of high- tech women entrepreneurs in Russia", *Journal of Business Research*, vol. 119, n. October 2020, pp. 111-121.
- WHEADON M., DUVAL-COUEUIL N. (2019), "Token entrepreneurs: a review of gender, capital, and context in technology entrepreneurship", *Entrepreneurship & Regional Development*, vol. 31, n. 3-4, pp. 308-336.

Websites

- EUROPEAN COMMISSION, DIRECTORATE-GENERAL FOR RESEARCH AND INNOVATION, *She figures 2021: gender in research and innovation: statistics and indicators*, Publications Office, 2021, <https://data.europa.eu/doi/10.2777/06090>
- EUROPEAN INSTITUTE FOR GENDER EQUALITY (2021), *Gender Equality Index 2021 Report*, <https://eige.europa.eu/publications/gender-equality-index-2021-report>
- Resetting TECH CULTURE - 5 strategies to keep women in tech, https://www.accenture.com/_acnmedia/PDF-134/Accenture-A4-GWC-Report-Final1.pdf

Women entrepreneurship as a boost for diversity management in Italian companies

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Abstract

Still few women are at the helm of Italian companies. Within companies, women in top positions continue to be few.

Women now account for about half of the workforce, but their presence in decision-making and management positions is still very limited. This is a phenomenon known in economic literature as the “glass ceiling” (Powell, 1999; Cotter et al., 2001; Adams, 2012;). The metaphor refers to all those barriers generated by multiple factors of an economic, social and cultural nature and by discrimination that prevent women from making career progress. Precisely to break the glass ceiling, laws have been introduced in many European countries that require respect for gender quotas in company boards.

In this work we observe and interplay two phenomena: On the one hand, it can be observed that in diversity management one of the main issues concerns the inclusion of women in executive and managerial roles (Barak et al. 2015; Ozturk et Tatli, 2016; Francis et al. 2021) on the other hand, it is also observed how the success cases of women entrepreneurs increase (Reavley et.al 2008; Quader, 2012;). Five successful case studies of female entrepreneurs were analyzed to obtain research results useful for drawing both managerial and theoretical implications. Furthermore, being a working progress job, we are in the process of selecting companies and managers to interview.

Framing of the research.

Women entrepreneurship

It has been underlined over the years how women can play a key role in the entrepreneurial activities of a company (Noguera et al., 2013), but also how much the figure of the entrepreneur is still strongly linked to the male role (Elam, 2019) . Female entrepreneurship plays a fundamental role in economic growth, bringing employment and wealth, but also entrepreneurial diversification (Nissan et al., 2012). It was pointed out how a greater participation of women in entrepreneurship would have a strong social impact on growth, but that this can only occur in the presence of profitable and sustainable businesses from a social point of view, which can guarantee the distribution of a fair wealth (Strawser et al., 2021). Female entrepreneurship and gender equity are therefore essential factors for economic development and it is useful to analyze the relationship between these two factors precisely in this light (Sarfaraz et al., 2014).

The literature can be divided on this subject into two lines of research. The first, in which most of these studies have in common the vision of women linked to certain factors, such as the territorial one (Cardella et al., 2020), where almost all the studies are focused on small or medium-sized businesses (Yadav & Unni, 2016). In fact, studies that analyze the role of female entrepreneurship from a local perspective are abundant in the literature, especially in relation to Asian countries, such as Bangladesh (Afrin et al., 2010), India (Kumbhar, 2013; Agarwal & Lenka, 2018), Malaysia (Teoh & Chong, 2014), Indonesia (Hani et al., 2012) Mongolia (Aramand, 2013), Middle Eastern (Nieva, 2015; Sadi & Al-Ghazali, 2010) and African as in Nigeria (Moses & Mordi, 2010) and in Ethiopia (Bekele & Worku, 2008) or more generally to groups of countries, such as developing countries (Fauzi et al., 2020). Other approaches connect female entrepreneurship studies to certain social contexts, such as religious (Anggadwita et a., 2015; Ullah et al., 2013; Ojong, 2008), cultural aspects (Folberg, 2016), or based on ethnicity (Smith -Hunter, 2004). Some scholars highlight how at a methodological level, the role of women should be examined in wider contexts, avoiding local approaches and using international points of view (Yadav & Unni, 2016).

Indeed the second line of studies transcends specific factors, such as the territorial one, to adopt a more international approach, with a perspective more closely linked to management, touching on widespread issues. For example, the salient features of female entrepreneurship were traced, analyzing the role of skills and abilities that are

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common to female entrepreneurial experiences (Manzanera-Román & Brändle, 2016). The difficulties related to women entrepreneurship were also analyzed, identifying in particular family duties and the difficulty in finding financing, such as the two main barriers to starting a female business (Tur-Porcar et al., 2017). However, it cannot be ignored how much stakeholders influence women entrepreneurship: stakeholder analysis and in particular the participation and involvement of these, becomes essential to understand how public policy, innovation, creativity and growth, can play a favorable role in the development of women entrepreneurship (Nair, 2020). But women entrepreneurship itself can bring benefits of various kinds to the social context in which it operates, such as in the context of micro-finance, in the improvement of educational, health, nutritional and hygiene standards (Swapna, 2017).

Diversity management.

In the 90s we witnessed a significant development of diversity management studies, purely centered on racial problems, particularly in US society (Gordon, 1995; McDonald, 2010), underlining how it was a theoretical aspect with extremely pragmatic implications (Flood & Room, 1996). Already at the end of the nineties there was a growing need for a new approach to diversity management, which sees, thanks also to unquestionable efforts by the management, the inclusion of ethical principles in decision-making processes, which can lead to integration in organizational structures and which bring significant advantages, such as the ability to penetrate into different markets (Gilbert et al., 1999). The need of a new approach has been growing, dictated above all by having to deal more effectively with the growing diversity among workers (Ivancevich & Gilbert, 2000) and it was also indicated that these studies did not have a strong impact in decreasing inequalities at work, suggesting the adoption of a socio-political theoretical approach (Lorbiecki & Jack, 2000). The differences among workers were the subject of studies during the first decade of the 2000s, highlighting how diversity can lead to numerous problems among workers, but which, if well managed, can be key resources, positively affecting the creativity and innovation, thus confirming the role of innovation and creativity development of processes linked to diversity management (Bassett-Jones, 2005). In fact, subsequent studies have revealed that this is an issue that does not concern only company management, but that is essential to social justice and the educational sector (Morrison et al., 2006). Subsequent studies during the second decade of the 2000s highlighted how many companies took diversity management into great consideration, with respect to their foreign workers, in order to bring out behaviors and attitudes that could be an added value for the companies themselves (Ashikali & Groeneveld, 2015), especially in contests related to multinationals (Ohunakin et al., 2019). Concerning the usefulness of diversity management, the legitimacy character was also highlighted, pointing to its economic and moral value (Koellen, 2021). The studies of the last years have instead emphasized the need for more complex approaches, which take into account not one diversity at a time, but how the subjects were placed within networks of differentiated categories (Dennissen et al., 2020) and how human resources must take into account diversity management as a resource, especially as in the commercial sector, to be used as a sustainable resource to obtain a competitive advantage (Urbancová et al., 2020), in order to reduce the barriers between groups of employees by increasing cooperation, communication and information exchange (Yadav & Lenka, 2020).

Interplay.

Part of the studies on diversity management focused on the gender issue, showing how diversity management is a priority for companies, but how often it is not sufficient, if not accompanied by a correct communication of what are the perceptions of employees regarding the diversity management, embracing a holistic perspective (Martins & Parsons, 2007), where entrepreneurial identity cannot be separated from social contexts, such as macro-cultural, institutional, national and transnational ones (Karatas, 2017). At the same time, scholars also highlight the need to take individual subjects into strong consideration as independent identities (Gagnon et al., 2021). Others agree on the need for a rethinking of diversity management linked to gender, where not only policies must intervene, but the environmental factor also plays an essential role (De Vita, 2010). However, there is still scarce literature that links diversity management not to women, but to the figure of the female entrepreneur. If older studies emphasized the lack of an institutional vision in the development of female enterprises (Forson, 2006), recent studies on diversity management instead focus on how the figure of the female entrepreneur can produce problems if her being female is loaded with excessive importance, even becoming a counterproductive element (Byrne, 2019).

Purpose of the paper. The review of the literature showed us a fairly robust scenario on the studies of women entrepreneurship and Diversity Management. In particular, as seen in the paragraph of the literature, in analyzing the attention to the roles of women in organizations, literature has spent quite a lot. However, little attention has been paid to the relationship between increased success rates of female entrepreneurs and the inclusion of women in top management roles in organizations.

The purpose of the following study is to observe and describe the relationship between female entrepreneurial success and diversity management in organizations.

The research question of this work is: can the examples of Female Entrepreneurs influence the inclusion in organizations of a greater number of female managers?

Understanding whether the increase in entrepreneurial ascents of successful women can influence the choices of Italian companies to include more women in top management positions.

For the description of the phenomenon of female entrepreneurship we believe it is appropriate to use a qualitative methodology for a first screening of the phenomenon that can give useful results and guidelines for future empirical research.

Methodology. *The qualitative methodology (Dubois and Gadde, 2002) of this work is developed on two levels of analysis. We first chose the multiple case study approach as often happens in entrepreneurship studies (Kantur& İşeri-Say, 2013; Yin, 2009; Omar, 2015). We chose, in particular, 5 cases of successful Italian female entrepreneurs. The results of these case studies will then be presented, through semi-structured interviews and answers in “narrative Analysis” mode to some managers of medium and large Italian companies. Narrative analysis is an approach to the elicitation and analysis of language that is sensitive to the sense of temporal sequence that people, as tellers of stories about their lives or events around them, detect in their lives and surrounding episodes and inject into their accounts. Inroads have been made into business and management research in the last 20 years (Larty et al, 2014). The narrative approach was ideal for us because it allowed us to receive information (in particular, through qualitative interviews) relating to situations that allowed us to understand how the dynamics of the pre-chosen firms changed over time and, therefore, from the genesis to the conformation of these situations into organization of firms pre-chosen.*

The expansion of the existing literature with respect to the interplay between Woman Entrepreneurship and Diversity Management will take place thanks to the collection of information from the managers’ narration on past recruitment choices and how future ones will take place based on the trends presented to them.

The case studies on successful Italian companies led by women were collected by drawing on online sources that deal with business reporting and on some social channels of female entrepreneur profiles, such as linkedin. As for the managers to be interviewed, however, since this is a working progress job we are in the evaluation phase of the selection criteria.

Results.

Chiara Ferragni - Chiara Ferragni Collection

She started her fashion blog “The Blonde Salad” in October 2009.

In December 2013, she published an Italian language e-Book, under The Blonde Salad. She collaborated with Steven Madden design a 9-shoe collection for Spring 2014. In the same year, she started Chiara Ferragni Collection, a clothing and footwear brand.

2015 was the year that consecrated Chiara as one of the most influential names in the fashion and communication category: Harvard Business School dedicated a Case Study to her career and in 2017 renewed the case by including the progress of The Blonde Salad and Chiara Ferragni Collection. In 2015, Forbes also included Chiara in its list of 30 personalities under 30 in the “Art & Style” category for the revolution she brought to the field of Fashion and Communication. Just three years later, Forbes named Chiara the most powerful fashion influencer in the world and Instagram itself declared that her profile is now in second place for Instagram Stories engagement.

In October 2017, Chiara became President and CEO of her Company, TBS Crew Srl and a year later, in October 2018, President of Chiara Ferragni Collection.

In September 2019, ‘Chiara Ferragni Unposted’, the documentary about Chiara’s life and career path, premiered at the 76th Venice Film Festival.

Chiara Ferragni is considered a pioneer in the fashion and communication industry, thanks to her ability to have created a new professional field, becoming a successful entrepreneur.

In 2020, its turnover was 1.27 million euros, despite the economic crisis linked to the pandemic.

Chiara Mastromonaco – Direttoo

After working for years in the Fashion Industry, in 2012 she decides to work for the family winery -on the foreign market development- attracted by changes in the Italian Food business which, more and more, is approaching the market with a „luxury mind-set”.

In 2016 she founds Diredttoo with Diego Pelle, Roman restaurateur, pursuing the objective of giving a concrete opportunity to all the ‘Agrifood’ suppliers to sell their products directly to their customers and therefore be more able to grow, compete and innovate.

In 2016 she founds Diredttoo, a startup that proposes the first digital platform where restaurateurs can buy everything they need for their restaurant with a single click and, finally, analyse their business performance on time. What the startup - the brainchild of Mastromonaco and Diego Pelle (Roman restaurateur) proposes is a digital meeting place for suppliers and restaurateurs.

Together they pursued the objective of giving all ‘Agrifood’ suppliers a real opportunity to sell their products directly to their customers and thus be better able to grow, compete and innovate.

It has turned over €1.5m, creating 20 jobs in a very short time, has no assets and focuses only on business, currently has more than 150 customers and is part of the LUISS EnLabs startup incubator.

Silvia Wang – ProntoPro

Silvia Wang was born in 1986 in Milan to Chinese parents. She graduated with honours in Marketing Management at Bocconi University in Milan.

In 2012 she moved abroad and worked at various Rocket Internet startups as Marketing Manager, dealing with startups of the calibre of Zalora, the largest fashion e-commerce site in Southeast Asia and, Lamido, a startup of the Lazada Group, later acquired by Alibaba.

In 2015 she returned to Italy and co-founded ProntoPro with her husband Marco Ogliengo. In 2 years, the startup becomes the number 1 services marketplace in Italy, in 2018 it reached over 1 million users who searched for a

professional on ProntoPro and over 300,000 professionals. To date ProntoPro has received 10+ million investments, the team counts more than 100 people and has expanded to 5 more countries.

Silvia has held the role of President since 2017.

In 2021 she founded Serenis.it, a startup that offers psychological support and psychotherapy via video call through a portal.

The last balance sheet filed by Prontopro S.r.l. in the commercial register corresponds to the year 2020 and shows a turnover range of 'Between 3,000,000 and 6,000,000 Euros'.

Miuccia Prada – Prada

In 1971, after graduating in political science from the University of Milan, she joined Prada, the family business founded by her grandfather Mario Prada in 1913.

In 1978 Miuccia Prada headed the family business, and decided to bring several innovations, including the inclusion of clothing in production.

In the early 1980s, she designed a collection of black bags made of fine nylon (Pocono, a material she patented) that quickly became sought-after worldwide. In 1988, she presented her first autumn-winter ready-to-wear line in Milan. She also invented Prada's logo: an inverted triangle inspired by the clasp on her grandfather's trunks.

In 1993 the Miu Miu line was born, and since then Miuccia Prada regularly presents her collections in Milan and Paris.

In 2000 she received the Honorary Doctorate from the Royal College of Art in London and the Honorary Award from the New Museum of Contemporary Art in New York. In 2005 Time Magazine chose her as one of the 100 most influential people in the world, for having "provoked and influenced colleagues over the years with her eccentric and extremely personal sensibility".

In 2006 Miuccia Prada was appointed Officier dans l'Ordre des Arts et des Lettres by the French Ministry of Culture. In the same year, Time magazine named her and Patrizio Bertelli among the 100 most influential couples in the world. In 2008, The New York Times Magazine dedicated the cover of its 23 March issue to Miuccia Prada.

Prada archives the Pandemic and closes 2021 with sales up to 3,364 million, 41% more than in 2020, and 8% more than in 2019.

Clio Zammatteo – ClioMakeUp

On 26 July 2008 she opened the ClioMakeUp channel on YouTube, which quickly grew in popularity and, with over 1 million subscribers and more than 200 million total views, is currently one of the most followed channels on YouTube Italy. This was followed by collaborations with Vogue and Pupa. In 2009 she published the illustrated make-up manual Clio Make-up - The make-up school of the queen of the web, in 2010 Clio beauty care - Skin care and do-it-yourself cosmetics, followed in 2015 by the novel Sei Bella Come Sei.

In 2012 she hosted the television programme Clio Make Up on the Real Time channel.

From 2012 to 2014 she made tutorials for the YouTube channel of the cosmetics company Maybelline New York during New York Fashion Week for the Custo Barcelona, DKNY and L.A.M.B. shows.

In 2018, she launched her own branded cosmetics line "ClioMakeUp".

In 2019 she embarked on a new entrepreneurial project by opening four Clio Pop Up sales stores in Milan, Florence, Padua and Naples. In 2020 she presented a new TV show, Clio PopUp, also on the Real Time TV network, recorded in the Naples store.

Her company had a turnover of 10 million euros in 2020.

Research limitations. The work presents two levels of the research process. The first, which concerns the analysis of online successful case studies, does not allow us to obtain sufficient and exhaustive results in response to research questions. A second level is therefore necessary, carried out through interviews with some of the founders of the start-ups of the reported cases and with other subjects belonging to similar successful cases.

The following research paper is in a working progress state so the results obtained are partial. We have results from the analysis of case studies on successful companies founded by female entrepreneurs. These results have allowed us to expand the reference literature only to a limited extent. In fact, the managers have not yet been interviewed through the semi-structured interviews guided by the evidence of the case studies.

We foresee difficulties in bringing out objective and transparent opinions on the potential of female managers within the organizations of the managers of the companies selected for the interviews. The work also contains the limits of qualitative research so we could give future research ideas and a description of the state of the art on the subject but we cannot precisely define the extent of the phenomenon. Another limitation is represented by the too limited number of studies to describe the phenomenon exactly.

Managerial implications. Although they are based on partial results, from a managerial point of view, we expect develop in future implications to contribute to the existing literature with new considerations that may be relevant, relative differences and common points of the managerial models analyzed, in particular to be able to make a contribution in analyzing how the growing success of women entrepreneurship can have a positive impact on the increased inclusion of women in top management roles in organizations. In particular, it is interesting to note that among the cases analyzed there are common points from a managerial point of view. The first concerns the preparation of these entrepreneurs: in all cases these successful entrepreneurs do not base their choices on previous managerial experiences, having none of these previous experiences as top managers of companies. The second point in common is

represented by the fact that all female entrepreneurs have international backgrounds, with significant training or working experiences abroad. The third point that unites these entrepreneurs is that of exercising considerable influence as female figures in their sectors, thanks, in almost all cases, to a massive use of social networks.

From a theoretical point of view, we expect to fill a gap in the literature on female entrepreneurship and diversity management, helping to enrich this issue, which is still too focused on the role of the working woman and little on that of the female entrepreneur.

Originality of the paper. Diversity Management is not a phenomenon that belongs particularly to the field of entrepreneurship studies. However, when this is expressed in particular meanings such as that of female inclusion, it can become so. The originality of the work concerns the choice of having approached the concept of diversity management not only to the inclusion of women in the company organization but to validate this trend on the basis of some entrepreneurial successes that have occurred thanks to female entrepreneurs.

Keywords: women entrepreneurship; diversity management; glass ceiling; gender

References

- ADAMS R.B., FUNK P. (2012), "Beyond the glass ceiling: Does gender matter?", *Management science*, vol. 58, n. 2, pp. 219-235.
- AFRIN S., ISLAM N., AHMED S. (2010), "Micro credit and rural women entrepreneurship development in Bangladesh: A multivariate model", *Journal of Business and Management*, vol. 16, n. 1.
- AGARWAL S., LENKA U. (2018), "Why research is needed in women entrepreneurship in India: a viewpoint", *International Journal of Social Economics*, vol. 45 n. 7, pp. 1042-1057.
- ANGGADWITA G., MULYANINGSIH H.D., RAMADANI V., ARWIYAH M.Y. (2015), "Women entrepreneurship in Islamic perspective: a driver for social change", *International Journal of Business and Globalisation*, vol. 15, n. 3, pp. 389-404.
- BASSETT-JONES N. (2005), "The paradox of diversity management, creativity and innovation", *Creativity and innovation management*, vol. 14, n. 2, pp. 169-175.
- ARAMAND M. (2013), "Women entrepreneurship in Mongolia: the role of culture on entrepreneurial motivation", *Equality, Diversity and Inclusion: An International Journal*, vol. 32 n. 1, pp. 68-82.
- ASHIKALI T., GROENEVELD S. (2015), "Diversity management for all? An empirical analysis of diversity management outcomes across groups", *Personnel Review*, vol. 44 n. 5, pp. 757-780.
- BEKELE E., WORKU Z. (2008), "Women entrepreneurship in micro, small and medium enterprises: The case of Ethiopia", *Journal of International Women's Studies*, vol. 10, n. 2, pp. 3-19.
- BYRNE J., FATTOUM S., DIAZ GARCIA M.C. (2019), "Role models and women entrepreneurs: Entrepreneurial superwoman has her say", *Journal of Small Business Management*, vol. 57, n. 1, pp. 154-184.
- CARDELLA G.M., HERNÁNDEZ-SÁNCHEZ B.R., SÁNCHEZ-GARCÍA J.C. (2020), "Women entrepreneurship: A systematic review to outline the boundaries of scientific literature", *Frontiers in psychology*, vol. 11, p. 1557.
- COTTER D.A., HERMSEN J.M., OVADIA S., VANNEMAN R. (2001), "The glass ceiling effect", *Social forces*, vol. 80, n. 2, pp. 655-681.
- DE VITA L. (2010), "The diversity management approach: new implications for gender policies in Italy", *Equality, Diversity and Inclusion: An International Journal*, vol. 29 n. 8, pp. 724-74
- DENNISSSEN M., BENSCHOP Y., VAN DEN BRINK M. (2020), "Rethinking diversity management: An intersectional analysis of diversity networks", *Organization Studies*, vol. 41, n. 2, pp. 219-240.
- DUBOIS A., GADDE L.E. (2002), "Systematic combining: an abductive approach to case research", *Journal of business research*, vol. 55, n. 7, pp. 553-560.
- ELAM A.B., BRUSH C.G., GREENE P.G., BAUMER B., DEAN M., HEAVLOW R. (2019), *Global Entrepreneurship Monitor 2018/2019 Women's Entrepreneurship Report*. Babson College: Smith College and the Global Entrepreneurship Research Association.
- FAUZI F., ANTONI D., SUWARNI E. (2020), "Women entrepreneurship in the developing country: the effects of financial and digital literacy on SMES' growth", *Journal of Governance and Regulation*, vol. 9, n. 4.
- FLOOD R.L., ROMM N.R. (1996), "Diversity management". In *Critical Systems Thinking* (pp. 81-92), Springer, Boston, MA.
- FOLBERG A.M. (2016), Preferences for organizations that emphasize interpersonal relationships or entrepreneurship among Arab-and Jewish-Israeli women: The roles of culture, goal orientation, and traditionalism.
- FORSON C. (2006), "The strategic framework for women's enterprise: BME women at the margins", *Equal Opportunities International*.
- FRANCIS V., MICHELSENS E. (2021), "Exclusion and inclusion in the Australian AEC industry and its significance for women and their organizations", *Journal of Management in Engineering*, vol. 37, n. 5, pp. 04021051.
- GAGNON S., AUGUSTIN T., CUKIER W. (2021), "Interplay for change in equality, diversity and inclusion studies", *Human Relations*, 00187267211002239.
- GILBERT J.A., STEAD B.A., IVANCEVICH J.M. (1999), "Diversity management: A new organizational paradigm", *Journal of business ethics*, vol. 21, n. 1, pp. 61-76.

- GORDON A. (1995), "The work of corporate culture: Diversity management", *Social Text*, n. 44, pp. 3-30.
- HANI U., RACHMANIA I.N., SETYANINGSIH S., PUTRI R.C. (2012), "Patterns of Indonesian women entrepreneurship", *Procedia Economics and Finance*, n. 4, pp. 274-285.
- IVANCEVICH J.M., GILBERT J.A. (2000), "Diversity management: Time for a new approach", *Public personnel management*, vol. 29, n. 1, pp. 75-92.
- KARATAS M. (2017), "Diversity Dimensions of Entrepreneurship: Addressing Multiple Strands of Diversity in Entrepreneurship Research", In *Management and Diversity*. Emerald Publishing Limited.
- KANTUR D., İŞERI-SAY A. (2013), "Organizational context and firm-level entrepreneurship: a multiple-case analysis", *Journal of Organizational Change Management*, vol. 26 n. 2, pp. 305-325.
- KOELLEN T. (2021), "Diversity management: A critical review and agenda for the future", *Journal of Management Inquiry*, vol. 30, n. 3, pp. 259-272.
- KUMBHAR V.M. (2013), "Some critical issues of women entrepreneurship in rural India", *European Academic Research*, vol. 1, n. 2.
- LARTY J., HAMILTON E. (2011), "Structural approaches to narrative analysis in entrepreneurship research: Exemplars from two researchers", *International Small Business Journal*, vol. 29, n. 3, pp. 220-237.
- LORBIECKI A., JACK G. (2000), "Critical turns in the evolution of diversity management", *British journal of management*, n. 11, pp. S17-S31.
- MARTINS L.L., PARSONS C.K. (2007), "Effects of gender diversity management on perceptions of organizational attractiveness: the role of individual differences in attitudes and beliefs", *Journal of Applied Psychology*, vol. 92, n. 3, pp. 865.
- MCDONALD D.M. (2010), *The evolution of 'diversity management' in the USA: Social contexts, managerial motives and theoretical approaches*. Institute of Business Research, Daito Bunka University.
- MANZANERA-ROMÁN S., BRÄNDLE G. (2016), "Abilities and skills as factors explaining the differences in women entrepreneurship", *Suma de negocios*, vol. 7, n. 15, pp. 38-46.
- MORRISON, M., LUMBY J., SOOD K. (2006), "Diversity and diversity management: Messages from recent research", *Educational Management Administration & Leadership*, vol. 34, n. 3, pp. 277-295.
- MOSES C., MORDI C. (2010), "Women entrepreneurship development in Nigeria: The effect of environmental factors", *Buletinul Universitatii Petrol-Gaze din Ploie~ti*, vol. 62, n. 4, pp. 43-52.
- NAIR S.R. (2020), "The link between women entrepreneurship, innovation and stakeholder engagement: A review", *Journal of Business Research*, n. 119, pp. 283-290.
- NIEVA F.O. (2015), "Social women entrepreneurship in the Kingdom of Saudi Arabia", *Journal of global entrepreneurship research*, vol. 5, n. 1, pp. 1-33.
- NISSAN E., CARRASCO I., CASTAÑO M.S. (2012), *Women entrepreneurship, innovation, and internationalization. In Women's entrepreneurship and economics* (pp. 125-142), Springer, New York, NY.
- NOGUERA M., ÁLVAREZ C., URBANO D. (2013), "Socio-cultural factors and female entrepreneurship", *Intern. Entrepreneurship Managem. J.*, n. 9, pp. 183-198.
- OHUNAKIN F., ADENIJI A., OGUNNAIKE O.O., IGBADUME F., AKINTAYO D.I. (2019), "The effects of diversity management and inclusion on organisational outcomes: a case of multinational corporation", *Business: Theory and Practice*, vol. 20, n. 3, pp. 93-102.
- OJONG V.B. (2008), "Religion and Ghanaian women entrepreneurship in South Africa", *Journal for the Study of Religion*, pp. 63-84.
- OMAR S.S. (2015), "The entrepreneurial network of Muslim women entrepreneurs: The study of multiple-cases of small businesses in the southern region of Malaysia", *International Journal of Economics and Financial Issues*, vol. 5, n. 1, pp. 106-115.
- POWELL G.N. (1999), Reflections on the glass ceiling: Recent trends and future prospects. In G. N. Powell (Ed.), *Handbook of gender and work* (pp. 325-345). Sage Publications, Inc.
- QUADER M.S. (2012), "A characteristic model of successful women entrepreneurs in the uk", *Journal of Services Research*, vol. 12n. 1.
- TUR-PORCAR A., MAS-TUR A., BELSO J.A. (2017), "Barriers to women entrepreneurship. Different methods, different results?". *Quality & Quantity*, vol. 51, n. 5, pp. 2019-2034.
- SADI M.A., AL-GHAZALI B.M. (2010), "Doing business with impudence: A focus on women entrepreneurship in Saudi Arabia", *African Journal of Business Management*, vol. 4, n. 1, pp. 001-011.
- SARFARAZ L., FAGHIH N., MAJD A.A. (2014), "The relationship between women entrepreneurship and gender equality", *Journal of Global Entrepreneurship Research*, vol. 4, n. 1, pp. 1-11.
- SMITH-HUNTER A. (2004), "Women entrepreneurship across racial lines: Current status, critical issues, and future implications", *Journal of Hispanic Higher Education*, vol. 3, n. 4, pp. 363-381.
- STRAWSER J.A., HECHAVARRÍA D.M., PASSERINI K. (2021), "Gender and entrepreneurship: Research frameworks, barriers and opportunities for women entrepreneurship worldwide", *Journal of Small Business Management*, vol. 59, n. sup1, pp. S1-S15.
- SWAPNA K. (2017), "Impact of microfinance on women entrepreneurship", *International journal of business administration and management*, vol. 7, n. 1, pp. 2278-3660.
- TEOH W.M.Y., CHONG S.C. (2014), "Towards strengthening the development of women entrepreneurship in Malaysia". *Gender in Management: An International Journal*, vol. 29 n. 7, pp. 432-453.

- ULLAH M.M., MAHMUD T.B., YOUSUF F. (2013), "Women entrepreneurship: Islamic perspective", *European Journal of Business and Management*, vol. 5, n. 11, pp. 44-52.
- URBANCOVÁ H., HUDÁKOVÁ M., FAJČÍKOVÁ A. (2020), "Diversity management as a tool of sustainability of competitive advantage", *Sustainability*, vol. 12, n. 12, pp. 5020.
- YADAV S., LENKA U. (2020), "Diversity management: a systematic review", *Equality, Diversity and Inclusion: An International Journal*, vol. 39 n. 8, pp. 901-929.
- YADAV V., UNNI J. (2016), "Women entrepreneurship: research review and future directions", *Journal of Global Entrepreneurship Research*, vol. 6, n. 1, pp. 1-18.

Websites

- <https://www.ayming.it/insights/news-ayming-institute/diego-pelle-ceo-di-direttoo-racconta-come-nata-la-sua-idea-di-business-https://www.business.it/direttoo-chiara-mastromonaco/>
- <https://www.clubdeglinvestitori.it/it/people/silvia-wang/>
- https://www.informazione-aziende.it/Azienda_PRONTOPRO-SRL#:~:text=L'ultimo%20bilancio%20depositato%20da,%2C45%25%20rispetto%20a%202018
- <https://it.linkedin.com/in/chiamastromonaco>
- https://it.wikipedia.org/wiki/Clio_Zammatteo
- https://it.wikipedia.org/wiki/Miuccia_Prada
- <https://www.novella2000.it/cliomake-up-quanto-fatturato-2020/#:~:text=Oggi%20le%20cose%20per%20Clio,fatturato%2010%20milioni%20di%20euro.>
- https://www.repubblica.it/economia/rubriche/fashion-e-finance/2022/01/18/news/prada_chiude_il_2021_con_3_36_milairdi_di_ricavi_e_liquidita_inc_assa-334321039/
- <https://theblondesalad.com/chiara-ferragni/>

Gender differences e politiche di gestione sostenibili una nuova sfida per le organizzazioni

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Inquadramento della ricerca. *Le organizzazioni sono costantemente impegnate a raggiungere quel vantaggio competitivo in grado di incidere sul posizionamento strategico, sulle performance e sui processi di cambiamento organizzativo sempre più in un'ottica di sostenibilità aziendale. Le relazioni tra Diversity management e policy HR "more inclusive" sono da alcuni anni al centro di numerosi studi di organizzazione aziendale e, recentemente, si è approfondito il particolare legame con la sostenibilità. Dalla letteratura si evince che le donne conferiscono un valore aggiunto alle organizzazioni, pertanto, per le aziende che assumono l'attuazione di politiche gestionali nell'ottica del gender diversity management si conferma un impegno verso la sostenibilità sociale ed organizzativa in un'idea strategica di vantaggio competitivo. I comportamenti organizzativi di un'azienda sono determinati dall'incrocio di una serie di variabili personali e strutturali che determinano il funzionamento del complesso aziendale. In quest'ottica, pertanto, la diversità di genere costituisce un fattore strategico per veicolare efficacemente il comportamento organizzativo di gruppi e di singoli individui da parte del management. La sostenibilità diventa una ricerca dell'equilibrio economico, organizzativo, sociale e culturale dell'organizzazione verso un sistema di compliance che rappresenta il principale risultato da raggiungere. È in quest'ottica che la gestione delle risorse umane deve rispondere ai criteri di sostenibilità organizzativa. In particolare, il tema del gender diversity, gender equity o gender equality sembrano assumere un'importanza strategica per le aziende, che stanno mettendo in campo sforzi importanti sotto la spinta della regolamentazione governativa ma anche attraverso una pressione sociale. Durante gli ultimi decenni, a livello internazionale, sono state adottati numerosi interventi legislativi a favore dell'equilibrio di genere anche in posizioni apicali. La Banca Mondiale ritiene, in tale prospettiva, che "l'uguaglianza di genere e le donne siano centrali per lo sviluppo economico e sociale ad ampio raggio. Questo perché educare e investire nelle donne e nelle ragazze, ha un effetto positivo sulla produttività, l'efficienza e sulla crescita economica.*

Obiettivo del paper. *Il presente studio si propone di indagare, sulla base dell'analisi della più recente letteratura nazionale ed internazionale, come la sostenibilità nelle aziende cessa di essere meramente ambientale ed allarga i suoi confini ad un modello di business "sostenibile". Questo contributo vuole sottolineare come sia possibile costruire un successo economico se le organizzazioni sono anche sostenibili in termini di effetti sulle persone, ed in particolare, indagare sulle condizioni organizzative e le politiche di gestione delle risorse umane sostenibili ed inclusive che possono facilitare l'accesso delle donne a posizioni manageriali e con le loro competenze favorire e sviluppare il valore economico e sociale per il futuro aziendale (Bernstein et al., 2008). Il contributo mette in relazioni tre variabili: gender diversity, performance organizzative e sostenibilità sociale ed organizzativa. E' consuetudine diffusa l'automatica associazione della parola "sostenibilità" con immagini relative al green, all'inquinamento ambientale, a tutto ciò che i nostri occhi vedono come nocivo per l'ambiente, con questo lavoro, vogliamo spostare l'attenzione sull'inquinamento invisibile che aleggia tra gli uffici aziendali, agli effetti dannosi delle aziende sulle persone (Vohs, Mead, & Goode, 2008). Vogliamo incentrare il focus della ricerca sui temi quali: work-like balance, leadership, azioni a sostegno delle carriere femminili, woman on board, segregazione di carriera, pari opportunità, ecc..., per capire in quanta parte e in che modo azioni e policy "gendered" sono ancora presenti e radicate nei workplace e nelle culture aziendali.*

Metodologia. *Sviluppiamo una ricerca qualitativa esplorativa che parte da una review della letteratura e degli studi empirici nazionali e internazionali sui temi del Gender Diversity e sostenibilità sociale. Sono stati individuati 73 articoli scientifici in linea con la nostra macro-area d'interesse: la "Sostenibilità sociale"; è stata poi eseguita un'ulteriore suddivisione, in 4 sottocategorie in base a comuni aree tematiche: 1. Gender equity sustainability nelle posizioni di management 2. Gender equality sustainability; 3. Gender gap sustainability 4. Gender Diversity management sustainability. L'analisi del framework consente poi di individuare delle pratiche e degli strumenti di intervento a*

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favore di un cambiamento organizzativo orientato all'innovazione e alla sostenibilità in un'ottica di responsabilità sociale. Al fine di apportare maggior rigore al lavoro pensiamo di avvalorare o corroborare le nostre ipotesi di ricerca con delle interviste somministrate ai vertici di gruppi più o meno diversificati in termini di genere. Si tratta di uno studio esplorativo attuato mediante un processo di induzione, realizzato attraverso interviste tramite piattaforme digitali. Le interviste, a domande aperte e chiuse, si articoleranno secondo un palinsesto da definirsi sulla base delle caratteristiche delle aziende che rientreranno nella rosa dei selezionati. La scelta di un approccio metodologico di tipo qualitativo, in cui le interviste sono state fondate sulla narrativa, sulla descrizione, sull'interpretazione, sul contesto e sul significato, dipende dal precipuo scopo di dare risalto al racconto ed alla rievocazione di eventi emblematici rappresentativi di politiche gender friendly e gender sensitive, di episodi di iniquità salariale, scatti di carriera, riconducibili alla differenza di genere. Dall'interpretazione dei fatti, dà come tali episodi sono stati positivamente fronteggiati, sarà possibile individuare alcune linee guida e indicazioni comportamentali e manageriali.

Risultati: *Per progettare un'azienda sostenibile o attivare un processo di transizione aziendale sostenibile rivolto al futuro, bisogna operare su due fronti quello interno all'organizzazione e quello esterno ad esso. In altre parole, la riformulazione dei processi organizzativi attraverso l'attivazione di politiche inclusive e gender free, dovrebbe essere accompagnato dalla diffusione di una cultura che si ispiri agli stessi valori, un vero processo di civilizzazione dell'intera società. La dimensione culturale, infatti, ancora più di quella legislativa e politica, appare essere quella fondamentale nella comprensione di queste dinamiche. Questo percorso deve essere intrapreso non solo attivando percorsi relativi alle donne ma anche investendo sulla promozione di una differente cultura organizzativa attraverso politiche gender friendly e gender sensitive per ridurre un gap che oggi non è più ammesso poiché insostenibile e svantaggioso. Dal seguente lavoro di analisi della letteratura e dalle interviste, gli autori vogliono cogliere alcune indicazioni organizzative e comportamentali che in fase di rielaborazione si riterrà opportuno proporre come consigli o punti su cui concentrare l'attenzione da parte del management aziendale.*

Limiti della ricerca. *Affrontare tematiche quali competenze trasversali, intelligenza emotiva, attitudini personali e abilità non cognitive rappresentano una branca letteraria ancora da ampliare. Numerosi autori sostengono che la mancanza di studi al riguardo sia asseribile alla difficoltà di quantificarne i risultati tangibili da essi scaturiti. L'indagine viene condotta sulla base di un ristretto numero di organizzazioni per cui sussiste una "lacuna geografica" la quale conferisce una limitazione applicativa delle implicazioni pratiche individuate dagli autori. L'interpretazione personale delle interviste e dei fenomeni osservati è ineludibile e bisogna considerare che ogni contesto sociale cambia; inoltre il "problema sociale" che le aziende vogliono affrontare è circoscritto nel tempo e nello spazio, per cui in un contesto così variabile può facilmente mutare in concomitanza del mutare dei sistemi di opinione e con la legislazione del Paese di applicazione. Purtroppo i dati allarmanti mettono in evidenza che la realtà dei fatti è ben lontana da quanto le organizzazioni affermano di sé stesse, la loro cultura è ancora molto "gendered".*

Implicazioni manageriali. *Tale studio si propone di fornire un duplice contributo teorico e pratico. In primo luogo, l'implicazione teorica si realizza attraverso l'opera di riqualificazione della letteratura per area tematica che ha lo scopo di inquadrare e riordinare la letteratura per area tematica. La review della letteratura vuole produrre una prima riflessione utile al cambiamento verso cui si accingono le organizzazioni, un cambiamento culturale. In secondo luogo, l'implicazione manageriale è relativa all'elaborazione delle situazioni empiriche e delle interviste per capire e individuare eventuali linee guida per le organizzazioni aziendali; ad esempio, politiche di gestione che siano in grado di mettere tutti i dipendenti con esigenze differenti legate al sesso nella posizione di poter ambire alle stesse opportunità di inserimento e di carriera.*

Le implicazioni della ricerca hanno una portata ampia, che oltre a fornire diverse soluzioni manageriali per le organizzazioni aziendali, suggerisce anche che le questioni di genere non possono essere separate dai diversi obiettivi dello sviluppo sostenibile, come le azioni per affrontare la povertà, il benessere, l'energia e gli oneri ambientali o i progressi economici e sociali. Si fornisce lo spunto ad avviare un'opera di "riqualificazione culturale" delle persone che compongono l'organico aziendale. In generale, gli stereotipi di genere ancora largamente persistenti in molti contesti organizzativi impediscono a molte donne di prendere seriamente in considerazione posizioni di leadership e lasciano un sostegno insufficiente alle poche che lo fanno. Sono isolate, al momento, le best practices che si basano su precisi stili di leadership femminili (autentico, servitore, trasformazionale, transazionale, carismatico e situazionale), e che hanno consentito, in alcuni contesti geografici, di incrementare notevolmente la presenza delle donne nei ruoli dirigenziali dell'amministrazione pubblica, facendo leva su soft skills e intelligenza emotiva, oltre che su competenze di tipo tecnico.

Originalità del paper. *Oggi il dibattito si concentra principalmente su quella sostenibilità che viene facilmente percepita e che le persone possono obiettivamente vederne le conseguenze, al contrario, gli effetti dell'inquinamento sociale sono in gran parte nascosti alla vista e, in molti casi, si dispiegano per lunghi periodi di tempo, ad esempio lo stress sul lavoro produce i suoi effetti sulle organizzazioni gradualmente piuttosto che in modo drammatico (Vohs, Mead, & Goode, 2008). Nonostante il dibattito sulla sostenibilità delle organizzazioni sia oggi di particolare rilievo e al centro del dibattito pubblico, sono ancora pochi gli studi di organizzazione aziendale e gestione delle risorse umane all'interno dell'ampio dibattito in corso. Questo lavoro si propone di fornire un nuovo contributo in tal senso. Forniamo un potenziale latente per mobilitare il sostegno sociale, l'opinione pubblica e l'azione organizzativa per cambiare lo stato attuale delle cose. La ricerca futura dovrebbe considerare il valore ecologico, sociale, culturale prima ancora che economico di queste tematiche per il successo aziendale nel lungo termine.*

Parole chiave: *sustainability; gender; gendergap; genderequity; genderequality; genderdiversitymanagement*

Bibliografia

- ALERASOUL S.A., AFELTRA G., HAKALA H., MINELLI E., STROZZI F. (2021), “Organisational learning, learning organisation, and learning orientation: An integrative review and framework”, *The Human Resource Management Review*. DOI: 10.1016/j.hrmr.2021.100854.
- AGHINA W., AHLBACK K., DE SMET A., LACKEY G., LURIE M., MURAKA M., HANDSCOMB C. (2018), “The five trademarks of agile organizations”, *McKinsey & Company Report*, 1/22.2018. <https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/the-five-trademarks-of-agile-organizations#0>.
- AGYEMANG-MINTAH P., SCHADEWITZ H. (2019), “Gender diversity and firm value: evidence from UK Financial Institutions”, *International Journal of Accounting & Information Management*, vol. 27, n. 1, pp. 2-26.
- ANDERSON K.J., LEAPER C. (1998), “Meta-Analyses of Gender Effects on Conversational Interruption: Who, What, When, Where, and How”, *Sex Roles*, vol. 39, pp. 225-252.
- APPELBAUM E., BAILEY T., BERG P., KALLEBERG A.L. (2000), *Manufacturing advantage: Why high-performance work systems pay off*. Cornell University Press.
- BAILLIEN E., BOLLEN K., EUWEMA M., DE WITTE H. (2014), “Conflicts and conflict management styles as precursors of workplace bullying: A two way longitudinal study”, *European Journal of Work and Organizational Psychology*, n. 23, pp. 511-524. 2013.
- BECKER B.E., HUSELID M.A. (1998), *Human resources strategies, complementarities, and firm performance*. <http://mgt2.buffalo.edu/files/faculty/ohr/becker/Publications/HumanResourcesStrategies.pdf>.
- BERNSTEIN M.J., YOUNG S.G., BROWN C.M., SACCO D.F., CLAYPOOL H.M. (2008), “Adaptive Responses to Social Exclusion: Social Rejection Improves Detection of Real and Fake Smiles”, *Psychological Science*, vol. 19, n. 10, pp. 981-983.
- BIANCHERI R. (2006), “Mercato del lavoro, famiglia e politiche sociali: un’analisi sociologica delle carriere femminili”, *Lavoro e diritto*, vol. 20, n. 4, pp. 581-610..
- BLACKBURN C.H., MARTIN B.N., HUTCHINSON S. (2006), “The Role of Gender and How it Relates to Conflict Management Style and School Culture”, *Journal of Women in Educational Leadership*, 4. [Http://digitalcommons.unl.edu/jwel/204](http://digitalcommons.unl.edu/jwel/204).
- BOGERS M., CHESBROUGH H., MOEDAS C. (2018), “Open Innovation: Researches, Practices and Policies”, *California Management Review*, vol. 60, n. 2, pp. 5-16.
- BURTON R., OBEL B., HAKONISSON D., MARTINEZ M. (2020), “Organizational Design. Principi e metodi per l’adeguatezza dell’assetto organizzativo aziendale. G. Giappichelli Editore.
- CAPEZIO A.L., MAVISAKALYAN A. (2016), “Women in the boardroom and fraud: evidence from Australia. *Australian Journal of Management*, vol. 41, n. 4, pp. 719-734.
- CAPORARELLO L., DI MARTINO B., MARTINEZ M. (2014), “Smart Organizations and Smart Artifacts: Fostering Interaction between People”, *Technologies and Processes*. vol. 7, pp. 1-10. Springer.
- CAPPELLI P. (1999), *The New Deal at Work: Managing the Market-Driven Workforce*. Harvard Business School Press.
- CARBONE D., DAGNES J. (2019), “Fare carriera ai vertici. La presenza delle donne nei consigli di amministrazione tra vecchi ostacoli e nuove opportunità”, *Polis*, vol. 33, n. 2.
- CATALANO R. (1991), “The health effects of economic insecurity”, *American Journal of Public Health*, vol. 81, n. 9, pp.
- CATALANO R., NOVACO R., MCCONNELL W. (2002), “Layoffs and violence revisited”, *Aggressive Behavior*, 28, n. 3, pp. 173-256.
- CHARLES M. (2003) Deciphering Sex Segregation. Vertical and Horizontal Inequalities in Ten National Labor Markets. *Acta Sociologica*, vol. 46, n. 4, pp. 267-287..
- CHESBROUGH H., BOGERS M. (2014), “Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation”, in *New Frontiers in Open Innovation*. Oxford University Press, pp. 3-28
- CLARKE M. (2011), “Advancing Women’s Careers through Leadership Development Programs”, *Employee Relations*, vol. 33, n. 5, pp. 498-515..
- COLOMBO M., DELMASTRO M., RABBIOSI L. (2007), ““ High performance” work practices, decentralization, and profitability: evidence from panel data”, *Industrial and Corporate Change*, vol. 16, n. 6, pp. 1037-1067.
- COMBS J., LIU Y., HALL A., KETCHEN D. (2006), “How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance”, *Personnel Psychology*, vol. 59, n. 3, pp. 501-528.
- CRINION J., TURNER R., GROGAN A., HANAKAWA T., NOPPENY U., DEVLIN J.T., ASO T., URAYAMA S., FUKUYAMA H., STOCKTON K., USUI K., GREEN D.W., PRICE C.J. (2006), “Language Control in the Bilingual Brain”, *Science*, vol. 312, n. 5779, pp. 1537-1540.
- CURLEY M., SALMELIN B., (2014), *Open Innovation 2.0 - a new paradigm*. EU Publications OISPG. <https://ec.europa.eu/futurium/en/system/files/ged/24-oispgopeninnovation20anewparadigm-whitepaper.pdf>.
- DAVIS G.F. (2009), *Managed by the Markets: How Finance Re-Shaped America*. OUP Oxford University Press.
- DE DREU C.K.W., GELFAND M.J. (2007), “Conflict in the Workplace: Sources, Functions, and Dynamics Across Multiple Levels of Analysis”, *The psychology of conflict and conflict management in organizations*. CH1, pp. 3-54. Lawrence Erlbaum Associates.

- DEVICIENTI F., GRINZA E., MANELLO A., VANNONI D. (2018), "What are the benefits of having more female leaders? Evidence from the use of part-time work in Italy", *Industrial and Labor Relations Review*, vol. 72, n. 4, pp. 897-926.
- DIEHL A.B., DZUBINSKI L.M. (2016), "Making the invisible visible: a cross-sector analysis of gender-based leadership barriers", *Human Resource Development Quarterly*, vol. 27, n. 2, pp. 181-206.
- DI VAIO A., PALLADINO R., HASSAN R., ESCOBAR O. (2020), "Artificial intelligence and business models in the sustainable development goals perspective: A systematic literature review", *Journal of Business Research*, vol. 121, pp. 283-314.
- DOOLEY D., CATALANO R., WILSON G. (1994), "Depressione e disoccupazione: risultati del panel dallo studio Epidemiologic Catchment Area", *American Journal of Community Psychology*, vol. 22, n. 6, pp. 745-765.
- EINARSEN S., SKOGSTAD A., RØRVIK E., BJØRKE LANDE, NIELSEN M.B. (2016), "Climate for conflict management, exposure to workplace bullying and work engagement: a moderated mediation analysis", *The International Journal of Human Resource Management*, vol. 29, n. 3, pp. 1-22.
- FAISAL F. (2010), "Measuring perceptions of work environment among educated female public servants in Pakistan", *Pakistan Economic and Social Review Volume*, vol. 48, n. 1, pp. 135-165.
- FERRARO F., PFEFFER J., SUTTON R.I. (2005), "Economics Language and Assumptions: How Theories can Become Self-Fulfilling", *Academy of Management Review*, vol. 30, n. 1.
- FIDA R., PACIELLO M., TRAMONTANO C., FONTAINE, RG., BARBARANELLI C., FARNESE M.L. (2015), "An integrative approach to understanding counterproductive work behavior: The roles of stressors, negative emotions, and moral disengagement", *Journal of Business Ethics*, vol. 130, n. 1, pp. 131-144.
- FORSTER N., EBRAHIM A.A.A., IBRAHIM A.A. (2013), "An exploratory study of work-life balance and work-family conflicts in the United Arab Emirates", *Skyline Business Journal*, vol. 9, n. 1, pp. 34-42.
- FRIGOTTO M.L. (2018), *Understanding Novelty in Organizations A Research Path Across Agency and Consequences*. Springer.
- FRIGOTTO M.L., DELLA VALLE N. (2018), "Gender and the structuring of the entrepreneurial venture: an effectuation approach", *International Journal of Entrepreneurial Venturing*, vol. 10, n. 4, pp. 412-434.
- GARDENSWARTZ L., CHERBOSQUE J., ROWE A. (2010), *Emotional Intelligence for Managing Results in a Diverse World: The Hard Truth About Soft Skills in the Workplace*. Nicholas Brealey Pub.
- GHERARDI S., MURGIA A. (2014), "What makes a " good manager" ? Positioning gender and management in students' narratives", *Equality, Diversity and Inclusion: An International Journal*, vol. 33, n. 8, pp. 690-707.
- GLASS C., COOK A. (2018), "Do women leaders promote positive change? Analyzing the effect of gender on business practices and diversity initiatives", *Human Resource Management*, vol. 57, n. 4, pp. 823-838.
- GULL A.A., NEKHILI M., NAGATI H., CHTIOU T. (2018), "Beyond gender diversity: How specific attributes of female directors affect earnings management", *The British accounting review, Elsevier*, vol. 50, n. 3, pp. 255-274.
- HEGEWISCH A., GORNICK J.C. (2010), "The impact of work-family policies on women's employment: a review of research from OECD countries", *Community, Work & Family*, vol. 14, n. 2, pp. 119-138.
- HOWELL D.R., BAKER D., GLYN A., SCHMITT J. (2007), "Are Protective Labor Market Institutions at the Root of Unemployment? A Critical Review of the Evidence", *Capitalism and Society*, vol. 2, n. 1.
- HUSE M., SOLBERG G.A. (2006), "Gender related boardroom dynamics: How women make and can make contributions on corporate boards", *Women in Management Review*, vol. 21, n. 2, pp. 113,130.
- HUSE M., NIELSEN S.T., HAGEN I.M. (2009), "Women and employee-elected board members and their contributions to board control tasks", *Journal of Business Ethics*, vol. 89, n. 4, pp. 581-597.
- HUSE M., SEIERSTAD C. (2013), "Getting Women on to Corporate Boards: Consequences of the Norwegian Gender Balance Law", *The European Financial Review*. <https://www.europeanfinancialreview.com/getting-women-on-to-corporate-boards-consequences-of-the-norwegian-gender-balance-law/>.
- IANNOTTA M., GATTI M., HUSE M. (2015), "Institutional Complementarities and Gender Diversity on Boards: A Configurational Approach", *Corporate Governance: An International Review*, vol. 24, n. 4, pp. 406-427.
- INTERNATIONAL LABOUR OFFICE. (2000), *ABC of women worker's rights and gender equality*, p.48. Geneva: ILO. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_087314.pdf.
- IZQUIERDO M., HUSE M., MÖLTNER A. (2016), *Value creating boards and gender diversity Suggestions to progress in getting women on boards in Spain*. BI Norwegian Business School, BI Report 2016/2.
- JANSEN N.W.H., KANT, IJ., VAN AMELSVOORT L.G.P., KRISTENSEN T.S., SWAEN G.M.H., NIJHUIS F.J.N. (2006), "Work-family conflict as a risk factor for sickness absence", *Occupational and Environmental Medicine*, vol. 63, n. 7, pp. 488-94.
- JOHNS M.L. (2013), "Breaking the glass ceiling. structural, cultural, and organizational barriers preventing women from achieving senior and Executive Positions", *Perspect Health Information Management*. PMID: PMC3544145.
- JONSEN K., MAZNEVSKI M.L., SCHNEIDER S.C. (2010), "Gender differences in leadership - believing is seeing: implications for managing diversity", *Equality, Diversity and Inclusion: An International Journal*, vol. 29, n. 6, pp. 549-572..

- KANADL S.B., TORCHIA M., GABALDON P. (2017), "Increasing women's contribution on board decision making: The importance of chairperson leadership efficacy and board openness", *European Management Journal*, Elsevier, vol. 36, n. 1, pp. 91-104.
- KAPOOR J. (2021), "Empowerment of Women and Leadership Manager in Higher Education", *Academia Letters*, Article 2796. <https://doi.org/10.20935/AL2796>.
- KIVIMAKI M., VAHTERA J., PENTTI J., FERRIE J.E. (2000), "Factors underlying the effect of organisational downsizing on health of employees: longitudinal cohort study", *BMJ*, vol. 320, n. 7240, pp. 971-975.
- KONG F., HUANG W., TSAI C., HUANG W., DE LA CRUZ S.M. (2018), "Psychological Capital Research: A Meta-Analysis and implications for Management Sustainability", *Sustainability*, vol. 10, n. 10, pp. 3457.
- KREMER J., HALLMARK A., CLELAND J., ROSS V., DUNCAN J., LINDSAY B., BERWICK S. (1996), "Gender and equal opportunities in public sector organizations", *Journal of Occupational and Organizational Psychology*, vol. 69, n. 2, pp. 183-198.
- LEE H.W., CHOIB J.N., KIMB S. (2017), "Does gender diversity help teams constructively manage status conflict? An evolutionary perspective of status conflict, team psychological safety, and team creativity", *Organizational Behavior and Human Decision Processes*, vol. 144, pp. 187-199.
- LEE S.M., TRIMI S. (2020), "Convergence innovation in the digital age and in the COVID-19 pandemic crisis", *Journal of Business Research*, vol. 123, pp. 14-22.
- LYU W., LIU J., (2021), "Soft skills, hard skills: What matters most? Evidence from job postings", *Applied energy*, Elsevier, vol. 300, n. C.
- MARCENAR- GUTIERREZ O., LOPEZ-AGUDO L.A., HENRIQUES C.O. (2021), "Are soft skills conditioned by conflicting factors? A multiobjective programming approach to explore the trade-offs", *Economic Analysis and Policy*, 72, 18-40.
- MELLUSO N., BONACCORSI A., CHIARIELLO F., FANTON G. (2020), "Rapid detection of fast innovation under the pressure of COVID-19", *Journal Pone*, vol. 15, n. 12.
- MUSSOLINO D., CICELLIN M., PEZZILLO IACONO M., CONSIGLIO S., MARTINEZ M. (2019), "Daughters' self-positioning in family business succession: A narrative inquiry", *Journal of family business strategy*, vol. 10, n. 2, pp. 72-86.
- NIELSEN S., HUSE M. (2010), "The Contribution of Women on Boards of Directors: Going beyond the Surface", *Corporate Governance: An International Review*, vol. 18, n. 2, pp. 136-148.
- NIELSEN S., HUSE M. (2010), "Women directors' contribution to board decision-making and strategic involvement: The role of equality perception", *European Management Review*, vol. 7, n. 1, pp. 16-29.
- NIELSEN V.L., MADSEN M.B. (2019), "Gender diversity and management aspirations in public sector workplaces in Denmark", *Gender in Management: An International Journal*, vol. 34, n. 6, pp. 465-488 2019.
- OAKLEY J.G. (2000), "Gender-based Barriers to Senior Management Positions: Understanding the Scarcity of Female CEOs", *Journal of Business Ethics*, vol. 27, n. 4, pp. 321-334.
- OME B.N. (2013), "Personality and Gender Differences in Preference for Conflict Resolution Styles", *Gender and Behaviour*, vol. 11, n. 2, pp. 5512-5524.
- PFAU B.N., KAY I.T. (2001), *The Human Capital Edge: 21 People Management Practices Your Company Must Implement (Or Avoid) To Maximize Shareholder Value*. McGraw-Hill.
- PFEFFER J. (2010), "Building Sustainable Organizations: The Human Factor", *Academy of Management Perspectives*, Vol. 24, No. 1.
- PFEFFER J., DEVOE S.E. (2008), "Economic evaluation: The effect of money and economics on attitudes about volunteering", *Journal of Economic Psychology*, vol. 30, n. 3, pp. 500-508.
- RASHMAN L., HARTLEY J. (2003), "Networking and modernization of local public services: implication for diversity", *Davidson/Individual Diversity and Psychology*. John Wiley & Sons Ltd.
- RAY R., SCHMITT J. (2008), "The Right to Vacation: An International Perspective", *International Journal of Health Services*, vol. 38, n. 1, pp. 21-45.
- RIGOLINI A., HUSE M. (2019), "Women and multiple board memberships: social capital and institutional pressure", *Journal of Business Ethics*, Springer, vol. 169, n. 3, pp. 443-459.
- RIZZA R., SANSAVINI M. (2010), "Donne e lavoro: rappresentazioni del femminile e conseguenze in termini di politiche di "work-life balance". *Rassegna Italiana di Sociologia*, vol. 51, n. 1, pp. 5-31.
- ROHRER D., PASHLER H., HARRIS C.R. (2019), "Discrepant Data and Improbable Results: An Examination of Vohs, Mead, and Goode (2006)", *Basic and Applied Social Psychology*, vol. 4, n. 8, pp. 1-9.
- ROMANO A., PETRUCCIOLI R. (2020), "Gender diversity management, culture inclusive e sfide dell'attualità. Una review sistematica della letteratura", *Education sciences and society*. DOI: 10.3280/ess1-2020oa9477.
- SEIERSTAD C., WARNER-SØDERHOLM G., TORCHIA M., HUSE M., (2017), "Increasing the Number of Women on Boards: The Role of Actors and Processes", *Journal of Business Ethics*, vol. 141, n. 2, pp. 289-315.
- SMITH A.E. (2015), "On the edge of a glass cliff: women in leadership in public organizations", *Public Administration Quarterly*, vol. 39, n. 3, pp. 484-518.
- STRACHAN G., ADIKARAM A., KAILASAPATHY P. (2015), "Gender (in)equality in South Asia: problems, prospects and pathways", *South Asian Journal of Human Resources Management*, vol. 2, n. 1, pp. 1-11.
- SUMEDREA S. (2016), "Gender diversity and firm performance in seeking for sustainable development", *Bulletin of the Transilvania University of Brasov. Series V: Economic Sciences*, vol. 9, n. 58, pp. 2: 369-385.

- SULLIVAN D., VON WACHTER T. (2009), "Job Displacement and Mortality: An Analysis Using Administrative Data", *Quarterly Journal of Economics*, vol. 124, n. 3, pp. 1265-1306.
- SVENDSEN A. (1998), *The stakeholder strategy: Profiting from collaborative business relationships*. Berrett-Koehler Publishers, Inc.
- TACHEVA S., HUSE M. (2006), "Women directors and board task performance: Mediating and moderating effects of board working style", *EURAM meeting 2006*. https://www.boeckler.de/pdf/v_2006_03_30_huse2_f5.pdf.
- TERJESEN S., SEALY R., SINGH V. (2009), "Women directors on corporate boards: a review and research agenda", *Corporate Governance: An International Review*, vol. 17, n. 3, pp. 320-337.
- TORCHIA M., CALABRÒ A., HOUSE M., BROGI M. (2010), "Critical mass theory and women directors' contribution to board strategic tasks", *Corporate Board: Role, Duties & Composition*, vol. 6, n. 3.
- TORCHIA M., CALABRÒ A., HOUSE M. (2011), "Women Directors on Corporate Boards: From Tokenism to Critical Mass", *Journal of Business Ethics*, vol. 102, n. 2, pp. 299-317.
- TORCHIA M., CALABRÒ A., MORNER M. (2015), "Board of Directors' Diversity, Creativity, and Cognitive Conflict The Role of Board Members' Interaction", *International Studies of Management and Organization*, vol. 25, n. 1, pp. 6-24.
- TORCHIA M., CALABRÒ A., GABALDON P., KANADLI S.B. (2018), "Women directors contribution to organizational innovation: A behavioral approach", *Scandinavian Journal of Management, Elsevier*, vol. 34, n. 2, pp. 215-224.
- TRAUTH E. (2011), "Rethinking gender and MIS for the twenty-first century", In R. Galliers, & W. Currie (Eds.), *The Oxford Handbook on MIS*. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199580583.003.0025.
- TRICKEY D. (2004), "Diversity management competencies and the development challenge: special competencies, skills and attitudes needed to "manage through cultures", *Diversity Management e Società Multiculturale*, vol. 35, n. 2, pp. 220-232.
- TRUCKER P., FOLKARD S. (2012), *Working Time, Health, and Safety: a Research Synthesis Paper*. International Labour Office.
- VARDI Y., WEITZ E. (2016), *Misbehavior in organizations: Theory, research, and management*, Psychology. Lawrence Erlbaum Associates, Inc.
- VILLA P. (2010), "La crescita dell'occupazione femminile: la polarizzazione tra stabilità e precarietà", *Lavoro e diritto*, vol. 25, n. 3, pp. 343-358.
- VOHS K.D., MEAD N.L., GOODE M.R. (2008), "Merely Activating the Concept of Money Changes Personal and Interpersonal Behavior", *Current Directions in Psychological Science*. DOI:10.1111/j.1467-8721.2008.00576.x.
- WHITENER E.M. (2001), "Do "high commitment" human resource practices affect employee commitment?: A cross-level analysis using hierarchical linear modeling", *Journal of Management*, vol. 27, n. 5, pp. 515-535.
- WISE L.R., TSCHIRHART M. (2018), "Examining Empirical Evidence on Diversity Effects: How Useful Is Diversity Research for Public-Sector Managers?", *Public Administration review*, vol. 6, n. 5, pp. 386-394.

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The role of family vs nonfamily CEOs and firm generation on external audiences' perception of family firms brands

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Framing of the research. Firm leadership represents an important aspect of family-firm heterogeneity. In the family-business literature, firm leadership has been examined from various perspectives (Arzubiaga et al., 2018; Kraus et al., 2011; Xi et al., 2015). Among them, an increasing stream of literature has concentrated on the relative effectiveness of family vs nonfamily CEOs as top executives (Miller et al., 2014). These studies have compared the impact of CEO status on firm performance in terms of commitment to family firms' long-term goals (Sciascia & Mazzola, 2008; Zellweger, 2007), knowledge, competence, experience and expertise (Bloom & Van Reenen, 2007; Chrisman et al., 2014; Jaskiewicz et al., 2017; Miller et al., 2014) as well as R&D intensity and risk adoption (Gomez-Mejia et al., 2003). However, the perspective of how heterogeneity in term firm leadership affect external audiences' perception of the firm is largely lacking.

Purpose of the paper. In this study, we investigate the relationship between the presence of a family vs nonfamily CEO and the way external audiences talk about the brand of the family firm s/he leads. In so doing, we build on brand importance, which is a new constructs that points to the relevance a brand has in a discourse given the richness and uniqueness of its image, its visibility, and the possibility to act as a bridge connecting different discourse topics (Rovelli et al., 2022, p. 694). Besides studying the relationship between CEO's status and brand importance, we examine how the firm generation moderates this relationship.

Methodology. To answer our hypotheses, we consider a sample of family firms listed in the Forbes' 2018 ranking of the Top 100 Italian entrepreneurial families and their businesses to answer our research question. From the starting list, we excluded 32 family firms because the name of their brand easily associates with famous individuals or products other than the firm, or because more than one firm exists with the same name. We gather data on firms' characteristics using firms' balance sheets from the AIDA database managed by Bureau van Dijk as well as coding information from secondary sources (e.g., their websites). We complemented this data with textual data of Italian online news articles published in the year 2017, which then served the purpose of measuring family firms' brand importance with the Semantic Brand Score indicator (Fronzetti Colladon, 2018). In this regard, Telpress International B.V. provided the news data analyzed in this study, consisting in the articles of major online newspapers, press agencies and information websites in Italy. We considered all the articles that at least once mentioned the firms in our sample, for a total of 52,555 documents. Due to missing data, the final sample consisted of 63 firms.

The dependent variable of this study is Brand importance, which we measured by means of the Semantic Brand Score (SBS) indicator. The SBS is a novel composite indicator applicable to any textual data, which considers the three dimensions of brand prevalence, diversity and connectivity and is calculated combining methods and tools of text mining and social network analysis (Fronzetti Colladon, 2018). The independent variable is instead Family CEO, a dummy variable equal to one if the CEO is a member of the owning family, while the moderating variable is Firm generation, which indicates the generation that is managing the firm. The control variables that we included in the OLS used to test hypotheses are: Firm size, in terms of employees working in the firm, Firm age, Geographical area dummies, which indicate whether the family firm is located in the North-East, North-West, Centre or South of Italy, and Industry dummies, which indicate whether the firm operates in manufacturing, services or constructions.

Results. Results reveal that brand importance is lower when the family firm is led by a family CEO. While the presence of a family CEO positively and significantly relates to brand importance when firm generation is equal or greater than 18 (thus for longest-lived family firms), this relationship turns to be negative and significant for values of firm generation equal or lower than 4 years.

Research limitations. Our study has limitations that open up opportunities for future research. First, online news are not always easily and freely available, especially in the case of massive downloads, and this limits our study to be cross-sectional. We thus do not claim causality, but provide evidence of the significant relationships among our variables of interest. Second, our consideration of the Italian context might limit the generalizability of our results, as the investigated relationships might change depending on the cultural context in which the family firm operates. Future studies might consider different countries.

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Managerial implications. *Providing a novel perspective on how family vs nonfamily CEOs associate to the external audiences' perception of family firms brand is important from a practical standpoint. Our results could indeed help family firms make their decision in choosing to appoint as CEO a family member or an individual external to the family given the influence that the CEO might have on the firm brand equity and brand knowledge.*

Originality of the paper. *This study contributes to research on family firms' heterogeneity by offering an alternative perspective on the influence of family leadership on external audiences' perception of family firm brands. Specifically, with our study we aim to reach a better understanding of family vs nonfamily CEOs' external perception as a source of family firms' heterogeneity. Moreover, we move forward from the traditional use of surveys, case studies, interviews, or focus groups by applying SBS to study family firm brands. Our method, which builds on the discourse analysis of a considerable number of online news articles, allows repeatable and automated measurements to continuously monitor brand importance. Our research exploits the opportunities offered by the availability of rich online text data and provides additional evidence that can inspire researchers in the family business field. Last, we extend research on brand importance and the application of SBS to the family business context.*

Keywords: *family firms; CEO; firm generation; brand importance; Semantic Brand Score*

References

- ARZUBIAGA U., KOTLAR J., DE MASSIS A., MASEDA A., ITURRALDE T. (2018), "Entrepreneurial orientation and innovation in family SMEs: Unveiling the (actual) impact of the Board of Directors", *Journal of Business Venturing*, vol. 33, n. 4, pp. 455-469.
- BLOOM N., VAN REENEN J. (2007), "Measuring and explaining management practices across firms and countries", *Quarterly Journal of Economics*, vol. 122, n. 4, pp. 1351-1408.
- CHRISMAN J.J., MEMILI E., MISRA K. (2014), "Nonfamily managers, family firms, and the winner's curse: The influence of noneconomic goals and bounded rationality", *Entrepreneurship Theory and Practice*, vol. 38, n. 5, pp. 1103-1127.
- FRONZETTI COLLADON A. (2018), "The Semantic Brand Score", *Journal of Business Research*, vol. 88, pp. 150-160.
- GOMEZ-MEJIA L.R., LARRAZA-KINTANA M., MAKRI M. (2003), "The determinants of executive compensation in family-controlled public corporations", *Academy of Management Journal*, vol. 56, n. 2, pp. 226-237.
- JASKIEWICZ P., BLOCK J.H., COMBS J.G., MILLER D. (2017), "The effects of founder and family ownership on hired CEOs' incentives and firm performance", *Entrepreneurship: Theory & Practice*, vol. 41, n. 1, pp. 73-103.
- KRAUS S., HARMS R., FINK M. (2011). "Family firm research: Sketching a research field", *International Journal of Entrepreneurship and Innovation Management*, vol. 13, pp. 1, pp. 32-47.
- MILLER D., LE BRETON-MILLER I., MINICHILLI A., CORBETTA G., PITTINO D. (2014), "When do non-family CEOs outperform in family firms? Agency and behavioural agency perspectives", *Journal of Management Studies*, vol. 51, n. 4, pp. 547-572.
- ROVELLI P., BENEDETTI C., FRONZETTI COLLADON A., DE MASSIS A. (2022), "As long as you talk about me: The importance of family firm brands and the contingent role of family-firm identity", *Journal of Business Research*, vol. 139, pp. 692-700.
- SCIASCIA S., MAZZOLA P. (2008), "Family involvement in ownership and management: Exploring nonlinear effects on performance", *Family Business Review*, vol. 21, n. 4, pp. 331-345.
- XI J.M., KRAUS S., FILSER M., KELLERMANN F.W. (2015), "Mapping the field of family business research: Past trends and future directions", *International Entrepreneurship and Management Journal*, vol. 11, n. 1, pp. 113-132.
- ZELLWEGER T. (2007), "Time horizon, costs of equity capital, and generic investment strategies of firms", *Family Business Review*, vol. 20, n. 1, pp. 1-15.

Direct-To-Consumer Brands and Strategies: A systematic literature review

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Framing of the research. *The world of retailing has seen a recent industry decline, manifested in bankruptcies and store closures, so massive that it has been dubbed “the retail apocalypse”.*

Some pre-pandemic data suggest that the industry crisis, exacerbated by Covid-19, was already underway. For example, store closures by the end of 2019 exceeded the number of store closures in 2018, reaching more than 9,000 units in the United States (Unglesbee 2019). Retail bankruptcies increased by a 35% in 2019 and among the companies filing for bankruptcy, there was Forever 21, a fast fashion clothing brand with \$4.4 billion in sales (Thomas, 2019a; Wang and Kim 2019).

This shift in the retail landscape has been mainly attributed to the rise of e-commerce and accentuated by the pandemic, and the decline of traditional retailers, caused by their primary reliance on brick-and-mortar stores as a sales channel (Thomas 2019b).

In the current e-commerce context, there are brands that are effectively using social media to communicate with consumers and some emerging brands that have been able to connect with the consumer on an emotional level, in addition to the physical attributes (Sherman, 2016).

In this context, several startups called Direct-to-Consumer (DTC) brands are on the rise leading them to reporting a sales value higher than the total of US ecommerce sales (Lipsman 2020).

Direct sales in general can be described as sales, which are realized via vertically integrated distribution channels. The channels or distribution chains can look different: they can consist of several value chain stages such as wholesaling and retailing (e.g. flagship stores, outlets), which are all operated or at least controlled by the brand manufacturer, or they can be more directly connected to the consumer via sales persons or online shops (Leimstoll and Wolfle, 2021). Furthermore, a narrower definition limits direct sales to personal selling activities to private end-users (consumers) outside physical selling locations

Those types of brands start their activities as a purely online business, leveraging digital channels for marketing and sales, consequently they can be defined as digital native brands. Specifically, they are defined as DTC brands because they sell directly to consumers, without intermediaries or “middleman” retailers such as stores. What differentiates these brands from traditional online brands is their specialization on a single or small set of related products, and innovations in product or business model (Jin and Shin 2020). This model of retailing involves a small assortment of products and the promotion of the “quality over quantity” message on their social media channels, means that DTC brands encourage consumers to buy less products at higher prices to obtain quality fashion products instead of cheap fast fashion goods (Chapin, 2016; Sygiel, 2017).

Through a steady base of loyal customers, these brands are establishing a foothold in the market (Zia 2017).

DTC brands, that are digitally native vertical brands, where initially introduced to consumers online (Carnot, 2017; Dunn, 2016; Munford, 2017b) and use online “editorial content to connect with the consumer on an emotional level, distinguishing the brand not just by its value proposition, but also by its physical attributes” (Sherman, 2016, para. 6). Because of their digital focus, the majority of DTC brands do not have brick-and-mortar stores. Cutting out the middleman is a distinct element of DTC retailers, which allows the brands to keep prices low, while still providing consumers with high quality items. This adds another layer of connection between DTC brands and consumers, because it removes the retail middleman that wholesalers use to markup product prices (Spruch-Feiner, 2016).

The relationship building power of DTC brands through their websites and social media gives such companies the ability to move beyond a purchase and into the consciousness of the brands’ patrons’ minds (Hellqvist, 2015; Spruch-Feiner, 2016). What, also characterizes the DTC brands is their relationship building power of DTC brands through their websites and social media gives such companies the ability to move beyond a purchase and into the consciousness of the brands’ patrons’ minds (Hellqvist, 2015; Spruch-Feiner, 2016).

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For example, if we take the luxury sector as a reference (where DTC brands have performed very well) those brands are using social media to convey brand ideals of minimalism, specialization, consumer-centrism and a refined, yet approachable brand aesthetic and build relationships with consumers (Munford, 2017a; Spruch-Feiner, 2016).

The performance of these types of brands has not gone unnoticed and has led to increasing venture capital investment and the acquisition of these startups by incumbent retailers attest to the growth potential and value of DTC brands in the marketplace. In 2017, investment deals involving DTC companies rose to 196, more than 600% from 32 in 2010, this figure is a sign of recognition of the value and digital capabilities of DTC brands, as well as their appeal to consumers in an increasingly digital-driven market, high-profile incumbent retailers have acquired DTC companies (Chen, 2019).

Purpose of the paper. Despite the results obtained in terms of business, there are few studies conducted on the phenomenon of Direct-to-Consumer brands. Up to now, in fact, very few studies have investigated the phenomenon of DTC brands and what, for example, are the main characteristics that can attract consumers to DTC brands. The objective of the main research is: a) first to establish what is the current state of studies conducted on Direct-to-Consumer brands b) define, based on previous research and further analysis, which are the main characteristic of the digital audience c) identify the next steps and areas of improvement for future research.

Given the fact that this research is now on-going this extended abstract will focus on the first objective which is stating the current state of studies on Direct-to-Consumer. Thus, the main objective of this phase is to identify the most relevant sources pertaining to Direct-To-Consumer studies, compare them, and present the major findings of these studies. In addition, this research has secondary objectives alongside the primary goal: a) the first objective is to present the Direct-to-Consumer brands and define them according to their characteristics, and b) the second is to define the context in which these brands operate both from a market and a social point of view.

Methodology. In order to define and establish the current state of research on DTC brands, a systematic literature review process was undertaken on research published over the past 20 years regarding e-commerce brands and DTC brands.

In this first phase, an analysis of the topic was conducted on the Google Scholar database, and the following keywords "Direct to Consumer" was inserted. The search produced a result of 28,000 papers containing the keyword indicated, many of the papers reported have a focus on the use of Direct-to-Consumer activities regarding medical prescriptions. Since this area is not, at this early stage, of interest to the search, Google's Boolean Operators were used to filter the search. Specifically, through the use of the "-" command, some words were removed in order to identify the papers of interest for the current research.

Specifically, below are the words that have been removed from the search in order to identify the most suitable paper for research, most of these keywords have been removed because they are related to the context of prescription drugs: -drugs -genetic -medicine -telemedicine -pharmaceutical -prevention -oncology -clinical -farm -patient -disorder -subscription -prescription.

After removing those words, the available papers on the topic has become 4,510, moreover, after inserting the reference timing of 20 years (from 2001 to 2022) we have obtained 3,980 available papers. Therefore, we decided to remove citations were the reference papers number decreased to 3,360. Finally, with the aim of specializing research around DTC brands, the keyword "Brand" was added, bringing the number of available papers, with a focus on DTC brands, to 1840.

After identifying 1840 papers, those from top journals were selected in order to analyze the most authoritative sources on the subject. The main results of this analysis have been reported in this paper to present the main trends on this topic. Subsequently, the research will be developed following two main streams: a) the supply side, within which we will analyze the behaviors and the role of suppliers of DTC brands and the role they can play to make those brand economically sustainable, and b) the demand side, within which we will analyze the behaviors and the reactions of consumers and users of these brands with the aim of defining the type of relationships that DTC brands establish with their customers (the aim is also highlight different relationships when compared to traditional brands).

In order to identify the reference papers for each of the two streams that were identified, we will add specific keywords. For the stream concerning the suppliers of these brands the word "supply" could be added to the generic string, while for the stream about consumers the word "Consumer" could be inserted.

Results. In this first phase has been conducted an initial analysis on papers from journals or monographs among the 1840 sources available, the keywords used are therefore: "Direct to Consumer" AND "Brand" -genome -genomic -drugs -genetic -medicine -telemedicine -pharmaceutical -prevention -oncology -clinical -farm -patient -disorder -subscription -prescription.

The first evidences, from research conducted by Leimstoll and Wofle (2021), has highlighted how the trend to sell directly to the consumer (DTC strategy) is being held back by the fact that, in some sectors, like the manufacturing sector, some brands do not want to become direct competitors of their partners (Li et al., 2015), given the value that those partners provide to the brand and consequently have not developed a direct distribution network with the consumer.

In addition, a second deterrent to the use of this type of strategy can be traced to the following factors: a) missing know-how and preconditions for realizing direct sales, and b) intermediaries fulfill specific functions, which partly must be taken over by the brands themselves when they sell directly to consumers (Sarkar et al., 1995).

On the other hand, there are numerous advantages that make the use of D2C strategies very attractive (Wofle and Leimstoll, 2016): a) consumers do not only expect an informative website with an engaging online presentation of

brand products by the manufacturer but they really appreciate the possibility to buy the item directly online on the brand's website, b) in an industry, affected by piracy and scams, customers strive to reduce the risk of purchasing fake products by ordering directly from the brand manufacturer's flagship or online store, and c) for consumers identifying with the brand, shopping directly from the brand is part of their brand experience.

For brand manufactures complete control over distribution and prices often builds the motivation to invest in direct sales channels (Chung, C., 2005). These investments could also be driven by the reduction of distribution costs by bypassing the intermediaries, the increase of market coverage, the provision of a brand-specific market presence, or the direct relationship between supplier and customer.

Research conducted by Donna et al, (2021) found that, in line with the findings of Leimstoll and Wolfle (2021), for direct-to-consumer brands cost reduction is accompanied by two main implications, first direct sales generate potential welfare gains to consumers downstream due to additional competition and product variety, second there is an increase in the bargaining leverage of the manufacturers selling directly to consumers. In addition, the work done by Yoshida (2019) confirmed that, in line with previous studies, the direct-to-consumer channel is beneficial to consumers and manufacturers but makes retailers significantly worse because of the additional competition downstream.

The next papers, analyzed at this stage, have a focus on consumer response (demand side). The first paper analyzed is the contribution of Kim et al., (2021) who conducted an analysis on consumer attitudes and re-purchase intention toward DTC brands. The study conducted by Kim et al., (2021) first has identified the classification of DTC brands according to their business characteristics.

Within his work the authors have outlined the following business models for DTC brands: Co-creation, process of building experiences and resolving problems with joint efforts by customers and brands.

Cost effectiveness, unique business model to offer high quality products at reasonable prices without the presence of middlemen, Website attractiveness, A website's sole store front role to communicate brand identity and retain customers through thoughtfully designed website interfaces, such as icons, colors, graphics, music, and page lengths. Sustainability, eco-friendly and social activities embedded into a core of brand concept, providing transparent information about supply chain and pricing policies, Brand uniqueness, unique products and brand stories to differentiate from traditional brands; emphasis placed on the brand origin; product function/design specialization in niche categories. Social media engagement, social media often the primary channel for marketing; hyperactive brand-customer interaction through social media; customer's behavioral manifestations in social media beyond purchase as an online community, Innovativeness, Innovative business model, products, and brand storytelling in which consumers perceive brands as being able to provide new and useful solutions to their needs; incorporation of cutting-edge technology (e.g., augmented reality, virtual try-on).

After classifying the various types of DTC brands, the authors measured the effect of the different characteristics on attitude and re-purchase intention towards DTC brands. First, all variables except sustainability were found to have a positive effect on attitude towards DTC brands, telling us that consumers are not attracted to those brands based on their sustainability efforts. This result could be justified by the fact that not all the DTC brands has implemented sustainability practices and consumer experience with DTC sustainable brands could be limited. It also echoes the social desirability paradox that consumers say they want sustainable brands, but their purchase decisions often do not follow through (White et al. 2019). Furthermore, they have highlighted that brand uniqueness, social media engagement, innovativeness, and cost-effectiveness (indirect effect) does have a positive effect on re-purchase intention, while co-creation, cost effectiveness website attractiveness and sustainability do not have an effect on the dependent variable. While most of the independent variables have been previously identified as determinants of attitude toward DTC brands, the omission of certain variables (e.g., co-creation, website attractiveness) indicates that there are some discrepancies between reported attitudes and actual behavior of consumers. In other words, determinants such as co-creation and website attractiveness aid in establishing a positive attitude but do not necessarily lead consumers to choose DTC brands again. Although consumers may be initially enticed to the interactive communication of DTC brands and their charming web storefronts, these factors alone are not attractive enough to make a purchase.

In addition, another contribution regarding consumer attitude and consumer behaviour is the study that Shacker and Stanoeva-Slabeva (2021) has conducted in order to better understand the impact of sustainability and CSR information on D2C online shops. With-in their research they have find out that research on direct-to-consumer has led to scattered evidence in different directions. The main finding reported by supports and reinforces the need for a systematization of the studies conducted on this subject with the aim of better defining consumer attitudes and behavior.

Research Limitations. The limitations of this research are several: a) the first limit does regards the fact that the research is still in progress and that the analysis of the identified reference papers (1840) is reduced to only 20 papers coming from top journal or monographies, b) the results of this first phase of research are still incomplete and too general, they do not offer a clear representation of the two sides described in the methodology part, the supply side and the demand side, c) some results can be merged and joined together in order to strengthen the concepts and evidence presented, d) it may be appropriate, at a later date, to consult other databases such as "web of sciences" or "scopus" with the aim of identifying additional relevant sources to complete those already identified

In addition, in order to better identify and define the current state of this type of brand, it could be useful to carry out an analysis on a wider literature, such as e-commerce, since the specific literature on Direct-To-Consumer brands could be too narrow and not very exhaustive.

Managerial Implications. This research, which represents the start of a systematic literature review, presents some of the main studies conducted on the theme of Direct-to-Consumer brands.

One of the first evidences for the business world can be highlighted in the fact that the performances of these brands, as highlighted in the introduction, are performing better than the brands that rely on e-commerce on aggregators such as amazon, ebay...etc. The first part of the literature analyzed reported the incentives and discentives in using Direct-To-Consumer techniques, reporting that it is fundamental, in order to develop a good DTC strategy and execution, to possess the appropriate know-how and condition in order to realize direct sales, furthermore, intermediaries does have the capabilities to work on specific functions that need to be taken care of in the Direct-To-Consumer strategy. Talking about advantages of this strategy one of the main benefits is the possibility to develop the relationship with its consumers independently, being able to manage each point of contact directly with the end customer.

Originality of the Paper. The originality of this paper lies in the objective of systematizing the research that has been conducted on brands and Direct-to-Consumer strategies. In literature, the effect and consequences of Direct-to-Consumer strategies on prescription drugs in the United States have been the subject of research and numerous studies. The aim of this review is to analyze the studies and the performance of these brands not only in a medical context, such as the one just mentioned, but to be able to extend and generalize the results that have been obtained in various sectors of economic as well as social relevance. The first original contribution of this research is expressed in the fact that, using Google Boolean Operators, it was possible to remove, in the process of identifying the reference literature, that part of the scientific literature which concerns the medical field and medicines. Regarding the second original contribution is concerned, it can be identified in the fact that most of the studies on Direct-To-Consumer have been conducted in the United States while there is little research conducted in Europe and specifically in Italy. Thirdly, the few reviews that have been carried out so far, and from which the work has been inspired, have led to scattered and non-homogeneous results, demonstrating, once again, a strong need for analysis and in-depth study of a phenomenon that is still little explored.

Keywords: Direct to Consumer, e-commerce, brand, consumer behavior, e-commerce, purchase

References

- CHEN C. (2019), "The direct-to-consumer reckoning", *Business of Fashion*, vol. 58, n. 2, pp. 111-119
- CHUNG C. (2005), *An exploratory model of the determinants of disintermediation: The facilitating role of the manufacturer's virtual presence*, Golden Gate University.
- DONNA J.D., PEREIRA P., TRINDADE A., YOSHIDA R.C. (2021), *Direct-to-Consumer sales by manufacturers and bargaining*. Available at SSRN.
- KIM N.L., SHIN D.C., KIM G. (2021), "Determinants of consumer attitudes and re-purchase intentions toward direct-to-consumer (DTC) brands", *Fashion and Textiles*, vol. 8, n. 1, pp. 1-22.
- JIN B.E., SHIN D.C. (2020), "Changing the game to compete: Innovations in the fashion retail industry from the disruptive business model", *Business Horizons*, vol. 63, n. 3, pp. 301-311.
- LEIMSTOLL U., WÖLFLE R. (2021), "Direct to Consumer (D2C) E-Commerce: Goals and Strategies of Brand Manufacturers", In *New Trends in Business Information Systems and Technology* (pp. 237-250). Springer, Cham.
- LI G., HUANG F., CHENG T.E., JI P. (2015), "Competition between manufacturer's online customization channel and conventional retailer", *IEEE Transactions on Engineering Management*, vol. 62, n. 2, pp. 150-157.
- LIPSMAN A. (2020). *Direct-to-consumer brands 2020: Growing pains hit disruptor brands on their path to maturity*. <https://bit.ly/3trLh5z>
- PRASAD B., GHOSAL I. (2021), "Forecasting Buying Intention Through Artificial Neural Network: An Algorithmic Solution on Direct-to-Consumer Brands", *FII Business Review*, vol. 32, n. 5, pp. 33-44.
- SARKAR M.B., BUTLER B., STEINFELD C. (1995), "Intermediaries and cybermediaries: a continuing role for mediating players in the electronic marketplace", *Journal of computer-mediated communication*, vol. 1, n. 3, pp. 1-14.
- SCHACKER M., STANOEVSKA-SLABEVA K. (2021, January), "Understanding the Impact of Sustainability and CSR Information in D2C Online Shops on Consumer Attitudes and Behavior-A Literature Review", In *Proceedings of the 54th Hawaii International Conference on System Sciences* (p. 926).
- THOMAS L. (2019a), *The bankruptcies that rocked the retail industry in 2019*. CNBC.
- THOMAS L. (2019b), *75,000 more stores need to close across the US, UBS estimates, as online sales and Amazon grow*. CNBC.
- UNGLESBEE B. (2019), "Store closures pass 9 K in 2019", *Retail Dive* <https://www.retaildive.com/news/store-closures-pass-9k-in-2019/569597/>
- WÖLFLE R., LEIMSTOLL U. (2016), "E-Commerce Report Schweiz 2017: Digitalisierung im Vertrieb an Konsumenten", *Eine qualitative Studie aus Sicht der Anbieter*. <https://irf.fhnw.ch/handle/11654/25247>
- WU W.Y., LU H.Y., WU Y.Y., FU C.S. (2012), "The effects of product scarcity and consumers' need for uniqueness on purchase intention", *International Journal of Consumer Studies*, n. 36, pp. 263-274.
- ZIA D.W. (2017), "Going straight to the source: today's thriving direct-to-consumer brands threaten monopolistic industries", *Forbes* <https://bit.ly/3NF0bgZ>

Come supportare i manager nella comprensione del *loss of brand control*?

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Inquadramento della ricerca. Il brand rappresenta una risorsa firm-specific di grande valore per le imprese (Barney, 1991). Per la sua importanza strategica, è sempre stato considerato una risorsa strettamente controllata dai brand manager attraverso una serie di strategie e attività rigorosamente pianificate: dalla costruzione della brand identity (Bernstein, 1984; Albert e Whetten, 1985; Burmann et al., 2009) alla manipolazione della brand image e delle brand association (Shee e Abratt, 1989; Keller, 1993; Aaker, 1996; Balmer e Greyser, 2006); dalla definizione della brand culture fino all'affermazione del valore e del significato della marca (Keller e Lehmann, 2003). La logica del brand control, indissolubilmente legata alla mentalità manageriale tradizionale (Wider et al., 2018; Iglesias and Ind, 2020), esprime un approccio di brand management radicato nella letteratura fino agli anni 2000 e, in parte, coesistente (es., Burmann et al., 2009; Urde e Koch, 2014) con la letteratura più recente sulla brand co-creation (Merz et al., 2009; Vallaster and von Wallpach, 2013; Sarasvuo et al., 2022). Questo approccio manageriale si basa sulla concezione di un brand statico, autoreferenziale e con confini ben definiti (Swaminathan et al., 2020); e sull'idea che gli stakeholder siano agenti passivi che non intervengono attivamente nel processo di creazione del valore del brand (Pralhad e Ramaswamy, 2000; Christodoulides, 2009; Iglesias et al., 2013).

Nel corso degli ultimi anni l'evoluzione delle nuove tecnologie, la diffusione degli ambienti digitali e il crescente empowerment degli stakeholder nel contesto del web, stanno ridefinendo le logiche di gestione del brand (Christodoulides, 2009; Jones, 2012), comportando un rovesciamento nell'asset di potere impresa-stakeholder (Conger e Kanungo, 1988; Denegri-Knott et al., 2006; Pires et al., 2006). Come sostenuto da McAfee (2009) è "illusorio" pensare che il brand control sia ancora oggi possibile.

La recente ricerca di branding (Fournier e Avery, 2011; Wider et al., 2018; Iglesias e Ind, 2020), riconosce, infatti, che le logiche di brand control stanno per essere completamente superate dalle logiche di inclusione e partecipazione attiva degli stakeholder nel processo di creazione del brand meaning, della brand identity e del brand value (Merz et al., 2009; Hatch e Schulz, 2010). In proposito, Christodoulides (2009) sostiene che il valore, il significato e l'identità conferiti dai brand manager alla marca stanno perdendo stabilità e protezione negli ambienti digitali, venendo alterati (ma anche arricchiti) dagli stakeholder, nell'interazione partecipativa con l'impresa o con gli altri brand stakeholder (Vernuccio, 2018; Essamri et al., 2019; Hollebeek et al., 2021), in un'ottica di power sharing (Rezabakhsh et al., 2006). Questa concezione di apertura del brand agli stakeholders, già sostenuta, tra gli altri, da Chernatony (2001), è alla base dei recenti studi sulla brand co-creation.

Gli studi sulla brand co-creation stanno cercando di rispondere all'esigenza di definire un nuovo paradigma di branding più in linea ai nuovi scenari stakeholder-empowered, incentivando l'abbandono delle logiche di controllo sul brand (Merz et al., 2009; Hatch e Schulz, 2010). Fournier e Avery (2011) e Iglesias, Ind e Alfaro (2013) sostengono che con la co-creazione, i manager devono accettare di cedere, parzialmente o totalmente, il controllo della marca agli stakeholder, e di spostarsi verso la costruzione di un "open brand". In accordo con questa affermazione, e in opposizione con Derrida (2000), i brand manager non sono più gli unici "padroni del gioco". Fournier e Avery (2011), in particolare, contribuiscono alla recente concettualizzazione dell'open-source branding, basata su una gestione aperta e decentralizzata del marchio, in cui parte del controllo sul brand viene ceduto volontariamente dall'impresa agli stakeholder (Pitt et al., 2006; Mairinger, 2008). In questa prospettiva, il brand manager sceglie di condividere il controllo sulla marca fornendo piattaforme open-source o, nei casi più audaci, creando una marca la cui proprietà è open source e può essere liberamente utilizzata dagli stakeholder, sotto determinate condizioni legali di utilizzo (Robson et al., 2020).

Parallelamente a questi contributi in letteratura, le ricerche sul brand hijacking rafforzano la comprensione dei fenomeni di perdita di controllo sulla marca nel mondo digitale (Wipperfurth, 2005; Cova e Pace, 2006; Langley, 2014; Cova e Paraque, 2016). In merito al brand hijacking, in letteratura si offre una duplice chiave di lettura:

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costruttiva e distruttiva (Siano et al., 2022). Alcuni autori leggono il brand hijacking come un'opportunità inaspettata per generare nuovi e più rilevanti significati e valori della marca, con la possibilità di rivitalizzare l'immagine del brand o di soddisfare i bisogni di un target non precedentemente considerato (Wipperfurth, 2005; Cova e Pace, 2006; Cova e Paraque, 2016; Knudsen e Lemmergaard, 2014). Altri autori leggono invece negativamente il fenomeno, associandolo ad un uso illecito del brand (Hofman e Keates, 2013; Langley, 2014). In accordo con questo punto di vista, i cosiddetti "brandjacker" utilizzano elementi dell'identità di marca (brand logo, slogan, ecc.) per scopi completamente diversi da quelli per cui sono stati progettati (Langley, 2014), al fine di confondere e ingannare gli altri stakeholder o ledere la reputazione dell'impresa (Siano et al., 2022). In quest'ultimo caso, il brand hijacking può portare alla distruzione del valore della marca (Echeverri e Skalén, 2011) o alla brand dilution (Keller e Sood, 2003). Alla luce dei pericoli connessi al brand hijacking distruttivo, il brand control può diventare non solo un'illusione, ma anche una pericolosa miopia.

Come accennato, dunque, il loss of brand control si può esprimere non solo in termini di brand co-creation collaborativa (come nel caso dell'open-source branding), in cui volontariamente l'impresa decide di cedere il controllo sul brand agli stakeholder, ma anche attraverso azioni di brand hijacking (brand co-creation non collaborativa) (Kristal et al., 2018; Siano et al., 2021). Il working paper proposto può contribuire alla letteratura di branding esistente, fornendo ai brand manager una lettura nuova e semplificata di tali dinamiche di perdita di brand control.

Obiettivo del paper. La complessità del fenomeno del loss of brand control e la limitata letteratura in materia (Iglesias e Bonet, 2012; Gensler et al., 2013; Iglesias e Ind, 2020) possono renderne difficile la piena comprensione e accettazione, da parte dei brand manager. Come conseguenza, i brand manager potrebbero non adattare adeguatamente il loro comportamento manageriale ai nuovi contesti, ai fini del successo delle imprese.

Lo scopo del working paper proposto è principalmente educational e formativo. Tenta di rispondere alla seguente domanda: "come i manager possono essere supportati nella comprensione delle dinamiche del loss of brand control?". Prendendo in prestito alcuni concetti base della fisica e dell'astronomia Newtoniana, il working paper tenta di rispondere a tale quesito, proponendo un'analogia di tipo interdisciplinare, come strumento di supporto cognitivo.

Metodologia. Il working paper proposto tenta di fornire, attraverso la lente dell'analogy-based approach, una chiave di lettura evocativa delle dinamiche impresa-brand-stakeholder alla luce del fenomeno del loss of brand control. L'analogia, insieme alla metafora, infatti, è sempre stata considerata una potente arma cognitiva in grado di semplificare il processo di comprensione di fenomeni/concetti complessi (Aubusson et al., 2006). Come sostenuto da Hofstadter (2001) l'analogia è "il nucleo della cognizione" umana. Se si fa ricorso ad essa è possibile costruire un fascio coerente di corrispondenze tra due strutture mentali, una nuova e una già consolidata, e fornire una guida interpretativa di un fenomeno/concetto non conosciuto o poco conosciuto. Grazie al suo potenziale contributo nel semplificare i processi cognitivi, nel migliorare l'insegnamento, nel promuovere il pensiero di livello superiore e nel produrre nuovi strumenti interpretativi (Richland e Simms, 2015), l'analogia è stata ampiamente utilizzata nella ricerca, non solo nell'educazione scientifica (Duit, 1991; Richland e Simms, 2015; Coll et al., 2005) ma anche nell'educazione economica e sociale (Hannon, 1997; Nonaka e Takeuchi, 1995).

Nel working paper proposto si applica il processo di "mapping analogico", derivante dalla teoria dello structure-mapping (Gentner, 1983, Gentner e Markman, 1997). Il mapping analogico è un processo attraverso il quale si stabilisce un allineamento tra due domini (uno base e uno target) costituiti da oggetti, proprietà, relazioni di primo ordine tra gli oggetti, e relazioni di ordine superiore (Gentner, 1983). Un allineamento consiste in un insieme esplicito di corrispondenze tra gli elementi rappresentativi di due situazioni (una nota, una meno nota), ed è determinato sulla base della coerenza strutturale, cioè la corrispondenza uno-a-uno tra gli elementi mappati nel dominio base e target. La selezione di un allineamento è guidata dal principio di sistematicità, per cui un allineamento definito sulla base di relazioni di ordine superiore (es. relazioni causali) è preferibile a un allineamento in cui gli oggetti sono collegabili individualmente tra loro (privi di relazioni). Il principio di sistematicità guida e agevola l'inferenza analogica, la quale è fondamentale per completare il sistema di connessioni stabilite tra dominio di base e target (Bowdle e Gentner, 1997; Clement, 1993; Clement e Gentner, 1991).

Attraverso il mapping analogico, si fanno corrispondere gli elementi del sistema I-B-St, composto da Impresa (I), Brand (B) e Stakeholder (St) (dominio target o analogo non familiare), con gli elementi del sistema P-Sa-PO, composto da Pianeta (P), Satellite (Sa) e Pianeta Orfano (PO) (dominio base o analogo familiare). A partire dall'identificazione dell'analogo familiare e del corrispondente analogo target, è possibile esplicitare il sistema di relazioni e l'inferenza analogica, che considera il parallelo tra dinamiche planetarie e dinamiche di perdita di controllo della marca.

Risultati. Si considera, il sistema I-B (Impresa-Brand) come analogo target del sistema P-Sa (Pianeta-Satellite), in una situazione di perfetto equilibrio dinamico, e quindi nella situazione "ideale" del brand control. L'analogia porta a considerare il Pianeta (P), come analogo familiare di un'Impresa (I) che esercita la propria forza di controllo sulla marca (F_I), paragonabile alla forza gravitazionale esercitata da un pianeta su un satellite. L'impresa esercita una forza di controllo (F_I) su B, in quanto detiene la proprietà della marca, tende ad attribuirle una specifica identità, uno specifico posizionamento e determinati valori e significati. Contemporaneamente, anche il Satellite esercita una propria forza di attrazione sul Pianeta intorno cui orbita (Newton, 1833; Kembhavi e Khare, 2020).

Nell'analogia proposta, il Satellite (Sa), che esercita la forza gravitazionale e che orbita intorno al Pianeta (P), è usato come analogo familiare del Brand (B) che orbita nella zona di controllo dell'impresa e sulla quale esso esercita, contemporaneamente, la propria forza di controllo (F_B). Il brand, infatti, essendo una risorsa identitaria, esercita una serie di "pressioni strategiche" sull'impresa. Più forte e consolidata è una brand identity presso il proprio pubblico di riferimento (espressa dal brand positioning), maggiore è la forza di influenza che la marca ha sulle scelte strategiche

dell'impresa. Questa forza, costituita soprattutto dalle strategie di branding conseguite nel tempo, potrebbe condizionare e, addirittura, impedire un'eventuale scelta di riposizionamento della marca, vincolando l'impresa a perseguire una certa strategia iniziale. Soprattutto gli investimenti in sticky factors (es. gli investimenti di branding), possono portare ad un lock-in commitment (Ghemawat, 1991) e scoraggiare possibili cambiamenti strategici (Arkes e Blumer, 1985, Chavas, 1994). A causa dell'“effetto frenante” esercitato dal brand su qualsiasi tentativo di cambiamento, l'impresa tenderà a preservare il suo status quo strategico e a mantenere la situazione di equilibrio.

L'equilibrio del sistema P-Sa, nella fisica astronomica newtoniana, permane finché non intervengono fattori esterni o interni al sistema, in grado di creare uno squilibrio di forze (Fitzpatrick, 2012). Il sistema P-Sa può essere influenzato, infatti, dagli effetti gravitazionali esercitati da altri pianeti vicini o da squilibri interni al sistema. Analogamente, si può sostenere che il sistema I-B rimane nel suo stato di equilibrio, fino a quando un fattore esogeno o endogeno non interviene a creare uno sbilanciamento.

Considerando i fattori endogeni, è noto che un satellite può uscire dall'orbita di un pianeta come conseguenza dell'attrazione gravitazionale e dei moti relativi dei due corpi celesti stessi. Si faccia riferimento, ad esempio, al sistema Terra-Luna, due corpi celesti con una certa massa che esercitano una forza gravitazionale l'uno sull'altro, determinando specifici effetti sulla velocità di rotazione di entrambi intorno al proprio asse (Goldreich, 1972; Whipple, 1993). L'attrazione esercitata dalla Luna sulla Terra è responsabile delle maree. La risalita delle masse d'acqua oceaniche sulla superficie terrestre crea una protuberanza d'acqua che, a sua volta, esercita una forza attrattiva sulla Luna (attrito di marea) (MacDonald, 1964; Webb, 1982). A causa della differenza di velocità dei due pianeti (la Terra ruota intorno al suo asse in un giorno, mentre la Luna ruota intorno alla Terra in quasi 28 giorni), la protuberanza d'acqua che si è formata sulla Terra è sempre situata “più avanti” rispetto alla Luna. La forza di attrazione che la protuberanza d'acqua esercita sulla Luna (rimasta indietro a causa della sua minore velocità di rivoluzione intorno alla Terra) tende a “trascinare” il satellite, costringendolo ad aumentare la sua velocità di rivoluzione. L'aumento di velocità provoca un aumento dell'ampiezza dell'orbita della Luna, determinando un allontanamento tra i due corpi celesti di circa 3,8 cm/anno (Zaccagnino et al., 2020). Secondo studi recenti, infatti, la progressiva accelerazione della Luna intorno alla Terra potrebbe far raggiungere al satellite, in un futuro lontano, il suo punto di fuga, facendolo uscire dall'orbita terrestre (Gerstenkorn, 1967; Touma e Wisdom, 1994; Tyler, 2021).

Seguendo un'inferenza analogica, si può usare la stessa dinamica per spiegare l'allontanamento del brand dalla sfera di controllo dell'impresa attribuibile a fattori endogeni al sistema I-B. La gestione inadeguata della marca (es., mancanza di identità, mancanza di posizionamento chiaro e preciso, incoerenze, contraddizioni, ecc.), potrebbe portare l'impresa a perdere il controllo sulla marca e ad esporla maggiormente ai rischi di decadimento, diluizione e dirottamento.

Per considerare, invece, i fattori esogeni, aggiungiamo al sistema P-Sa (sistema dinamico non isolato), un terzo elemento al sistema: un Pianeta Orfano (ossia un pianeta privo di legami orbitali), con una forza gravitazionale maggiore di quella del pianeta P, e che si avvicina al sistema P-Sa. In questo nuovo sistema a tre elementi, il Satellite è soggetto a due forze: una forza originata dal Pianeta e una forza esterna esercitata dal Pianeta Orfano (PO). Data la maggiore forza gravitazionale esercitata da PO, il Satellite si sottrae al campo gravitazionale di P e comincia a muoversi nell'orbita di PO.

Ragionando ancora una volta analogicamente, si stabilisce il Pianeta Orfano (PO) come analogo familiare degli Stakeholder (St). Poiché la forza di controllo esercitata dagli Stakeholder (consumatori, hater, troll, artisti, fan ecc.) sul brand (F_S) è più forte ed incisiva rispetto a quella dell'impresa, il Brand viene strappato dalla sfera di controllo dell'impresa, entrando nella sfera di controllo degli Stakeholder. Questo allontanamento della marca dalla sfera di controllo dell'impresa, infatti, può portare la marca ad assumere significati e valori opposti a quelli originariamente stabiliti dai brand manager, e l'impresa può non essere più in grado di controllarne l'evoluzione. Ciò accade soprattutto quando l'impresa diventa vittima di brand hijacking. Le conseguenze possono essere più o meno evidenti e, come detto, più o meno positive. Il brand può subire un riposizionamento indotto dal basso, una diluizione dell'immagine, oppure danni economici e reputazionali (Langley, 2014; Fournier e Alvarez, 2013; Pullig, 2006).

Limiti della ricerca. I limiti del working paper sono principalmente collegati all'uso dell'analogia nella sua funzione di “semplificazione cognitiva”. L'analogia, infatti, compie un lavoro di riduzione e semplificazione della realtà epistemica, la cui interpretazione implica l'attivazione di processi razionali-consequenziali, ma anche irrazionali-empatici (Capozzi, 2004). L'effetto di un'analogia su coloro che l'apprendono, infatti, è imprevedibile. L'imprevedibilità è legata alla costruzione soggettiva dei processi di significato, che potrebbe portare a estensioni impreviste del significato espresso dall'analogia, ma anche a banalizzazione o nonsense (Harrison e Treagust, 2006). I suoi benefici, dunque, possano essere compromessi da usi impropri o interpretazioni errate. Inoltre, bisogna considerare che per sfruttare pienamente il potenziale dell'analogia proposta il discente deve avere una conoscenza di base dei concetti di fisica e di astronomia Newtoniana. Senza questa base minima di conoscenze, l'uso dell'analogia potrebbe avere effetti opposti, rendendo più complesso il processo di comprensione e apprendimento del fenomeno del loss of brand control. Infine, trattandosi di un lavoro concettuale, non si prevede una dimostrazione empirica dell'efficacia dell'analogia proposta sull'apprendimento dei manager.

Implicazioni manageriali. A condizione che i limiti menzionati dell'analogy-based approach possano essere controllati e contenuti, si sostiene che l'analogia proposta possa fornire ai brand manager, con determinati background culturali, uno strumento cognitivo capace di “diradare la nebbia” intorno ai rischi (destructive brand hijacking) o alle opportunità (constructive brand hijacking) del fenomeno. Con il supporto cognitivo dell'analogia, i

brand manager possono essere supportati nella costruzione di strategie di risposta alla progressiva perdita di controllo sulla marca.

I brand manager possono, ad esempio, adottare strategie volte a ripristinare il controllo sul brand e, contemporaneamente, a ridurre le conseguenze legate ad un'influenza, potenzialmente dannosa, degli stakeholder sul brand. In una situazione di elevato empowerment degli stakeholder, infatti, il brand è potenzialmente esposto a rischi legati al brand hijacking distruttivo (Kristal et al., 2018; Siano et al., 2022), in particolare al rischio reputazionale e di diluizione (o addirittura dispersione) del brand negli ambienti digitali. Un possibile danno alla brand reputation può deteriorare il capitale reputazionale e fiduciario del brand e dell'impresa (es. riducendo il valore per gli azionisti e minacciando i profitti) esponendola a cause legali, a perdite finanziarie o della clientela (Fournier e Srinivasan, 2018). La brand dilution, invece, può tradursi nella perdita dei significati e dei valori identitari di un brand (Pullig et al., 2006; Keller e Sood, 2003) e mettere in serio pericolo la sopravvivenza dello stesso.

Di conseguenza, diventano necessarie strategie e azioni di brand protection (Wilson e Grammich, 2020). A tal proposito si propongono ai brand manager, a seconda dei casi, risposte strategiche (a) preventive, (b) difensive o (c) proattive.

Le strategie preventive sono progettate per identificare e valutare i fattori di rischio che potrebbero minare la brand equity, definendo in anticipo quali forze potrebbero danneggiare il posizionamento della marca, quali azioni renderebbero il brand privo di significato e quanto è probabile che questi rischi si realizzino. I brand manager dovrebbero progettare piani di risposta ben ponderati e predittivi, stabilendo le eventuali azioni da intraprendere per gestire possibili crisi delle imprese e le figure professionali responsabili del processo. Monitorare costantemente e sistematicamente l'ambiente digitale diventa, inoltre, una priorità. Riconoscere e affrontare fin da subito i primi segnali deboli (Ansoff, 1975) di dirottamento o di diluizione è fondamentale per una risposta dei manager tempestiva (Becker et al., 2013).

Le strategie difensive mirano, invece, a minimizzare il danno causato da azioni distruttive contro il brand da parte di alcuni stakeholder (es. hacker, comunità anti-brand, haters, ecc.) (Benton e Peterka-Benton, 2020); o da azioni inadeguate e incoerenti attuate dall'impresa. In quest'ultimo caso i brand manager possono pianificare una serie di strategie compensative, partendo dal riconoscere i propri errori e risolvendo il problema pubblicamente (es., attraverso post sulle proprie pagine ufficiali, comunicati stampa, ecc.). Inoltre, a seguito di strategie o attività dell'impresa non coincidenti con le aspettative del pubblico di riferimento, i brand manager possono scegliere di negoziare i valori e i significati della marca con gli stakeholder, cercando di stabilire un certo equilibrio tra le parti e risolvere situazioni di conflitto potenzialmente deleterie (Gregory, 2007; Vollero et al., 2019). La brand negotiation, infatti, può essere una valida soluzione di difesa del brand. Al contrario, se l'impresa non crea le condizioni per il dirottamento, ma lo subisce, il brand manager può comunicare apertamente ai suoi stakeholder che il brand è vittima di dirottamento, cercando di minimizzare le attività lesive del dirottatore e contenerne gli effetti negativi (Coombs, 2007). Successivamente, sarà necessario rivitalizzare l'immagine dell'impresa e ri-focalizzare l'attenzione del pubblico sulle azioni positive attuate in passato, e nel tempo, dal brand (Wang, 2016). In caso di contraffazione e frode del brand a seguito di azioni lesive di impersonificazione per opera di terzi (Wilson, 2017; Wilson e Grammich, 2020), infine, i brand manager dovranno rispondere in modo più assertivo e attuare una serie di contromisure, soprattutto legali, per proteggere l'immagine del brand (Barnett, 2016; Wilson e Grammich, 2020).

Facendo riferimento, invece, ai processi di brand hijacking costruttivo, tra le azioni di brand protection, possiamo considerare anche strategie proattive, ossia strategie e azioni volte a integrare input positivi provenienti da fan del brand o artisti (Kristal et al., 2018; Siano et al., 2022). Tali input creativi possono essere acquisiti favorevolmente dall'organizzazione (serendipity acquisition) (Knudsen e Lemmergaard, 2014) adattandoli e incorporandoli nelle attività di branding in una prospettiva di user-generated branding (Burmam, 2010). I contenuti di marca generati dagli utenti (parodie, meme, ecc.) potrebbero spingere l'organizzazione a reinterpretare favorevolmente il brand ottenendo un vantaggio competitivo (Klostermann et al., 2018), aumentando il coinvolgimento degli stakeholder verso il brand e rafforzandone la fiducia e la fedeltà (Arnhold, 2010; Siano et al., 2022).

In conclusione, alla luce del potere acquisito dagli stakeholder nei nuovi contesti digitali, la prerogativa fondamentale dei brand manager è quella di agire con consapevolezza. Ai brand manager è richiesto di essere aperti e flessibili nella gestione della marca e di attuare strategie guidate dall'ascolto dei cambiamenti del contesto culturale e sociale. Questa apertura e flessibilità significa essere pronti a re-immaginare o addirittura a rovesciare la storia della marca per allinearla agli usi che ne fanno i propri stakeholder.

Originalità del paper. Il working paper costituisce un primo contributo interdisciplinare finalizzato a migliorare la comprensione e l'apprendimento del fenomeno del brand control e del loss of brand control da parte dei manager, da cui possono derivare, sul piano delle implicazioni manageriali, indicazioni e suggerimenti per pratiche manageriali di successo, soprattutto in ambiente digitale.

Parole chiave: analogy, brand control, brand hijacking, brand protection, Newtonian astronomy

Bibliografia

AAKER D.A. (1996), *Building Strong Brands*, The Free Press, New York.

- ALBERT S., WHETTEN D. (1985), "Organizational identity", *Research in Organizational Behavior*, vol. 7, pp. 263-295.
- ANSOFF H.I. (1975), "Managing strategic surprise by response to weak signals", *California Management Review*, vol.18, n. 2, pp. 21-33.
- ARKES H.R., BLUMER C. (1985), "The psychology of sunk cost", *Organizational Behavior and Human Decision Processes*, vol. 35, n. 1, pp. 124-140.
- ARNHOLD U. (2010), *User Generated Branding. Integrating User Generated Content into Brand Management*, Springer Science & Business Media.
- AUBUSSON P.J., HARRISON A.G., RITCHIE S.M. (2006), "Metaphor and analogy", in Aubusson P.J., Harrison A.G. and Ritchie S.M. (eds), *Metaphor and analogy in science education* (pp. 1-9), Springer, Dordrecht.
- BALMER J.M., GREYSER S.A. (2006), "Corporate marketing: Integrating corporate identity, corporate branding, corporate communications, corporate image and corporate reputation", *European Journal of Marketing*, vol. 40, n. 7-8, pp. 730-741.
- BARNETT D.N. (2016), *Brand protection in the online world: a comprehensive guide*, Kogan Page Publishers.
- BARNEY J.B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, vol.17, n. 1, pp. 99-120.
- BECKER K., NOBRE H., KANABAR V. (2013), "Monitoring and protecting company and brand reputation on social networks: when sites are not enough", *Global Business and Economics Review*, vol. 15, n. 2-3, pp. 293-308.
- BENTON B., PETERKA-BENTON D. (2020), "Hating in plain sight: The hatejacking of brands by extremist groups", *Public Relations Inquiry*, vol. 9, n. 1, pp. 7-26.
- BERNSTEIN D. (1984), *Company Image and Reality: A Critique of Corporate Communications*, Rinehart & Winston Ltd, Eastbourne.
- BOWDLE B.F., GENTNER D. (1997), "Informativity and asymmetry in comparisons", *Cognitive Psychology*, vol. 34, n. 3, pp. 244-286
- BURMANN C. (2010), "A call for 'user-generated branding'", *Journal of Brand Management*, vol. 18, n. 1, pp. 1-4.
- BURMANN C., HEGNER S., RILEY N. (2009), "Towards an identity-based branding", *Marketing Theory*, vol. 9, n. 1, pp. 113-118.
- CAPOZZI R. (2004), "La possibilità come metodo della ragione. La logica dell'analogia nelle scienze sociali", *Interconoscenza: Rivista di Psicologia, Psicoterapia e Scienze Cognitive*, vol. 2, n. 1, pp. 1-155.
- CHAVAS, J. P. (1994), "Production and investment decisions under sunk cost and temporal uncertainty", *American Journal of Agricultural Economics*, vol. 76, n. 1, pp. 114-127.
- CHRISTODOULIDES G. (2009), "Branding in the post-internet era", *Marketing Theory*, vol. 9, n. 1, pp. 141-144.
- CLEMENT C.A., GENTNER D. (1991), "Systematicity as a selection constraint in analogical mapping", *Cognitive Science*, vol. 15, n. 1, pp. 89-132.
- CLEMENT J. (1993), "Using bridging analogies and anchoring intuitions to deal with students' preconceptions in physics", *Journal of Research in Science Teaching*, vol. 30, n. 10, pp. 1241-1257.
- COLL R. K., FRANCE B., TAYLOR I. (2005), "The role of models/and analogies in science education: implications from research", *International Journal of Science Education*, vol. 27, n. 2, pp. 183-198.
- CONGER J.A., KANUNGO R.N. (1988), "The empowerment process: Integrating theory and practice", *Academy of Management Review*, vol. 13, n. 3, pp. 471-482.
- COOMBS W.T. (2007), "Protecting organization reputations during a crisis: The development and application of situational crisis communication theory", *Corporate Reputation Review*, vol. 10, n. 3, pp. 163-176.
- COVA B., PACE S. (2006), "Brand community of convenience products: new forms of customer empowerment—the case "my Nutella The Community" ", *European Journal of Marketing*, vol. 40, n. 9/10, pp. 1087-1105.
- COVA B., PARANQUE B. (2016), "Value slippage in brand transformation: a conceptualization", *Journal of Product & Brand Management*, vol. 25, n. 1, pp. 3-10.
- DE CHERNATONY L. (2001), "Succeeding with brands on the Internet", *Journal of Brand Management*, vol. 8, n. 3, pp.186-195.
- DENEGRI-KNOTT J., ZWICK D., SCHROEDER J.E. (2006), "Mapping Consumer Power: An Integrative Framework for Marketing and Consumer Research", *European Journal of Marketing*, vol. 40, n. 9/10, pp. 950-971.
- DERRIDA J. (2000), "Hospitality", *Angelaki: Journal of Theoretical Humanities*, vol. 5, n. 3, pp. 3-18.
- DUIT R. (1991), "On the role of analogies and metaphors in learning science", *Science Education*, vol. 75, n. 6, pp. 649-672.
- ECHEVERRI P., SKALÉN P. (2011), "Co-creation and co-destruction: A practice-theory based study of interactive value formation", *Marketing Theory*, vol. 11, n. 3, pp. 351-373.
- ESSAMRI A., MCKECHNIE S., WINKLHOFFER H. (2019), "Co-creating corporate brand identity with online brand communities: A managerial perspective", *Journal of Business Research*, vol. 96, pp. 366-375.
- FITZPATRICK R. (2012), *An introduction to celestial mechanics*, Cambridge University Press, Cambridge.
- FOURNIER S., AVERY J. (2011), "The uninvited brand", *Business Horizons*, vol. 54, n. 3, pp. 193-207.
- FOURNIER S., ALVAREZ C. (2013), "Relating badly to brands", *Journal of Consumer Psychology*, vol. 23, n. 2, pp. 253-264.
- FOURNIER S., SRINIVASAN S. (2018), "Branding and the risk management imperative", *NIM Marketing Intelligence Review*, vol. 10, n. 1, pp. 10-17.

- GENSLER S., VÖLCKNER F., LIU-THOMPkins Y., WIERTZ C. (2013), "Managing brands in the social media environment", *Journal of Interactive Marketing*, vol. 27, n. 4, pp. 242-256.
- GENTNER D. (1983), "Structure mapping: A theoretical framework for analogy", *Cognitive Science*, vol. 7, pp. 155-170.
- GENTNER D., MARKMAN A.B. (1997), "Structure mapping in analogy and similarity", *American Psychologist*, vol. 52, n. 1, pp. 45-56.
- GERSTENKORN H. (1967), "On the controversy over the effect of tidal friction upon the history of the Earth-Moon system", *Icarus*, vol. 7, n. 1/3, pp. 160-167.
- GHEMAWAT P. (1991), *Commitment*, Simon and Schuster.
- GOLDREICH P. (1972), "Tides and the Earth-Moon system", *Scientific American*, vol. 226, n. 4, pp. 42-53.
- GREGORY A. (2007), "Involving stakeholders in developing corporate brands: The communication dimension", *Journal of Marketing Management*, vol. 23, n. 1/2, pp. 59-73.
- HANNON B. (1997), "The use of analogy in biology and economics: From biology to economics, and back", *Structural Change and Economic Dynamics*, vol. 8, n. 4, pp. 471-488.
- HARRISON A. G., TREAGUST D. F. (2006), "Teaching and learning with analogies. Friend or foe?", in P.J. Aubusson, Harrison A.G. and Ritchie S.M. (eds), *Metaphor and analogy in science education* (pp. 11-24), Springer, Dordrecht.
- HATCH M. J., SCHULTZ M. (2010), "Toward a Theory of Brand Co-Creation with Implications for Brand Governance", *Journal of Brand Management*, vol. 17, n. 8, pp. 590-604.
- HOFMAN C., KEATES S. (2013), *Countering Brandjacking in the Digital Age...and Other Hidden Risks to Your Brand*, Springer-Verlag, London.
- HOFSTADTER D.R. (2001), "Analogy as the core of cognition", in Gentner D., Holyoak K.J. and Kokinov B.N. (eds), *The analogical mind: Perspectives from cognitive science* (pp.499-538), The MIT Press/Bradford Book, Cambridge MA.
- HOLLEBEEK L.D. CLARK M.K., HAMMEDI W., ARVOLA R. (2021), "Cocreated brand value: theoretical model and propositions", *Journal of Brand Management*, vol. 28, n. 4, pp. 413-428.
- IGLESIAS O., BONET E. (2012), "Persuasive brand management: How managers can influence brand meaning when they are losing control over it", *Journal of Organizational Change Management*, vol. 25, n. 2, pp. 251-264.
- IGLESIAS O., IND N., ALFARO M. (2013), "The organic view of the brand: A brand value co-creation model", *Journal of Brand Management*, vol. 20, n. 8, pp. 670-688.
- IGLESIAS O., IND N. (2020), "Towards a theory of conscientious corporate brand co-creation: the next key challenge in brand management", *Journal of Brand Management*, vol. 27, n. 6, pp. 710-720.
- JONES R. (2012), "Five ways branding is changing", *Journal of Brand Management*, vol. 20, n. 2, pp. 77-79.
- KELLER K. L. (1993), "Conceptualizing, measuring, and managing customer-based brand equity", *Journal of Marketing*, vol. 57, n. 1, pp. 1-22.
- KELLER K.L., LEHMANN D.R. (2003), "How do brands create value?", *Marketing Management*, vol. 12, n. 3, pp. 26-31.
- KELLER K. L., SOOD S. (2003), "Brand equity dilution", *MIT Sloan Management Review*, vol. 45, n. 1, pp. 12-15.
- KEMBHAVI A., KHARE P. (2020), "Gravity: The Force that Governs the Universe", in Kembhavi A. and Khare P. (eds), *Gravitational Waves* (pp. 33-54), Springer, Singapore.
- KLOSTERMANN J., PLUMEYER A., BÖGER D., DECKER R. (2018), "Extracting brand information from social networks: Integrating image, text, and social tagging data", *International Journal of Research in Marketing*, vol. 35, n. 4, pp. 538-556.
- KNUDSEN G.H., LEMMERGAARD J. (2014), "Strategic serendipity: How one organization planned for and took advantage of unexpected communicative opportunities", *Culture and Organization*, vol. 20, n. 5, pp. 392-409.
- KRISTAL S., BAUMGARTH C., HENSELER J. (2018), "Brand play" versus "Brand attack": the subversion of brand meaning in non-collaborative co-creation by professional artists and consumer activists", *Journal of Product & Brand Management*, vol. 27, n. 3, pp. 334-347.
- LANGLEY Q. (2014), *Brandjack: How your reputation is at risk from brand pirates and what to do about it*, Palgrave Macmillan, London.
- MACDONALD G.J. (1964), "Tidal friction", *Reviews of Geophysics*, vol. 2, n. 3, pp. 467-541.
- MAIRINGER M. (2008), "Branding 2.0 - Using Web 2.0. Principles to build an open source brand", *Electronic Markets*, vol. 18, n. 2, pp. 117-119.
- MCAFEE A. (2009), "The illusion of brand control", *Harvard Business Review*, <https://hbr.org/2009/11/the-illusion-of-brand-control.html> (accessed December 20, 2017).
- MERZ M.A., HE Y., VARGO S.L. (2009), "The evolving brand logic: A service- dominant logic perspective", *Journal of the Academy of Marketing Science*, vol. 37, n. 3, pp. 328-344.
- NEWTON I. (1833), *Philosophiae naturalis principia mathematica* (Vol. 2), typis A. et JM Duncan.
- NONAKA I., TAKEUCHI H. (1995), *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*, Oxford University Press, Oxford.
- PIRES G.D., STANTON J., RITA P. (2006), "The internet consumer empowerment and marketing strategies", *European Journal of Marketing*, vol. 40, n. 9/10, pp. 936-949.

- PITT L. F., WATSON R. T., BERTHON P., WYNN D., ZINKHAN G. (2006), "The penguin's window: Corporate brands from an open-source perspective", *Journal of the Academy of Marketing Science*, vol. 34, n. 2, pp. 115-127.
- PRAHALAD C. K., RAMASWAMY V. (2000), "Co-Opting Customer Competence", *Harvard Business Review*, vol. 78, n. 1, pp. 79-90.
- PULLIG C., SIMMONS C.J., NETEMEYER R.G. (2006), "Brand dilution: when do new brands hurt existing brands?", *Journal of Marketing*, vol. 70, n. 2, pp. 52-66.
- REZABAKHSH B., BORNEMANN D., HANSEN U., SCHRADER U. (2006), "Consumer power: A comparison of the old economy and the internet economy", *Journal of Consumer Policy*, vol. 29, pp. 3-36.
- RICHLAND L. E., SIMMS N. (2015), "Analogy, higher order thinking, and education", *Wiley Interdisciplinary Reviews: Cognitive Science*, vol. 6, n. 2, pp. 177-192.
- ROBSON K., DE BEER J., MCCARTHY I.P. (2020), "Open branding: Managing the unauthorized use of brand-related intellectual property", *Business Horizons*, vol. 63, n. 6, pp. 773-785.
- SARASVUO S., RINDELL A., KOVALCHUK M. (2022), "Toward a conceptual understanding of co-creation in branding", *Journal of Business Research*, vol.139, pp. 543-563.
- SHEE P.S.B., ABRATT R. (1989), "A new approach to the corporate image management process", *Journal of Marketing Management*, vol. 5, n. 1, pp. 63-76.
- SIANO A., CONFETTO M., VOLLERO A., COVUCCI C. (2022), "Redefining Brand Hijacking from a Non-Collaborative Brand Co-Creation Perspective", *Journal of Product & Brand Management*, vol. 31, n. 1, pp.110-126.
- SWAMINATHAN V., SORESCU A., STEENKAMP J.B.E., O'GUINN T.C.G., SCHMITT B. (2020), "Branding in a hyperconnected world: Refocusing theories and rethinking boundaries", *Journal of Marketing*, vol. 84, n. 2, pp. 24-46.
- TOUMA J., WISDOM J. (1994), "Evolution of the Earth-Moon system", *The Astronomical Journal*, vol. 108, pp.1943-1961.
- TYLER R.H. (2021), "On the Tidal History and Future of the Earth-Moon Orbital System", *The Planetary Science Journal*, vol. 2, n. 2, pp. 1-14.
- URDE M., KOCH C. (2014), "Market and brand-oriented schools of positioning", *Journal of Product & Brand Management*, vol. 23, n. 7, pp. 478- 490.
- VALLASTER C., VON WALLPACH S. (2013), "An online discursive inquiry into the social dynamics of multi-stakeholder brand meaning co-creation", *Journal of Business Research*, vol. 66, n. 9, pp. 1505-1515.
- VERNUCCIO M. (2018), "What is happening to the brand?", *Mercati & Competitività*, vol. 4, pp. 7-13.
- VOLLERO A., SCHULTZ D., SIANO A. (2019), "IMC in digitally- empowering contexts: the emerging role of negotiated brands", *International Journal of Advertising*, vol. 38, n. 3, pp. 428-449.
- WANG Y. (2016), "Brand crisis communication through social media", *Corporate Communications: an International Journal*, vol. 21, n. 1, pp. 56-72.
- WEBB D.J. (1982), "Tides and the evolution of the Earth-Moon system", *Geophysical Journal International*, vol. 70, n. 1, pp. 261-271.
- WHIPPLE A. L. (1993), "Dynamics of the Earth-Moon system", *Advances in Space Research*, vol. 13, n. 11, pp. 213-219.
- WIDER S., VON WALLPACH S., MÜHLBACHER H. (2018), "Brand management: Unveiling the delusion of control", *European Management Journal*, vol. 36, n. 3, pp. 301-305.
- WILSON J. M. (2017), "The future of brand protection: Responding to the global risk", *Journal of Brand Management*, vol. 24, n. 3, pp. 271-283.
- WILSON J. M., GRAMMICH C. A. (2020), "Brand protection across the enterprise: Toward a total-business solution", *Business Horizons*, vol. 63, n. 3, pp. 363-376.
- WIPPERFÜRTH A. (2005), *Brand Hijack: Marketing without Marketing*, Portfolio, New York.
- ZACCAGNINO D., VESPE F., DOGLIONI C. (2020), "Tidal modulation of plate motions", *Earth-Science Reviews*, vol. 205, pp. 103-179.

Second-level educational offers to face disruptive technological changes in the motor vehicle industry: the case of MUNER

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Framing of the research. *The motor vehicle industry is actually facing some of the most challenging technological changes since the settling of the dominant design for vehicles in the 1920s with the Ford T model (Perkins and Murmann, 2018). These changes are usually identified by the acronym ACES, which stands for Automation, Connectivity, Electrification, Sharing. The big players of the motor vehicle industry, up to date mainly western Original Equipment Manufacturers (OEMs) with their first- and second-tier suppliers (Jacobides et al., 2016), must therefore face challenging tasks to maintain their competitive position. The new technologies are indeed requiring high investments, and it seems to be no immediate payoff and returns due to the unpredictable diffusion and adoption of such new technologies (Mahdavian et al., 2021). These technological changes have the potential to both bring opportunities and pose challenges to the firms operating into the motor vehicle industry, especially in terms of competencies shortcomings (Perkins and Murmann, 2018). Indeed, each technological change requires specific resources and competences to be scouted, adopted and integrated into the value proposition of the firms. 'Automation' is related to the introduction of technologies enabling self-driving vehicles, and it is related to the 'Connectivity' issue, that comprises all technologies allowing connectivity service within the vehicle, amongst vehicles, and with the surrounding environment, thanks to the implementation of advanced communication protocols. Autonomous vehicles are based on the detection of real-time data on road conditions and traffic - including vehicles, motorbikes, bikes, and pedestrians - through enabling connectivity technologies (cameras, sensors, radars and lidars, etc.) that calculate the best possible route for the vehicle, and on the possibility to control acceleration and braking of the vehicle (Bagloee et al., 2016). Even if sophisticated manufacturing capabilities and supply chain management capabilities are still important, other technological competences, traditionally proper of firms operating in IT industry, such as software development and machine learning, are becoming increasingly important to compete (MacDuffie, 2018) and to face technological changes along the automation and connectivity issues. 'Electrification' stands for the replacement of petroleum-based propulsion systems with electrical systems, aiming at reducing the ecological footprint of the movement of goods and people. More specifically, three low-emission technologies are considered as alternatives: hybrid vehicles (HVs), electric vehicles (EVs) and fuel-cell vehicles (FCVs) (Bohnsack et al., 2015). From a technological point of view, each of them requires specific investments and competencies aimed at improving the efficiency and performance of the powertrain (Mahdavian et al., 2021), and hence to enter and compete into the EVs' related segment of the motor vehicle industry. Following Tesla's entry, which strongly influenced the competitive logic (Perkins and Murmann, 2018), traditional OEMs started to invest heavily in developing electric and hybrid models by leveraging mainly on own capabilities and partnerships (Hoeft, 2021). Finally, 'Sharing' includes all services that have contributed to change the way people move: passengers' vehicles are increasingly offered with per-use opportunities and transactions, opposed to the permanent ownership of a vehicle. From a technological point of view, these alternative models of mobility are based on apps and IT technologies, which connect those who offer the car-sharing or ride-hailing service to the user (Machado et al., 2018).*

In this context, companies must equip themselves with the necessary competencies (Teece, 2018) to maintain their position and competitive advantage (Barney, 1991). As a consequence, the knowledge context in which the firm operates does matter (Skute et al., 2017), so as the ability to collaborate with universities or research centres to the education of high-talented graduate students (Wright et al., 2008) that could convey the missing competencies and knowledge. In addition, degree programmes created or adapted to meet the needs of the local firms (Caniëls and van den Bosch, 2011) facilitate the transfer of knowledge and competencies through students who move to firms (Bramwell and Wolfe, 2008). More specifically, it has been observed that the highest-level skills are those more impacting at the local level in OECD countries (Arbo and Benneworth, 2007), such as then graduates, post-graduates and doctoral graduates. Greater emphasis is therefore placed on the education and training of the individuals (Nafukho et al., 2007) by the main knowledge-producer that is the local university (Bramwell and Wolfe, 2008; Wright et al., 2008). Indeed, universities nowadays are called to operate "for the sake of solving specific and compelling problems and challenges confronting society" (Audretsch, 2014, p 317), implying for local universities to take on different roles and to

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collaborate at local and national levels with firms and policy makers (Tagliazucchi et al., 2021). Universities are then called “to produce new knowledge but also to alter its activities and values in such a way as to facilitate the transfer of technology and knowledge spillovers” (Audretsch, 2014, p. 314), addressing the needs of the local firms in terms of human capital by aligning their educational offer to them. As such, the universities could play an important role in helping local firms in targeting and managing the technologically innovative processes occurring in a specific industry. In doing it, universities actions could include both the transfer of newly invented technologies or the creation of research-intensive programs, but also innovations in educational programs (Etzkowitz et al., 2000) in collaboration with non-academic organizations (Culkin and Mallick, 2011) to meet the evolving needs of local firms. “In addition to translating research into economic development through various forms of technology transfer, the traditional teaching role is [then] reinterpreted as the university assists the modernization of low- and mid-tech firms” (Etzkowitz et al., 2000, p. 314) and aligns its teaching and education activities with industry technological changes. Thus, through new educational offers students and interns may actively play a new role in knowledge and technology competencies transfer to local firms. Therefore, the possibility of converting the newly graduates’ educational background, rethought by universities in collaboration with local firm to target the technological changes in place, into firms’ resources and competencies becomes ultimately an element of competitiveness for the local industry. We believe that the integration of the RBV perspective with HCT could help to understand how educated students acquire the embodied productivity within an organizational domain, thus overcoming some limitations and criticisms traditionally associated to HCT (Marginson, 2019).

Purpose of the paper. The present contribution, still in a preliminary phase, aims at investigating how the offer of master-level secondary education meets the needs in terms of technological competence shortcomings of the firms in the motor vehicle industry, that is currently experiencing significant and impacting technological changes. We then try to answer the following research questions: do graduate students’ competencies and knowledge that arise from new master degree courses matter in helping firms to face important technological changes? How does unfold the collaboration between local firms and higher education institutions to face technological changes?

Among the possible investigation perspectives with which to address this issue, for example Open Innovation initiatives (Chesbrough, 2003), or approaches based on leveraging existing technological competencies (Danneels, 2007), we opt for a theoretical framework able to offer a deeper analysis of how competencies to face technological changes could be integrated with the entry of new figures in training. We then adopt the perspective of the Resource-Based View (RBV) of the firm (Barney, 1991; Penrose, 1959) and of the Human Capital Theory (HCT) (Becker, 1993, Schultz, 1961) to assess if and how the competencies, and more specifically the technological competencies, of young graduates do matter in supporting motor vehicle firms in facing technological transition. The foundation of HCT lies in the assumption that individual learning capacity, mainly based on his/her previous education, is one of the company’s most valuable resources, as well as its ability to exploit the competencies acquired over time by the individual (Becker, 1993, Schultz, 1961). The main theoretical contribution we expected is to shed light on forms of collaboration between local firms and higher education institutions in supporting the local innovative system of a sector, such as the automotive one which is subjected to major technological changes, through the co-creation of educational courses.

Methodology. A single-case study approach is adopted (Eisenhardt, 1989), and information are collected from both primary and secondary sources (Yin, 1994).

The context of the study is geographically limited to the Motor Valley of Emilia Romagna, which stands worldwide as a leading area for the motor vehicle industry thanks to the presence of important brands known worldwide. The vast majority of manufacturing companies at the regional level are indeed concentrated on some clusters, mainly related to mechanical engineering and automotive, in particular sportscars, motorcycles, and agricultural machines. The case study of MUNER, Motorvehicle University of Emilia Romagna, is then selected. MUNER is configured as an association of the four regional universities, namely University of Modena and Reggio Emilia (Unimore), University of Bologna (Unibo), University of Ferrara (Unife), and University of Parma (Unipr), with the most important firms of the Emilian Motor Valley, namely Automobili Lamborghini, Dallara, Ducati, Ferrari, Haas F1 Team, HPE Coxa, Marelli, Maserati, Pagani, Scuderia Alpha Tauri. The peculiarity of MUNER lies in the co-design of the educational offer, aligning it with the needs expressed at the local level in terms of competencies and new profiles of graduates, within a framework of close collaboration between local universities and the firms operating in the industry (Tagliazucchi et al., 2021). MUNER educational offer is also characterized by a strong learning-by-doing approach, with lessons held by university professors and professionals of the partner companies, and internships aimed at implementing the knowledge acquired within the partner companies. Within MUNER there are 6 curricula - Electric Vehicle Engineering, Advanced Automotive Electronic Engineering, Electronic and Communication System, Autonomous Driving Engineering, Advanced Motorcycle Engineering, Advanced Powertrain, Advanced Sportscar Manufacturing, High Performance Car Design, Racing Car Design - which aim to train professionals of the future based on the changes taking place in the sector. The curricula are managed administratively on the campus of Unibo and Unimore, although the activities involve students on all the campuses of the four partner universities depending on the specialization. The educational offer is also complemented with summer and winter schools, dedicated to high school students willing to approach training courses in the motor vehicle industry, bachelor students and PhD candidates willing to deepen specific compelling issues for the motor vehicle industry and to develop specific technological competencies.

Data collection is developed in two steps. First, data on graduates and employment are collected through Almalaurea - the Italian interuniversity consortium to which 75 universities and the Ministry of Education, University and Research adhere - that annually carries out a survey on the employment of graduates. Due to data constraints, the

analysis is limited to the first cohort of MUNER graduates (a.y. 2017-2018) and focus on employment status one year after graduation, as data extracted from Almalaurea are updated to the 2020 survey at the time of writing. The collection of data from secondary sources is complemented by press reviews, and archive data from universities internal sources. Secondly, we will proceed with the collection of data from primary sources, through interviews to key informants from the local universities and the partners companies, preparatory to the construction of a semi-structured questionnaires to be administered to MUNER students and companies. The purpose is to collect the point of views of both students newly graduates and the firms in which they work about the alignment between individual competencies and firm's needs, and the role such of individual competencies - resulting from an innovative educational offer - in helping to target the technological changes in the industry. Multiple sources and two-steps collection strategies would allow for triangulation of data, assuring validity and reliability (Yin, 1994).

Results. The preliminary results are limited to the first phase of data collection, and present the employment status of the first cohort of MUNER graduates. The following tables present data from Almalaurea 2020 survey, relating to the students graduated in 2019. The survey then comprises only the first cohort of MUNER graduates (as the first academic year is 2017-2018) and their employment status one year after graduation.

Tab. 1: Employment features of graduates of the second-level degree programmes of MUNER

	Unimore	Unibo
Number of Graduates	25	11
EMPLOYMENT STATUS		
Working	72%	100%
Not working but looking for a job	8%	-
Involved in educational activities	20%	-
EMPLOYED GRADUATES		
Continuing the job prior to graduation	30%	-
Not continuing the job prior to graduation	-	16.7%
Started working after graduation	70%	83.3%
Time from graduation to the first job (average in months)	1,1	1,7
EMPLOYMENT CHARACTERISTICS		
Sector: engineering and precision mechanics	70%	50%
Sector: other industries	10%	16.7%
Service: consultancy and research services	20%	16.7%
Service: other	-	16.7%
EMPLOYMENT: GEOGRAPHIC AREA		
North-West	10%	16.7%
North-East	80%	66.7%
Centre and South	10%	-
Abroad	-	16.7%
SATISFACTION		
Satisfaction with the current job (on average in a range 1=low to 10=high)	8.2	8.0

Source: Almalaurea, 2021 integrated with Unimore Archival data, and Authors' elaboration

Table 1 presents the employment status one year after graduation of the first 25 MUNER graduates under Modena and of the 11 MUNER graduates under Bologna, who together manage all six curricula of the MUNER educational offer. What emerges, firstly, is the high employment rate for MUNER students, almost all of whom work or are continuing with further educational activities courses following graduation - mainly Ph.D. course in collaboration with the local automotive companies. Secondly, it should be noted the reduced time - less than two months on average - from the moment of graduation to the first job offer. Most of MUNER graduates starts a new job after graduation, and only 30% of the graduates at the Modena campus continue with their pre-graduation job, presumably the internship carried out in partner companies. MUNER graduates are mainly employed in the engineering and precision mechanics industries, in line with the course of study followed, and to a lesser extent in consulting services. It should also be noted that almost all of them are employed in the north-east regions of Italy, where the Emilia Romagna region is located according to the ISTAT classification. These data allow us to infer how MUNER's educational offer benefits the territory and local motor vehicle industry, by strengthening the technological competencies of the Italian Motor Valley, which welcomes almost all MUNER graduates. Indeed, only 15% of graduates from Bologna declares to work abroad one year after graduation. The satisfaction rate of interviewed students with regard to their employment status job is also high.

Tab. 2: Perceptions on the educational offer compared to the current job

	Unimore	Unibo
Number of Graduates	25	11
EFFECTIVENESS OF THE EDUCATIONAL OFFER		
Very effective / Effective	77.8%	83.3%
Moderately Effective	11.1%	16.7%
Not Effective	11.1%	-
USEFULNESS OF COMPETENCIES		
Use of the competences acquired: high	70%	66.7%
Use of the competences acquired: moderate	20%	33.3%
Use of the competences acquired: low	10%	-
ADEQUACY OF THE EDUCATIONAL OFFER FOR THE JOB		
Adequacy of the educational offer: high	90%	100%
Adequacy of the educational offer: moderate	10%	-
Adequacy of the educational offer: low	-	-

Source: Almalaurea, 2021 integrated with Unimore Archival data, and Authors' elaboration

Table 2 presents a first outlook on students' perception of the impact of their master-level courses in MUNER in terms of effectiveness, usefulness and adequacy in carrying out their first job one year after graduation. These data, partial and indicative only of the student's perception, will be integrated with a specific semi-structured questionnaire administered to both students and firms that employ them. However, the data turns out to be interesting, indicating high scores for all dimensions. The effectiveness and adequacy of the educational path co-designed in MUNER settles on very high scores values by almost all of the interviewees, just as the adequacy of competencies acquired are considered useful or very useful by the majority of MUNER graduates. As previously specified, albeit positive, these data require further integration of information, related, for example, to the evaluation of the type of activities and tasks performed by MUNER graduates who have just entered the firms, the technological and innovative content of the tasks, the role of supplementary activities and of the learning-by-doing approach in facilitating the execution of the tasks. Furthermore, there is currently no in-depth study of competencies shortcoming from the point of view of the firms, and their needs in terms of further training of newly-graded students.

As a first approximation, from the partial data now available, we find that the highly specific technological competencies conveyed within the six curricula of the second-level courses (master degrees) of MUNER seem to have the potential to meet the specific needs of the local firms of the Motor Valley to face the changes taking place in the motor vehicle industry. Future results are expected to offer new insights on the role the University - Industry collaboration in designing and performing teaching activities could have in improving the firms' capability to face successfully the ACES technological challenges. In particular, we aim to offer some contributions to integrate the traditional HCT explanation of how new highly-educated workers increase the recruiting firms' effectiveness in facing technological challenges with complementary explanations based on resources and competencies-related theories.

Research limitations. This contribution has some limitations, mainly related to its early development. The data collection in progress currently offers only a partial perspective on the issue under investigation, that is also characterized by a great complexity, dealing with technological changes currently occurring in the industry. At present, it does not allow assumptions to be drawn. Secondly, the study requires the setting up of a longitudinal survey. Longer-term aim of the research project is twofold. On the one hand, monitoring the consolidation of technologies at the industry level, and the responses of local firms in term of the adoption of new technologies, that will determine the needs for technological competencies in support their competitive position. On the other hand, in addition, the MUNER program is recently established, while it is necessary to have several cohorts of graduates to evaluate the effectiveness, adequacy and usefulness of the training offer. Then, the ability of the MUNER offer to enter this landscape of change and to adapt quickly to the demands of local businesses will be also investigated. Thirdly, as for any case study, the generalizability of results is low.

Managerial implications. The managerial implications that we expect to be able to convey concern the construction of educational offers in collaboration between firms and universities, aiming at targeting the local challenges in terms of adoption of technological innovations. In particular, by assessing how the individual education background of newly-graduates can be transformed into competencies in support of innovative processes in firms, specific actions can be designed to rethink the second-level educational offer by universities in collaboration and in favor of the local industry. Ultimately, these actions in support of second-level educational offer will have a positive effect on the local industry in addressing technologically innovative challenges.

Originality of the paper. The present contribution is intended to add a brick to the debate initiated by some scholars (Jacobides et al., 2016; Perkins and Murmann, 2018; MacDuffie, 2018) about the future of the automotive and motor vehicle industry, whose initial point was the entry of Tesla as new player. In line with Teece (2018), the focus is on the competences that current players must activate to maintain their competitive position, but looking specifically at the technological competences necessary for the adoption of technological innovations that are currently impacting the dynamics of the industry. Among the ways of integrating technological competencies within the firms, we analyse the

role of human capital, and in particular the education background of newly-graduates employed into the firms as proxy for new competencies at disposal of the firms themselves. It also analyses how specific educational background, co-designed by universities and firms together, can effectively configure as resources and competencies in support of innovative processes. In addition, the role of the university is explored in being able of targeting the local industry changes and the needs of the local firms, within an entrepreneurial university paradigm. The contribution also stands at the intersection of important perspectives for the discipline of strategic management: the RBV and the HRT complement each other in evaluating the role of the technological competencies of newly-graduates in maintaining the competitive position of the firms facing challenging and disruptive technological changes.

Keywords: education; automotive industry; technological competence, case study.

References

- ARBO P., BENNEWORTH P. (2007), "Understanding the regional contribution of higher education institutions: A literature review", *OECD Education Working Papers*, vol. 9, pp. 1-78.
- AUDRETSCH D.B. (2014), "From the entrepreneurial university to the university for the entrepreneurial society", *The Journal of Technology Transfer*, vol. 39, n. 3, pp. 313-321.
- BAGLOEE S.A., TAVANA M., ASADI M., OLIVER T. (2016), "Autonomous vehicles: challenges, opportunities, and future implications for transportation policies", *Journal of Modern Transportation*, vol. 24, n. 4, pp. 284-303.
- BARNEY J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, vol. 17, n. 1, pp. 99-120.
- BECKER G.S. (1964), *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, Columbia University Press, New York.
- BOHNSACK R., KOLK A., PINKSE J. (2015), "Catching recurring waves: low-emission vehicles, international policy developments and firm innovation strategies", *Technological Forecasting and Social Change*, vol. 98, pp. 71-87.
- BRAMWELL A., WOLFE D.A. (2008). "Universities and regional economic development: The entrepreneurial University of Waterloo", *Research Policy*, vol. 37, pp. 1175-1187.
- CANIELS M.C.J., VAN DEN BOSCH H. (2011), "The role of Higher Education Institutions in building regional innovation systems", *Papers in Regional Science*, vol. 90, n. 2, pp. 271-286.
- CHESBROUGH H.W. (2003), *Open Innovation: The new imperative for creating and profiting from technology*, Harvard Business Press.
- CULKIN N., MALLICK S. (2011), "Producing work-ready graduates: The role of the entrepreneurial university", *International Journal of Market Research*, vol. 53, n.3, pp. 347-368.
- DANNEELS E. (2007), "The process of technological competence leveraging", *Strategic Management Journal*, vol. 28, pp. 511-533.
- EISENHARDT K. (1989), "Building theories from case study research", *The Academy of Management Review*, vol. 14, n. 4, pp. 532-550.
- ETZKOWITZ H., WEBSTER A., GEBHARDT C., TERRA B.R.C. (2000), "The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm", *Research policy*, vol. 29, n. 2, pp. 313-330.
- HOEFT F., (2021), "Internal combustion engine to electric vehicle retrofitting: potential customer's needs, public perception and business model implications", *Transportation Research Interdisciplinary Perspectives*, vol. 9, 100330.
- JACOBIDES M.G., MACDUFFIES J.P., TAE C.J., (2016), "Agency, structure and the dominance of OEMs: change and stability in the automotive sector", *Strategic Management Journal*, vol. 37, n. 9, pp. 1942-1967.
- MACDUFFIE J.P. (2018), "Response to Perkins and Murmann: pay attention to what is and isn't unique about Tesla", *Management and Operation Review*, vol. 14, n. 3, pp. 481-489.
- MACHADO C.A.S., DE SALLES HUE N.P.M., BERSANETI F.T., QUINTANILHA J.A. (2018), "An overview of shared mobility", *Sustainability*, vol. 10, n. 12, pp. 1-21-
- MAHDAVIAN A., SHOJAEI A., MCCORMICK S., PAPANDREOU T., ELURU N., OLOUFA A. (2021), "Drivers and Barriers to implementation of connected, automated, shared, and electric vehicles: an agenda for future research", *IEEE Access*, vol. 9, pp. 22195-22213.
- MARGINSON S., (2019), "Limitations of human capital theory", *Studies in Higher Education*, vol. 44, n. 2, pp. 287-301.
- NAFUKHO F.M., HAIRSTON N., BROOKS K. (2004), "Human capital theory: Implications for human resource development", *Human Resource Development International*, vol. 7, n. 4, pp. 545-551.
- PENROSE E.T. (1959), *The theory of the Growth of the Firm*. Wiley, New York.
- PERKINS G., MURMANN J.P. (2018), "What does the success of Tesla mean for the future dynamics in the global automobile sector?", *Management and Organization Review*, vol. 14, n. 3, pp. 471-480.
- SCHULTZ T.W. (1961), "Education and economic growth", in Henry N.B. (ed.) *Social Forces Influencing American Education*, University of Chicago Press, Chicago.

- SKUTE I., ZALEWSKA-KUREK K., HATAK I., DE WEERD-NEDERHO P. (2017), "Mapping the field: a bibliometric analysis of the literature on university-industry collaborations", *Journal of Technology Transfer*, vol. 44, n. 3, pp. 916-947.
- TEECE D.J. (2018), "Tesla and the reshaping of the auto industry", *Management and Organization Review*, vol. 14, n. 3, pp. 501-512.
- TAGLIAZUCCHI G., MARCHI G., GHERARDINI F., LEALI F. (2021), "The multiple roles of universities in U-I collaborations: The case of Emilia-Romagna motor vehicle industry", *Journal of Engineering and Technology Management*, vol. 62, pp. 1-16.
- WRIGHT M., CLARYSSE B., LOCKETT A., KNOCKAERT M. (2008), "Mid-range universities' linkages with industry: knowledge types and the role of intermediaries", *Research Policy*, vol. 37, n. 8, pp. 1205-1223.
- YIN R.K. (1994), Discovering the future of the case study. Method in evaluation research", *Evaluation Practice*, vol. 15, n. 3, pp. 283-290.

Websites

<https://www.almaurea.it/>

<https://motorvehicleuniversity.com/>

ICTs as tools for companies to overcome the pandemic

SOFIA MAURO * ANNA D'AURIA • ALESSANDRA DE CHIARA ^

Framing of the research. *Starting from 2020, all aspects of social, economic and working life have been and continue to be, still today, lived in an emergency, in a completely unexpected way never experienced before by previous generations, due to the onset of the global threat represented by the Covid-19 pandemic and the emergence of its continuous variants. This health crisis has strongly shaken the whole world, arousing feelings of fear and uncertainty on the part of individuals, especially due to various updates in the newspapers, from which gruesome news on the toll of hospitalizations and victims emerges, harrowing data on the collapse of the health and economic system, on the increase in inequalities and poverty (World Economic Forum, 2020) and then, on the high level of stress of individuals dictated by the deprivation of social freedoms (Di Minin et al., 2021).*

The pandemic crisis, and above all the need to maintain social distance to protect workers and customers from the virus, led many firms to start or accelerate the digitization of work processes. This was particularly evident in small and medium-sized firms (Bai et al., 2021), since large firms, and especially those already engaged at an international level, had in most cases already started digitization processes, and therefore shown to be more able to deal with the crisis. Therefore, the pandemic led small and medium-sized firms in many countries to invest in digital, highlighting the importance of making work processes more flexible, especially with reference to communication and distribution processes.

The latest data from the Bank of Italy in 2019, regarding the digitalization of firms, reveal a level of digitization lower than the national average for the Southern regions. The gap is mainly attributable to the scarcer digital skills, to a lower level of digital services provided by local authorities, as well as to a lower rate of adoption of digital technologies by firms, only partly attributable to the production structure of these regions.

Since the World Health Organization (WHO) on 11 March 2020 declared the pandemic, individuals, families, organizations and firms had to face changes in any part of their lives and firms had to adapt the work processed, testing new ways to work. Therefore, this crisis has generated a complex environment also for managers and HR professionals, who for the first time found themselves having to think of ingenious solutions to support the economic activity of their firm and mostly to help their employees to face the challenges related to the health crisis and the emergence of new restrictions and limitations (Hamouche, 2021). Human Resource (HR) practices are constantly related to the productivity of the organization and the financial performance of the firm (Rynes et al., 2002) and to ensure that they can continue to ensure smooth operations and high-quality services, one of the new methods tried from the beginning, is the introduction of a form of distance work. Baldwin and Weder (2020) announce that, in this new and unexpected circumstance, managers have worked hard to support their workforce to adapt to the changes adopted in the workplace but also in the social environment (Kalogiannidis, 2021). In fact, as Atkeson (2020) also argues, one of the main HRM challenges in this difficult moment is precisely that of being able to adapt the new and current employees of a firm to a completely new mode and working condition, effectively addressing the implementation of undesirable policies and procedures (Kalogiannidis, 2021).

According to ISTAT (2021), the evolution of the crisis led to an acceleration in the digital transformation, favoring the spread of investments in this sector especially for the implementation of virtual workstations (more than doubled in Italian firms between March and November 2020) and for the configuration of digital services complementary to the activity, such as e-commerce (17.4 percent of the total), to avoid an abrupt interruption in interaction and communication with customers. In this scenario, firms already characterized by employees with above-average skills, greater economic and financial resources, a frequent use of digital technologies appeared to be most resistant and able to resist the crisis. However, most firms were unable to provide their employees with sufficient management plan information or useful information on pandemic trends (Elsafy and Ragheb, 2020) in a timely manner. Therefore, it is essential, in difficult and crisis contexts such as this current one, where the resources to support the initiatives are

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limited, to try to introduce precise guidelines in the workplace, to reduce the stress of employees, in order to be able to increase their motivation and confidence, ensuring a better business climate (Lauer et al., 2020; Wong et al., 2020).

Purpose and methodology. *The fear of contracting Covid-19 within workspaces made, at the beginning of the pandemic, economic agents a little reluctant to engage seriously in strategic economic activities. For this reason, the pandemic has led HRM to face new environmental challenges and radical changes. Among the most immediate solutions to alleviate the burden of the interruptions and slowdowns caused by the pandemic was the introduction of remote work, the subject of study by many scholars, especially in this very difficult period (Barrero et al., 2021). Therefore, the current situation requires that the role of HRM becomes of high importance, so that it becomes a guide to effectively help firms to be successful and to deal with the uncertainties generated by dark times (Gigauri, 2020). Another important factor to always keep in mind are the needs of developing and maintaining the skills and mental well-being of employees, especially when drastic changes are adopted in work procedures and business models (Inuaesiet et al., 2021), which may include increased use of technological and digital platforms. Indeed, human resources policies or guidelines must already normally guarantee a climate of serenity, based on clear, timely, assertive and consistent communication throughout the firm, all practices that are even more in demand today.*

However, it is well known that firms have often failed to successfully adopt the practices that research over time has proven to be effective against HR professionals (Rynes et al., 2002) but it is in more complicated periods like this one that it expressly requires a change of course. Therefore, the aim of this work is to lay the foundations for an empirical survey to observe whether firms actually change the way they manage human resources during the pandemic crisis and how they are willing to change it.

To accomplish this aim (Bartunek et al., 2006), this paper is structured as follows: first, a theoretical overview on the new technologies in human resource management was performed, then, a brief analysis on how Italian firms are facing the pandemic and the changes they are planning or implementing to be more flexible has been realized. Finally, the future steps of the analysis have been described (Pollock and Bono, 2013). In particular, the present work can be considered as a preliminary study on the employees' perspective - using as a representative example the workers of the south of Italy - to complete the investigation providing insights on how both managers and employees are managing and facing organizational changes due to the crisis.

To perform the analysis, we used secondary data from a valid source to provide information about the challenges firms are facing due to the pandemic. The main contribution of our paper is the focus on the SMEs operating in Southern Italy, notoriously characterized by the presence of small and micro firms.

Results.

Theoretical evidence. *The socio-economic landscape has undergone significant changes in recent years, following significant global growth and the advent of numerous technological innovations. All this has made it possible to rapidly spread the need to shift attention from that form of human resource management based exclusively on simple administrative practices to a form of management characterized by a greater involvement of the employees also in the development of practices (Alam and Mulkerjee, 2014).*

In more recent literature, there are many, albeit in some cases contrasting, definitions of the concept of human resource management. For example, Daud (2006) defined human resource management as a set of policies capable of influencing the people who work within a firm (Akour et al., 2019). On the contrary, Hussain and Ahmad (2012) see it as a system that seeks to strike a balance between the personal interests of workers and their economic added value.

However, most of definition, or at least the most relevant, considers human resource management as a set of practices oriented towards attracting, retaining, and involving talents, because, unlike other resources, it is the intellectual capital that has the real potential to create opportunity for growth for the firm, characteristics that are very difficult to imitate by competitors (Becker and Gerhart, 1996; Lopez-Cabrales and Valle Cabrera, 2019). Although there are numerous and varied definitions, it is possible to highlight that the common factor is: considering people as precious resources, rather than considering them as costs or machines to be exploited, whose goal becomes to create and maintain a competent and well-developed workforce over time (Ehnert and Harry, 2014).

For this reason, a firm needs to invest in training and development, so that employees can strengthen their skills and abilities, thus fostering growth both from a point of view individual and organizational (Ehnert and Harry, 2012; Jiminez and Valle 2013). Another fundamental aspect to be considered when dealing with the management of people working for a firm is the motivation of the employee, that has to be intended as the persistence in which an individual decides to pursue and achieve certain results with high levels of both professional and individual satisfaction (Savanevičiene and Stankevičiūte, 2018). In fact, the firms have to support the motivation as well as people's values and trust in self-management, so that they can achieve good results in economic, social and environmental terms.

This is due to the fact that the firms have to be capable to preserve the equity among the workers and favor their development and well-being in the workplace (Mazur and Walczyna, 2020). Indeed, good human resource management means finding better involvement among employees, greater satisfaction and organizational loyalty, motivational growth and career development (Ehnert and Harry, 2012).

Recent studies highlight the role of new technologies and the relevance of innovative processes in the human resource management, implemented through the application practices related to digitization (for example the adoption of smart working practices and sharing of knowledge through ICTs (Bernardino et al., 2012; Koster 2019).

The use of ICTs in the workplace emerged even more during the emergency due to the pandemic, as new challenges emerge for the firms. In fact, many scholars highlight the need, for firms, to have a team of professionals who have the necessary skills and knowledge to be able to operate efficiently in this new digital environment (Augustin et al., 2021).

In line with this, ICTs are also considered as important tools for generating knowledge and increasingly represent not only a technical innovation, but also a social innovation (Jouet, 1991), as they enhance the aspects of spatial autonomy and the abolition of space and time. These aspects certainly guarantee greater flexibility, making progress accessible to everyone without financial or cultural obstacles (De Chiara, 2005; Caligiuri et al., 2020; Metallo et al., 2022).

In addition, the ICTs are a powerful communication system capable of strengthening the ability of firms to archive and generate knowledge, with the aim of stimulating its exploration (Lopez-Nicolas and Soto-Acosta, 2010). This perspective acts both on the interaction and exchange between individuals, but also on the sharing and socialization of knowledge (Palacios-Marqués et al., 2015). In fact, the firms that already have a propensity to digitization have a better chance of becoming more agile and flexible, and able to compete on a global scale with greater efficiency and obtaining innovative performances to be implemented for collaboration, communication and training practices (Tarutė and Gatautis, 2014; Santoro and Usai, 2018).

Practical evidence: an observation of the current dynamics in the Italian context. A recent study by the market research firm Harris Poll that involved 2500 entrepreneurs and leaders of American, European and Asian SMEs, highlighted that many of the small businesses have survived the pandemic thanks to digitization; in particular, for Italian firms the investments are focused on technologies for service marketing (Harris Poll, 2021). The study also underlines that the digitalization of organizational processes also had a positive impact on the management of human resources; accordingly, 50% of firms with growing turnover during the pandemic offered flexible working arrangements to their employees, compared to 38% who suffered a decline in growth (Harris Poll, 2021). This has certainly favored the protection of work and workers, who, thanks to new technologies, have been able to keep their jobs and, in some cases, learn and benefit from ICTs also in terms of career prospects. In addition, most small and medium-sized leaders believe that the operational changes they have introduced over the past years will benefit their business in the long term.

With particular reference to the Italian context, the main impact is found in the growing tendency to adapt to hybrid forms of work; in fact, a third of Italian SMEs involved in the study plans to maintain a hybrid way of working. Similarly, with regard to management and interaction with customers, almost half of the Italian SMEs have expanded the ways in which customers can get in touch, offering them greater flexibility (Harris Poll, 2021).

Another interesting study on the subject is that proposed by ASUS, according to which, the 41% of Italian SMEs had to face significant changes at the operational and organizational level through the new technologies, and many of them plan to maintain and even implement these changes. Thanks to strategic smart working initiatives, many SMEs are preparing to adopt models of greater autonomy for employees, greater orientation to results, freer use of IT equipment (starting from the PC), although, in many cases, firms had to face the lack of infrastructures and resources. For example, 52% of SMEs in Southern Italy have had to make up for the lack of laptops for their employees, constituting a large part of the growing demand for these tools. But smart working has also shortcomings due to the increase in technology and the consequent decrease in human contact. In fact, 25% of the firms involved in the ASUS study declare that smart working could lead to a loss of worker motivation, while 24% believe this will lead to greater isolation of employees (ASUS, 2021).

The above highlights that, although Covid has affected firms a lot, at the same time it has accelerated the adoption of digital tools and services, pushing firms to use new tools and platforms, essential to grow and benefit from new business opportunities. Many of the Italian firms interviewed believe they have reached a higher level of digitalization during the pandemic period; entrepreneurs and managers understood that it is necessary to have more channels of communication both with employees and employees, and with the customers, that have increasingly digital expectations regarding the services offered.

Focusing on Southern Italy, notoriously characterized by the presence of small and micro firms, the SVIMEZ Report (Association for the Development of Industry in the MEZzogiorno) on the Economy and the Society of the South of Italy shown how during the period marked by the Covid-19 pandemic there has been an exponential growth in the spread and use of digital technologies in all sectors of the Italian economy. However, this has highlighted, as already mentioned, the constraints of the infrastructure and digital literacy of Italy and especially of the southern regions. In this regard, the pandemic has undoubtedly widened the gap between "digital" firms, reactive to change, and "non-digital" firms, which instead struggle to guarantee the operational continuity of their activities. Moreover, it is now known that those who had at least started a digital transformation process before the pandemic, were able to better face the crisis. However, although many firms still struggle to approach the new digital systems compared to traditional ones, it is appropriate and necessary to train employees to ensure that they possess the appropriate skills.

Digitalization has also fostered the confidence of entrepreneurs and employees towards overcoming the crisis, inducing, indeed, workers to recognize in the digitization process an opportunity for growth, as highlighted in a study conducted by Deloitte (Deloitte, 2022). The general perception of trust is also in line with the growth strategies of the Italian firms involved in the study above mentioned, which focus not only on the development of new products and services but also on productivity and digital transformation, showing an unexpected resilience. In conclusion,

according to the Italian firms, technology and digital transformation is a strategic priority both in the short and long term, and one of the main elements that determines resilience.

Research limitations. The present work aims to lay the foundations for an empirical observation involving employees of firms in Southern Italy. In fact, after observing the perspective of scholars and firms, it is considered appropriate to complete the analysis by examining the reactions and perceptions of employees.

Considering that the pandemic is still ongoing, the present study remains the analysis of a first phase, where, however, we still find numerous difficulties on the part of firms in responding to the crisis, therefore, the authors intend to develop further analyzes, both as regards the perspective of firms and employees.

Managerial implications. The implementation of innovative practices has produced implications within organizational contexts and in the management of human resources, introducing new forms of work and practiced favoring the interaction among workers and between workers and managers, through to use of technologies, allowing people located in different places to break down any type of barrier and actively collaborate (Sena, 2015). In addition, new work procedures also benefit the natural environment, thanks to the reduction of the impact of the organizational activities, since people travel less frequently as they have the opportunity to meet colleagues and managers remotely (Sarti and Torre, 2017; Bucea-Manea-Țoniș et al., 2021).

With social reference to the perspective of the workers, the innovation processes provide some advantages, although it appears still hard to estimate the benefits related to the personal sphere of the individual, indeed, those that for some are considered advantages, for others can be experienced as disadvantages, as in the case of the reduction of social relations, for those who already have few relationships (Caligiuri et al., 2020). "International HRM insights for navigating". The online interactions can introduce negative effects related to the lack of interaction and sense of belonging due to the reduction of interaction and communication, such as: i) a rigidity in communication - due to the absence of contextual clues and non-verbal communications; ii) information overload, due to the absence of rules governing the flow of messages; iii) risks of isolation and lack of social interaction with colleagues. All these factors can move away the worker from the corporate mission, generating in them a sense of isolation that can affect their productivity (Beño, 2018).

The Covid-19 pandemic made these processes even more rapid, accelerating the transition towards the adoption of new technologies and towards forms of remote work. This has, in several cases, created disorientation in the worker, who has failed to adapt immediately to new working methods and new forms of communication, often characterized by a less ordered and predictable flow of information and a redundancy of information, compared to the greater sequentiality and order that can be found in face-to-face communication (F2F) (Marino and Capone, 2021; Di Tecco et al., 2021).

In conclusion, both theoretical and practical evidence show that Italian SMEs are getting ready to face a review of their processes to embrace a new working style, that can offer greater freedom to employees and is completely based on the flexibility and versatility of resources, thanks to new processes of control and greater trust in the collaborators. In addition, new technologies allowed people to keep their jobs and keep working and, in some cases, learn and benefit from ICTs also in terms of career prospects. The digitalization of organizational processes is no longer a future project, but a necessity that is coming true, and most firms, also the smaller ones, are equipping themselves to face the new conditions in the best way possible. This is confirmed in the fact that, despite the expected criticalities, a good percentage of SMEs is already implementing processes of change, or, in any case, plans to do so in the near future, marking a net recovery, even for the smaller and most affected by the crisis entities.

Originality of the paper. The prolonged health emergency has forced the implementation of processes of remote work, in order to safeguard both health and the economy, but in the regions of Southern Italy the use of technologies and the implementation of the most innovative processes and practices seems to have been less extensive than in the Italian average. This is due to the delay for Southern Italy firms, with special reference to the smaller ones, to adopt new technologies and even more to implement digitization processes, albeit practical evidence shows the relevance of these tools when dealing with critical conditions, both for the managers and for the employees. Although there are studies on how firms are facing the pandemic through the new technologies, the contributions on the reaction, as well as the benefits and disadvantages for employees are still scarce, especially concerning factors such as motivation, emotional aspects, and trust. The present study aimed at contributing to the reduction of this gap, providing further recommendations for managers for managing human resources in the most efficient and effective way possible.

Keywords: Human resource management; Digitalization; SMEs; Trust; ICTs.

References

- AKOUR M.A., MASA'DEH R.E., OBEIDAT B., TAWALBEH H. (2019), "Reviewing the Literature among Human Resource Management (HRM) Practices, Total Quality Management (TQM) Practices and Competitive Advantages", *Journal of Social Sciences*, vol. 8, n. 2, pp. 328-331.
- ALAM A., MULKHERJEE U. (2014), HRM - "A Literature Survey", *IOSR Journal of Business and Management*, vol. 16, n. 3, pp. 31-32.

- AUGUSTIN A., FERNANDEZ F., JIMENEZ D. (2021), "The role of human resource practices in the implementation of digital transformation", *International Journal of Manpower*.
- BAI C., QUAYSON M., SARKIS J. (2021), "COVID-19 pandemic digitization lessons for sustainable development of micro and small enterprises", *Sustainable Production and Consumption*, vol. 27, pp. 1989 - 2001.
- BARRERO J.M., NICHOLAS B., STEVEN J.D., BRENT H.M. (2021), "COVID-19 Is a Persistent Reallocation Shock", *AEA Papers and Proceedings*, n. 111, pp. 287-91.
- BARTUNEK J.M., RYNES S.L., IRELAND R.D. (2006), "What makes management research interesting, and why does it matter?", *Academy of Management Journal*, vol. 49, n. 1, pp. 9-15.
- BECKER B., GERHART B. (1996), "The Impact of Human Management on Organizational Performance: Progress and Prospects", *The Academy of Management Journal*, vol. 39, n. 4, pp. 782.
- BEÑO M. (2018), "Working in the virtual world-an approach to the " home office" business model analysis", *Ad Alta: Journal of Interdisciplinary Research*, vol. 8, n. 1.
- BERNARDINO A.F., DE DÉA ROGLIO K., DEL CORSO J.M. (2012), "Telecommuting and HRM: a case study of an information technology service provider", *Journal of Information System and Technology Management*, vol. 9, n. 2, p. 290.
- BUCEA-MANEA-ȚONIȘ R., PROKOP V., ILIC D., GURGU E., BUCEA-MANEA-ȚONIȘ R., BRAICU C., MOANȚĂ A. (2021), "The relationship between eco-innovation and smart working as support for sustainable management", *Sustainability*, vol. 13, n. 3, 1437.
- CALIGIURI P., DE CIERI H., MINBAEVA D., VERBEKE A., ZIMMERMANN A. (2020), "International HRM insights for navigating the COVID-19 pandemic: Implications for future research and practice", *Journal of International Business Studies*, vol. 51, pp. 697-713.
- DE CHIARA A. (2005), *Rapporti professionali e paradigmi dell'impresa nell'era digitale*. Giappichelli, Torino.
- DI MININ A., DOOLEY L., LAZZAROTTI V., MANZINI R., MORTARA L., PICCALUGA A. (2021), "At a time of crisis: what are we learning from the response to the COVID-19 pandemic?", *R&D Management*, vol. 51, n. 2. DOI:10.1111/radm.12454.
- DI TECCO C., RONCHETTI M., RUSSO S., GHELLI M., RONDINONE B.M., PERSECHINO B., IAVICOLI S. (2021), "Implementing Smart Working in Public Administration: a follow up study", *La Medicina del Lavoro*, vol. 112, n. 2, 141.
- EHNERT I., HARRY W. (2012), "Recent Developments and Future Prospects on Sustainable Human Resource Management: Introduction to the Special Issue", *Management Revue*, vol. 23, n. 3, pp. 229-230.
- EHNERT I., HARRY W. (2014), *Sustainability and Human Resource Management. Developing Sustainable Business Organizations*. Springer, London, pp. 17-18.
- ELSAFTY A., RAGHEB M. (2020), "The role of human resource management towards employees' retention during Covid-19 pandemic in medical supplies sector, Egypt", *Journal of Business and Management Studies*, vol. 6, n. 2, pp. 50-59.
- GIGAURI I. (2020), "Influence of Covid-19 Crisis on Human Resource Management and Companies' Response: The Expert Study", *International Journal of Management Science and Business Administration*, vol. 6, n. 6, pp. 15-24.
- HAMOUCHE S. (2021), "Human resource management and the COVID-19 crisis: implications, challenges, opportunities, and future organizational directions", *Journal of Management & Organization*, pp. 1-6. DOI:10.1017/jmo.2021.15.
- INUAESIET V.U., OKON E.E., AKPAN J.J. (2021), "Effect of Covid-19 on Human Resource Development and Management for Socioeconomic Sustainability of Organizations", *International Journal of Public Administration and Management Research*, vol. 6, n. 1.
- JIMENEZ-JIMENEZ D., SANZ-VALLE R. (2013), "Studying the Effect of HRM Practices on the Knowledge Management Process", *Personnel Review*, n. 42, pp. 28-49.
- KALOGIANNIDIS S. (2021), "The Impact of COVID-19 on Human Resource Management Practices and Future Marketing", *International Journal of Industrial Marketing*, vol. 6, n. 1. ISSN 2162-3066 2021.
- KOSTER F. (2019), "Innovative HRM. A Review of the Literature", *Journal of Technology Management and Innovation*, vol. 14, n. 2, pp. 98-100.
- LOPEZ-CABRALES A., VALLE-CABRERA R. (2019), "Sustainable HRM strategies and employment relationships as drivers of the triple bottom line", *Human Resource Management Review*, vol. 30, n. 3.
- LOPEZ-NICOLAS C., SOTO-ACOSTA P. (2010), "Analyzing ICT adoption and use effects on knowledge creation: An empirical investigation in SMEs", *International Journal of Information Management*, vol. 30, n. 06. DOI:10.1016/j.ijinfomgt.2010.03.004.
- MARINO L., CAPONE V. (2021), "Smart Working and Well-Being before and during the COVID-19 Pandemic: A Scoping Review", *European Journal of Investigation in Health, Psychology and Education*, vol. 11, n. 4, pp. 1516-1536.
- MAZUR B., WALCZYNA A. (2020), "Bridging Sustainable Human Resource Management and Corporate Sustainability", *Sustainability*, vol. 12, n. 8987.

- METALLO C., AGRIFOGLIO R., MARIA F. (2022), "Effective Management of a Remote Workforce for Covid-19: A Proposed Research Model Toward Smart Working Adoption Within Organizations", In *HR Analytics and Digital HR Practices* (pp. 101-126), Palgrave Macmillan, Singapore.
- PALACIOS-MARQUÉS D., SOTO-ACOSTA P., MERIGO J.M. (2015), "Analyzing the effects of technological, organizational and competition factors on web knowledge exchange in SMEs", *Telematics and Informatics*, vol. 32, n. 1, pp. 23-32.
- POLLOCK T.G., BONO J.E. (2013), "Being Scheherazade: The Importance of Storytelling in Academic Writing", *Academy of Management Journal*, vol. 56, n. 3, pp. 629-634. DOI:10.5465/amj.2013.4003.
- RYNES S.L., COLBERT A.E., BROWN K.G. (2002), "HR Professionals' beliefs about effective human resource practices: correspondence between research and practice", *Human Resource Management*, vol. 41, n. 2, pp. 149-174.
- SANTORO G., USAI A. (2018), "Knowledge exploration and ICT knowledge exploitation through human resource management: A study of Italian firms", *Management Research Review*, <https://doi.org/10.1108/MRR-07-2017-0215>
- SARTI D., TORRE T. (2017), "Is Smart Working a Win-Win Solution? First Evidence from the Field", *Well-being at and through Work*, vol. 9, n. 231.
- SAVANEVIČIENE A., STANKEVIČIUTE, Ž. (2018), "Designing Sustainable HRM: The core Characteristics of Emerging Field", *Sustainability*, vol. 10, n. 4798.
- SENA B. (2015), *La gestione delle risorse umane nell'era digitale*. FrancoAngeli, 110.
- TARUTÉ A., GATAUTIS R. (2014), "ICT impact on SMEs performance", *Procedia - Social and Behavioral Sciences* vol. 110, pp. 1218 - 1225.
- WONG E., HO K., WONG S., CHEUNG A., YEOH E. (2020), "Workplace safety and coronavirus disease (COVID-19) pandemic: survey of employees", *Bull World Health Organ*. E-pub, 20.
- WORLD ECONOMIC FORUM (2020), "COVID-19's workforce impact. Strategic Intelligence", Retrieved from <https://intelligence.weforum.org/topics/a1G0X000006O6EHUA0?tab=publications>.
- YAMAMOTO I., MATSUURA T. (2014), "Effect of work-life balance practices on firm productivity: Evidence from Japanese firm-level panel data", *The BE Journal of Economic Analysis & Policy*, vol. 14, n. 4, pp. 1677-1708.

How paradox perspective on sustainability prompts corporate resilience to recover from the pandemic outbreak

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Framing of the research. *The pursuit of sustainability requires businesses to deal with interrelated yet conflicting objectives: social wellness, planet preservation, and profit growth. While a growing number of corporations worldwide are navigating these paradoxes, though, the breakthrough of the COVID-19 pandemic has upset such course*¹.

Given the very first definition of sustainable development, its inner contradiction shows up crystal-clear: “meeting the needs and aspirations of the present generation without compromising the ability of future generations to meet their need” (Brundtland, 1987, p. 292). Academic debate on sustainability management has grown ever since, due to the seminal work on a business case for sustainability, according to which firms that address even social and environmental issues will, in turn, benefit financially (Porter and Kramer, 2011; Carroll and Shabana, 2011). Although this perspective on corporate sustainability has extended the reach of corporation contribution over further domains (i.e., social and environmental), it is still a Machiavellian interpretation of corporate sustainability. Indeed, it conceives the pursuit of societal and ecological problems as means to achieve the final goal of higher financial performance. Such an instrumental view of sustainable development did not take long to generate some drawbacks, for instance, skepticism (Leonidou and Skarmees, 2017) and hypocrisy perception among people (Wagner et al., 2020) and therefore the awareness among scholars that such perception would have limited the potential contribution of corporations over time (Bansal and Clelland, 2004). Hence, over a decade now, such “business case perspective” for sustainability had been gradually overcome by a “paradox perspective” (Hahn et al., 2018; Jay et al., 2017; Smith and Lewis, 2011).

The burgeoning paradox viewpoint on business sustainability has emerged over the last decade (Miron-Spektor et al., 2018; Smith, 2014; Smith and Lewis, 2011). Such perspective enables corporations to achieve competing sustainability objectives simultaneously and creates a margin for superior business contributions to sustainable development by explicitly acknowledging tensions between different desirable, yet interdependent and conflicting sustainability objectives (Hahn et al., 2018). A paradoxical perspective on sustainability, in contrast to business case logic, prioritize environmental conservation and social well-being at the society level over corporate considerations (Hahn et al., 2018). Rendering to the paradox perspective for sustainability, businesses and decision-makers are supposed to accept (and leverage on) tensions engendered by sustainable development (Hahn et al., 2018). In other words, firms can deliberately address multiple environmental and social concerns even when immediate business benefits are not clear (Rivoli and Waddock, 2011), namely addressing ecological upgrades when business benefits are still unclear (Rivoli and Waddock, 2011) or by engaging with stakeholders in scant connection with business (Jay et al., 2017). Such paradox perspective on corporate sustainability acknowledges, first and foremost, a real system view of corporate sustainability (Bansal et al., 2021), where the number of different economic, environmental, and social objectives, apparently desirable in isolation, are in reality “inextricably connected and internally interdependent” (Bansal 2002, p. 123).

According to these premises, it is no surprise that the occurrence of large-scale accidents, crises and disasters, over time, such as Chernobyl, Exxon Valdez, 9/11, 2008-2009 financial crisis, EBOLA and the latter COVID-19 pandemic² highlight the interconnected and recursive nature of environmental, social and economic aspects over business activity (Bansal et al., 2021). Yet there is something more. As the COVID-19 pandemic has demonstrated, such emergencies require an organization's vigilance, adaptation and reaction, namely resilient skills (Giustiniano et al., 2020). During the pandemic, indeed, “resilience” appears to be the rallying cry. Media and scholars have relied on it to describe how individuals and businesses appear to respond to the COVID-19 outbreak (Sanguineti et al., 2020). The term resilience has been adopted at the organizational level to describe “the inherent characteristics of those organizations that are able to respond more quickly, recover faster or develop more unusual ways of doing business under duress than others”

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¹ <https://covid19.who.int>

² While this extended abstract is taking shape, unfortunately, the list of tragedies does not stop here.

(Linnenluecke, 2017, p. 4). Conz and Magnani (2020, p. 408) defined corporate resilience as “a dynamic attribute of the firm characterised by a) a proactive phase at time ($t-1$); an absorptive or adaptive phase at time t , and b) a reactive phase at time ($t+1$), where t is the time when an unexpected event occurs and alters the equilibrium of the firm.” Needless to say, the COVID-19 outbreak resembles unexpected events that have altered the equilibrium at any scale: from the micro internal dynamic of a family business to the geopolitical stability (World Bank, 2021).

All of a sudden, indeed, the pandemic has informed businesses worldwide of the urge “for employing ‘generative doubt’ and the ability to ‘learn to unlearn and learn’, as well as other expressions of paradox work: engaging the base while offering clear direction from the top; focusing on central processes while scrutinizing the more opaque periphery in order to stay alert to unexpected developments; making short-term improvised decisions while considering long-term implications; providing flexibility for adapting to changing circumstances while maintaining control; conducting deliberate search while being open to serendipitous emergence.” (Giustiniano et al., 2020, p. 973). Contextually, scholars have started emphasizing the importance of firms to quickly respond to the immediate needs of employees and people in their communities at large, the importance of innovating operations, and the need to manage short-term risks while also building long-term flexibility (Bansal, 2020). Fresh commentaries, published amidst the pandemic, have wisely highlighted the inner paradoxical connotation of resilience leadership. Specifically, “resilient leadership accordingly implies vigorous combinations of contrary elements such as preparedness and improvisation, clear direction-setting and flexibility in the face of specific circumstances” (Giustiniano et al., 2020, p. 972). To sum up, the COVID-19 outbreak has sparked the intimate bond among business activities and socioecological aspects and the pursuit of sustainable business within limits to growth (Bansal et al., 2021). Such perspective unveils the broad set of tensions lurking with the pursuit of sustainable development (Jay et al., 2017). Achieving the integration of those opposites defines “resilient leadership in response to the COVID-19 pandemic as paradox work” (Giustiniano et al., 2020, p. 972).

Resilience management, hence, denotes paradoxical skills, namely the ability to get vigorous by handling contrary elements; it has the ability to absorb and learn from external shocks while also preparing to adapt to whatever comes next (Välilikangas, 2010). Giustiniano et al. (2020, p. 972) provided a list of contradictory tensions that denotes such management (such as anticipation/adaptation, solidity/flexibility, efficiency/redundancy, boldness/prudence, compassion/hardiness, profit/purpose, updating information/being aware that information may not mean knowing, courage to make unpopular decisions/humility to listen to the crowd). Such list overlaps most of the conflicts studied within the paradox theory realm: collaboration/control (Sundaramurthy and Lewis, 2003), exploration/exploitation (Smith and Tushman, 2005), individual/collective (Murnighan and Conlon, 1991), flexibility/efficiency (Adler et al., 1999), and profit/social responsibility (Smith and Tushman, 2005). Such contradicting demands become more salient and persistent as surroundings get more global, fast-paced, and competitive, and internal organizational processes become more complicated (Lewis, 2000), and reached catalysis in the academic literature only over these years of the COVID-19 pandemic (Bansal et al., 2021; Giustiniano et al., 2020). A recent essay on the cultural resilience of Italian small and medium businesses (SMEs) navigating the pandemic (Sanguineti et al., 2020) showed how corporate resilience can be vital for SMEs to survive, yet empirical evidence is still missing. No research so far has explored how SMEs resilience reconfigures paradox perspective on sustainability during disruptive events (i.e., COVID-19 outbreak).

Up until now, however, we have never had the opportunity to study resilient leadership dealing with paradox perspectives on corporate sustainability under extremely unexpected and disruptive external shocks such as COVID-19. Due to the pandemic rash, indeed, the usual market dynamics have been overruled for health-safety reasons, by national impositions or individual initiatives for collective protection and safeguarding. As a result, corporations have faced paradoxical tensions, such as keeping on running their business while adapting it to the contingency of the moment. For instance, Ferrari repurposed manufacturing facilities to assist in the production of lung ventilators, thereby actively contributing to the community's well-being (Sanguineti et al., 2020). They were demonstrating social responsibility as well as an investment in their reputation and legitimacy through these activities; at the same time, they looked inside, working on the organic variety's intrinsic difficulties. Although COVID-19 put the companies and their plans for pursuing sustainable development to a severe test, resilient leadership has shown to get empowered by simultaneously embracing the contrasts which characterized that unique, critical moment. Therefore, this study aims to investigate the resilience factors that have allowed companies to reconfigure their financial objectives compatibly with the pursuit of socio-ecological objectives. With this study, therefore, we want to understand how resilience shapes the paradoxical approach of companies to the pursuit of sustainable development.

Purpose of the paper. This study explores how resilience under disruptive events reconfigures the corporate paradox perspective on sustainability. Specifically, the manuscript reports the results of a longitudinal inductive study and sheds light on organizations' resilient dynamics that have helped the corporation to reconcile tensions between sustainability goals (socioecological) and external constraints due to COVID-19 restrictions. Echoing Giustiniano et al. (2020), it is vital to plan and improvise at the same time. Following old patterns will not educate or build resilient leadership, which is, instead, best developed by cultivating strategic foresight with room for improvisation in anticipation of unanticipated eventualities (Cunha et al., 2012). This study shows how.

In this regard, outside of the lockdown measures applied in China, Italy's lockdown measures were regarded as the most severe steps taken against the outbreak³. Italian corporations, then, have been among the first worldwide to be impacted by the virus outbreak. That is the first reason that makes Italy an interesting representative scenario to be

³ <https://www.bbc.com/news/world-middle-east-51787238>

studied. Furthermore, Italian GDP is widely constituted by a galaxy of SMEs with an intimate bond with local communities, surrounding territory's natural resources, and family members. Such a unique blend of inter-generation dynamics and socioecological aspects makes Italian SMEs a keen interesting scenario to explore through which resilience process paradox perspective on corporate sustainability has evolved to recover from the COVID-19 pandemic.

For the reasons above, the study aims at:

- Describing the paradox perspective on sustainability of Italian SMEs before the COVID-19 outbreak ($t-1$). Relying on Hahn et al. (2018) we depicted the unique combination of descriptive, instrumental, and normative aspects of corporate sustainability for every single firm. Contextually, we inspected firms' routines to understand the resilience configuration in charge at the time.
- At time t , when COVID-19 outbreak, keeping track of the evolution of corporations' reaction (resilience process) to the harsh drawbacks that occurred at the time, i.e., shut down, demand drop, downsizing, remote work, supply chain shortage, etc.
- Defining the new paradox perspective on corporate sustainability ($t+1$), comparing the ex-post descriptive, normative, and instrumental mixture of aspects of each corporation with the ex-ante configuration.

Although the pandemic is not over yet, we can reasonably look at it in a more undaunted way due to the astonishing scientific strive to deal with the virus. The majority of people worldwide are already accustomed to brand new defensive and preventive tools, such as face masks and vaccines. In other words, we all are realizing living in new normality. This study shows how Italian SMEs deal with it.

Methodology. We studied eleven case studies to see how SMEs, leveraging on corporate resilience, have reshaped their involvement in pursuing paradox viewpoints on corporate sustainability. We spent 4 years observing each of these cases. According to the common methodology standards of multiple case studies, we selected 15 Italian SMEs, from different industries (i.e., food, furniture and metallurgical), that were involved in a paradox perspective on corporate sustainability (they were involved in a transition toward a more sustainable business model). Although different in size and sector, all those SMEs share the same paradox perspective in sustainability, yet each of them is from a different perspective. We focused on Italian SMEs given their keen interest in sustainability and, compared to their dimensions, their remarkable performances in terms of turnover. Furthermore, researching multiple case studies within different industries allowed us to compare different examples of paradox perspectives in sustainability and allowed us to spot variability related to their industry.

To better capture the evolution of such SMEs, we adopted a longitudinal case study technique. Comparing companies from different industries and monitoring them over time results in the most effective procedure to spot commonalities and differences to seek the higher qualitative methodological rigorousness (Podsakoff, MacKenzie, & Podsakoff, 2012). Data collection lasted 4 years (2018-2021) and included a variety of information sources: mainly interviews, but also archival documents, observations and secondary data. Interviews have been recorded, and transcripts were separately coded by all the co-authors to make the analysis as objective as possible and reduce personal bias (Gioia et al., 2013).

The analysis goes on as follows: we provide an initial, ex-ante classification of firms approaching paradox viewpoint on corporate sustainability, according to the classification provided by Hahn et al. (2018). Then we compared ex-ante and post hoc to specify its descriptive, instrumental, and normative aspects to explore how corporate resilience has helped redesign the paradox viewpoint in sustainability. Then, according to different nuances of corporate resilience provided by the literature (Conz and Magnani, 2020; Linnenluecke, 2017), we categorized corporate resilient strategy as adaptive or absorptive (t), and/or reactive ($t+1$), where t resembles the COVID-19 outbreak. Then, we replicated the same classification upon paradox perspective on corporate sustainability ex-post, to ultimately depict the new configuration of descriptive, instrumental and predictive aspects and draw the trajectory of corporate resilience over time.

Results. Through the monitoring of companies over time, this study has shed light on the resilience dynamics undertaken by SMEs to recover from the COVID-19 pandemic and reconfigure the pursuit of corporate sustainability in new normality. By adopting the framework of paradox theory, it was possible to describe how companies have reconfigured their paradoxical approach to sustainable development.

By comparing the ex-ante and ex-post paradox perspectives on sustainability we found what are the most effective resilient strategies to deal with and recover from extremely binding events. By extrapolating commonalities from contextual aspects, we were able to draw the unique blend of seeking for adaptation and leading at the same time which characterized SMEs that best reacted to the COVID-19 outbreak.

In line with our expectations, companies that have proved to be more resilient than others have, paradoxically, grasped the systemic perspective of sustainable development (Bansal, 2020) glimpsed further connections among trade-offs, and recovered more quickly and better than others. Specifically, according to our results, those corporations have shown reinvigorated normative aspects of paradox perspective on corporate sustainability (i.e., embracing the intrinsic value of competing for environmental and social concerns at the level of societal and natural systems) and, in turn, have embraced a more robust instrumental view of paradox perspective on corporate sustainability (i.e., establishing connections between tensions incorporate sustainability and various outcome). As a result, descriptive aspects have evolved accordingly (i.e., explanation of how individuals and organizations respond to tensions in corporate sustainability). Such a refreshed configuration of corporate sustainability has demonstrated how SMEs can get the stimulus from negative events to pursue a superior corporate contribution.

Research limitations. *The study was based on Italian SMEs operating in industries that - despite others, like the healthcare industry- have suffered from dramatic shutdown and/or downsizing. Although focusing on this kind of business has allowed us to combine aspects of the resilience and paradox theory in reconfiguring the approach to sustainability, our study opens avenues for future research.*

In the first instance, we invite scholars to test our output on large companies. The different sizes and complexity of the organization and its infrastructures might expand the results of our research and, at the same time, confirm the theoretical legitimacy.

Secondly, suggest to re-propose the study in different sectors, such as healthcare. In fact, the effects of the COVID-19 pandemic have not been the same all over the industries: some sectors have suffered a sharp drop in demand, shutdown and downsizing, and shortage in the supply chain; others, on the contrary, have suffered from an overload of demand and a consequent strengthening of the workforce in a very short time (think of the research centers and pharmaceutical industries involved in the race to develop vaccines). Although in both cases the disruption of the organizational structure was huge, the effects of the pandemic on the organization may have been very different. Consequently, the resilience factors pushing corporations to pursue sustainability might have been others.

Finally, we advise similar studies in different geographical contexts, given the innate cultural component of resilience.

Managerial implications. *This study is intended as a guide for corporations, specifically SMEs that are involved in, or who want to undertake, an effective sustainable development path. Hence it provides several insights for practitioners.*

First of all, this study offers managers an accurate description of the different resilience processes undertaken by the companies under study which, in turn, have allowed some companies to react better and faster than others to the tragedy of the COVID-19 pandemic and in the pursuit of sustainable development. Leaders can rely on this study to glimpse laden tensions and paradoxes in their businesses and build up corporate resilience in response to such tensions to a superior business contribution in sustainability.

Furthermore, this study helps managers to highlights the intrinsically contradictory components and pitfalls for sustainable development in the new normality context, such as the need to reintroduce single-use plastics while the world is distancing from that.

Furthermore, the study shows in detail through which resilience processes, disruptive events such as COVID-19 can even, paradoxically, reinvigorate the pursuit of sustainable business development, for example by establishing a systematic comparison between employees to predict potential threats and opportunities.

Originality of the paper. *This study contributes to the current academic debate on the relationship between resilience and paradox theory, highlighting why one concept is instrumental for the other and in how through empirical pieces of evidence. Recently, some scholars have begun to consider them as complementary aspects, one in support of the other, by defining “resilience” as a “paradox work” (Giustiniano et al., 2020). Therefore, this study provides a detailed description of why we can consider resilience as a tool in the service of paradox theory and how. Reconcile two threads of research that have often been entangled over time yet barely studied jointly.*

Second, this study demonstrates how business resilience is a tool for paradox theory. Specifically, it replies to Cunha and Putnam (2019), by showing how resilience helps reconfigure paradox perspective in sustainability. Indeed, this study shows how resilience impacts the three different aspects of the paradoxical perspective in the pursuit of corporate sustainability (descriptive, instrumental and regulatory).

Ultimately, this study shows how companies with good resilience can even leverage dramatic events such as the COVID-19 pandemic to achieve higher levels of awareness of the interconnections between environmental, social and ecological goals.

Keywords: *paradox theory; SME; corporate resilience; multiple case study; longitudinal case study; sustainability, COVID-19*

References

- BANSAL P. (2020), “What Business Professors Are Saying about COVID-19”, *Organizations and the Natural Environment: A Division of AOM*, vol. 19.
- BANSAL P., CLELLAND I. (2004), “Talking Trash: Legitimacy, Impression Management, and Unsystematic Risk in the Context of the Natural Environment”, *Academy of Management Journal*, vol. 47, n. 1, pp. 93-103.
- BANSAL P., GREWATSCH S., SHARMA G. (2021), “How COVID-19 Informs Business Sustainability Research: It’s Time for a Systems Perspective”, *Journal of Management Studies*, vol. 58, n. 2, pp. 602-606.
- BRUNDTLAND G. (1987), *Our Common Future - Call for Action*, vol. 14, n. 4, pp. 291-294.
- CONZ E., MAGNANI G. (2020), “A dynamic perspective on the resilience of firms: A systematic literature review and a framework for future research”, *European Management Journal*, vol. 38, n. 3, pp. 400-412.
- CUNHA M.P.E., PUTNAM L.L. (2019), “Paradox theory and the paradox of success”, *Strategic Organization*, vol. 17, n. 1, pp. 95-106.
- GIOIA D.A., CORLEY K.G., HAMILTON A.L. (2013), “Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology”, *Organizational Research Methods*, vol. 16, n. 1, pp. 15-31.

- GIUSTINIANO L., CUNHA M.P.E., SIMPSON A.V., REGO A., CLEGG S. (2020), “Resilient Leadership as Paradox Work: Notes from COVID-19”, *Management and Organization Review*, vol. 16, n. 5, pp. 971-975.
- HAHN T., FIGGE F., PINKSE J., PREUSS L. (2018), “A Paradox Perspective on Corporate Sustainability: Descriptive, Instrumental, and Normative Aspects”, *Journal of Business Ethics*, vol. 148, n. 2, pp. 235-248.
- JAY J., SODERSTROM S., GRANT G. (2017), “Navigating the Paradoxes of Sustainability The Modern History of “Sustainability””, *The Oxford Handbook of Organizational Paradox*, (December 2018, pp. 1-24).
- LEONIDOU C.N., SKARMEAS D. (2017), “Gray Shades of Green: Causes and Consequences of Green Skepticism. *Journal of Business Ethics*, vol. 144, n. 2, pp. 401-415.
- LINNENLUECKE M.K. (2017), “Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda”, *International Journal of Management Reviews*, vol. 19, n. 1, pp. 4-30.
- MIRON-SPEKTOR E., INGRAM A.K.J., SMITH W.K., LEWIS M.W. (2018), “Microfoundations of organizational paradox: The problem is how we think about the problem”, *Academy of Management Journal*, vol. 61, n. 1, pp. 26-45.
- SANGUINETI F., CAVUSGIL S.T., DELIGONUL S.Z. (2020), “Cultural Resilience and the Italian Response to the Global Health Pandemic”, *California Management Review* Retrieved from <https://cmr.berkeley.edu/assets/documents/pdf/2020-09-cultural-resilience.pdf>.
- SMITH W.K. (2014), “Dynamic Decision Making: A Model Of Senior Leaders Managing Strategic Paradoxes”, *Academy of Management Journal*, vol. 57, n. 6, pp. 1592-1623.
- SMITH W.K., LEWIS M.W. (2011), “Toward a Theory of Paradox: a Dynamic Equilibrium Model of Organizing”, *Academy of Management Review*, vol. 36, n. 2, pp. 381-403.
- WAGNER T., KORSCHUN D., TROEBS C.C. (2020), “Deconstructing corporate hypocrisy: A delineation of its behavioral, moral, and attributional facets”, *Journal of Business Research*, vol. 114, August 2018, pp. 385-394.
- WORLD BANK (2021), “How COVID-19 is changing the world: a statistical perspective Volume III”, *The Committee for the Coordination of Statistical Activities (CCSA)* 3, Retrieved from https://www.wto.org/english/tratop_e/covid19_e/ccsa_publication_vol3_e.pdf

Websites

<https://covid19.who.int>

<https://www.bbc.com/news/world-middle-east-51787238>

How does a digital monitoring system impact on healthcare performance? The case of ROC

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Framing of the research. *This research work is set in performance evaluation and, specifically, healthcare performance. Through the analysis of a case study, the aim is to understand how constant monitoring, supported using digital tools, impacts the overall performance of the health system.*

In this context, this article carries out an analysis of a single case study. The performance is used as the unit of analysis, investigating how the monitoring system impacts the performance of the ROC, a cancer network located in Campania. Questionnaires administered to GOM managers and patients, official databases, scientific publications, and research reports are used as sources. Preliminary results show how, with the support of digital tools, effective and constant monitoring of performance allows health institutions to identify possible points of inefficiency in the process and reformulate their strategies to ensure high-quality care by improving the performance of the whole health system.

This analysis provides a set of managerial, theoretical and policy implications that highlight the need for health institutions to implement monitoring systems supported by digital tools to achieve better overall performance.

Although digitalisation and performance evaluation are widely addressed in the literature, this paper offers a new lens to analyse these two issues.

The health sector is characterised by heterogeneity, and different motivations and objectives drive numerous actors. This makes it difficult to define an unambiguous monitoring system that disregards the specificities of individual health care structures. For this reason, this research work offers the possibility of defining a performance evaluation system capable of overcoming this complexity.

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In addition, healthcare is constantly seeking a balance between the optimal allocation of resources and cost containment while maintaining a high quality of care. Therefore, a further aim is to highlight the extent to which constant monitoring of the work carried out by healthcare structures makes it possible to reduce waste and improve the quality of care provided, satisfying the needs of patients and thus achieving a better overall performance.

Purpose of the paper. *“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1948). Healthcare, therefore, represents the maintenance or improvement of health through the prevention, diagnosis, treatment, improvement, or cure of disease.*

As in other sectors, performance evaluation is critical in healthcare. (Mele and Triassi, 2008; Porter, 2010; Cuccurullo e Pennarola, 2017). Making the quality of care “transparent” and measurable is central in healthcare (Vettori and Vannozzi, 2010). Especially with the development of Artificial Intelligence, clinical performance monitoring has become an important issue worldwide, but due to the profound specificity of the available tools, performance evaluation methods in the healthcare sector are still in their infancy. (Lo Storto et al., 2017) (Milon et al., 2020).

Industry 4.0 are transforming the design and delivery of healthcare and how healthcare is delivered. An example comes from Artificial Intelligence; advanced software and technologies make it possible to meet the need to achieve high levels of quality and efficiency in providing services through the optimal allocation of scarce resources and to contain costs simultaneously. The search for such a balance determines the entry into the so-called ‘socio-organisational age of AI in medicine’ (Stefanelli, 2001).

The scarcity of available resources and the increased patient expectations have emphasized the need for organisations to document their work and implement a monitoring system to ensure a high quality of care and improved patient safety (Berti et al., 2018). To have a general view of the clinical dynamics and their impact on patients’ health, more generic metrics are needed to apply to the various clinical settings. The importance of performance monitoring and measurement systems derives from the ability of such tools to balance the tensions between economic performance, growth and control, and opportunity, enabling managers to achieve established business objectives (Simons, 2000) (Jeffcott and Mackenzie, 2008).

In the case of healthcare companies, the main existing monitoring systems have changed from very different contexts. They do not aim to provide top management with all the information necessary to improve the strategies implemented. Primarily, monitoring is carried out by each health institution, which is detrimental to the analysis of the whole system. In addition, the presence of numerous actors and the heterogeneity of operations make the definition of an adequate monitoring system complex. The need, therefore, arises to develop a unified and efficient performance evaluation system. Digital technologies, particularly digital platforms, which allow access to a vast amount of data, provide support in this regard. Based on these data, it is possible to build a set of KPIs to monitor the whole system’s performance.

However, rather than focusing on the construction of adequate monitoring systems in healthcare, this research aims to understand how constant monitoring of healthcare processes can impact performance. For these reasons, the research question is: “How does a digital monitoring system impact on healthcare performance?”

To tackle the research question, this paper adopted an exploratory approach based on an analysis of the cancer network in the Campania region, the so-called “Rete Oncologica Campana” (hereafter R.O.C.). In Western national health systems, a new organisational model has emerged based on the design of regional cancer networks, which allows health institutions and companies to improve the efficiency of clinical and organisational processes, to foster a better exchange of information between various professionals and to provide care services much more focused on cancer patients. Based on the data about cancer mortality, the R.O.C. infrastructure was set up in Campania, which introduced a particular innovation: a web platform to regulate and manage the flows of the oncological network in Campania, ensuring that all the centres that will be part of it contribute to the full implementation of an organised and efficient care pathway, not dispersive for people, and capable of responding to Health needs, ensuring integrated multidisciplinary management, adhering to the guidelines and best practices, according to the principles of adequacy and fair access to care. The centres that are part of the ROC are organized in GOM (Multidisciplinary Oncological Group), within which the aim is to monitor the therapeutic paths of patients.

Despite the growing relevance of the network model in oncology, there is a deep literature gap concerning the monitoring and evaluation of the performance of this organisational model. Through the analysis of the case study, this paper aims to conceptualise a model that identifies a set of drivers that highlight how a system of constant digital monitoring can improve healthcare performance, thus offering the possibility of defining a performance evaluation system that can overcome the complexities inherent in healthcare systems. Therefore, in February 2020, the National Cancer Institute “IRCCS Fondazione G. Pascale”, the coordinating structure of the R.O.C., and the VIMASS Lab (Value, Innovation, Management and Access in Health Systems) of DISAQ, Department of Business and Quantitative Studies of the Parthenope University in Naples signed an agreement to launch the Val.Pe.ROC project aimed at evaluating the clinical and economic performance of the Oncology Network of Campania (ROC).

The project’s aim is, therefore, performance’s evaluation of oncology patients’ network in Campania, carrying out a multidisciplinary analysis of the performance of the various PDTAs provided through the Oncology Network of Campania, considering indicators of both clinical (e.g. time of the process management) and economic (e.g. cost analysis and savings) nature, providing a detailed picture of the impact of the “network” management on the care processes offered and on the cost dynamics related to the PDTAs of the ROC. Based on the analysis results, taking a new perspective, this research work aims to understand how constant monitoring of the ROC’s activities impacts on

health performance and future actions of the ROC, as well as whether continuous monitoring of the activities carried out generates “increased productivity” or “increased stress” in health workers and affects the redesign of the services provided (Aiello and Kolb, 1995).

Methodology. An explorative qualitative analysis was conducted using a case study method (Eisenhardt, 1989).

Despite the criticism of case study research, it's a method that has greatly developed in research activities in numerous disciplines, particularly in management studies (Yin, 1994). Although the case study analysis has been addressed as a research method not sufficiently rigorous, imprecise, and leaves too much researcher's interpretation, it affords researchers opportunities to explore or describe a phenomenon in context and to explore individuals or organizations, simple through complex interventions, relationships, communities, or programs (Yin, 2009; Baxter, Jack, 2008).

In this context, this article carries out an analysis of a single case study. Performance is used as the unit of analysis, investigating how the monitoring system impacts the performance of the ROC, a cancer network located in Campania. The regional healthcare system, particularly the oncology system, is inefficient in this Italian region, characterized by a high level of health migration, leading patients to choose other regions to receive treatment. For this reason, based on the results obtained, taking a new perspective, this research aims to understand how constant monitoring of the ROC's activities impacts health performance and future actions of the ROC.

The study started with selecting hospitals and cancer diseases on the ROC platform to be involved in the analysis. Three health facilities were selected during the pilot phase of Val.Pe.ROC (April 2020 to September 2020): IRCCS Pascale in Naples, AO SG Moscati in Avellino and AOU Ruggi d'Aragona in Salerno; and three oncological diseases: ovary, colon and lung. In the second half of the analysis, from October 2020 to March 2021, two more hospitals, AOU Luigi Vanvitelli and AOU Federico II participated in the study. In terms of pathologies, monitoring of the prostate cancer PDTA was added.

The following were used as sources of evidence: a survey containing a set of questions aiming to define the diagnosis path, including all the exams performed pre-GOM and within the GOM; a patient satisfaction questionnaire and a GOM manager survey, company databases, scientific publications, and research reports. The interview results were transposed into documentary evidence to obtain triangulation (Pettigrew, 1990; Yin, 2009) and thus, enhance the reliability of data collection. The organization of the Network aims to achieve a plurality of objectives, and for this reason, three strategic areas have been identified, which in turn consist of different strategic goals.

Following the literature review, a dashboard of performance key indicators was developed to determine the degree of achievement of individual strategic goals and the overall aims of the ROC. The impact of consistent monitoring on improving ROC performance was measured through longitudinal analysis based on the data collected. The objective is to understand whether an adequate monitoring system could be used as the leading resource for health systems to achieve better performance and, consequently, higher quality of care and improved patient safety.

Results. The following evidence shows how a constant monitoring system of health services, through the support of a digital platform, positively impacts the overall performance. The results obtained from the analysis of the case study show how, thanks to the use of digital tools, it is possible to have at one's disposal a large amount of data whose processing leads to the definition of a series of indicators able to contribute to effective monitoring. Constant evaluation of the work carried out allows healthcare organizations to reformulate their processes and create more stable and lasting forms of cooperation, thus increasing the quality of care provided and improving the performance of the entire healthcare system.

In fact, by measuring the time that elapses between the diagnosis and the first visit, or between the therapeutic decision and the actual administration of the act, it is possible to identify the potential points at which the healthcare process loses efficiency, thus allowing rapid and targeted intervention to remedy the flaw. It puts the patient and his needs at the centre, shifting the focus from a hospital-centred perspective to a more virtual and systemic one. Constant evaluation of the costs and economic impact of the various actions taken (e.g., repetition of diagnostic examinations) leads to rationalising the resources employed and a consequent containment of costs, enabling healthcare institutions to identify where to invest more and avoid wasting precious resources.

Although previous studies have shown how continuous monitoring of one's work can lead to stress in healthcare workers, the case study results shed light on how necessary it is. The use of a digital platform, favouring the creation of a dashboard of indicators for the measurement of healthcare services, allows, first, to trigger a process of coordination and communication between the structures, overcoming the heterogeneity that characterises healthcare network services. In addition, by feeling constantly assessed, health workers can carry out their tasks more efficiently, limiting possible errors and developing new skills that enable them to anticipate patients' health conditions.

An adequate monitoring system based on AI also impacts the knowledge management of healthcare institutions, which, thanks to the increased skills acquired by healthcare workers, can anticipate patients' health conditions and simulate the implantation of medical decisions, leading to the definition of 'personalised care'. (Finkelstein & Wood, 2013). This translates into better health system performance, identifying bottlenecks where the process loses efficiency. This facilitates the definition of strategic actions to ensure high-quality care pathways that meet patients' needs as much as possible. Therefore, this study reveals three fundamental drivers to intervene to improve overall performance: the quality of health care and services, the use of available economic resources, and the coordination of the actors involved.

Research limitations. This article is not without limits: first, by definition, case studies cannot claim to be typical. Therefore, the results cannot be generalized. One of the main shortcomings of qualitative studies is the non-

generalizability of the results obtained. Relying on the researchers' interpretation, qualitative methods do not extend the entire population. This is particularly evident in the health sector. It is an ecosystem where performance depends on the interaction of a multiplicity of actors involved, which may vary in different contexts and may be driven by different motivations. However, in other sectors where the dynamics and mechanisms impacting performance are less influenced by many actors, AI-based monitoring systems could follow different application logic paths.

Further research is needed to know whether these case studies can tell us about situations beyond the actual cases; future research should address the transferability of these conclusions to other settings to assess their external validity (Eisenhardt, 1989). For Lincoln and Guba (1985), generalizability is more about analysing the 'transferability' of research findings, making the context transparent to a reader. Our cases may be context-sensitive; the impact of a constant monitoring system may vary from region to region. This is linked to a second limitation of this work: the use of a single case study. Single case study research is a leading research method offering relevant insights and evidence in business studies. However, various problems, such as complexity and network boundaries, might undermine the value of case study research.

Therefore, in the future, it could be interesting to develop another study that supports and confirms the findings of this research allowing for a valid and robust methodology. The goal is to replicate findings across issues. Because comparisons will be drawn, the cases must be chosen carefully so that the researcher can predict similar results across cases or predict contrasting results (Yin, 2009).

Although the current study results shed light on several important issues, it might be interesting to integrate, in the future, a quantitative technique that aims to provide a deeper insight into the cost analysis. Using a multivariate regression model, it might be interesting to analyse the costs arising from inefficiencies and passive health migration to build possible cost and savings targets scenarios. Qualitative techniques can be joined with quantitative statistical analysis tools due to a massive amount of unstructured data. Through the joint use of the two different research methods, it is possible to understand findings inherent in the health management topic deeply.

Managerial implications. The previous studies and the case study analysis show how a constant monitoring system positively affects business performance. This research demonstrates how a continuous evaluation of the activities implemented by healthcare facilities can result in improved performance in terms of resource allocation and cost containment, which translates into greater patient satisfaction. While most of the previous studies focus on the construction of an adequate measurement system, this study focuses on the impact that such a system can have on the overall performance of health systems concerning the R.O.C., highlighting the possibility of processing data to build a dashboard of KPIs on which to redesign the strategy. However, a management redesign is needed that includes processes, tasks, roles and, above all, a specific cultural mindset (Homburg et al., 2017).

Several theoretical and managerial implications can be developed based on the abovementioned findings. From a theoretical point of view, the research highlights the opportunity to build an efficient system capable of evaluating the performance of the entire healthcare system and no more than individual structures based on a series of wide-ranging indicators built through data extracted from a digital platform.

The possibility of theorizing a monitoring system that disregards the specificities of individual health facilities and offers evaluations related to the entire network system, expanding the vision of the existing literature, is provided by the presence of a digital platform that makes possible a safer and more transparent sharing of information on patients; all this makes it possible to obtain a large amount of data based on which to evaluate the many aspects of a complex system such as healthcare.

As for the managerial profile, constant monitoring can capture bottlenecks where the process loses time, patient satisfaction or waste of resources.

The connection between the different actors, the possibility of monitoring the work done by each and the speed of intervention should encourage the implementation of adequate and constant monitoring systems.

The results obtained highlight the need for managers to reflect on the strategies implemented and the allocation of resources. Given the scarcity of resources available, the best allocation of resources and the reduction of costs while maintaining the quality of the services provided should be the main objectives of health structures and the ROC. This can only be achieved by continuously monitoring operational and strategic choices by developing a dashboard of indicators that provide an overview of network performance based on data provided by a digital platform.

These considerations suggest adopting a coherent digital strategy and putting the patient and his needs at the centre of decisions. Healthcare providers should adopt more patient-centred approaches to fully understand the needs of patients and hence the shortcomings of the healthcare system. The ability to provide rapid and targeted treatment would enable healthcare providers to reduce mortality rates and costs arising from repeated examinations, inadequate examinations or passive migration of healthcare.

Ultimately, the interesting study food for thought comes for policymakers, who are called upon to stimulate awareness of the benefits of a monitoring system by defining policies that incentivise healthcare institutions to develop and use digital tools. The use of AI allows healthcare institutions to have data available more quickly and, therefore, to develop appropriate monitoring systems. For this reason, the evaluation of the performance of oncology networks through the support of digital tools should be considered one of the levers on which to base the efficiency of health structures.

Originality of the paper. The originality of this study lies in the new perspective it offers. While previous studies have focused on identifying tools for defining an adequate system for monitoring health performance, the present work aims to analyse its impact on overall performance. The results obtained make it possible to identify a general

assessment system that disregards the specific features of individual healthcare structures, thus benefiting the entire system and overcoming the heterogeneity inherent in it.

The role of digital tools is also highlighted. Although the digitalization of health care is a fact, there is a deep gap in the literature. From the analysis of several studies, a focus has emerged mainly on the use of Artificial Intelligence as a tool through which to monitor patients' health status in real-time or as support in precision medicine in oncology and radiotherapy, leaving aside the possibility that these tools are used for monitoring in a broader sense. Still, Industry 4.0 and Artificial Intelligence can also support the assessment of overall performance in a narrower sense, thanks to a large amount of available data and based on which to build a dashboard of KPIs.

Finally, the value of this research work lies in the numerous managerial, theoretical and policy implications it offers. The results obtained allow the identification of multiple opportunities to formulate new theoretical constructs and offer health managers the possibility of defining targeted and immediate strategic actions supported by the definition of policies that facilitate their interventions.

The analysis, therefore, highlights the critical role of an adequate and constant monitoring system combined with advanced digital tools. It is only through continuous evaluation of the actions taken that it is possible to guarantee healthcare that meets the needs of patients through increasingly personalised treatment. There is a profound need for a paradigm shift in healthcare from a hospital-centric approach to a more patient-centric approach. Digitalization and the infinite opportunities for control it offers should be seen by healthcare providers as competitive levers and not as threats.

Keywords: monitoring system; digital platform; ROC; cancer network; statistics; KPIs.

References

- ADDICOTT R., MCGIVERN G., FERLIE E. (2006), "Networks, organizational learning and knowledge management: NHS cancer networks", *Public Money and Management*, vol. 26, n. 2, pp. 87-94.
- AIELLO J.R., KOLB K.J. (1995), "Electronic Performance Monitoring and Social Context: Impact on Productivity and Stress", *Journal of Applied Psychology*, vol. 80, n. 3, 339-353.
- BAXTER P., JACK S. (2008), "Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers", *The Qualitative Report*, vol. 13, n. 4, 544-559.
- BERTI E., CASOLARI L., CISBANI, L., FORTUNA D., GUASTAROBBA P., NOBILIO L., VIZIOLI M., GRILLI R. (2004), *Il monitoraggio delle performance cliniche*, Governo clinico.
- BUGHIN J., CATLIN T., DIETZ M. (2019), "The right digital-platform strategy", *McKinsey Quarterly*, vol. 2, pp. 1-4.
- CARBONE C., LECCI F., LEGA F., PRENESTINI A., ROTOLO A., TARRICONE R., VALOTTI G. (2013), *Misurare le performance per creare valore nelle aziende sanitarie pubbliche: uno strumento multidimensionale di valutazione*, Collana CERGAS, Egea.
- CRISTOFARO C.L., VENTURA M., REINA R., GENTILE T. (2022), *Measuring Healthcare Performance in Digitalization Era an Empirical Analysis*, In *Do Machines Dream of Electric Workers?* (pp. 137-147), Springer, Cham.
- CUCCURULLO C., PENNAROLA G. (2017), *Strategia e performance nelle aziende ospedaliere: analisi, pianificazione e valutazione*, EGEA spa.
- EISENHARDT K.M. (1989), "Building Theories from Case Study Research", *The Academy of Management Review*, vol. 14, n. 4, pp. 532-550.
- FINKELSTEIN J., WOOD J. (2013), "Predicting asthma exacerbations using artificial intelligence", *Studies in Health Technology and Informatics*, vol. 190, pp. 56-58.
- HOMBURG C., JOZIĆ D., KUEHNL C. (2017), "Customer experience management: toward implementing an evolving marketing concept", *Journal of the Academy of Marketing Science*, vol. 45, n. 3, pp. 377-401.
- JEFFCOTT S.A., MACKENZIE C.F. (2008), "Measuring team performance in healthcare: Review of research and implications for patient safety", *Journal of Critical Care*, vol. 23, pp. 188-196
- KRAUS S., SCHIAVONE F., PLUZHNIKOVA A., INVERNIZZI A. C. (2021), "Digital transformation in healthcare: Analyzing the current state-of-research", *Journal of Business Research*, vol. 123, pp. 557-567.
- LAURENZA E., QUINTANO M., SCHIAVONE F., VRONTIS D. (2018), "The effect of digital technologies adoption in healthcare industry: a case based analysis", *Business process management journal*.
- LEONE D., SCHIAVONE F., APPIO F.P., CHIAO B. (2021), "How does artificial intelligence enable and enhance value co-creation in industrial markets? An exploratory case study in the healthcare ecosystem", *Journal of Business Research*, 129, 849-859.
- LEVESQUE J., SUTHERLAND K. (2020), "Combining patient, clinical and system perspectives in assessing performance in healthcare: an integrated measurement framework", *BMC Health Services Research*, 20:23.
- LINCOLN Y.S., CUBA E.G. (1985), *Naturalistic inquiry*, Sage, Newbury Park, CA.
- LO STORTO C., GONCHARUK A. (2017), "Performance Measurement of Healthcare Systems in Europe", *Journal of Applied Management and Investment*, vol. 6, n. 3.
- MD MILON I., RAHAMAN A., MD. RASHEDUL I. (2020), "Development of Smart Healthcare Monitoring System in IoT Environment", *SN Computer Science*, n. 1, pp. 185.

- MELE R., TRIASSI M. (2008), *Management e gestione delle aziende sanitarie*, Cedam, Padova.
- PENCARELLI T. (2009), *Performance competitiva*, Economia e management delle imprese, Hoepli.
- PETTIGREW A. M. (1990), "Longitudinal field research on change: Theory and practice?", *Organization Science*, vol. 1, n. 3, pp. 267-292.
- PORTER M.E. (2010), "What is value in health care", *N Engl J Med*, vol. 363, n. 26, pp. 2477-2481.
- PORTER M.E., LEE T.H. (2013), "The strategy that will fix health care", *Harvard Business Review*, vol. 91, n. 10 (October), pp. 50-70.
- PURBEY S., MUKHERJEE K., BHAR C. (2007), "Performance measurement system for healthcare processes", *International Journal of Productivity and Performance Management*, vol. 56, n. 3, pp. 241-251.
- SIMONS R. (2000), *Performance Measurement & Control Systems for Implementing Strategy Text and Cases*, Prentice Hall, Upper Saddle River.
- STEFANELLI M. (2001), "The socio-organizational age of artificial intelligence in medicine", *Artificial Intelligence in Medicine*, vol. 23, n. 1, pp. 25-47.
- VETTORI A., VANNOZZI D. (2010), *La valutazione delle performance individuali nelle aziende sanitarie*, Franco Angeli, Milano.
- YIN R.K. (1994), *Case Study Research Design and Methods*, Applied Social Research and Methods Series, Second edn., Thousand Oaks, CA: Sage Publications Inc.
- YIN R.K. (2009), *Case study research: Design and Method*, Applied Social Research Methods Series, Fourth edn., SAGE.

Websites

<https://disaq.uniparthenope.it/vimass/>
<https://www.reteoncologicacampana.it>
<https://www.who.int>

Principi Benefit: l'esempio Yves Rocher

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Inquadramento della ricerca. *Il crescente e dovuto interesse verso la sostenibilità sta causando non solo una maggiore sensibilità da parte delle persone, ma anche trasformazioni a livello aziendale: da una riconfigurazione dei processi produttivi, alla differente concezione e ripensamento del ciclo di vita del prodotto, dei modelli di business fino alla trasformazione e nascita di nuovi modelli e forme societarie (Rawhouser et al., 2015; Caldaro 2019). Questi modelli ibridi cercano di conciliare gli elementi sociali e di sviluppo ambientale con il fine classico dell'impresa, il perseguimento dell'interesse economico.*

In Italia, guardando al modello statunitense, sulla scia di questi cambiamenti, dal 2016 abbiamo introdotto anche noi le Società Benefit (Legge di Stabilità 2016). Le Benefit Company legislativamente non sono un nuovo tipo di società, non derogano al regime ordinario (Assonime), ma arricchiscono tale elemento affiancando alla denominazione della società la dicitura SB o Società Benefit, e nell'oggetto sociale integrano nell'esercizio dell'attività economica oltre alla divisione degli utili anche il perseguire un "beneficio comune" operando "in modo responsabile, sostenibile e trasparente nei confronti di persone, comunità, territori e ambiente, beni ed attività culturali e sociali, enti e associazioni ed altri portatori di interesse". (L. 208 c.376). Il "beneficio comune" consiste nell'ottenere effetti positivi o la riduzione di effetti negativi su una o più categorie dei soggetti menzionati dal suddetto comma, con un non quieto dibattito su come e quanto gli interessi degli stakeholder possono confliggere con quelli degli shareholders (De Donno and Ventura 2018). Si ravvisa un trend crescente delle società benefit, in Italia sono più di 1.841, un fenomeno che riguarda soprattutto piccole e microimprese, ma anche aziende più grandi come Danone, Stanhome, Aboca, gruppo Chiesi, Illy, Fratelli Carli e che non è fenomeno solo italiano, ma globale (Ventura, 2021). Di fronte a uno scenario sempre più multiforme non si dovrebbe nemmeno rischiare di confondere le società benefit con le B-corp, anche se molte delle società benefit italiane sono spesso sia Benefit Corporation sia B-corp. Le B-corp sono "Certified Benefit Corporations™, aziende che superano il processo di BIA - Benefit Impact Assessment e ottengono una certificazione finale" (Gazzola et al., 2018, p. 437) rilasciata dall'ente B-Lab, organizzazione no profit che ha creato la certificazione B - Corp per le organizzazioni a scopo di lucro. Se in termini di responsabilità e trasparenza verso le tematiche sociali, ambientali ed etiche, B-corp e Benefit Corporation appaiono simili, ci sono però indubbe differenze.

Lo studio si concentrerà sulle Società Benefit poiché loro stesse decidono il "beneficio comune" che vogliono realizzare e sono poi giuridicamente chiamate a raggiungerlo poiché vincolate da quanto espresso nello statuto, al contrario delle B-corp. Il fenomeno della crescita e sviluppo di nuovi modelli ibridi, al limite dei confini con il quarto settore, si conferma anche nel crescente interesse da parte della letteratura accademica (Kirst Weber, 2021). Tuttavia, se la letteratura presente sulle società benefit è ampia, assai limitati sono gli studi a livello tanto di marketing quanto di consumer behavior e in accordo con Kirst Weber (2021), questa letteratura rimane confinata ai seguenti filoni: giuridico-legali, di governance, performance e accountability, così come focalizzata sui temi dell'imprenditorialità o ai diversi modelli di business adottati.

Numerosi sono gli studi di comparazione tra SB e le B-corp (De Marchi et al., 2019; Gazzola et al., 2018) e ricca la trattazione sul legame tra SB e sostenibilità (Stubbs, 2017; Weismann, 2017; Nigri e Del Bardo, 2018; Tabares, 2021). Dagli studi condotti sulla rendicontazione delle società benefit emergono alcune problematiche: la mancanza di omogeneità nei documenti istituzionali, così come nei report che le società benefit dovrebbero rendere disponibili, nonché una eccessiva ambiguità e spesso poca trasparenza in questi stessi documenti quando pubblicati (Galli et al., 2021). Da uno studio dei report in inglese di quattro SB operanti in quattro diversi macrosettori storici nell'economia italiana (Alimentazione e agricoltura, Abbigliamento, Arredamento, Automotive (prodotti in metallo fabbricati, macchinari e attrezzature per il trasporto) gli studiosi hanno scoperto come l'anzianità nell'essere una SB comporta un maggiore e più maturo impegno riguardo i temi ESG. Non solo, l'impegno reale verso le tematiche ESG si differenzia a seconda del settore aziendale, ad esempio, le aziende del settore della moda e della cosmetica sono le meno impegnate rispetto agli altri tre settori analizzati (Sciarelli et al., 2020). Ma l'attenzione per l'ambiente è il tema preponderante in

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tutti i diversi report, minore trattazione trovano gli altri elementi dell'acronimo ESG ossia governance, società, lavoro e prodotto e di nuovo con differenze, anche in parte naturali, da settore a settore (Sciarelli et al., 2020).

A livello di marketing e comunicazione sono ancora pochi gli studi e quei pochi sono focalizzati sulla CSR (Hiller, 2012; Fernandez, 2013) o al cause related marketing e al rischio di greenwashing (von Bergen, 2020) in cui potrebbero incorrere B-corp e società benefit. Sulla base degli studi scientifici analizzati emerge come l'indagine sulle diverse leve di marketing e della comunicazione rimane focalizzata nel valutare quali canali e che modalità si usano per comunicare il beneficio benefit (Brami, 2019; Ferlito e Faraci, 2021) o i più generali valori della sostenibilità. Rimangono assenti le ricerche sulla misurazione dell'efficacia e del comportamento da parte del consumatore nei confronti di un più generale beneficio comune. Allontanandosi dal tema delle SB e inquadrando il tema usando la lente di: sostenibilità, canali digitali e cosmesi sui quali si concentrerà parte della presente ricerca; risulta come la letteratura scientifica è cospicua. Social media e canali digitali si sono dimostrati critici nel veicolare i valori green, nell'influencare l'attitudine di scelta del consumatore per cosmetici più attenti all'ambiente (Pop et al., 2020) e nel più generale ruolo di promuovere comportamenti sostenibili (Lee, 2016). Strategico è così creare un engagement forte tra brand e consumatore. L'engagement viene in questo caso inteso così come definito da Van Doorn et al. (2010) ovvero la manifestazione di un comportamento del consumatore che ha come focus un brand o un'azienda al di là dell'interesse di acquisto. Tale coinvolgimento con un brand può essere negativo o positivo così come può avere diversi livelli di intensità: passivo-bassa intensità o attivo - alta intensità (Dolan et al., 2016), ciò che ormai è noto è l'indubbio valore dell'engagement nel contribuire positivamente alle performance d'azienda (Kumar and Pansari, 2016).

Obiettivo del paper. Considerata la scarsa attenzione della letteratura scientifica e la scarsa attenzione che molte SB pongono sia alla trasparenza sia allo studio dell'efficacia delle strategie di comunicazione (Galli et al., 2021) l'obiettivo del paper prende le mosse dalla seguente research question: il beneficio comune delle società benefit così come comunicato è in grado di creare engagement tra i propri follower?

Metodologia. In linea con l'obiettivo della ricerca è stato adottato il metodo del single case-study (Baškarada, 2014; Yin, 2009). Tale metodologia permette di avere un approccio olistico nell'indagare problematiche rilevanti, ma ancora poco studiate in letteratura. L'impiego di questo tipo di metodologia allo studio delle Benefit Corporation non è infrequente (Ferlito e Faraci, 2021, Kurland, 2018; Gazzola et al., 2019; Kopaneva and Cheney, 2019; Horton, 2020) e congruente con l'intento esplorativo di questa ricerca.

Il caso preso in considerazione è quello di Yves Rocher Italia (YR), in passato il gruppo era stato preso a riferimento in Francia nell'analisi di caso condotta per comprendere meglio le strategie etiche di crescita esterna (Le Borgne-Larivière et al., 2009) inoltre Yves Rocher è una marca mondiale di cosmetici e bellezza fondata nel 1965, incentrata sulla cosmetica vegetale e impegnata in diverse iniziative sociali ed ambientali. Lo slogan del brand è "Act Beautiful", un invito ad agire nel rispetto dell'ambiente preservando la bellezza interiore ed esteriore. Il 13 aprile 2021, Yves Rocher Italia è diventata una società benefit: "da questo momento lo scopo generale dell'azienda non è più solo quello di perseguire una crescita economica, ma anche un Impatto Positivo sul nostro Pianeta". Questa azienda è in crescita sul mercato italiano (Dainese, 2021) consolidandosi come una delle aziende leader nel settore (Retail-Index, 2020; SEMrush, 2019).

Per analizzare il caso di Yves Rocher Italia, e così rispondere se il valore benefit così come comunicato è in grado di creare engagement, abbiamo analizzato i dati raccolti in due distinte fasi. La prima fase è volta a comprendere come YR comunica il suo "beneficio comune", sono state analizzate così le strategie con cui l'azienda comunica i propri valori "benefit" sui canali digitali di YR, nel dettaglio: sito e Instagram. In questa prima fase, dopo la raccolta con un software di data scraping siamo ricorsi ad un'analisi del contenuto dei post pubblicati (Krippendorff 2004; Kohlbacher 2006). Compreso cosa l'azienda comunica, la seconda fase prevede un approccio più quantitativo con un'analisi di regressione volta a valutare l'efficacia di tali strategie misurando il grado di engagement (considerando il numero di like ai post, Coelho et al., 2016) dei diversi contenuti tra i suoi follower per comprendere se il "beneficio comune" sia percepito dai consumatori e se di conseguenza possa essere una rilevante leva di marketing.

Risultati. Fase uno. YR comunica il proprio status di società benefit ai propri stakeholders utilizzando diversi mezzi. In questa prima fase abbiamo analizzato le strategie di comunicazione dell'azienda oggetto del caso analizzando i contenuti pubblicati. Ci siamo focalizzati inizialmente sulla comunicazione sul sito ufficiale del brand, successivamente al canale Instagram.

Il sito internet ha una intera sezione dedicata allo status di "Società Benefit". In questa sezione YR passa in rassegna diversi aspetti legati alla società Benefit, dalla sua natura burocratica, fino al raccontare, attraverso diverse strategie di story-telling, le operazioni dell'azienda.

YR riporta, in primis, l'estratto dello statuto che riguarda questa transizione.

"In qualità di Società Benefit, l'azienda intende perseguire una o più finalità di beneficio comune e operare in modo responsabile e sostenibile nei confronti di persone, comunità, territori e ambiente, beni ed attività culturali e sociali, enti e associazioni ed altri portatori di interesse. In quest'ambito l'azienda s'impegna inoltre a ricollegare le persone alla natura".

Oltre questo, YR fa un passo indietro e spiega alla propria audience cos'è una società benefit, in cosa si differenzia da un'azienda tradizionale e da una B Corp. L'azienda rende anche esplicito come questo passaggio sia una tappa di un percorso costruito dal 2019, quando l'azienda è diventata una "Mission Driven Company", e che ha come obiettivo finale quello di diventare una B Corp nel 2025. Sebbene in questa piattaforma non sia esplicitato, è molto probabile che tale percorso ponga le proprie fondamenta da politiche più remote.

Nelle proprie narrative, YR spiega come l'approccio benefit si articoli in tre macroaree di azione:

- **Ambiente.** *In particolare, YR comunica il proprio impegno in progetti di piantumazione. Oltre tali iniziative, l'approccio environmental-friendly di YR è comunicato e messo in pratica attraverso i propri prodotti, spesso legati a design plastic-free e sostenibili.*
- **Persone.** *YR comunica ai propri stakeholder che il processo di sensibilizzazione alle tematiche ambientali e sociali che mette in pratica non è rivolto solo esternamente, ma anche internamente attraverso percorsi formativi ed esperienze di volontariato rivolte alla popolazione aziendale.*
- **Comunità.** *L'impegno di YR nei confronti della comunità è rivolto in particolar modo alle donne. YR si fa promotore dell'accesso al lavoro e all'imprenditorialità femminile. Questo avviene secondo due iniziative. Da un lato, attraverso il Premio Terre de Femmes, dove YR sostiene le iniziative legate alla salvaguardia della biodiversità promosse da donne. Dall'altro attraverso lo strumento di Social Selling, un sistema di vendita diretta che consente a potenziali dipendenti di avere una porta di entrata priva di barriere e flessibile al mondo del lavoro. Tutte e tre queste sezioni sono accompagnate da strategie di storytelling: articoli e interviste in cui i protagonisti delle iniziative promosse da YR raccontano le proprie storie.*

Una volta espressi i propri valori, piani e le strategie, YR rimarca la propria trasparenza. Lo fa mettendo a disposizione il report del proprio impatto, in cui sono riportati i diversi impegni per il presente e per il futuro, le azioni intraprese ed i target raggiunti. Sempre sul sito sono riportati i premi e riconoscimenti ottenuti in termini di sostenibilità, nonché gli articoli di stampa in cui si parla dell'impegno sociale ed ambientale di YR.

Tali valori vengono espressi anche sui propri canali social su cui ora, come precedentemente espresso, ci focalizzeremo prendendo come canale di riferimento Instagram, il social come recentemente riportato da Launchmetrics è la piattaforma più usata dai professionisti della bellezza (Launchmetrics- Le nuove regole del Beauty). Sul canale si può notare come YR sia piuttosto presente, con una media di quasi un post al giorno: 0,84 al giorno, per un totale di 281 post in 333 giorni. Seguendo un format di microblogging, i temi connessi ai post sono di varia natura. In alcuni post i temi legati alla componente benefit dell'azienda sono assenti. In questi casi l'azienda si focalizza specialmente su nuovi prodotti e sui benefici che questi possono avere per il consumatore finale. In altri casi l'aspetto di sostenibilità ambientale è associato al prodotto (es. il fatto che il prodotto ha componenti naturali).

Infine, una porzione importante di post, il 35%, ha riferimenti chiari ed espliciti alle componenti benefit dell'azienda. Questi post possono riguardare sia le azioni che compie l'azienda, sia suggerimenti che aiutano i consumatori ad avere un ruolo nel processo di cambiamento di cui YR si fa promotrice:

“Abbiamo deciso di ridurre l'utilizzo di plastica sui nostri packaging risparmiando fino a 1.8 tonnellate di plastica all'anno rispetto alle linee precedenti. Per una scelta impegnata anche per il Pianeta. #YvesRocher #YvesRocherItalia #BeautifulTogether #FollowYourNature #sostenibilità #ElixirBotanique #skincare”

“É ormai noto che le api siano in pericolo: ma come fare per proteggerle e aiutarle? Basta un gesto semplicissimo, come mettere un vasetto di lavanda sul proprio davanzale o nel proprio giardino! #YvesRocher #YvesRocherItalia #BeautifulTogether #GreenHeroes #shampoosolido #greenguide #consigliogreen”

Fase due. Indagati i contenuti che il brand comunica e come è comunicato il “beneficio comune” che YR come società benefit vuole perseguire, abbiamo voluto calcolare attraverso una regressione multipla l'efficacia delle comunicazioni social legate ai valori che fanno di YR una società benefit. Per fare ciò abbiamo raccolto 281 post dal profilo di YR Italia pubblicati tra il 30 marzo 2021 e il 25 febbraio 2022. Per ognuno di questi post sono stati raccolti contenuti e numero di like. Successivamente, ogni post è stato codificato in base al contenere elementi legati alla missione benefit dell'azienda o in caso contrario nel non contenerne, creando la variabile dicotomica indipendente del modello di regressione. In questa fase abbiamo anche creato una variabile dicotomica che indica se il post abbia o no la presenza di un influencer e un'altra che indica se il post serve a lanciare un nuovo catalogo: durante la fase di coding, infatti, è emerso come quest'ultima tipologia di post attiri un numero di like particolarmente elevato rispetto al resto, rendendo necessario tenere questa variabile sotto controllo. Nel modello sono coinvolte 281 osservazioni, di cui 181 (64,4%) senza elementi benefit e 100 (35,6%) con elementi benefit. Il modello finale presenta un adjusted R square di 0,149 significativo ($F(3, 277) = 17,377; p=0,00$). Non sono presenti problemi di autocorrelazione dal momento che il valore Durbin-Watson ha un valore intorno al 2 (1,57). Inoltre, non è stato rilevato alcun problema di multicollinearità dal momento che il variance inflation factor (VIF) per tutte le variabili è minore di 5 (vedere tabella 1).

Dai valori dei coefficienti emerge come le variabili di controllo abbiano un effetto positivo e significativo sul numero di likes di ogni post. A parità di altre condizioni, i post che presentano i nuovi cataloghi hanno 1500 like in più rispetto agli altri ($b=1584,96; p=0,00$). Allo stesso modo, a parità di altre condizioni, i post con influencer hanno più di 300 like rispetto agli altri ($b=318,103; p<0,05$). Andando invece a vedere l'effetto della variabile indipendente, dai risultati emerge come, a parità di condizioni, un post che mette in luce i “principi benefit” dell'azienda ha meno like rispetto agli altri in modo significativo ($b=-364,161; p<0,05$). Tutti i coefficienti, i beta standardizzati e i p-values sono elencati in tabella 1. Avendo considerato il like quale espressione dell'engagement da parte dei followers verso il brand ne risulta che i valori benefit di YR non creano engagement, negando, così, la nostra research question.

Tab. 1

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1277,049	77,069		16,570	,000		
Benefits Content	-364,161	117,327	-,173	-3,104	,002	,983	1,017
Influencer	318,103	141,246	,125	2,252	,025	,988	1,012
Catalogo	1584,963	268,920	,329	5,894	,000	,972	1,028

a. Dependent Variable: likes_count

Questo risultato, a prima vista sorprendente, può essere legato a diversi fattori da indagare in future ricerche. Una prima motivazione potrebbe essere attribuita al fatto che YR è da sempre posizionata ed attenta alle tematiche green, lo stesso brand si definisce fondatore della Cosmétique Végétale®. La scelta per l'azienda italiana di diventare una Benefit Company è solo il proseguimento di un percorso reale e coerente con la sua identità, ulteriore conferma è l'impegno assunto di diventare B - Corp entro il 2025 e di quanto la longevità su tali tematiche è un fattore importante come riscontrato anche in Sciarelli et al., 2020. Secondo fattore è ricollegabile al settore della cosmesi, guidato da valori edonici, e dalla natura del social media indagato, Casalò et al. (2016a) evidenziano come le caratteristiche dei contenuti pubblicati su Instagram siano correlati in misura maggiore all'edonismo percepito e ai livelli di soddisfazione degli utenti così come, sempre l'edonismo percepito, influenza la volontà di interagire o no con l'account di un brand. Valori quali quelli della sostenibilità si legano spesso, al contrario, a valori utilitaristici e normativi. Terzo elemento, non trascurabile, consiste nell'originalità percepita del contenuto (considerato nuovo e unico), questo è il fattore più rilevante per creare un'esperienza piacevole e soddisfacente che, alla fine, influenza l'intenzione di interagire su Instagram. I consumatori potrebbero dare per scontato l'impegno di YR, oppure preferiscono contenuti legati ai prodotti rispetto a contenuti che (direttamente o meno) li responsabilizzano ad avere comportamenti sostenibili. Per comprendere meglio questo risultato consigliamo di condurre in futuro maggiori analisi.

A questo punto è comunque necessaria una riflessione sui post e contenuti che riguardano le azioni benefit dell'azienda e della loro efficacia. Le aziende tendono a comunicare le proprie operazioni green e di sostenibilità per trasmettere i propri valori e fiducia al cliente finale. Per YR questo passaggio non è necessario considerato il suo attuale modello di business. YR è una tra le imprese leader nel network marketing, l'azienda conta più di 200 mila social sellers in Italia. Il sistema di vendita diretta, infatti, fa leva su vendita e passaparola tra pari che ispira molta più fiducia ed efficacia rispetto al canale brand-consumatore (Erskine, 2016; Kimbarovsky, 2017). Risulta possibile, dunque, ipotizzare che le comunicazioni che riguardano la natura benefit di YR siano in realtà rivolte a potenziali employee con lo scopo di avvicinarli all'azienda secondo il principio che gli impiegati contribuiscono attivamente alla formazione identitaria di una SB (Kopaneva and Cheney, 2019). Non è un caso che l'azienda definisca il social selling come parte della propria componente benefit. Questo aspetto apre un tema molto importante, ossia il ruolo dei c.d. social sellers, nei confronti dei quali l'impresa è molto impegnata e in linea con quanto teorizzato da Baccarani e Golinelli (2015, p.322), che l'immagine aziendale "scaturisce dalla quotidianità delle relazioni che ogni componente della struttura aziendale realizza con i suoi interlocutori. Tale routine non può produrre risultati positivi se non scaturisce da valori diffusi e condivisi all'interno dell'organizzazione sulla base di precisi principi etici di comportamento che siano in sincronia con aspettative sociali".

Limiti della ricerca. I limiti di questo lavoro sono legati all'aver analizzato un singolo caso. Gli insight provenienti dai risultati delle nostre analisi sono, infatti, molto legati alla natura dell'azienda scelta per l'analisi e dunque suscettibili di difficoltà di generalizzazione. Future ricerche possono confrontare tali strategie di comunicazione con quelle di altre aziende con modelli di business diversi dove meno forte è il canale di network marketing, o appartenenti a settori diversi dal cosmetico o da meno tempo impegnate a perseguire fini "benefit". L'elemento dimensionale può essere un elemento da indagare, le microimprese potrebbero scegliere di diventare delle benefit company al fine di sfruttare strategie di nicchia. Per comprendere l'efficacia ed il valore aggiunto del beneficio comune successive indagini potranno misurare l'influenza dell'essere una SB sui processi di conversione, acquisto e disponibilità a pagare o anche semplicemente iniziando a comprendere con interviste in profondità se società benefit e beneficio comune vengono percepiti come un valore aggiunto e come i brand possono comunicarlo al meglio. Partendo da un'indagine delle interazioni dei propri user con i canali social del brand YR si potrebbe comprendere se il canale usa una strategia interattiva e di ascolto, se i contenuti prodotti sono diretti verso utenti finali oppure verso influencer e social sellers e come entrambi li recepiscono, considerato il ruolo di primo piano che YR ha nel network marketing è altamente probabile.

Altre ricerche dovranno, come evidenziato da Galli et al.(2021), guardare all'impatto che ha la trasformazione in società benefit sui diversi stakeholder, sia in termini di marketing e comunicazione quanto anche nella gestione delle relazioni con essi e con la comparsa di shareholders, così come quando e di fronte a quali elementi si decide o un professionista consiglia una simile integrazione.

Altri potenziali sviluppi possono inoltre approfondire le evidenze preliminari emerse in questo studio e non strettamente legate al tema delle aziende benefit aprendo nuovi interessanti filoni di ricerca dal direct selling all'affiliate marketing, analizzandola in ottica di self-branding (Whitmer, 2019) o confrontandola con il fenomeno dei micro-influencer (Kay, Mulcahy and Parkinson, 2020). Infine, l'interesse maggiore dei follower verso il lancio di

cataloghi o nuove linee di prodotto non deve essere sottovalutato e potrebbe essere indagato con approcci più quantitativi e così essere sfruttato quale leva per sfruttare il maggiore engagement che crea legandolo ad altre azioni volte a raggiungere gli obiettivi fissati.

Implicazioni manageriali. Lo studio conferma come le Società Benefit e le aziende che fortemente credono e perseguono il rispetto di pratiche volte a raggiungere un beneficio comune, e non limitato a quello economico, devono trovare nuove e diverse strategie per comunicare al meglio il loro purpose benefit e i principi ad esso legati, soprattutto in adempimento di quella volontà di voler cambiare “la struttura del mercato intenzionalmente e direttamente creando simultaneamente valore economico, sociale e/o ambientale” (McMullen e Warnick 2016, pp.640). Il beneficio comune, divenendo un purpose che guida l'intera azienda, può aiutarle sia nella pianificazione delle strategie di costruzione del valore quanto anche nella costruzione e difesa del proprio vantaggio competitivo nel tempo. Oltre a sviluppare così strategie comunicative in grado di comunicare il beneficio che devono creare, le aziende devono rendere tali comunicazioni anche condivisibili e sfruttando i propri advocators amplificare così le opportunità di perseguire quel fine primo che giustifica l'attività economica e che distingue l'azienda dalle altre organizzazioni sociali.

Originalità del paper. Considerata la scarsa letteratura scientifica sulle leve di marketing e comunicative delle società benefit ed i loro principi lo studio vuole iniziare a colmare tale gap aprendo la strada a future ricerche precedentemente esposte. Di fronte alla nascita di modelli ibridi volti a coniugare fini economici con i fini ambientali e sociali è importante indagare come anche il go to market si modifica.

Parole chiave: hybrid organizations; società benefit; strategic marketing; marketing communication.

Bibliografia

- BACCARANI C., GOLINELLI M.G. (2015), “The non-existent firm: relations between corporate image and strategy”, *Sinergie Italian Journal of Management*, n. 97, pp. 313-323.
- BASKARADA S. (2014), “Qualitative Case Study Guidelines”, *Qualitative Report*, vol. 19, n. 40, pp. 1-25
- BRAMI B. (2019), Innovazione sociale e imprese che cambiano. Uno studio sulle società benefit del Veneto, *Economia e società regionale*, n. 2 <https://doi.org/10.3280/ES2019-002009>.
- CASALÒ L.V., FLAVIÀ C., IBAÑLEZ S. (2016a), “Antecedents of consumer interaction in Instagram”, in *XXVIII Congreso de Marketing AEMARK, ESIC Editorial*, Madrid, pp. 558-567.
- CASALÒ L.V., FLAVIÀ C., IBAÑLEZ S. (2016b), “Consumer interaction in Instagram: the role of perceived hedonism and satisfaction”, in *2016 Global Marketing Conference at Hong Kong, Global Alliance of Marketing & Management Associations*, pp. 1233-1238.
- COELHO R.L.F., OLIVEIRA D.S.D., ALMEIDA M.I.S.D. (2016), “Does social media matter for post typology? Impact of post content on Facebook and Instagram metrics”, *Online Information Review*, vol. 40, n. 4, pp. 458-471.
- DE DONNO B., VENTURA L. (2018), *Dalla benefit corporation alla società benefit*, Cacucci, Bari.
- DE MARCHI V., DI MARIA E., GALEAZZO A. (2019), *Modelli di business nelle imprese ad alto tasso di sostenibilità : un focus su b corp e società benefit in Italia* *Economia e società regionale*, vol. 37, n. 2., pp. 85-9.
- DOLAN R., CONDUIT J., FRETHEY-BENTHAM C., FAHY J., GOODMAN S. (2019), “Social media engagement behavior: A framework for engaging customers through social media content”, *European Journal of Marketing*, <https://doi.org/10.1108/EJM-03-2017-0182>.
- FERLITO R., FARACI R. (2021), “Sostenibilità e sistemi di Corporate Governance delle società benefit: il caso Illycaffè”, *Corporate Governance and Research and Development Studies*, Open Access, n. 2. <https://doi.org/10.3280/cgrds2-2021oa12550>.
- FERNÁNDEZ A M.L. (2013), “Influence of corporate social responsibility on consumers' shopping behavior and determining competitive posture of the firm”, *Journal of Marketing Analytics*, vol.1, n. 4, pp. 222-233.
- KAY S., MULCAHY R., PARKINSON J. (2020), “When less is more: the impact of macro and micro social media influencers' disclosure”, *Journal of Marketing Management*, vol. 36, n. 3-4, pp. 248-278.
- KIRST R. (2021), “Best of the world or better for the world? A systematic literature review on benefit corporations and certified B corporations' contribution to sustainable development”, *Corporate Social Responsibility and Environmental Management* vol. 28, n. 6 ISSN: 1535-3958 Online ISSN: 1535-396.
- KOHLBACHER F. (2006), “The Use of Qualitative Content Analysis in Case Study Research”, In *Forum Qualitative Sozialforschung/Forum*, *Qualitative Social Research*, vol. 7, n. 1, pp. 1-30: Institut für Qualitative Forschung.
- KOPANEVA I.M., CHENEY G. (2019), “Organizational identity formation in alternative organizations: A study of three benefit corporations”, *Management Communication Quarterly*, vol. 33, n. 4, pp. 484-511.
- KRIPPENDORFF K. (2004), “Reliability in Content Analysis”, *Human Communication Research*, vol. 30, n. 3, pp. 411-33.
- KUMAR V., PANSARI A. (2016), “Competitive Advantage through Engagement”, *Journal of Marketing Research*, <https://doi.org/10.1509/jmr.15.0044>.
- KURLAND N. (2018), “ESOP Plus Benefit Corporation: Ownership Culture with Benefit Accountability”, *California Management Review*, vol. 60, n. 4, p51-73.

- GALLI D., TORELLI R., TIBILETTI V. (2021), "Signalling the Adoption of the Benefit Corporation Model: A Step towards Transparency", *Sustainability*, n. 13, pp. 6967.
- GAZZOLA P., GRECHI D., OSSOLA P., PAVIONE E. (2019), "Certified Benefit Corporations as a new way to make sustainable business: The Italian example", *Corporate Social Responsibility and Environmental Management*, vol. 26, n. 6.
- GOPALDAS A. (2014), "Marketplace Sentiments", *Journal of Consumer Research*, vol. 41, n. 4, pp. 995-1014.
- HALDAR S. (2019), "Towards a Conceptual Understanding of Sustainability-driven Entrepreneurship", *Corporate Social Responsibility and Environmental Management* vol. 26, n. 6., pp. 1157-70.
- HILLER J.S. (2013), "The benefit corporation and corporate social responsibility", *Journal of Business Ethics*, vol. 118(2), 287-301.
- HORTON BRENT J. (2020), "Terra incognita: applying the entire fairness standard of review to benefit corporations", *University of Pennsylvania Journal of Business Law*, vol. 22, n. 4, pp. 842-898, 57p.
- LEGGI 28 dicembre 2015, n. 208.
- LE BORGNE-LARIVIÈRE M., MEIER O., SCHIER G. (2009), "Les acquisitions de sociétés éthiques en Europe: analyse de cas et approches managériales", *Revue Management et Avenir*, abr2009, n. 23., pp. 123-138. 16p.
- LEE K. (2008), "Opportunities for green marketing: Young consumers", *Marketing Intelligence Plan*, n. 26, pp. 573-586.
- MA G., RAU P.L.P., GUO Z. (2018), "The Effects of Environmental Awareness and Consumption Value on Green Makeup Product Purchase Intentions", *Psychology*, n. 9, pp. 1898-1916.
- MCMULLEN J.S., WARNICK B J. (2016), "Should we require every new venture to be a hybrid organization?", *Journal of Management Studies*, vol. 53, n. 4, pp. 630-662.
- NIGRI G., DEL BALDO M. (2018), "Sustainability reporting and performance measurement systems: How do small- and medium- sized benefit corporations manage integration?", *Sustainability*, vol. 10, n. 12, pp. 4499
- POP R.A., SAPLACAN Z., ALT M.A., "Social Media Goes Green-The Impact of Social Media on Green Cosmetics Purchase Motivation and Intention", *Information MDPI*, vol. 11 n. 9, <https://doi.org/10.3390/info11090447>.
- RAWHOUSER H., CUMMINGS M., CRANE A. (2015), "Benefit corporation legislation and the emergence of a social hybrid category", *California Management Review*, vol. 57, n. 3, pp. 13-35
- STUBBS W. (2017), "Characterising B corps as a sustainable business model: An exploratory study of B Corps in Australia", *Journal of Cleaner Production*, n. 144, pp. 299-312.
- HILLER J.S. (2013), "The Benefit Corporation and Corporate Social Responsibility", *Journal of Business Ethics*, n. 18, pp. 287-301.
- SCIARELLI M., COSIMATO S., LANDI G. (2020), "Benefit Corporations Approach to Environmental, Social and Governance Disclosure: A Focus on Italy", *Entrepreneurship Research*, <https://doi.org/10.1515/erj-2019-0318>.
- TABARES S. (2020), "Do hybrid organizations contribute to sustainable development goals? Evidence from B Corps in Colombia", *Journal of Cleaner Production*, n. 280, pp. 124615.
- VAN DOORN J., LEMON K.N., MITTAL V., NASS S., PICK D., PIRNER P. (2010), "Customer engagement behavior: Theoretical foundations and research directions", *Journal of Service Research*, vol. 13, n. 3, pp. 253-266.
- VENTURA L. (2021), "Philanthropy and the for-profit Corporation: The Benefit Corporation as the New Form of Firm Altruism", *European Business Organization Law Review*, <https://doi.org/10.1007/s40804-021-00227-x>.
- VON BERGEN S. (2020), Holding oregon benefit companies accountable for greenwashing and faux CSR *Lewis & Clark Law Review*, vol. 24, n. 3, p1097-1149. 52p.
- YIN R.K. (2009), *Case study research: Design and methods (4th Ed.)*, Thousand Oaks, CA: Sage.
- WEISMANN M.F. (2017), "The missing metrics of sustainability: just how beneficial are corporations? Delaware", *Journal of Corporate Law* vol. 42, n. 1, p1-50. 50p.
- WHITMER J.M. (2019), "You are your brand: Self-branding and the marketization of self", *Sociology Compass*, vol.13, n. 3.

Siti internet

- Assonime Circolare n. 19/2016: <https://www.assonime.it/attivita-editoriale/circolari/Pagine/Circolari.aspx>
- Dainese, 2021: <https://beauty.pambianconews.com/2021/10/le-estere-soffrono-cresce-yves-rocher/43933>
- Erskine, 2016: <https://www.entrepreneur.com/article/280371>.
- Kimbarovsky, 2017: <https://www.crowdspring.com/blog/successful-branding-for-entrepreneurs-statistics/>.
- Launchmetrics- Le nuove regole del Beauty: <https://www.launchmetrics.com/it/risorse/whitepapers/trend-beauty-2020>.
- Retail-Index. (July 14, 2020). Reading cosmetics and personal care retailers in Italy as of 2020, by number of stores [Graph]. In Statista. Retrieved February 26, 2022: <https://www.statista.com/statistics/950493/leading-cosmetics-and-personal-care-retailers-number-of-stores-italy/>
- SEMrush. (September 24, 2019). Leading cosmetics e-commerce websites in Italy as of July 2019, by number of visits (in 1,000s) [Graph]. In Statista. Retrieved February 26, 2022: <https://www.statista.com/statistics/1087974/leading-cosmetics-websites-in-italy-by-number-of-visits/>.
- Yves Rocher: <https://www.yves-rocher.it/brand/societa-benefit>

L'impatto sui consumatori della presenza di olio di palma nella cioccolata spalmabile.

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Inquadramento della ricerca. L'olio di palma è un ingrediente molto utilizzato in ambito industriale, in particolare nel settore alimentare (Reijnders and Huijbregts, 2008). La crescente domanda di olio di palma (Khatun et al., 2017) incontra un limite, innanzitutto di tipo climatico, che consente la coltura di 1,37 miliardi di ettari di superficie terrestre, dei quali utilizzabili ancora una percentuale relativamente bassa, il 17% (Pirker et al., 2016). La demonizzazione dell'olio di palma ha due cause principali:

1- proprietà nutrizionali

2- conseguenze sull'ambiente dovute alla sua coltura.

Dal punto di vista nutrizionale l'olio di palma è ricco di acidi grassi saturi e acido palmitico (Matthäus, 2007), anche se esistono studi contrastanti sui suoi effetti sulla salute (Mancini et al., 2015); dal punto di vista ambientale le conseguenze della coltura della palma sono sintetizzabili in: deforestazione, minaccia alla biodiversità e inquinamento (Wilcove et al., 2013).

La pressione mediatica sulla presenza di questo ingrediente in numerosi alimenti industriali (che spesso hanno optato per l'olio di palma in virtù del suo essere incolore e insapore, oltre che per il basso costo) ha costretto molte imprese alimentari a eliminare questo ingrediente sostituendolo il più delle volte con altri oli (ad esempio l'olio di girasole). Da un punto di vista di marketing questa operazione ha implicato un grosso sforzo da parte delle imprese coinvolte, dalla pubblicità sino alle modifiche al packaging, con l'obiettivo di rassicurare i consumatori più preoccupati. La letteratura scientifica offre diversi riferimenti utili per comprendere meglio questo aspetto.

La volontà di acquisto (Willingness To Buy) di prodotti maggiormente sostenibili è stata oggetto di analisi da parte di van Birgelen et al. (2009), Prakash e Pathak (2017) e Borusiak et al. (2020), i quali hanno evidenziato come essa sia positivamente associata alla consapevolezza delle questioni ambientali. Martinho et al. (2015) sottolineano come, oltre ad una positiva attitudine rispetto ai prodotti "verdi", le scelte dei consumatori siano influenzate da variabili quali il genere e l'attenzione alle possibilità di riciclo delle confezioni dei prodotti (Willingness To Recycle), mentre Seo et al. (2016) hanno dimostrato come per alcune tipologie di prodotto, come ad esempio gli yogurt da bere, questi driver esercitino sulla willingness to buy un effetto minore rispetto a quello esercitato dalla presenza di ingredienti eco-sostenibili. Considerazioni analoghe vengono presentate da Coutinho et al. (2021), i quali constatano come aspetti legati all'etica, alla sostenibilità ambientale e alla salubrità degli ingredienti utilizzati possano condizionare l'accettazione di un prodotto da parte dei consumatori, da Delorme et al. (2021), che rilevano come tra gli aspetti che maggiormente preoccupano i consumatori non ci siano solo quelli legati al valore nutrizionale e funzionale per prodotto medesimo, ma anche quelli connessi ai suoi processi produttivi, e da Horska et al. (2011), i quali indagano gli effetti di sicurezza dei processi produttivi, gusto e brand sulla qualità percepita e i processi di scelta. Non trascurabili appaiono, infine, i contributi di Campo et al., (2021), Magnier and Criè (2015) e Lunardo et al. (2021), i quali hanno analizzato il piacere / il senso di colpa legato all'esperienza di consumo di tali prodotti.

La letteratura scientifica ha inoltre rilevato come la capacità di tali attributi nell'influenzare la valutazione del prodotto sia differente a seconda dell'età del consumatore. Se, infatti, Saphores e Nixon (2014), Jezewska-Zychowicz e Jeznach (2015) e Baruk e Iwanicka (2016) identificano nei consumatori più maturi quelli con una maggiore propensione al riciclo rispetto ai più giovani e Samdahl e Robertson, (1989), Vining e Ebreo (1990) e Squires (2019) come quelli con una maggiore propensione agli acquisti sostenibili, secondo un'indagine svolta da Mason et al. (2022) sarebbero i soggetti tra i 18 e i 34 anni ad avere più attenzione verso le pratiche di eco-sostenibilità. I Millennials, inoltre, sarebbero i consumatori con un maggior livello di informazione (Koutsimanis et al., 2012).

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Un ulteriore campo di ricerca, essenziale per comprendere quali variabili impattino sui consumatori per orientarli verso l'acquisto di prodotti più sostenibili, riguarda l'influenza di alcuni elementi (visivi e non), alcuni dei quali possono essere sintetizzati nella seguente tabella.

Tab. 1: studi sul consumatore

COLORE	Il colore influenza la percezione del gusto ed è il primo attributo che attrae il consumatore	Madzharov et al., 2016
PACKAGING	Il tipo di packaging influenza percezione di calorie e salubrità percepita del prodotto	Campo et al., 2021
INGREDIENTI	La presenza di ingredienti eco-sostenibili evoca una maggiore willingness to buy del packaging sostenibile	Seo et al. (2016)
QUALITA' DEL PRODOTTO	Se il packaging è più sostenibile i consumatori tendono a percepire il prodotto come di qualità superiore rispetto ad uno in confezione non sostenibile. I consumatori più giovani tendono invece a tenere in considerazione attributi quali la qualità del prodotto, la produzione eco-sostenibile dello stesso e il prezzo.	Magnier et al., 2016; Lago et al., 2020.

Non trascurabile, infine, appare il ruolo che il prezzo può esercitare nell'orientare le scelte di acquisto: a tal proposito ancora una volta la variabile anagrafica è stata oggetto di ricerca da parte di più studiosi, pur se con risultati diversi (Yamane e Kanenko, 2021; Dardanoni, 2021; Klaiman et al., 2016). Secondo Klaiman et al. (2016), l'età è definita come fattore rilevante sulla "Willingness to pay", in particolare sottolineando la volontà di spendere maggiormente sia dai consumatori più giovani che da quelli più avanti con l'età. Recentemente Yamane e Kanenko (2021) hanno invece rilevato come le generazioni più giovani, inclusi i cosiddetti Millenials, sono quelle più attente al raggiungimento di obiettivi di sostenibilità e più disponibili a spendere un prezzo maggiore per i prodotti verdi. Similmente Dardanoni (2021), che focalizza l'attenzione sui consumatori italiani, evince che i consumatori più attenti e disponibili a spendere i propri "risparmi" sono proprio i più giovani. Tipologia diversa è invece quella identificata da Laroche et al. (2001) che profila come consumatori che spenderebbero di più per prodotti più sostenibili quelli di sesso femminile, sposate e con almeno un figlio in casa.

Obiettivo del paper. Tale premessa è fondamentale per comprendere il focus del nostro studio: misurare quanto l'attenzione verso la sostenibilità (ambientale e sociale) possa impattare sui consumatori, nello specifico considerando il caso del prodotto "crema spalmabile alla nocciola". La scelta è giustificata dalla varietà di alternative che sono presenti sul mercato e dal fatto che essa sia un prodotto commercializzato sia con olio di palma (come fa, ad esempio, l'azienda leader del settore, cioè Ferrero con la sua celebre Nutella) sia senza olio di palma (si pensi al principale competitor, cioè al gruppo Elah-Dufour con la sua crema Novi). In entrambi i casi la presenza/assenza dell'olio di palma è una caratteristica che, in ottica marketing, ha un forte impatto sulle strategie comunicative delle imprese. Si pensi a Ferrero: l'impresa piemontese continua a utilizzare olio di palma per la sua Nutella, sviluppando tuttavia una campagna di comunicazione volta a far conoscere la sostenibilità dell'olio di palma utilizzato, sia sugli effetti ambientali che dal punto di vista sociale; allo stesso tempo, invece, Novi evidenzia sulla confezione della sua cioccolata spalmabile come l'unico olio presente nel prodotto sia quello naturale delle nocciole (che è poi conseguenza del suo prezzo maggiore) e come la confezione medesima sia riciclabile.

L'attenzione verso la sostenibilità, in particolare, viene considerata secondo una duplice prospettiva: dapprima come sensibilità dichiarata dai consumatori nei confronti di tali tematiche, quindi come esposizione alla comunicazione di sostenibilità da parte delle imprese. Per misurare gli effetti psicologici nei consumatori della presenza/assenza dell'olio di palma in una crema spalmabile alla nocciola e le possibili conseguenze in termini di marketing per le imprese, si è inoltre scelto di considerare la variabile prezzo solo con riferimento alla possibile disponibilità a pagare di più per acquistare un prodotto che percepisce come più sostenibile.

Alla luce di tali premesse, sono formulate le seguenti ipotesi di ricerca, che si intende testare:

H1 - La propensione all'acquisto di una crema spalmabile alla nocciola senza olio di palma rispetto ad una con olio di palma che abbia un prezzo simile o lievemente inferiore, è positivamente correlata al grado di sensibilità del consumatore alle tematiche della sostenibilità ambientale e sociale;

H2 - I consumatori tendono a percepire una crema spalmabile alla nocciola senza olio di palma come di maggiore qualità rispetto ad una con olio di palma;

H3 - Il senso di colpa legato al consumo di crema spalmabile alla nocciola è inferiore se il prodotto è percepito come ecologicamente e/o socialmente sostenibile;

H4 - I consumatori della Generazione Z sono quelli maggiormente propensi a spendere di più per l'acquisto di una crema spalmabile alla nocciola priva di olio di palma rispetto ad una con olio di palma;

H5 - La consapevolezza che un'azienda implementi azioni di sostenibilità ecologica e/o sociale pur senza rinunciare all'utilizzo di olio di palma nel prodotto commercializzato, è in grado di modificare le scelte di acquisto anche dei consumatori con una maggiore sensibilità alle tematiche della sostenibilità.

Metodologia. L'indagine, tuttora in corso, è condotta mediante questionario strutturato, somministrato online ad un campione non probabilistico di cittadini italiani maggiorenni. La non rappresentatività del campione e la decisione

di non porre restrizioni relativamente a variabili di tipo anagrafico, di genere, geografico e/o di livello di istruzione sono motivate dalla volontà di ottenere una rappresentazione generale delle percezioni dei partecipanti all'indagine e di estendere quanto più possibile l'ambito della ricerca, secondo un approccio ampiamente consolidato in letteratura (Nascimento et al., 2022; Ketelsen et al., 2020); per le medesime ragioni, l'indagine include sia i consumatori che i non-consumatori di creme spalmabili alla nocciola.

Il questionario, che è stato sottoposto ad un test preliminare con un campione ristretto di rispondenti (N=10) prima di giungere alla sua formulazione definitiva, è preceduto da una breve descrizione di scenario ed è composto da quesiti volti ad indagare: il grado di sensibilità del partecipante alle principali tematiche della sostenibilità ambientale e sociale; il grado di familiarità con la specifica tipologia di prodotto; la percezione di qualità di prodotto; la maggiore o minore propensione all'acquisto di una crema spalmabile alla nocciola priva di olio di palma rispetto ad una con olio di palma; la maggiore o minore propensione a spendere di più per l'acquisto di una crema spalmabile alla nocciola priva di olio di palma rispetto ad una con olio di palma; la misurazione del senso di colpa legato a tale consumo; l'esposizione del consumatore alle attività di comunicazione di sostenibilità delle imprese e il suo grado di proattività nell'acquisire tali informazioni. L'ultima sezione del questionario, infine, è riservata a tracciare il profilo sociodemografico del rispondente per genere, età, stato civile, livello di istruzione, condizione occupazionale, area geografica e livello di urbanizzazione del luogo di residenza.

In dettaglio, il grado di familiarità con il prodotto e il profilo sociodemografico dei rispondenti sono stati rilevati attraverso domande a risposta chiusa, mentre i quesiti relativi alla stima della disponibilità a pagare sono stati formulati in coerenza con la metodologia della discrete choice analysis. Gli altri quesiti sono stati proposti mediante una serie di affermazioni auto-descrittive il cui grado di accordo dei rispondenti è stato misurato con una scala Likert a 7 punti (1=profondamente in disaccordo e 7=completamente d'accordo); le affermazioni sono formulate tenendo conto di specifica review della letteratura sui rispettivi temi oggetto di indagine, comprensiva di una rassegna degli studi precedenti relativi alle caratteristiche sensoriali (Gonzalez-Estanol et al., 2022; Merlino et al., 2021; Bascuas et al., 2021; Paz et al., 2021), nutrizionali (Selvasekaran e Chidambaram, 2021), reologiche (Lončarević et al., 2016; Manzocco et al., 2014) e psicochimiche (Acan et al., 2021; Tolve et al., 2021) delle creme spalmabili con nocciola e/o cioccolato.

Risultati. I risultati dello studio saranno analizzati e discussi al termine della somministrazione dei questionari e dell'elaborazione statistica dei dati. Oltre alla validazione delle ipotesi formulate, l'auspicio è quello di arrivare a formulare un modello teorico che rappresenti l'interazione tra i fenomeni indagati.

Limiti della ricerca. I limiti della ricerca sono ravvisabili nella tecnica di campionamento adottata, che non consente di generalizzare i risultati ottenuti: sarebbe auspicabile, quindi, il ricorso ad un campione statisticamente rappresentativo. Allo stesso modo non appare trascurabile che si sia inteso indagare le percezioni dei soli consumatori italiani: sarebbe quindi opportuno sviluppare degli studi con rispondenti di altri Paesi, per verificare se le differenze interculturali possano variare la percezione rispetto all'uso o il non uso di olio di palma nelle creme spalmabili alla nocciola e, di conseguenza, la propensione ad acquistare e/o a pagare di più tali prodotti. Inoltre, nell'indagine sono stati esplorati esclusivamente aspetti di natura non sensoriale: si potrebbero, quindi, condurre degli studi in cui vengono proposti reali test di assaggio di varianti di prodotto con e senza olio di palma, per valutarne gusto, texture, colore, aspetto e accettabilità sensoriale. Lo sviluppo di test e/o lo studio del comportamento di acquisto in contesti reali potrebbe, altresì, essere preso in considerazione con riferimento all'attitudine a pagare di più, che in questa ricerca è stata misurata solo in un contesto teorico: ciò consentirebbe, inoltre, di individuare le leve più utili a superare il cosiddetto "intention-behavior gap" (Sheeran e Webb, 2016; Vermeir e Verbeke, 2006), che tuttora riveste un peso considerevole nell'acquisto di prodotti sostenibili.

Implicazioni manageriali. Il paper intende fornire degli spunti utili a identificare le barriere all'acquisto di prodotti alimentari sostenibili, suggerendo altresì possibili leve per superarle. Ove le ipotesi di ricerca venissero confermate, esso consentirebbe di dimostrare, in particolare, come le attività di comunicazione volte ad aumentare il livello di conoscenza dei consumatori abbiano degli impatti positivi su scelte di acquisto e di consumo maggiormente orientate alla sostenibilità. Un riscontro positivo alle ipotesi di ricerca evidenzerebbe, inoltre, quanto sia essenziale a tal riguardo il contenuto della comunicazione veicolata: per massimizzare la sua efficacia, infatti, essa dovrebbe orientarsi non solo a illustrare i benefici concreti che derivano (a livello individuale e di caratteristiche sensoriali/qualità della crema spalmabile) dall'utilizzo di ingredienti più sostenibili, ma anche a presentare le attività che complessivamente svolge l'impresa produttrice per ridurre l'impatto del proprio operato sulle generazioni future, sui territori di produzione e/o su quelli di acquisizione degli ingredienti utilizzati. Questo, a sua volta, avrebbe degli effetti benefici sul livello complessivo di fiducia accordato dai consumatori italiani alle imprese alimentari, che si potrebbe tradurre in particolare in una accresciuta consapevolezza che gli sforzi compiuti dalle imprese per orientare i propri investimenti verso l'introduzione di nuovi ingredienti e/o verso l'implementazione di processi produttivi innovativi siano originati non soltanto da mere considerazioni di profitto, ma anche da una reale sollecitudine circa la salute del consumatore e dell'ambiente.

Originalità del paper. L'originalità della ricerca deriva in primis dalla natura dello studio. Infatti, a conoscenza degli autori la maggior parte degli studi dedicati all'utilizzo di olio di palma nei prodotti alimentari ha natura essenzialmente biologico-chimica o relativa alle scienze alimentari. La prospettiva di questo studio è, invece, prettamente di marketing, ambito nel quale gli studi sugli effetti della presenza di olio di palma negli alimenti sono pochi, a maggior ragione con riferimento ai consumatori italiani.

Parole chiave: consumo sostenibile; fiducia; conoscenza; olio di palma; crema spalmabile alla nocciola; comunicazione di sostenibilità

Bibliografia

- ACAN B.G., TOKER O.S., PALABIYIK I., PIROUZIAN H.R., BURSA K., KILICLI M., YAMAN M., ER T., KONAR N. (2021), "Physicochemical properties of chocolate spread with hazelnut cake: Comparative study and optimization", *LWT - Food and Science Technology*, vol. 147, 111548.
- BARUK A.I., IWANICKA A. (2016), "The effect of age, gender and level of education on the consumer's expectations towards dairy product packaging", *British Food Journal*, vol. 118, n. 1, pp. 100-118.
- BASCUAS S., ESPERT M., LLORCA E., QUILES A., SALVADOR A., HERNANDO I. (2021), "Structural and sensory studies on chocolate spreads with hydrocolloid-based oleogels as a fat alternative", *LWT - Food and Science Technology*, vol. 135, p. 110228.
- BORUSIAK B., SZYMKOWIAK A., HORSKA E., RASZKA N., ZELICHOWSKA E. (2020), "Towards Building Sustainable Consumption: A Study of Second-Hand Buying Intentions", *Sustainability*, vol. 2, n. 3, p. 875.
- CAMPO R., REINOSO-CARVALHO F., DE LUCA M., TRIO O. (2021), "Does the appearance of packaging influence consumers' expectations of dietary food in e-commerce?", XVIII SIM Conference *Trasformazione digitale dei mercati: il Marketing nella creazione di valore per le imprese e la società*, Ancona, 14-15 Ottobre 2021.
- COUTINHO N.M., SILVEIRA M.R., GUIMARÃES J.T., FERNANDES L.M., PIMENTEL T.C., SILVA M.C., CRUZ A.G. (2021), "Are consumers willing to pay for a product processed by emerging technologies? The case of chocolate milk drink processed by cold plasma", *LWT - Food and Science Technology*, vol. 138, p. 110772.
- DARDANONI G. (2021), "Young people's willingness to pay for environmental protection", *Ecological Economics*, vol. 179, 106853.
- DELORME M.M., PIMENTEL T.C., FREITAS M.Q., DA CUNHA D.T., SILVA R., GUIMARÃES J.T., CRUZ A.G. (2021), "Consumer innovativeness and perception about innovative processing technologies: A case study with sliced Prato cheese processed by ultraviolet radiation", *International Journal of Dairy Technology*, vol. 74, n. 4, pp. 768-777.
- GONZALEZ-ESTANOL K., CLICERI D., BIASIOLI F., STIEGER M. (2022), "Differences in dynamic sensory perception between reformulated hazelnut chocolate spreads decrease when spreads are consumed with breads and wafers", *Food Quality and Preference*, vol. 98, p. 104532.
- HORSKÁ E., ŮRGEOVÁ J., PROKEINOVÁ R. (2011), "Consumers' food choice and quality perception: Comparative analysis of selected Central European countries", *Agricultural Economics*, vol. 57, pp. 493-499.
- JEZEWSKA-ZYCHOWICS M., JEZNACH M. (2015), "Consumers' Behaviours Related to Packaging and their Attitudes Towards Environment", *Journal of Agribusiness and Rural Development*, vol. 37, n. 3, pp. 447-457.
- KETELSEN M., JANSSEN M., HAMM U. (2020), "Consumers' response to environmentally-friendly food packaging - A systematic review", *Journal of Cleaner Production*, vol. 254, p. 120123.
- KHATUN R., REZA M.I.H., MONIRUZZAMAN M., YAAKOB Z. (2017), "Sustainable oil palm industry: The possibilities", *Renewable and Sustainable Energy Reviews*, vol. 76, pp. 608-619.
- KLAIMAN K., ORTEGA D., GARNACHE C. (2016), "Consumer preferences and demand for packaging material and recyclability", *Resources, Conservation and Recycling*, vol. 115, pp. 1-8.
- KOUTSIMANIS G., GETTER K., BEHE B., HARTE J., ALMENAR E. (2012). "Influences of packaging attributes on consumer purchase decisions for fresh produce", *Appetite*, vol. 59, n. 2, pp. 270-80.
- LAGO N.C., MARCON A., DUARTE RIBEIRO J.L., DE MEDEIROS J.F., BASBOSA BRILHO V., ANTONI V. (2020), "Determinant attributes and the compensatory judgement rules applied by young consumers to purchase environmentally sustainable food products", *Sustainable Production and Consumption*, vol. 23, pp. 256-273.
- LAROCHE M., BERGERON J., BARBARO-FORLEO G. (2001), "Targeting consumers who are willing to pay more for environmentally friendly products", *Journal of Consumer Marketing*, vol. 18, n. 6, pp. 503-520.
- LONČAREVIĆ I., PAJIN B., PETROVIĆ J., ZARIĆ D., SAKAČ M., TORBICA A., LLOYD D.M., OMORJAN R. (2016), "The impact of sunflower and rapeseed lecithin on the rheological properties of spreadable cocoa cream", *Journal of Food Engineering*, vol. 171, pp. 67-77.
- LUNARDO R., SAINTIVES C., CHANEY D. (2021), "Food packaging and the color red: How negative cognitive associations influence feelings of guilt", *Journal of Business Research*, vol. 134, pp. 589-600.
- MADZHAROV A.V., RAMANATHAN S., BLOCK L.G. (2016). "The Halo Effect of Product Color Lightness on Hedonic Food Consumption", *Journal of the Association for Consumer Research*, vol. 1, n. 4, pp. 579-591.
- MAGNIER L., CRIÉ D. (2015), "Communicating packaging eco-friendliness: An exploration of consumers' perceptions of eco-designed packaging", *International Journal of Retail & Distribution Management*, vol. 43, n. 4/5, pp. 350-366.
- MAGNIER L., SCHOORMANS J.P.L., MUGGE R. (2016), "Judging a product by its cover: Packaging sustainability and perceptions of quality in food products", *Food Quality and Preference*, vol. 53, pp. 132-142.

- MANCINI A., IMPERLINI E., NIGRO E., MONTAGNESE C., DANIELE A., ORRU' S., BUONO P. (2015), "Biological and nutritional properties of palm oil and palmitic acid: Effects on health", *Molecules*, vol. 20, n. 9, pp. 17339-17361.
- MANZOCCO L., CALLIGARIS S., CAMERIN M., PIZZALE L., NICOLI M.C. (2014), "Prediction of firmness and physical stability of low-fat chocolate spreads", *Journal of Food Engineering*, vol. 126, pp. 120-125.
- MARTINHO G., PIRES A., PORTELA G., FONSECA M. (2015), "Factors affecting consumers' choices concerning sustainable packaging during product purchase and recycling", *Resources, Conservation and Recycling*, vol. 103, pp. 58-68.
- MASON M.C., PAULUZZO R., UMAR R.M. (2022), "Recycling habits and environmental responses to fast-fashion consumption: Enhancing the theory of planned behavior to predict Generation Y consumers' purchase decisions", *Waste Management*, vol. 139, pp. 146-157.
- MATTHAUS B. (2007), "Use of palm oil for frying in comparison with other high-stability oils", *European Journal of Lipid Science and Technology*, vol. 109, n. 4, pp. 400-409.
- MERLINO V.M., MOTA-GUTIERREZ J., BORRA D., BRUN F., COCOLIN L., BLANC S., MASSAGLIA S. (2021), "Chocolate culture: Preferences, emotional implications and awareness of Italian consumers", *International Journal of Gastronomy and Food Science*, vol. 25, 100374.
- MORAN P., GHOSHAL S. (1996), "Bad for Practice: A critique of the Transaction Cost Theory", *Academy of Management Review*, vol. 21, n. 1, pp. 13-47.
- NASCIMENTO A.G.M., TOLEDO B.S., GUIMARÃES J.T., RAMOS G.L.P.A., DA CUNHA D.T., PIMENTEL T.C., CRUZ A.G., FREITAS M.Q., ESMERINO E.A., MÁRSICO E.T. (2022), "The impact of packaging design on the perceived quality of honey by Brazilian consumers", *Food Research International*, vol. 151, 110887.
- PAZ L.I., JANUSZEWSKA R., SCHOUTETEN J.J., VAN IMPE J. (2021), "Challenges of pairing chocolates and nuts: Perceptions, interactions and dynamics of contrasting chocolates with nuts", *Food Research International*, vol. 148, 110620.
- PIRKER J., MOSNIER A., KRAXNER F., HAVLIK P., OBERSTEINER M. (2016), "What are the limits to oil palm expansion?", *Global Environmental Change*, vol. 40, pp. 73-81.
- PRAKASH G., PATHAK P. (2017), "Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation", *Journal of Cleaner Production*, vol. 141, pp. 385-393.
- REIJNDERS L., HUIJBREGTS M.A.J. (2008), "Palm oil and the emission of carbon-based greenhouse gases", *Journal of Cleaner Production*, vol. 16, pp. 477-482.
- SAMDAHL D.M., ROBERTSON R. (1989), "Social determinants of environmental concern: Specification and test of the model", *Environment and Behavior*, vol. 21, n. 1, pp. 57-81.
- SAPHORES J.D.M., NIXON H. (2014), "How effective are current household recycling policies? Results from a national survey of U.S. households", *Resources, Conservation and Recycling*, vol. 92, pp. 1-10.
- SELVASEKARAN P., CHIDAMBARAM R. (2021), "Advances in formulation for the production of low-fat, fat-free, low-sugar, and sugar-free chocolates: An overview of the past decade", *Trends in Food Science & Technology*, vol. 113, pp. 315-334.
- SEO S., AHN H.K., JEONG J., MOON J. (2016), "Consumers' Attitude toward Sustainable Food Products: Ingredients vs. Packaging", *Sustainability*, vol. 8, n.10, 1073.
- SHEERAN P., WEBB T.L. (2016), "The intention-behavior gap", *Social and Personality Psychology Compass*, vol. 10, n.9, pp. 503-518.
- SQUIRES S. (2019), "Do generations differ when it comes to green values and products?", *Electronic green products*, vol. 1, n. 42.
- TOLVE R., TCHUENBOU-MAGAIA F.L., VERDERESE D., SIMONATO B., PUGGIA D., GALGANO F., ZAMBONI A., FAVATI F. (2021), "Physico-chemical and sensory acceptability of no added sugar chocolate spreads fortified with multiple micronutrients", *Food Chemistry*, vol. 364, p. 130386.
- VAN BIRGELEN M., SEMEIJN J., KEICHER M. (2009), "Packaging and Proenvironmental Consumption Behavior: Investigating Purchase and Disposal Decisions for Beverages", *Environment and behavior*, vol. 41, n. 1, pp. 125-146.
- VERMEIR I., VERBEKE W. (2006), "Sustainable food consumption. Exploring the consumer "attitude-behavioral intention" gap", *Journal of Agricultural and Environmental Ethics*, vol. 19, n. 2, pp. 169-194.
- VINING J., EBREO A. (1990), "What Makes a Recycler A Comparison of Recyclers and Nonrecyclers", *Environment and Behavior*, vol. 22, pp. 55-73.
- WILCOVE D.S., KOH L.P. (2010), "Addressing the threats to biodiversity from oil-palm agriculture", *Biodiversity and Conservation*, vol. 19, n. 4, pp. 999-1007.
- YAMANE T., KANENKO S. (2021), "Is the younger generation a driving force toward achieving the sustainable development goals? Survey experiments", *Journal of Cleaner Production*, vol. 292, p. 125932.

L'impatto dei rating ESG sul rischio finanziario d'impresa: evidenze empiriche dallo S&P 500

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Inquadramento della ricerca. Negli ultimi anni, la CSR ha svolto un ruolo centrale nel processo decisionale e nella definizione delle strategie aziendali. Secondo i principi dello stakeholder management, infatti, mentre una bassa CSR potrebbe portare ad azioni legali, un elevato impegno di CSR potrebbe migliorare le relazioni tra governo e comunità finanziaria (Aupperle et al., 1985; Brammer et al., 2006; Attig et al., 2013; Ioannou and Serafeim, 2015; Benlemlih et al., 2018; Sciarelli et al., 2021). Infatti, oltre a riservare maggiore attenzione alla costruzione della reputazione, i manager prendono sempre più in considerazione le responsabilità fiduciarie e morali delle aziende nei confronti degli stakeholder. Al contrario, l'impegno CSR può migliorare la qualità della comunicazione con gli investitori su questioni finanziarie, governance aziendale, aumento del valore di un'azienda, accuratezza delle previsioni degli analisti e costo del capitale proprio nei mercati finanziari. E' opportuno chiarire che il paradigma ESG ha sancito l'introduzione dei concetti di CSR e sostenibilità in ambito finanziario, assumendo altresì una valenza attributiva in riferimento al mercato degli investimenti (e.g. rating ESG; rischi ESG; performance ESG; etc.). Gli obiettivi ESG hanno creato nuove sfide scientifiche e manageriali per una pluralità di ambiti, anche alla luce di alcuni risultati che dimostrano come l'analisi del rischio di sostenibilità possa migliorare la valutazione del rischio finanziario integrando i modelli tradizionali di gestione del rischio con l'analisi dell'entropia relativa agli ESG (Cornell and Shapiro, 1987; Boutin-Dufresne and Savaria, 2004; Bouslah et al., 2013; Czerwińska and Kaźmierkiewicz, 2015; Cui et al., 2018; Elliott et al., 2017; Giese et al., 2019; Capelli et al., 2021). Sebbene non vi sia una evidente ed univoca associazione tra impegno CSR e asimmetria informativa, è stato generalmente riconosciuto che un impegno più profondo verso il contesto esterno tende a ridurre il rischio e l'incertezza degli investitori. Secondo una prospettiva di gestione degli stakeholder, le aziende potrebbero raggiungere i loro obiettivi più facilmente se acquisiscono una buona reputazione nel contesto di riferimento. Dal punto di vista della gestione del rischio, si può affermare che il coinvolgimento della CSR produce «effetti di tipo assicurativo» sul prezzo delle azioni dell'impresa. In effetti, Peloza (2006) ha dimostrato che l'impegno CSR può fungere da assicurazione per le prestazioni aziendali durante periodi di volatilità, come durante periodi di recessione o in occasione di specifici eventi negativi e non previsti dall'azienda. Pertanto, poiché le pratiche di CSR non sono percepite come strategie egoistiche, gli investitori attribuiranno un valore morale a queste attività. Il capitale morale protegge le imprese dalle perdite moderando gli effetti di una valutazione negativa aziendale, agendo così da cuscinetto contro il rischio reputazionale. Su questo terreno, studi precedenti hanno suggerito che le attività di CSR possono aumentare la reputazione di un'impresa, che a sua volta è particolarmente rilevante in quanto attore istituzionale nel mercato finanziario. Pertanto, il «processo di costruzione della reputazione» mostra che le imprese con un'elevata CSR sono associate a un migliore ambiente informativo che può preservare il loro capitale di reputazione nel tempo. Le suddette argomentazioni presuppongono un mercato dei capitali caratterizzato dall'elevata efficienza e razionalità sia degli investitori che degli stakeholder non finanziari. In altre parole, l'idea che un orientamento CSR comporti una sorta di cuscinetto contro il rischio di condizioni avverse è coerente con la prospettiva neoclassica. Al contrario, in contesti diversi da quelli

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teorizzati dalla prospettiva neoclassica, problemi di asimmetria informativa e/o comportamenti irrazionali potrebbero mitigare o invertire la relazione tra rischio percepito e CSR. Allo stesso modo, le aziende potrebbero adottare pratiche di CSR per aumentare la propria legittimità nel contesto esterno, cercando di influenzare il comportamento degli stakeholder e creando un'immagine aziendale positiva. Pertanto, molti ricercatori hanno chiarito la modalità tramite la quale un comportamento socialmente responsabile sia in grado di migliorare la trasparenza, riducendo così il rischio percepito dagli investitori. La disponibilità di informazioni aggiuntive, infatti, tende a ridurre le asimmetrie tra azienda e investitori, mitigando così la percezione del rischio. Come evidenziato in precedenza, un numero crescente di aziende ha iniziato a impegnarsi regolarmente in attività di CSR in risposta alla richiesta della società per una maggiore cittadinanza d'impresa. In effetti, alcuni studi considerano la CSR un importante strumento di investimento strategico e, come tale, dovrebbe essere un mezzo di gestione della reputazione. Godfrey ha sviluppato un modello teorico per spiegare perché le attività sociali possono creare una reputazione positiva e un capitale morale per le parti interessate. Ha affermato che le parti interessate, e in particolare gli investitori, tendono a valutare gli sforzi delle imprese nelle attività sociali, mitigando qualsiasi giudizio negativo sulle loro pratiche e «creando così un motivo di clemenza in qualsiasi punizione che possa essere considerata». Pertanto, nell'ipotesi di irrilevanza del valore, si dovrebbe presumere che gli investitori non premiano l'impegno CSR delle imprese nel mercato finanziario. La CSR, infatti, allinea le strategie delle imprese ai bisogni sociali, costruendo un'immagine aziendale positiva e un rapporto più stretto con i consumatori e i relativi stakeholder. Su questa base, molti ricercatori hanno cercato di valutare gli esiti positivi non finanziari legati alla RSI. Wood ha definito la performance sociale come la «configurazione dei principi di responsabilità sociale, dei processi di reattività sociale e delle politiche, dei programmi e dei risultati osservabili in relazione alle relazioni sociali dell'impresa», un numero crescente di investitori tende a indirizzare il proprio capitale verso imprese che perseguono specifiche attività di CSR. Su questa base, possiamo supporre che la CSR sia una risorsa immateriale che riduce l'incertezza economica e la percezione del rischio degli investitori, aumentando così il valore di un'impresa. Inoltre, alcuni studiosi hanno notato che non esiste un'associazione significativa tra l'impegno CSR e il rischio degli investitori, poiché gli investitori percepiscono gli sforzi di CSR come attività prive di valore che le aziende esercitano per preservare la propria posizione di mercato.

Obiettivo del paper. In linea con l'inquadramento teorico sopra esposto, in questo lavoro si analizza come l'impatto delle dimensioni ESG sulla percezione del rischio degli investitori potrebbe dipendere da peculiarità specifiche del settore. Studi precedenti hanno suggerito che l'adattamento delle prestazioni in termini di criteri ESG in vari contesti industriali può spiegare tali differenze nella relazione tra ESG e rischio finanziario. Le ricerche più recenti, infatti, non hanno mostrato consenso sulla relazione tra le singole misure di CSR e la percezione del rischio degli investitori. Il rating ESG aggregato combina la performance in tre diverse dimensioni, ma non spiega l'impatto individuale degli aspetti ambientali, sociali e di governance sul rischio degli investitori. Le dimensioni ESG influenzano la percezione del rischio degli investitori. Esiste una relazione tra la valutazione ambientale aziendale e la percezione del rischio degli investitori.

Obiettivo di questo lavoro è analizzare l'impatto delle valutazioni ESG sulla percezione del rischio degli investitori, formulando la seguente ipotesi:

Ipotesi 1. Esiste una relazione tra la valutazione ESG complessiva e la percezione del rischio degli investitori (rischio effettivo).

Gli investitori potrebbero percepire in modo diverso la rilevanza delle tre dimensioni ESG in quanto potrebbe dipendere dal settore di appartenenza dell'azienda. Ciò potrebbe causare reazioni del mercato diverse con riferimento a medesime attività in ambito ESG. Su questa base, alcuni autori (Diamond and Verrecchia, 1991; Waddock and Graves, 1997; Brammer and Pavelin, 2006; Derwall and Verwijmeren, 2007; Godfrey et al., 2009; Brogi and Lagasio, 2019) hanno sostenuto che il peso di ciascun pilastro ESG dovrebbe essere correlato alla sua rilevanza all'interno del processo di creazione del valore dell'azienda. In linea con questa argomentazione, l'impatto delle dimensioni ESG sulla percezione del rischio degli investitori potrebbe dipendere da peculiarità specifiche del settore. Studi precedenti hanno suggerito che l'adattamento delle prestazioni ESG in vari contesti industriali può spiegare tali differenze in questa relazione. La diversa rilevanza percepita delle componenti ESG all'interno della comunità degli investitori potrebbe anche essere dovuta ad altri livelli di misurabilità e affidabilità delle informazioni

Alcune recenti ricerche (Oikonomou et al., 2012; Jo and Na, 2012; Cheng et al., 2014; Flammer, 2015; Sassen et al., 2016; Cenesizoglu et al., 2016; Sciarelli et al., 2020; La Torre et al., 2021) non hanno mostrato un consenso sulla relazione tra le singole misure di CSR e la percezione del rischio degli investitori. La valutazione ESG complessiva potrebbe rivelarsi eccessivamente sintetica al punto da non

individuare su quali pilastri della sostenibilità un'organizzazione è più carente e, quindi, su quale componente concentrare maggiori risorse al fine di ridurre l'impatto negativo sulla propria rischiosità di mercato. In altri termini, gli investitori potrebbero considerare più rilevante la gestione ambientale di un'impresa, o ritenere la composizione dell'organo di governo un fattore discriminante nella fase di allocazione dei capitali: si pensi all'impatto che ha la performance ambientale sul rischio di un'impresa che produce energia, rispetto ad una società di gestione del risparmio. Per analizzare in maniera approfondita l'impatto delle tre performance aziendali secondo il paradigma ESG sulla gestione del rischio di un investimento, formuliamo la nostra seconda ipotesi come segue:

Ipotesi 2. Le dimensioni ESG influenzano la percezione del rischio degli investitori.

- Hp2a. Esiste una relazione tra il rating ambientale (E) e la percezione (positiva o negativa) del rischio percepito dagli investitori;

- Hp2b. Esiste una relazione tra il rating sociale (S) e la percezione (positiva o negativa) del rischio percepito dagli investitori

- Hp2c. Esiste una relazione il rating di governance (G) e la percezione (positiva o negativa) del rischio percepito dagli investitori.

Metodologia. *Abbiamo sviluppato uno studio longitudinale su un orizzonte temporale quinquennale applicando un'analisi panel su un campione di società quotate, per testare in che modo le pratiche ESG influiscono sulle aspettative del rischio degli investitori, prima attraverso i tre singoli impatti dei fattori ESG e poi in base alla valutazione ESG complessiva. La scelta di osservare gli ultimi cinque anni contempla le ultime congiunture avverse ai mercati finanziari come scenari di pandemia o di conflitto internazionale. Infatti, è in momenti di forte shock finanziario che è possibile rilevare come la sostenibilità possa immunizzare o amplificare la volatilità dei portafoglio finanziari in condizioni di rischio sistematico e sistemico. Abbiamo iniziato con le 500 società a grande capitalizzazione appartenenti all'indice del mercato azionario S&P 500. Applicando la stima Slovin, abbiamo ottenuto un campione casuale di 222 aziende. Quindi, abbiamo raccolto i punteggi ESG di tali società negli ultimi cinque anni sulla base della metodologia ESG ASSET4. Per ciò che riguarda la definizione delle variabili, abbiamo utilizzato rapporti e misure di scala ordinale per variabili dipendenti e indipendenti, inclusi fattori e controlli ESG. Inoltre, per ottenere una visione più ampia della percezione del rischio degli investitori, abbiamo utilizzato una doppia misurazione: da un lato, ci siamo concentrati sull'esposizione sistematica al rischio delle società incluse nel campione, così da considerare la visione del mercato; dall'altro abbiamo utilizzato la misura del rischio di volatilità così da ottenere la percezione complessiva dell'investitore. Per ciò che riguarda le variabili dipendenti, abbiamo valutato le aspettative degli investitori sul rischio aziendale delle entità campionate sulla base di una doppia prospettiva: a) una misura del rischio sistematica annuale basata su una stima del rischio beta mensile a 5 anni, i cui valori sono stati raccolti dal database Thomson Reuters; e b) la stima del rischio di mercato totale attraverso la deviazione standard annuale dei prezzi di chiusura giornalieri delle società, sulla base delle analisi di Thomson Reuters. Per ciò che riguarda le variabili indipendenti, al fine di valutare l'impatto delle componenti ESG sulle misure di rischio delle aziende, abbiamo considerato i rating annuali ambientali, sociali e di governance, nonché la valutazione ESG annuale complessiva emessa dall'agenzia di rating ASSET4 relative alle imprese considerate.*

Risultati. *Questo lavoro parte dai risultati preliminari sviluppati nel paper Landi et al, 2022 e li amplia ad ulteriori considerazioni, in merito alla adeguatezza della struttura finanziaria delle imprese, con particolare riferimento al variare del costo del capitale e, quindi, in modo inverso, sul valore (aziendale e azionario). I risultati empirici mostrano una maggiore incertezza degli investitori in merito alla performance di sostenibilità aziendale, probabilmente a causa del verificarsi dei fenomeni di green e socialwashing o del disallineamento degli obiettivi tra investitori e partecipate. In più, le singole componenti del rating ESG complessivo già scontano le caratteristiche di ciascun settore, in termini di carbon footprint, interrelazioni con altre imprese legate alla supply chain, ecc.*

In effetti, una valutazione ESG complessiva aumenta la percezione del rischio da parte degli investitori, così come la pratica ambientale aziendale, che ha un effetto al rialzo sul rischio sistematico delle imprese. In effetti, una valutazione ESG completa aumenta il rischio sistematico delle imprese, corroborando gli studi che supportano le esternalità negative di un impegno ESG aziendale. Concentrandoci sui singoli fattori ESG, abbiamo anche riscontrato che la performance ambientale aziendale ha un effetto al rialzo sul rischio sistematico aziendale. Pertanto, una valutazione ambientale aumenta il rischio finanziario aziendale delle società che ottengono risultati migliori su questo terreno, evidenziando lo scetticismo degli investitori su questa componente. Ciò, a sua volta, potrebbe consentire alle aziende di ridurre la percezione di incertezza sulla propria performance ESG, soddisfacendo così le aspettative sociali degli investitori. Di conseguenza, il rating ESG completo, così come la valutazione ambientale, potrebbe aumentare il costo del capitale delle

aziende, poiché il coefficiente beta è un fattore di rischio nella stima del costo del capitale, come nel modello di capital asset pricing. Le nostre osservazioni confermano la teoria del window dressing, secondo cui gli investitori possono percepire la comunicazione relativa ai criteri ESG di un'azienda che è, in realtà, lontana dalle reali intenzioni del management. Ciò genera un rischio di agenzia non trascurabile e porta a penalizzare queste società nel mercato azionario. Questo perché gli investitori percepirebbero questo sacrificio di profitto come un fattore in conflitto con lo scopo razionale di massimizzare la ricchezza.

Limiti della ricerca. Un primo limite riguarda il fatto che l'errore di misurazione dei rating ESG proviene da una sola agenzia di rating ESG (Thomson Reuters ASSET4). Pertanto, altre misure di CSP potrebbero essere applicate allo stesso campione per valutare se i nostri risultati sono confermati dall'adozione di diverse metodologie di valutazione ESG. Allo stesso modo, altre metodologie di natura più puramente qualitativa (es. questionari, focus group) potrebbero essere applicate per analizzare e approfondire la percezione del rischio da parte degli investitori. Inoltre, l'analisi potrebbe essere replicata in altri contesti geografici, come quello europeo, anche alla luce della nuova tassonomia ESG introdotta a marzo 2021, e in considerazione dei diversi livelli di speculazione presenti in tale area geografica rispetto a quella analizzata in questo studio. Inoltre, abbiamo ipotizzato che la sostenibilità aziendale possa ridurre l'asimmetria informativa tra investitori e aziende, ma non abbiamo testato questa relazione. Su questa base, assumiamo che le informazioni aggiuntive e non finanziarie abbiano un effetto uniformante sulla percezione dell'incertezza da parte degli investitori. Infine, sulla base del nostro argomento di ricerca, potrebbero esserci ulteriori ricerche da condurre sulla relazione CSP-CFP in altri contesti industriali, come l'ambiente delle PMI. Inoltre, l'impegno ESG delle aziende nel mercato finanziario potrebbe differire da quello nel mercato industriale, poiché i consumatori e gli imprenditori si comportano in base ad altri fattori che gli investitori istituzionali non prendono in considerazione.

Implicazioni manageriali. L'impegno delle società quotate ad adottare comportamenti più sostenibili sta dando vita a un nuovo e importante ecosistema finanziario dal punto di vista istituzionale. In particolare, dal conseguente ruolo trainante che verrà esercitato dalle borse, conseguiranno nuovi comportamenti manageriali che si differenzieranno a seconda di prospettive di breve, medio e lungo termine. Ulteriori implicazioni sono legate, in parte, a quanto già sopra accennato in termini di necessità di trasparenza e riduzione del rischio opportunistico. Ciò rende necessaria un'azione mirata a rendere più trasparenti le comunicazioni non finanziarie per gli investitori e, allo stesso modo, dotare le aziende indicazioni generalizzate e univoche per la rendicontazione sugli ESG (La Torre et al., 2021). Queste misure di regolamentazione ridurrebbero anche i costi di transazione associati a un investimento sostenibile, nonché i costi complessivi di costruzione di un portafoglio, compensando parzialmente il costo opportunità derivante da un'allocazione adeguatamente vincolata (ESG) di capitale. Inoltre, un orientamento volto alla regolamentazione finanziaria della sostenibilità potrebbe governare anche potenziali problemi di agenzia tra investitori e imprese che si fregiano di comportamenti virtuosi. Ciò in funzione di una vera transizione verso la sostenibilità e l'auspicata trasparenza dei mercati finanziari. Infine, ulteriori considerazioni vanno fatte in merito alla fase di maturità del mercato generale in termini di ESG, sia dal punto di vista degli investitori che della regolamentazione. In questo senso, sarebbe altamente auspicabile un'azione "culturale" generale su questi temi per sostenere e stimolare efficacemente la transizione verso la sostenibilità.

Originalità del paper. Questo lavoro si presenta come particolarmente originale, in quanto tratta il tema della sostenibilità, ed in particolare degli ESG, non da un punto di vista 'etico' o 'morale, o di semplice 'reputation', ma di costo del capitale, in termini di rischio, nella prospettiva finanziaria. In particolare, in questo lavoro si analizza l'esistenza di una relazione tra la valutazione ESG, complessiva e nelle sue tre componenti, e la percezione del rischio degli investitori. I primi risultati ottenuti e quelli attesi da un ampliamento delle analisi già svolte, inquadrabili nell'ambito degli SRI (sustainable and responsible investments), conducono verso una spiegazione circa la relazione tra il rischio degli investitori (percepito e/o effettivo) ed i rating ESG.

Parole chiave: CSR; Sustainability; ESG; Rischio finanziario.

Bibliografia

- ATTIG N., EL GHOUL S., GUEDHAMI O., SUH J. (2013), "Corporate social responsibility and credit ratings", *Journal of Business Ethics*, vol. 117, n. 4, pp. 679-694.
- AUPPERLE K.E., CARROLL A.B., HATFIELD J.D. (1985), "An empirical examination of the relationship between corporate social responsibility and profitability", *Academy of Management Journal*, vol. 28, n. 2, pp. 446-463.

- BENLEMLIH M., JABALLAH J., AND PEILLEX J. (2018), "Does it really pay to do better? Exploring the financial effects of changes in CSR ratings", *Applied Economics*, vol. 50, n. 51., pp. 5464-5482.
- BOUSLAH K., KRYZANOWSKI L., M'ZALI B. (2013), "The impact of the dimensions of social performance on firm risk", *Journal of Banking & Finance*, vol. 37, n. 4, pp. 1258-1273.
- BOUTIN-DUFRESNE F., SAVARIA P. (2004), "Corporate social responsibility and financial risk", *The Journal of Investing*, vol. 13, n. 1, pp. 57-66.
- BRAMMER S.J., PAVELIN S. (2006), "Corporate reputation and social performance: The importance of fit", *Journal of Management Studies*, vol. 43, n. 3, pp. 435-455.
- BRAMMER S., BROOKS C., PAVELIN S. (2006), "Corporate social performance and stock returns: UK evidence from disaggregate measures", *Financial Management*, vol. 35, n. 3, pp. 97-116.
- BROGI M., LAGASIO V. (2019), "Environmental, social, and governance and company profitability: Are financial intermediaries different?", *Corporate Social Responsibility and Environmental Management*, vol. 26, n. 3, pp. 576-587.
- CAPELLI P., IELASI F., RUSSO A. (2021), "Forecasting volatility by integrating financial risk with environmental, social, and governance risk", *Corporate Social Responsibility and Environmental Management*, n. 28, pp. 1483-1495.
- CENESIZOGLU T., LIU Q., REEVES J.J., WU H. (2016), "Monthly Beta Forecasting with Low-, Medium-and High-Frequency Stock Returns", *Journal of Forecasting*, vol. 35, n. 6, pp. 528-541.
- CHENG B., IOANNOU I., SERAFEIM G. (2014), "Corporate social responsibility and access to finance", *Strategic Management Journal*, vol. 35, n. 1, pp. 1-23.
- CORNELL B., SHAPIRO A.C. (1987), "Corporate stakeholders and corporate finance", *Financial management*, vol. 16, n. 1, pp. 5-14.
- CUI J., JO H., NA H. (2018), "Does corporate social responsibility affect information asymmetry?", *Journal of Business Ethics*, vol. 148, n. 3, pp. 549-572.
- CZERWIŃSKA T., KAŹMIERKIEWICZ P. (2015), "ESG rating in investment risk analysis of companies listed on the public market in Poland. Economic Notes: Review of Banking", *Finance and Monetary Economics*, vol. 44, n. 2, pp. 211-248.
- DERWALL J., VERWIJMEREN P. (2007), "Corporate governance and the cost of equity capital: Evidence from gmi's governance rating", *European Centre for Corporate Engagement Research Note*, vol. 6, n. 1, pp. 1-11.
- DIAMOND D.W., VERRECCHIA R.E. (1991), "Disclosure, liquidity, and the cost of capital", *The journal of Finance*, vol. 46, n. 4, pp. 1325-1359.
- ELLIOTT W.B., GRANT S.M., RENNEKAMP K.M. (2017), "How disclosure features of corporate social responsibility reports interact with investor numeracy to influence investor judgments", *Contemporary Accounting Research*, vol. 34, n. 3, pp. 1596-1621.
- FLAMMER C. (2015), "Does Corporate Social Responsibility Lead to Superior Financial Performance? A Regression Discontinuity Approach", *Management Science*, vol. 61, n. 11., pp. 549-2568
- GIESE G., LEE L.E., MELAS D., NAGY Z., NISHIKAWA L. (2019), "How ESG Affects Equity Valuation, Risk and Performance", *The Journal of Portfolio Management*, vol. 45, n. 5., pp. 69-83.
- GODFREY P.C., MERRILL C.B., HANSEN J.M. (2009), "The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis", *Strategic Management Journal*, vol. 30, n. 4, pp. 425-445.
- IOANNOU I., SERAFEIM G. (2015), "The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics", *Strategic Management Journal*, vol. 36, n. 7, pp. 1053-1081.
- JO H., NA H. (2012), "Does CSR reduce firm risk? Evidence from controversial industry sectors", *Journal of Business Ethics*, vol. 110, n. 4, pp. 441-456.
- LANDI G.C., IANDOLO F., RENZI A., REY A. (2022), "Embedding sustainability in risk management: The impact of environmental, social, and governance ratings on corporate financial risk", *Corporate Social Responsibility and Environmental Management*, <https://doi.org/10.1002/csr.2256>.
- LA TORRE M., LEO S., PANETTA I. C. (2021), "Banks and environmental, social and governance drivers: Follow the market or the authorities?", *Corporate Social Responsibility and Environmental Management*.
- OIKONOMOU I., BROOKS C., PAVELIN S. (2012), "The impact of corporate social performance on financial risk and utility: A longitudinal analysis", *Financial Management*, vol. 41, n. 2, pp. 483-515.
- SASSEN R., HINZE A.K., HARDECK I. (2016), "Impact of ESG factors on firm risk in Europe", *Journal of Business Economics*, vol. 86, n. 8, pp. 867-904.
- SCIARELLI M., TANI M., LANDI G., TURRIZIANI L. (2020), "CSR perception and financial performance: Evidences from Italian and UK asset management companies", *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 2, pp. 841-851.
- SCIARELLI M., COSIMATO S., LANDI G., IANDOLO F. (2021), "Socially responsible investment strategies for the transition towards sustainable development: the importance of integrating and communicating ESG", *The TQM Journal*.
- WADDOCK S.A., GRAVES S.B. (1997), "The corporate social performance-financial performance link", *Strategic Management Journal*, vol. 18, n. 4, pp. 303-319.

Travel Bloggers and Multi-Actor Engagement: Networking Dynamics in the Actors-Travel Bloggers Relationship

LETIZIA LO PRESTI * GIULIO MAGGIORE *

Framing of the research. *The role of travel bloggers has evolved over the last few years. Travel bloggers are more conscious of their influence on the tourism decision-making process (Blaer et al., 2020; Duffy and Kang, 2020). Also, the role of travel bloggers has changed, going from sharing travel experiences to becoming first a brand-influencer (Van Driel, 2020; Marin et al., 2018) and then responsible and sustainable agents (e.g., Maggiore et al., 2022; McWha et al., 2020; Oliveira 2020; Fanini et al., 2021; Ting et al., 2014). Perceived influencers' trustworthiness and quality of information are important antecedents that demonstrate the impact of social media influencers on their followers' behavioral intentions (Magno and Cassia, 2018).*

Social media platforms play an increasingly important role both for destination branding and marketing and for firms because of the rapid growth of web applications and digitization. Seeing as social media platforms, particularly Twitter, encourage the information exchange between followers and writers, the sense of "attachment" increases the ability of bloggers to influence their readers. Their presence on different social platforms allows travel bloggers to increase the range of their message, reach more people interested in their stories, and increase their authority. Furthermore, in terms of psychological and demographic characteristics, the similarity between bloggers and followers favors the influence of the online community (e.g., Casaló et al. 2018) on the image of the destination (Wenger, 2008). The closer the relationship is, the more importance is given to exchanging information because it is based on trust and credibility. Trust, and familiarity of the social network platform favors consumers' responses (including their attitude towards the endorsement and brand) and a collaborative approach in which individuals and brands help each other (Casaló et al., 2018). The influence of the message on follower engagement very often depends on trust (Ho and Lee, 2015), information quality (e.g., Hsiao et al., 2013) and charisma of the author of the message itself (Tsaur et al., 2014).

In this context, knowing if and what are the links between actors in the social media platform can help us understand the dynamics inherent to the relationship between travel bloggers and stakeholders and find out how to co-create value within the network. Engagement has become a prerogative for company marketing strategies. In the context of travel blogger studies, engagement affects behavioral intentions and word of mouth (Mainolfi et al., 2021). Although studies have shown that influencers have an impact on decision-making, engagement, and word of mouth (Balabanis and Chatzopoulou, 2019; Cheng et al., 2020; Jimenez-Castillo and Sanchez-Fernandez, 2019) there is still a shortage of studies looking at relational dynamics from a collaborative networking perspective. The literature demonstrates that it is reductive to study only the consumer-firm relationship but that it is necessary to observe the relationships between multiple actors in service ecosystems (Brodie et al., 2019; Vink et al., 2021). Brodie et al. (2019) affirm the importance of studying engagement in a broader and multi-stakeholder vision that involves customers and workers, citizens, and businesses. This engagement in the network leads to a co-creation of value resulting from a dynamic and iterative process that gradually evolves. This co-creation of the value generated by the involvement between the actors (Vargo et al., 2008; Ranjan and Read, 2016; Vargo and Lush, 2017) is implemented through shared practices within the digital engagement platforms (Lo Presti et al., 2020; 2021; Marino and Lo Presti, 2018; 2019). Actor engagement is a source of co-creation of value in service ecosystems (Storbacka et al., 2016) which makes it necessary to study the interaction on multiple levels (macro and micro) in order to understand the link between the actors involved and manage the relationship profitably.

Among the platforms enabled for exchanging and sharing information between market players, social media platforms are the ones most likely to activate engagement practices. According to Appel et al. (2020), social media offers opportunities for all stakeholders. It allows people to interact freely with others and offers marketers different ways to reach and interact with consumers. For this reason, social media study must be approached through mixed qualitative and quantitative methods in order to correctly represent the phenomenon's complexity. Compared to other social networks, Twitter is largely used in tourism. Research on Twitter utilization in tourism has increased substantially in the last decade and network analysis, word of mouth, and destination management are the main research themes (Ćurlin et al., 2019).

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As part of the studies of networks in tourism, social network analysis provides important insights into actor engagement in social platforms (Mariani and Baggio, 2020). There is, therefore, a slow but steady increase in studies that systematically adopt a social network analytical approach to networks (Mariani and Baggio, 2020, p.1651). Indeed, today scholars in the field of tourism and hospitality increasingly rely on elementary metrics (such as centrality and density) and on basic metrics derived from Social Network Analysis (SNA) (Czernek, 2017; Mariani and Baggio, 2020). There is a need to diversify research methodology on travel blogs (Banyai and Glover, 2012) and social network analysis appears to be a valuable method for effectively identifying relational dynamics.

In the light of the emerging role of travel bloggers, studies are still lacking in the investigation of the relational dynamics in the actors-travel bloggers' relationship on social media platforms. In particular, the relational analysis is still lacking from the managerial point of view. In order to identify the influencers that can best serve the marketing goals, understanding the main approaches adopted by the travel influencers to engage multi-stakeholders on social media platforms can provide new insight for guaranteeing the effectiveness and efficiency of the social media marketing campaigns. Considering the importance of collaborative networks in the tourism and hospitality sector, it is crucial to identify the influential actors (e.g., users, organization, association) engaged on social media platforms. Indeed, it represents the first step in developing strategies for building successful relationships with each market, with the overall objective of improving firm performance (Frow and Payne, 2011). Although the logic of networking is becoming essential to the study of the co-creation of value for a complete view of relational dynamics that includes the aid of social network analysis, today empirical studies in tourism and hospitality are lacking. Finally, although travel bloggers have become influential players in these sectors, little has been studied about the multi-actor dynamics and, above all, with reference to social network platforms which constitute the privileged place for the activation of stakeholder involvement.

Purpose of the paper. This paper explores the information flow in digital collaborative networks between travel bloggers and stakeholders, and the most commonly used co-creation approaches to determine the relational dynamics of travel blogger-multi actor engagement on Twitter.

Methodology. We used the Social Network Analysis (SNA) measurement to explain the main approaches used to co-create value on the digital platforms. The analysis of social networks represents a set of tools aimed at describing the main characteristics of a structure of nodes and connections. It is a set of theoretical-methodological studies that deals with the study of social networks, that is, of the set of social actors and the relationships between them (Wasserman, 1994; Freeman, 2004). Social network analysis allows a complete and clear presentation of the structural characteristics of the network (Mariani and Baggio, 2020). Twitter profiles of the top ten most powerful travel and tourism influencers are explored and analyzed to detect the links with stakeholders, to trace hierarchies and individuate the dynamics of influence between the actors involved in the discourses on tourism and hospitality. We collected 28.467 posts (Tweet + Retweet), extracted until 6 June 2021. We used the list of top travel bloggers draws up GlobalData and published on globetrender.com. By calculating micro-level measures, such as various centrality measures (in-degree, out-degree, closeness, betweenness centrality), we determined the most connected members in the network, showing who is influencing the information flow in online discussions. Furthermore, in line with the latest trends in influencer marketing, we wanted to identify the main approaches adopted by travel bloggers to micro, macro, and celebrities' profiles that can influence other readers to co-create value within the network.

By calculating micro-level measures, such as various centrality measures (in-degree, out-degree, betweenness centrality), we determined the most connected members within the network, showing who is influencing the information flow in online discussions. The network approach focuses on how patterns of interaction provide a setting for resource exchange. The collaborative approach activated within the network generates co-creation of value supported by the active participation and engagement of community members in a social media platform. Therefore, studying the travel bloggers through the network approach allows the promotion of value co-creation on the social media platforms and takes advantage of multi-actor engagement.

Results. From a preliminary analysis of the data, the Top travel bloggers, on average, have 147,878 followers and come from different parts of the world (USA, Spain, Switzerland). Of the 28,467 posts extracted with text analysis software, 89% are Tweets, while 11% are Retweets. The posts considered for the analysis were posted from May 2019 to June 2021. Overall, out of the 1,123 posts retweeted by travel bloggers, 1010 accounts were posted by only one travel blogger (90%), while 113 accounts (10%) were posted by two or more travel bloggers. The preliminary results of this research are limited to the consideration of specific networking indices. Network density and centrality indices were considered for this analysis. Network density refers to the "connections" between participants and measures the effectiveness of the network. If we consider all the accounts with which travel bloggers have interacted, on the whole the network is relatively sparse, with an average of 1.5 links. Network density is higher when considering the number of accounts linked to more than one travel blogger (network density = 0.217, 21%) with an average of two links per travel blogger. Furthermore, from the calculation of the centrality indices, it is possible to identify the stakeholders that are more central than others. Centrality indices aim to quantify the "importance" or "influence" of a particular node (or group) within a network. There is a direct and deep connection between the pairs of accounts. The results show that two travel bloggers are more influential than the others and strategically have a higher centrality than the others (Sonja Swiss Life and Don Nadeau). These travel bloggers have the best connections with those around them and appear to be the gatekeepers of information between the various stakeholders within the network. As for as the categories of stakeholders involved in the collaborative network are concerned, those with the highest degree index are travel bloggers (32.7%), then come the professionals (17.7%), followed by users (13.3%), travel writers (8.8%), and digital

travel agencies. (8%). Based on the *Betweenness index*, which measures the number of times a node is on the shortest path between other nodes, travel bloggers and professionals are strategic to the broadcasting of information within the collaborative network.

From the preliminary results, it is possible to identify three orders of influencer-actors: the travel blogger (1° order); travel blogger/professional/user/travel writers/travel agency those who are always mentioned by two or more travel bloggers (2° order); destination organization, association, digital editor (3° order). The type of stakeholder engagement and retweet activity allow us to recognize the kind of approach to value co-creation. We can find four approaches that explain the mechanisms of the information exchange between stakeholders and travel bloggers: 1) a multi-centre approach that involves all the stakeholders; 2) a blogger-oriented approach in which travel bloggers involve other travel bloggers (amateur or professional travel blogger); 3) an approach that mainly involves specialists in the tourism and hospitality sector such as destination organizations and professionals; 4) a value co-creation approach in which niche stakeholders are involved (for example, digital travel editor).

Research limitations. The sample (28.467 posts) can be not representative of the entire network dynamics on Twitter. Furthermore, we analyzed the relational dynamics by reconstructing the network using a single social media platform (Twitter). Other social platforms could be investigated in an ad hoc analysis to check if other stakeholders are involved. We only used the social network analysis, but we did not conduct a content analysis. Other qualitative analysis techniques, such as textual analysis, could help to understand which message contents enrich the value generated within the collaborative network.

The collection of the Twitter posts was conducted during the pandemic period, which could affect the results of the research because some of the travel bloggers' attitudes on Twitter could have been influenced by the impossibility to travel. Finally, in the analysis, we only considered the accounts posted by at least 2 Travel bloggers. Thus, we may have lost information on other important accounts with a one-to-one relationship with travel bloggers.

Managerial implications. The preliminary results have increased our knowledge on actor-travel blogger engagement in the collaborative network perspective by investigating the central nodes through a social network analysis. In addition, we have contributed to the research on the role of travel bloggers and stakeholders on social media platforms, investigating their role as gatekeepers and broadcasters of the message.

An organization willing to use Twitter as a marketing channel needs to identify the effective network for the message in order to broadcast it correctly. The four approaches permit the identification of the mechanisms for sharing information between stakeholders and travel bloggers. The network approach focuses on how patterns of interaction provide a setting for resource exchange. The type of stakeholder engagement and retweet activity permit the recognition of the approach to value co-creation. The collaborative approach activated on the network generates co-creation of value supported by the active participation and engagement of community members on a social media platform. Studying travel bloggers through the network approach allows to promote the value co-creation on the social media platforms and to take advantage of the multi-actor engagement. In order to coordinate the relationship between the different actors, the management of a tourist destination or tourist/hospitality services should understand which is the most influential travel blogger (Storbacka, et al., 2016) in the collaborative network. Moreover, because networking and collaborations are necessary to create effective strategies to achieve sustainable competitiveness (D'Angella and Go, 2009), stakeholders should use digital collaborative networks with travel bloggers to influence sustainable and responsible behaviors in tourism. Furthermore, the research results allow us to detect multiple influencers who play a decisive role in spreading the message. Second-level travel bloggers are just as crucial as first-level travel bloggers. This result is consistent with the conclusions reached by Kay et al. (2020).

Originality of the paper. This paper offers a more nuanced understanding of the role of travel bloggers on social media platforms as gatekeepers and broadcasters of the message. Moreover, our exploratory research permits us to identify the main approaches adopted by travel bloggers to promote value co-creation on the social media platforms. The paper extends our knowledge on actor engagement by investigating the central nodes of the actor-travel bloggers' network by using the social network analysis technique.

Keywords: travel blogger; social network analysis; value co-creation; multi-actor engagement; social media platform; network management

References

- APPEL G., GREWAL L., HADI R., STEPHEN A.T. (2020), "The future of social media in marketing", *Journal of the Academy of Marketing Science*, vol. 48, n. 1, pp. 79-95.
- BALABANIS G., CHATZOPOULOU E. (2019), "Under the influence of a blogger: The role of information-seeking goals and issue involvement", *Psychology & Marketing*, vol. 36, n. 1, pp. 342-353.
- BANYAI M., GLOVER T.D. (2012), "Evaluating research methods on travel blogs", *Journal of Travel Research*, vol. 51n. 3, pp. 267-277.
- BLAER M., FROST W., LAING J. (2020), "The future of travel writing: Interactivity, personal branding and power", *Tourism Management*, vol. 77, pp. 1-10.
- BRODIE R.J., FEHRER J.A., JAAKKOLA E., CONDUIT J. (2019), "Actor engagement in networks: Defining the conceptual domain", *Journal of Service Research*, vol. 22, n. 2, pp. 173-188.

- CASALÓ L., FLAVIÁN C., GUINALÍU M. (2007), "The impact of participation in virtual brand communities on consumer trust and loyalty", *Online Information Review*, vol. 31, n. 6, pp. 775-792
- CHENG Y., WEI W., ZHANG L. (2020), "Seeing destinations through vlogs: Implications for leveraging customer engagement behavior to increase travel intention", *International Journal of Contemporary Hospitality*, vol. 32, n. 10, pp. 3227-3248.
- ĆURLIN T., JAKOVIĆ B., MILOLOŽA I. (2019), "Twitter usage in tourism: literature review", *Business Systems Research: International Journal*, vol. 10, n. 1, pp. 102-119.
- CZERNEK K. (2017), "Tourism features as determinants of knowledge transfer in the process of tourist cooperation", *Current Issues in Tourism*, vol. 20, n. 2, pp. 204-220.
- D'ANGELLA F., GO F.M. (2009), "Tale of two cities' collaborative tourism marketing: Towards a theory of destination stakeholder assessment", *Tourism Management*, vol. 30, n. 3, pp. 429-440.
- DUFFY A., KANG H.Y.P. (2020), "Follow me, I'm famous: travel bloggers' self-mediated performances of everyday exoticism", *Media, Culture & Society*, vol. 42, n. 2, pp. 172-190.
- FANINI L., MARCHETTI G.M., SERAFEIMIDOU I., PAPADOPOULOU O. (2021), "The potential contribution of bloggers to change lifestyle and reduce plastic use and pollution: A small data approach", *Marine Pollution Bulletin*, vol. 169, pp. 1-6. DOI: <https://doi.org/10.1016/j.marpolbul.2021.112525>
- FREEMAN L. (2004), "The development of social network analysis. A Study in the Sociology of Science", vol. 1 n.687, Empirical Press Vancouver, BC Canada.
- FROW P., PAYNE A. (2011), "A stakeholder perspective of the value proposition concept", *European journal of marketing*, vol. 45, n. 1/2, pp. 223-240
- HSIAO K.L., LU H.P., LAN W.C. (2013), "The influence of the components of storytelling blogs on readers' travel intentions", *Internet Research*, vol. 23, n. 2, pp. 160-182.
- JIMÉNEZ-CASTILLO D., SÁNCHEZ-FERNÁNDEZ R. (2019), "The role of digital influencers in brand recommendation: Examining their impact on engagement, expected value and purchase intention", *International Journal of Information Management*, vol. 49, n. 1, pp. 366-376.
- KAY S., MULCAHY R., PARKINSON J. (2020), "When less is more: the impact of macro and micro social media influencers' disclosure", *Journal of Marketing Management*, vol. 36, n. 3-4, pp. 248-278.
- LO PRESTI L., MAGGIORE G., MARINO V., RESCINITI R. (2021), "Mobile instant messaging apps as an opportunity for a conversational approach to marketing: a segmentation study", *Journal of Business and Industrial Marketing*, Vol. ahead-of-print No. ahead-of-print. DOI: <https://doi.org/10.1108/JBIM-02-2020-0121>
- LO PRESTI L., MAGGIORE G., MARINO V. (2020), "Mobile chat servitization in the customer journey: from social capability to social suitability", *The TQM Journal*, vol. 32, n. 6, pp. 1139-1158.
- MAGGIORE G., LO PRESTI L., ORLOWSKI M., MORVILLO A. (2022), "In the travel bloggers' wonderland: Mechanisms of the-blogger-follower relationship in tourism and hospitality management-A systematic literature review", *International Journal of Contemporary Hospitality Management*, Vol. ahead-of-print No. ahead-of-print. DOI: 10.1108/IJCHM-11-2021-1377
- MAGNO F., CASSIA F. (2018), "The impact of social media influencers in tourism", *Anatolia*, vol. 29, n. 2, pp. 288-290.
- MAINOLFI G., LO PRESTI L., MARINO V., FILIERI R., (2021), ""YOU POST, I TRAVEL." Bloggers' credibility, digital engagement, and travelers' behavioral intention: The mediating role of hedonic and utilitarian motivations", *Psychology & Marketing*, DOI: <https://doi.org/10.1002/mar.21638>
- MARIANI M., BAGGIO R. (2020), "The relevance of mixed methods for network analysis in tourism and hospitality research", *International Journal of Contemporary Hospitality Management*, vol. 32, n. 4, pp. 1643-1673
- MARINO V., LO PRESTI L. (2018), "Engagement, satisfaction and customer behavior-based CRM performance: An empirical study of mobile instant messaging", *Journal of Service Theory and Practice*, vol. 28, n. 5, pp. 682-707.
- MARINO V., LO PRESTI L. (2019), "Disruptive marketing communication for customer engagement. The new frontiers of mobile instant messaging", *International Journal on Media Management*, vol. 21, n. 1, pp. 3-23.
- MARIN J., FIGUEROA A., MUNDET L. (2018), "TBEX Europe Costa Brava 2015: Effective strategy for branding mature tourist destinations?", *Journal of destination marketing & management*, vol. 8, pp. 337-349.
- MCWHA M., FROST W., LAING J. (2017), "Sustainable travel writing? Exploring the ethical dilemmas of twenty-first-century travel writers", *Journal of Sustainable Tourism*, vol. 25, n. 10, pp. 1401-1417.
- MULDOON M., MAIR H. (2016), "Blogging slum tourism: A critical discourse analysis of travel blogs", *Tourism Analysis*, vol. 21, n. 5, pp. 465-479.
- OLIVEIRA S.C. (2020), "My trip in my words: Subjectivities, time (s) and mobilities in slow travel blogs", *Time & Society*, vol. 29, n.1, pp. 223-255.
- RANJAN K.R., READ S. (2016), "Value co-creation: concept and measurement", *Journal of the Academy of Marketing Science*, vol. 44, pp. 290-315
- STORBACKA K., BRODIE R.J., B'OHMANN T., MAGLIO P.P., NENONEN S. (2016), "Actor engagement as a microfoundation for value co-creation", *Journal of Business Research*, vol. 69, n. 8, pp. 3008-3017.
- TING K.C., TING P.H., HSIAO P.W. (2014), "Why are bloggers willing to share their thoughts via travel blogs?", *International Journal of Technology Management*, vol. 64, n. 1, pp. 89-108.
- TSAUR S.H., WU D.H., YEN C.H., WU M.H. (2014), "Promoting relationship marketing of tour leaders' blog: The role of charisma", *International Journal of Tourism Research*, vol. 16, n. 5, pp. 417-428.

- VAN DRIEL L., DUMITRICA D. (2021), "Selling brands while staying "Authentic": The professionalization of Instagram influencers", *Convergence*, vol. 27 n.1, pp. 66-84.
- VARGO S.L., LUSCH R.F. (2017), "Service-dominant logic 2025", *International Journal of Research in Marketing*, vol. 34, n. 1, pp. 46-67.
- VARGO S.L., MAGLIO P.P., AKAKA M.A. (2008), "On value and value co-creation: A service systems and service logic perspective", *European management journal*, vol. 26, n. 3, pp. 145-152.
- VINK J., KOSKELA-HUOTARI K., TRONVOLL B., EDVARDSSON B., WETTER-EDMAN K. (2021), "Service ecosystem design: Propositions, process model, and future research agenda", *Journal of Service Research*, vol. 24, n. 2, pp. 168-186.
- WASSERMAN S., FAUST K. (1994), "Social Network Analysis: Methods and Applications", Cambridge University Press.
- WENGER A. (2008), "Analysis of travel bloggers' characteristics and their communication about Austria as a tourism destination", *Journal of Vacation Marketing*, vol. 14, n. 2, pp. 169-176.

Investigating idea generation in sustainable new ventures: The role of relational contexts in the fashion industry

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Framing of the research. *Entrepreneurial literature has recently explored and emphasized born sustainable companies, namely companies that have proposed sustainable business models since birth. This paper investigates how the idea of creating sustainable new ventures develops spontaneously from a set of relational contexts. This study emphasizes how some relational contexts surround and stimulate the founding entrepreneur, at various levels, for the generation of venture ideas.*

Entrepreneurship can be conceived as the process of opportunity discovery, creation, and exploitation (Venkataraman, 1997), but, from the point of view of the potential entrepreneur, the process begins with an idea (Hayton and Cholakova, 2012) that then bring to the creation of a new organization (Amit et al., 1993).

The literature conceptualizes new ventures as “commercial enterprises that are imagined and rationalized by an entrepreneur in relation to specific emerging or established markets and industries” (Cornelissen & Clarke, 2010, p. 540). New ventures are the ultimate result of a process that aims to create and organize a new business, pursuing profit and growth objectives; these organizations develop, create, and place products and services on the market (Chrisman et al., 1998). New ventures are in their early stages of development and growth. Therefore, they are starting to realize organizational procedures and processes and begin bringing their initial products or services to the market, forming a customer base (Klotz et al., 2014). The type of industry where the new venture operates and its resources and strategies influence the achievement of the maturity phase. It has been stated how the maturity stage does not usually occur before a time between three and five years from the creation of the venture, and, in any case, it often happens that this time extends up to eight and twelve years (Chrisman et al., 1998). New ventures experience significant changes from start-ups to established businesses (Klotz et al., 2014). Following Vesper (1980), in this paper, we focus on independent new ventures initiated and controlled by one or more individuals acting in their self-interest. Creating a new venture has significant consequences at the industry and societal level; indeed, new ventures are a source of regional development, job creation, technology advancement, innovation, and competition (Forbes, 1999; Gilbert et al., 2006; Villani et al., 2018).

Vogel (2017) identifies three early phases of new venture creation: venture concept, where entrepreneurs have only a vague understanding of the different aspects of their future venture, venture idea, and venture opportunity. The venture idea is a preliminary mental representation of the venture concept (Vogel, 2017), and, in order to identify an idea worth pursuing, individuals have to engage in the new venture ideation process (McMullen and Kier, 2017). The initial idea has a commercial potential that can be exploited, and it is a first and vague insight for the possible creation of the new venture; these insights may relate to an unmet customer need (a market gap), a specific customer segment, a resource or capability, or a combination of these elements (Vogel, 2017). Over time, the entrepreneurial idea may be developed and refined into an exploited opportunity, but this is not an automatic step (Hayton and Cholakova, 2012). Venture opportunity is the last phase, and it is a favorable combination of endogenous and exogenous factors, according to which the entrepreneur considers the venture concept as desirable and feasible (Shepherd et al., 2015; Vogel, 2017).

Nowadays, sustainability represents a path that more and more firms are undertaking, as sustainability issues are a priority in all business situations. Indeed, sustainability-related entrepreneurship has become an important area in entrepreneurship research (Koe and Majid, 2014). Sustainable entrepreneurship focuses on the “preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society” (Shepherd and Patzelt, 2011, p. 137). This form of entrepreneurship can merge economic, social, and environmental value creation with a global concern for the well-being of future generations (Hockerts and Wüstenhagen, 2010). As a result, organizations invest in adjusting their business models and meeting sustainability requirements in all industries. However, the so-called “born sustainable” companies characterize the contemporary entrepreneurial scenario; since their inception, these enterprises have adopted a business model with sustainability as its core (Todeschini et al., 2017).

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Sustainable entrepreneurs try to be good and successful by simultaneously achieving economic, environmental, and social objectives (Choi and Gray, 2008a). Therefore, these entrepreneurs have a hybrid approach (Stubbs, 2017; Muñoz and Cohen, 2018) because, through their ventures, they try to solve societal and environmental problems, and, at the same time, they also pursue profit economic growth. New ventures are increasingly proposed as candidates for making new and socially and/or environmentally sustainable products (Keskin et al., 2020). In this perspective, the entrepreneurial activity aims to minimize businesses' impact on the environment while contributing to improvements in society and local communities, also having beneficial effects on employment (Choi and Gray, 2008b).

The literature review conducted by Muñoz and Cohen (2018) presents the most addressed explanatory variables in sustainable entrepreneurship concerning the figure of the entrepreneur, namely: knowledge and skills, entrepreneurial self-efficacy, motivation and intention, values and attitudes, business orientation, and moral cognition. Furthermore, Schaltegger and Wagner (2011) stress that attached to sustainable entrepreneurship, there is a desire to help solve societal and environmental problems. While recognizing the centrality of these individual elements of the entrepreneur, in this paper, we focus on how venture ideas come spontaneously from a set of different relational contexts surrounding the founding entrepreneur.

Purpose of the paper. *“New venture ideation” is “the capability to generate and select new venture ideas” (Kier and McMullen, 2018, p. 2265). The entrepreneur has to draw inspiration and stimulus to form ideas about the final creation of sustainable new ventures. It is worth pointing out that, by “sustainable new ventures”, we adopt the concept of “born sustainable new ventures”, according to the definition of Todeschini et al. (2017).*

Our paper focuses on the initial mental representation of the venture concept, i.e., the venture idea, in the case of sustainable entrepreneurship. However, where do these ideas stem from? We answer the call for more research about sustainability-oriented ventures (Choi and Gray, 2008a), adopting a qualitative approach to enhance knowledge about sustainable new venture creation and the relationship between sustainability and entrepreneurship (Gast et al., 2017).

To the best of our knowledge, the literature still presents a gap in studying the role of relational contexts in stimulating the emergence of venture ideas. In particular, sustainable entrepreneurship literature has overemphasized the role of institutional contexts on entrepreneurial actions; thus, more research is needed on the interaction between different actors and the relationships with social systems and territories (Muñoz and Cohen, 2018).

Hence, the paper intends to examine the following research questions: RQ1) What relational contexts foster the generation of ideas for sustainable new ventures creation? RQ2) How does the founding entrepreneur relate to these contexts?

Methodology. *We adopt the fashion industry as the empirical setting to answer the research questions. When it comes to sustainability issues, the fashion industry is emblematic. Indeed, the environmental impact deriving from the fashion industry is hugely significant. It can be noted, for example, the extensive use of water during production, the pollution from chemical treatments used in the dyeing and preparation of fabrics, the amount of waste produced during disposal (Blasi et al., 2020), the transport of the product from the factory to the store, without neglecting the care and disposal of the fashion items (Blasi et al., 2020).*

Furthermore, it is also necessary to consider the social aspects of this industry, considering, for example, the labor used to manufacture the garment. Hence, sustainability has become a significant issue and a ground for new opportunities in the fashion industry (Guercini et al., 2020; Liu et al., 2020). Fashion firms are increasingly trying to meet sustainable requirements through changes in their strategies, initiatives, and business models. As a result, this industry has witnessed a significant shift towards sustainability issues (Runfola et al., 2022).

Given the exploratory nature of the research, the paper adopts a qualitative inductive approach, studying the case of 10 entrepreneurs who have created sustainable new ventures in the fashion industry in Italy. The research primary sources for gathering data are face-to-face in-depth interviews. The sample of entrepreneurs was purposively selected. We considered the following criteria for inclusion in the research: a) the new venture has been in the fashion industry for up to twelve years; b) the new venture is an Italian fashion company; c) the new venture is an independent company. The fashion new ventures included in our research operate according to a variety of sustainable business models such as slow fashion, circular economy (e.g., upcycling, recycling, and vegan approaches), and sustainable technology innovation (e.g., zero waste and sustainable raw materials models), with new venture ages ranging between 2 and 10 years old.

The interviews lasted roughly one hour on average. They were all transcribed. We used the Gioia template to analyze qualitative data collected (Gioia et al., 2013). The Gioia methodology is widely recognized for its rigor in qualitative research.

Results. *The research underlines how a set of relational contexts stimulate the future entrepreneur to develop a venture idea for a sustainable new venture. The emerging result is that the idea of realizing sustainable entrepreneurship springs up spontaneously. However, while the new ventures are born sustainable, the entrepreneur becomes sustainable and oriented towards sustainability after an involuntary path supported by specific contexts that involve him or her.*

In this section, based on the qualitative interviews carried out and following the Gioia methodology (Gioia et al., 2013), we present the identified contexts as aggregate dimensions; each context has a particular link with the entrepreneur and fosters the venture idea generation for sustainable new ventures creation in different ways.

The relational contexts are not mutually exclusive. It can happen that the stimulus for the venture idea can also come from a combination of them.

Personal ties context. This context can be conceived according to two primary meanings for the venture idea generation. First, it can refer to family ties. Having parents or very close relatives running a business means that the individual has always breathed an entrepreneurial air. These concrete examples allow the future entrepreneur to draw inspiration; to this end, the business activity does not need to be in the same industry where the entrepreneur wants to create his or her new venture. The entrepreneurial example observed over time determines the generation of the venture idea; in this scenario, sustainability is a novelty element to introduce and distinguish the new venture on the market.

“My parents had been in the textile industry for two generations...”

“I was born in a family of entrepreneurs...So, the family DNA has certainly inspired me”.

The second stimulus for the venture idea generation comes from convivial moments experienced by the future entrepreneur. Indeed, conversations held in informal situations with friends become, on several occasions, the unexpected and natural source of entrepreneurial ideas. Again, embracing the issues of sustainability means entering the market with a new approach.

“I was having lunch with a friend, and we were discussing sustainability. We wondered...What do we have to do to make a sustainable product? We have to take what we have in the closet! It was born as a joke...So we said: but maybe we can do something new. Let us try!”.

“The idea was born, as it happens, by chance...From a dinner between friends...”.

Industrial district context. Living in a flourishing area in entrepreneurship, such as a fashion industrial district, provides interesting knowledge and tools to the future entrepreneur. Being physically in an industrial district means being surrounded by companies capable of responding to entrepreneurial aims. This fertile industrial situation can naturally develop the venture idea in the future entrepreneur. In this way, sustainability becomes the discriminator of the entrepreneurial activity, thanks to the new techniques, procedures, and fabrics made available in the fashion industry, especially in recent years.

Moreover, the industrial district, in addition to fostering the venture idea, supports sustainable entrepreneurship because it allows new ventures to create short supply chains.

“Living here [...in an industrial district...] I have always seen the textile industry as something quite available”.

“My background does not relate to the fashion industry. I live in a territory with traditions in fashion. The start-up derives from here”.

Working context. Often, the past work experiences of entrepreneurs provide remarkable insights for creating sustainable new ventures. This trend emerges particularly in the fashion industry. Working in the fashion industry means clashing daily with its dark sustainability sides. However, their awareness becomes so strong that it spontaneously pushes the future entrepreneur to want to change course in the long run.

Seeing every day the negative impact that companies have on the environment and society gives rise, on the one hand, to the desire to break with the current job occupation and, on the other, to the idea of creating new ventures that are sustainable from their conception. This gradual path leads the future entrepreneur to approach sustainability; in this way, sustainability becomes the means to break with the previous work activity and the goal to be achieved with the new entrepreneurial activity.

In some cases, working in the international business has led the future entrepreneur to understand how the market continued to realize fashion items disproportionately, generating a continuous overproduction and increasingly distancing the consumer from the final product. In this perspective, the venture idea is linked to the creation of unique and limited products; this allows to respect sustainability issues on all their sides, i.e., environmental, social, and economic sides.

“After several years, I had a particular maturity for which I felt I could create something of my own. I did not want to do anything part of a multinational company anymore. I was tired of this system and gear, which, I realize, is fundamental but goes to the detriment of too many things. So, it was no longer something that reflected my will...”.

“This way of making clothing has put a lot in crisis...Because the dialogue with the final consumer has been lost. [...] Gradually, I began to leave this type of work...”.

Consumers communities context. Nowadays, more and more consumers are firmly linked by a passion, a lifestyle, or a hobby based on sustainability issues. The existence of these communities often encourages the future entrepreneur to start a new venture by connecting with specific communities. In these cases, sustainability becomes a form of communication and a shared language with community members.

Our study shows that some entrepreneurial ideas are born to respond to communities of consumers. These communities have specific passions, such as the passion for the sea and nature; this passion translates into hobbies like surfing or cycling. Likewise, fashion companies with a cruelty-free and animal-friendly business approach are aimed at those communities of consumers with particular styles and philosophies of life; vegan people provide an example. The inclination towards sustainability in these people's passions, hobbies, and lifestyles also spills over into their purchasing choices, as in the specific case of fashion consumption.

In the consumer community context, the entrepreneur can be himself or herself a member of the community or see the inspiration for the sustainable venture idea.

"When the consumer is an athlete who loves the sea and spends much time in contact with the water, then the consumer sees the problems that exist...And becomes attached to the brand..."

"The idea is to associate our image with projects made by people because people are the first promoters of virtuous behaviors. [...] We have created a special edition of our belts to promote the "I respect the cyclist" project"

"I do not contribute to the leather market because I have not eaten meat and animals for many years. [...] I advise everyone not to eat meat because it is bad for human health and the planet"

Research limitations. *The paper is not exempt from limitations. These limitations represent guidelines for the development of future research. First, the research referred to the fashion system as the empirical context. From this point of view, the relevance of some relational contexts, such as industrial districts, could be influenced by the specific nature of fashion. Therefore, future research could study other sectors to highlight which dimensions are sector-specific and which are general. Secondly, our research referred to the Italian case. Despite the importance of the Italian system, especially regarding sustainable fashion initiatives, future research could propose a cross-country comparison to allow the deepening of relational contexts, for example, the institutional one, which in our research seems to have played a minor role. Finally, the paper presents a qualitative survey of an explored nature of 10 entrepreneurs. Future research should investigate the results emerging from this exploratory analysis in-depth and quantitatively on a larger sample of sustainable new ventures.*

Managerial implications. *Our research has important managerial implications. In fact, from the point of view of those interested in creating sustainable new ventures, the research presented in this paper makes it possible to identify the primary relational contexts where ideas can be drawn. The paper also emphasizes how entrepreneurs may relate to those contexts and leverage and obtain resources for the new venture. Furthermore, the research highlights how the entrepreneur's path towards sustainability is a path that requires connections with an articulated set of actors. Hence, in addition to a natural propensity towards sustainability issues, the entrepreneur's capability to relate with varied contexts and actors is crucial. Finally, the paper also has important implications for the public policymaker interested in ensuring a shift towards sustainable entrepreneurship. The research highlights the spontaneous nature of idea conceptualization and venture creation. From this point of view, the paper emphasizes the public actor's need to connect with those contexts to represent an enabler of venture ideas and creations.*

Originality of the paper. *The paper's originality concerns investigating contexts' role in generating sustainable venture ideas. From this point of view, the paper reaffirms how sustainability represents an opportunity capable of fueling the creation of new entrepreneurship. The literature recognizes the role of contexts in entrepreneurship. However, compared to the existing literature, the paper emphasizes the role of relations with the external context for sustainability. These relationships contribute to defining the business idea and mature one's orientation towards sustainability. If it is true that the company is born sustainable, it does not mean that this may be true for the entrepreneur. Instead, the entrepreneur's orientation towards sustainability can mature over time through interactions with other actors and contexts. This paper stresses this dimension concerning the literature that has analyzed born sustainable and new ventures (Shepherd and Patzelt, 2011; Todeschini et al., 2017; Vogel, 2017).*

Furthermore, the paper proposes theoretical implications on how sustainability may represent an entrepreneur's passion rather than a conviction matured over time. In so doing, the paper is part of the recent debate on the importance of entrepreneurial passion for the development of new entrepreneurship (Cardon et al., 2017; Guercini and Cova, 2018; Baraldi et al., 2020).

Finally, by identifying four contexts (personal ties context, industrial district context, working context, consumers communities context), the paper contributed to respond to a call from the literature that stresses the need to provide new insights on sustainable entrepreneurship and its genesis. Focusing on a set of specific contexts contributes to this theoretical call.

Keywords: *entrepreneurship; new ventures; sustainability; venture ideas; born sustainable firms; fashion industry*

References

AMIT R., GLOSTEN L., MUELLER E. (1993), "Challenges to theory development in entrepreneurship research", *Journal of Management Studies*, vol. 30, n. 5, pp. 815-834.

- BARALDI E., GUERCINI S., LINDAHL M., PERNA A. (2020), *Passion and entrepreneurship*, Palgrave MacMillan.
- BLASI S., BRIGATO L., SEDITA S.R. (2020), "Eco-friendliness and fashion perceptual attributes of fashion brands: An analysis of consumers' perceptions based on twitter data mining", *Journal of Cleaner Production*, vol. 244, 118701.
- CARDON M.S., GLAUSER M., MURNIEKS C.Y. (2017), "Passion for what? Expanding the domains of entrepreneurial passion", *Journal of Business Venturing Insights*, vol. 8, pp. 24-32.
- CHOI D.Y., GRAY E.R. (2008a), "Socially responsible entrepreneurs: What do they do to create and build their companies?", *Business Horizons*, vol. 51, n. 4, pp. 341-352.
- CHOI D.Y., GRAY E.R. (2008b), "The venture development processes of "sustainable" entrepreneurs", *Management Research News*, vol. 31, n. 8, pp. 558-569.
- CHRISMAN J.J., BAUERSCHMIDT A., HOFER C.W. (1998), "The determinants of new venture performance: An extended model", *Entrepreneurship Theory and Practice*, vol. 23, n. 1, pp. 5-29.
- CORNELISSEN J.P., CLARKE J.S. (2010), "Imagining and rationalizing opportunities: Inductive reasoning and the creation and justification of new ventures", *Academy of Management Review*, vol. 35, n. 4, pp. 539-557.
- FORBES D.P. (1999), "Cognitive approaches to new venture creation", *International Journal of Management Reviews*, vol. 1, n. 4, pp. 415-439.
- GAST J., GUNDOLF K., CESINGER B. (2017), "Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions", *Journal of Cleaner Production*, vol. 147, pp. 44-56.
- GILBERT B.A., MCDOUGALL P.P., AUDRETSCH D.B. (2006), "New venture growth: A review and extension", *Journal of Management*, vol. 32, n. 6, pp. 926-950.
- GIOIA D.A., CORLEY K.G., HAMILTON A.L. (2013), "Seeking qualitative rigor in inductive research: Notes on the Gioia methodology", *Organizational Research Methods*, vol. 16, n. 1, pp. 15-31.
- GUERCINI S., COVA B. (2018), "Unconventional entrepreneurship", *Journal of Business Research*, vol. 92, pp. 385-391.
- GUERCINI S., MILANESI M., MIR-BERNAL P., RUNFOLA A. (2020), *Surfing the waves of new marketing in luxury fashion: The case of online multi-brand retailers*. In *Advances in Digital Marketing and eCommerce* (pp. 203-210), Springer, Cham.
- HAYTON J.C., CHOLAKOVA M. (2012), "The role of affect in the creation and intentional pursuit of entrepreneurial ideas", *Entrepreneurship Theory and Practice*, vol. 36, n. 1, pp. 41-67.
- HOCKERTS K., WÜSTENHAGEN R. (2010), "Greening Goliaths versus emerging Davids - Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship", *Journal of Business Venturing*, vol. 25, n. 5, pp. 481-492.
- KESKIN D., WEVER R., BREZET H. (2020), "Product innovation processes in sustainability-oriented ventures: A study of effectuation and causation", *Journal of Cleaner Production*, vol. 263, 121210.
- KIER A.S., MCMULLEN J.S. (2018), "Entrepreneurial imaginativeness in new venture ideation", *Academy of Management Journal*, vol. 61, n. 6, pp. 2265-2295.
- KLOTZ A.C., HMIELESKI K.M., BRADLEY B.H., BUSENITZ L.W. (2014), "New venture teams: A review of the literature and roadmap for future research", *Journal of Management*, vol. 40, n. 1, pp. 226-255.
- KOE W.L., MAJID I.A. (2014), "A model for predicting intention towards sustainable entrepreneurship", *International Journal of Information, Business and Management*, vol. 6, n. 2, pp. 256-269.
- LIU S.Y., NAPIER E., RUNFOLA A., CAVUSGIL S.T. (2020), "MNE-NGO partnerships for sustainability and social responsibility in the global fast-fashion industry: A loose-coupling perspective", *International Business Review*, vol. 29, n. 5, 101736.
- MCMULLEN J.S., KIER A.S. (2017), "You don't have to be an entrepreneur to be entrepreneurial: The unique role of imaginativeness in new venture ideation", *Business Horizons*, vol. 60, n. 4, pp. 455-462.
- MUÑOZ P., COHEN B. (2018), "Sustainable entrepreneurship research: Taking stock and looking ahead", *Business Strategy and the Environment*, vol. 27, n. 3, pp. 300-322.
- RUNFOLA A., MILANESI M., GUERCINI S. (2022), *Internationalization of luxury fashion firms. Examining the business models of SMEs*, Palgrave MacMillan.
- SCHALTEGGER S., WAGNER M. (2011), "Sustainable entrepreneurship and sustainability innovation: Categories and interactions", *Business Strategy and the Environment*, vol. 20, n. 4, pp. 222-237.
- SHEPHERD D.A., PATZELT H. (2011), "The new field of sustainable entrepreneurship: Studying entrepreneurial action linking "what is to be sustained" with "what is to be developed"", *Entrepreneurship Theory and Practice*, vol. 35, n. 1, pp. 137-163.
- SHEPHERD D.A., WILLIAMS T.A., PATZELT H. (2015), "Thinking about entrepreneurial decision making: Review and research agenda", *Journal of Management*, vol. 41, n. 1, pp. 11-46.
- STUBBS W. (2017), "Sustainable entrepreneurship and B corps", *Business Strategy and the Environment*, vol. 26, n. 3, pp. 331-344.
- TODESCHINI B.V., CORTIMIGLIA M.N., CALLEGARO-DE-MENEZES D., GHEZZI A. (2017), "Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges", *Business Horizons*, vol. 60, n. 6, pp. 759-770.

- VENKATARAMAN S. (1997), "The distinctive domain of entrepreneurship research: An editor's perspective", In Katz J., Brockhaus R. (Eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth*, vol. 3, pp. 119-138, Greenwich, CT: JAI Press.
- VESPER K.H. (1980), *New venture strategies*, Englewood Cliffs, NJ: Prentice Hall.
- VILLANI E., LINDER C., GRIMALDI R. (2018), "Effectuation and causation in science-based new venture creation: A configurational approach", *Journal of Business Research*, vol. 83, pp. 173-185.
- VOGEL P. (2017), "From venture idea to venture opportunity", *Entrepreneurship Theory and Practice*, vol. 41, n. 6, pp. 943-971.

Personalized medicine: A win-win option for both society and pharmaceutical companies

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Framing of the research. According to the definition in the site of the National Cancer Institute, Precision Medicine is “A form of medicine that uses information about a person’s own genes or proteins to prevent, diagnose, or treat disease”. (National Cancer Institute, 2013)

The development of Precision Medicine, often referred to as Personalised Medicine (Garrison & Towse, 2019), represents one of the most important scientific advances in medicine in the last decades. Truly paradigm-changing from a clinical viewpoint, because it has shifted the focus of medical research from the search of treatments that can improve (often moderately) the prognosis of the majority of patients with a given disease, to the search of the (often few) patients, within that disease, that can draw much larger benefits from a specific treatment. (Aronson, 2015)

However, while its clinical implications have been widely discussed, (Drew, 2016) the challenges, both theoretical and practical, posed by this new opportunity is less clear in a more general perspective, which takes into account the costs, the risks and the benefits for all the stakeholders involved. (Lakdawalla et al., 2018; Veenstra et al., 2020)

In Precision Medicine, treatments for the each patient are decided based on the results of genetic or molecular tests (Aronson, 2015; Garau et al., 2012; Terkola et al., 2017) able to identify changes in genes or cellular characteristics or functions. These alterations allow identifying if patients are more or less likely to benefit from a given treatment or to experience some of the toxic effects it can cause. (Pagán et al., 2021) Sometimes, there are treatments that have been developed intended for a specific alteration found in a proportion of patients with a certain disease. (Terkola et al., 2017)

As a consequence, in precision medicine the overall number of patients who receive a given treatment is reduced (Aronson, 2015; Drew, 2016), but the average benefit observed in those patients is larger, because it is no longer diluted with the smaller (or no) benefit experienced by unsusceptible patients, or because the patients who are more likely to experience the toxic effects of the treatment do not receive it. (Aronson, 2015)

In theory, the reduction in the number of patients who receive a given treatment could damage its producers and this would make it difficult to explain the huge amount of resources that pharmaceutical and technology companies are devoting to the discovery and the clinical development of predictive tests and tailored treatments (Garau et al., 2012; Garrison & Towse, 2019). In fact, the price of technologies (drugs and devices) reimbursed by Health Care Systems and insurances is the result of a central negotiation between the producing company and the payer (Neumann et al., 2021), and the main criterion used to determine this price is the type and amount of health benefits produced by the technology for the patients, the so-called value-based reimbursement criterion. (Aronson, 2015; Garrison & Austin, 2007) Several indices that could help summarizing these benefits have been proposed and used (Brazier et al., 2007) depending on the disease and on the treatment aims (e.g. curative vs palliative). In general, these measures evaluate the weight of the variation both in terms of quantity and quality of life offered using the new technology, taking into account not only prognostic improvements, but also toxic and deleterious effects of treatment. For instance, in chronic and potentially lethal diseases such as cancer and cardiovascular diseases, a measure frequently used to guide / inform health policy and accepted as an outcome measure in health economics is the Quality Adjusted Life Year (QALY), that

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represents an attempt to evaluate how many extra months or years of life of a reasonable quality a person might gain as a result of treatment (particularly important when considering treatments for chronic conditions).

These measures are usually computed as an average of the beneficial and harmful effects of an intervention across many patients. This average is the one used in cost-effectiveness analyses and in price negotiations. However, when it is possible to identify subgroups of patients who are more or less likely to experience those effects, as in Precision Medicine, the average effect should be replaced by the estimates specific for each subgroup, and cost-effectiveness analyses should consider the fact that in the new scenario only a subgroup of patients will receive the new intervention, but that for that subgroup the benefits will be larger. Accordingly, in price negotiations, the reduced number of treated patients will be accompanied by an increased price for each treatment, due to the increase of the estimated efficacy of the treatment in that subgroup. (Carlson et al., 2010)

Purpose of the paper. In this perspective, precision medicine can represent a win-win option for all stakeholders: for patients, to which the negative effects of an intervention will be saved that is not effective for them and that can use different treatment; For the health system, which can introduce this improvement without additional costs; And for the pharmaceutical company, which can compensate for the reduced sales volume with the higher price per unit. Furthermore, it is possible that both the healthcare system and the entire community are beneficiaries from an economic point of view, if the patient's selection allows you to prevent serious or catastrophic adverse events, with associated costs.

Of course, should the number of subgroups of patients amenable to receive a specific tailored treatment grow beyond a certain limit, the overall budget impact of these treatments might become a limiting factor, but these considerations are beyond the scope of this paper, that is aimed at exploring the possible impact of Precision Medicine in terms of sustainability from a social and economic point of view. (Aronson, 2015; Eppinger and Kamprath, 2011; Lega et al., 2013)

To this aim, we present an exercise of cost-effectiveness analysis based on data from Regione Liguria, that compares the present situation, in which all eligible patients with colorectal cancer receive a chemotherapy that in proportion of them will cause serious and sometimes dramatic toxic effects, with a scenario in which a pharmacogenetic test is used to select patients at high risk of these adverse effects, to whom a modified regimen is prescribed.

Methodology. We propose an economic evaluation exercise of personalized medicine based on a cost-effectiveness analysis. The case study is the comparison of two different therapeutic dose-strategies in the treatment of solid tumors with a drug widely used in the clinical practice. The first strategy is the therapeutic standard in which all patients are treated with the same dose of drug. The comparative strategy foresees the introduction of a prospective genetic test that should guide the pharmacological dosage (test-guided or genotype-guided dose) with the aim of reducing the risk of adverse effects to the treatment.

Fluoropyrimidines, such as 5-fluorouracil (5-FU) and its prodrugs (capecitabine and tegafur), are anticancer drugs largely used, in monotherapy or in association with other drugs, in the treatment of solid tumors. Generally, these drugs are well tolerated, however, more than 30% of patients experience dose-limiting toxicity, and 4-5/1000 patients die from a therapy-related toxic event. (Tsalic et al., 2003; Van Kuilenburg, 2004) Molecular studies have demonstrated a relationship between genetic variations in the DPYD - Dihydropyridine Dehydrogenase gene (the gene encoding the rate-limiting enzyme in the catabolism and clearance of the antineoplastic drug analyzed) and a deficiency in enzyme activity, and that this deficiency is a frequent and critical determinant of therapy-related toxicity. In the majority of patients who died as a consequence of a toxic event following the drug administration was found this genetic variant. (Ciccolini et al., 2006; Largillier et al., 2006)

Based on the available evidence on the clinical validity and usefulness of analyses of DPYD gene variants, recently the European Medicinal Agency (EMA) published a note¹ on the adoption of pharmacogenomic tests to identify this variation, among patients candidate to treatments including 5-FU or its prodrugs. In Italy, the Agenzia del Farmaco (AIFA)² adopted this guidance but at the regional level its implementation is still largely incomplete, so the therapeutic standard practice remain without the prospective test. In the context of the Liguria region we carried out an economic evaluation of the introduction of a pharmacogenetic test for the deficit of therapeutic pathways: we applied an analytical decision modelling methodology borrowed from a Dutch study (Deenen et al., 2016) with an cost minimization analysis. (Drummond et al., 1998)

Analytical decision modelling provides tools for decision making under uncertainty and is often described with a graphical tool called a decision tree. This method is widely used to set up complex algorithms of alternative decisions or choices and describe the probability and the respective outcomes. (Drummond et al., 1998)

Cost minimization analysis is a technique of economic evaluation that compares different intervention strategies with similar effectiveness, in order to find the most economic one. (Drummond et al., 1998) The basic assumption is a similar therapeutic efficacy of 2 treatment strategies which allow to compare only the costs. In our case study, similar

¹ New testing and treatment recommendations for fluorouracil, capecitabine, tegafur and flucytosine; in Agency EM (ed), 2020, EMA/125891/2020

² Important information note agreed with the European regulatory authorities (EMA) and emitted by the Italian drug agency (AIFA) in 25/05/2020 "Medicinali contenenti 5-fluorouracile (i.v.), capecitabina e tegafur: test pre-trattamento per identificare i pazienti con deficit di DPD ad aumentato rischio di tossicità grave in Farmaco"

effectiveness of therapeutic options (standard doses vs doses test-guided) is plausible based on the available evidence (Deenen et al., 2016). It makes possible comparing only the resultant costs under alternative scenarios (we consider only the costs related to the test and to the adverse event management).

The first scenario describes the actual clinical practice in Liguria, in which the pharmacogenomic test is not used and 5-FU-based treatments are used at standard dosages in all patients. In the second scenario, all patients scheduled to receive to a treatment with a 5-FU-based chemotherapy are screened with the pharmacogenomic test and doses are based on the results of the test.

Data collected in Regione Liguria included all the patients belonging to IRCCS Ospedale Policlinico San Martino and eligible to 5-FU-based therapy in 2017-2018 and 2019 were extracted from a regional database³ where historical data from different sources are collected, compressed, and saved for future uses.

In the economic evaluation regional data were integrated with data extrapolated from the available literature. , in particular information relative to incidence of genetic mutation and incidence of adverse events was extrapolated from previous studies. (Henricks et al., 2018; Toffoli et al., 2019)

Data on the use of drugs in regimens administered at the IRCCS Ospedale Policlinico San Martino were extracted with the software for the management of cancer therapies (prescription, appropriateness, preparation, and administration of chemotherapeutic drugs) and the local software for the management of drug supply.

Furthermore, the head physicians of two oncology units were interviewed to clarify standard clinical practice regarding the prospective use of the tests before the AIFA directive.

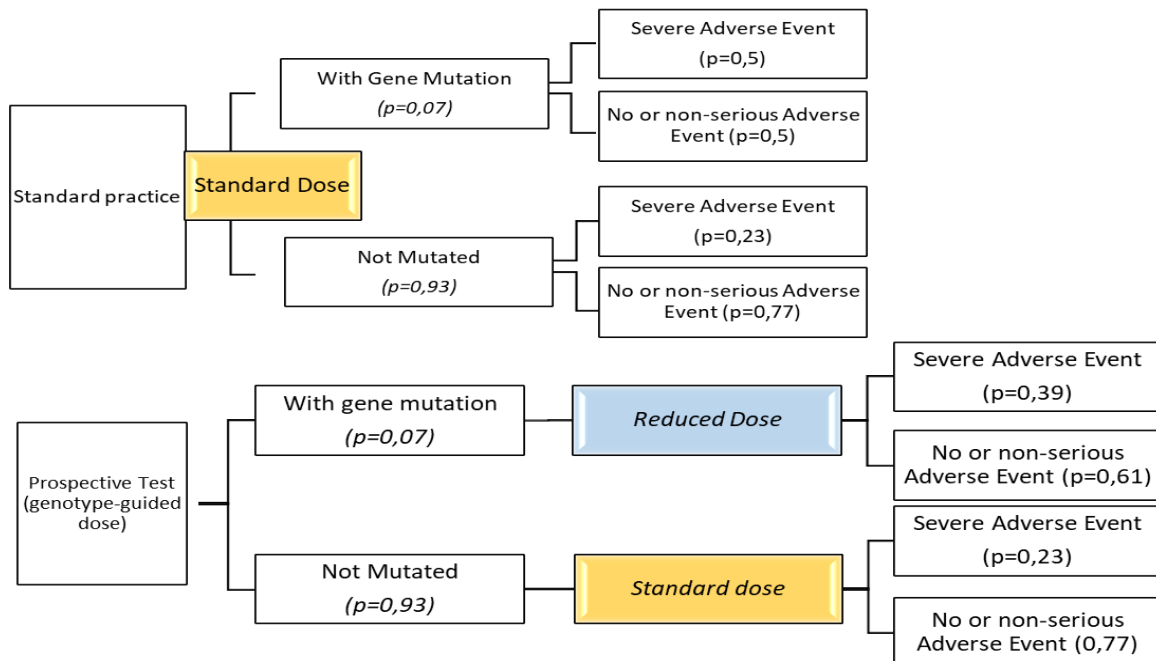
In the absence of local data, the prevalence of the genetic mutations of interest reported in the Italian study by Toffoli and colleagues (Toffoli et al., 2019) was used and frequencies of adverse events were extrapolated from a Dutch study.(Henricks et al., 2018)

For the costs of the test, since there we used an indicative value equal to 100€ justified from the literature (Deenen et al., 2016) and the cost information received from the IRCCS Ospedale Policlinico San Martino.

Results. Therapeutic alternatives and their respective clinical paths are described in the decision tree (Drummond et al., 1998) represented in Figure 1. Each box of the diagram represents a state of realization and contains the respective probability of its occurrence.

It is possible to observe the potential path of patients in the different scenarios. For example, in the standard practice, in which the standard dose of drug is given to all the patients, we can see in this context a patient with the gene mutation has a risk of developing a serious adverse event equal to 0.50 while the same patient treated with a test-driven dosage a reduced risk equal to 0.39. Patients who do not have the mutation obviously maintain the same risk in the two scenarios.

Fig. 1: Decision tree of therapeutic strategies (our elaboration)



The expected costs estimated from clinical practice in each scenario (scenario Standard Practice and scenario with the prospective pharmacogenetic test and consequently a genotype guided dose) are shown in Table 1, per 1000 patient candidates for 5-FU-based chemotherapy.

³ DataWareHouse of Regione Liguria

Tab. 1: Simulation results (our elaboration)

	Standard Practice (1000 pts)	Prospective test (1000 pts)
Number of tests	0	1000
Total costs for tests (100€ x test)	0	100000
Number of Serious Adverse events*	246	238
Total costs	161000	92000
Number of adverse events avoided		8 (-3%)
Savings		69000 € (-42%)

*Estimations based on literature frequencies of genetic mutations and adverse events occurrence (Henricks et al., 2018; Toffoli et al., 2019)

Estimates of total cost per 1000 patients take into account only the costs of the test and the costs for hospital care due to adverse events. Applying the incidence rate of the gene variation and of the adverse events (as described in Figure 1), we estimated the average total cost of 1000 patients who does not undergo a pharmacogenomic test and receives standard chemotherapeutic doses equal to 161000 €, and the average cost of a patient pre-screened with the test and treated according to its results equal to 92000 €, with an average saving of 69000€ per 1000 treated patients, corresponding to a 42% decrease of the overall costs generated by the treatment.

Furthermore, the test-guided strategy (prospective test) would allow to avoid on average 8 serious adverse events per 1000 patients treated.

These results that indicate an average increment in the treatment outcomes with 5-FU-based chemotherapy thanks to the introduction into the clinical practice of the prospective genetic test and the consequent definition of test-guided therapeutic plans are in line with the previous literature, both in terms of cost reduction (Deenen et al., 2016; Henricks et al., 2018; Toffoli et al., 2019) that in terms of adverse events serious avoided (Cortejoso et al., 2016)

Research limitations. This research is not free from limitations. The economic evaluation model is affected by problems of incomplete cost information, in fact, it does not include: the costs associated with the organization, the savings due to the lower dose of therapy administered to positive patients, and the indirect cost associated with the administration of an alternative therapy less effective in positive patients. Furthermore, the estimates of the parameters entered to populate the model are affected by some approximations, especially the fact that historical drug data related to fluoropyrimidine research are not recorded in Liguria (costs of hospitalizations, further therapies, etc.). The frequency of DPYD variants is not available to the local population; however, the national figure is a reliable estimate. A further limitation concerns the lack of commercial data concerning both the diagnostic test and the fluoropyrimidine-based therapies, this leads to distorted and fallacious estimates of the costs and potential benefits obtainable on the business side with the introduction of innovative technologies. Finally, also because of the lack of data at the regional level described above, an evident limitation concerns the lack of an overall quantitative evaluation of the impact of the use of the test in clinical practice.

A further limitation is the lack of information on the pharmaceutical company side. To provide a complete picture of the issue, it would be helpful to include research and development (R&D) related costs and incentives in Personalized Medicine.

Managerial implications. The validity of the above reported estimates of the costs associated with either strategy for the use of 5-FU- based chemotherapies may be questionable, due to the lack of adequate and complete data. However, the striking consistency with what has been reported in other studies (Deenen et al., 2016; Henricks et al., 2018) suggests that, at least in terms of order of magnitude, they are correct, and can be used for considerations on the sustainability of personalised medicine. In our case study, the use of a pharmacogenomic test to identify patients who will receive reduced doses of chemotherapy allows a 42% reduction of the total costs generated by the treatment. This benefit does not involve any harm for the patients, but, instead, it is associated with a reduced risk of hospitalization and death.

Therefore from the side of the public actor it is verified that a personalized approach, that translates into a more appropriate therapeutic path, allows to reach a better quality of care without increasing costs, in line with what has been demonstrated in previous studies (Nutti et al., 2010). Thus, both from the point of view of value for the patient and of society, a greater level of efficiency is achieved.

One might speculate that a pharmaceutical company producing a drug would not be interested in developing a test that allows to identify the patients more susceptible to the toxic effects of this drug, who should receive a different treatment. However, if the shrinking of the target population for the drug, due to the use of tests predicting its toxicity (or its decreased efficacy), is accompanied by a proportional increase in its price, justified by the improved risk-benefit profile, or value, for the selected patients. This may become a situation in which all the actors are benefitted: the pharmaceutical firm, that is compensated by the increased price for the reduced number of patients receiving the drug, but that can also be reassured on the future perspectives of the drug, due to the improved efficacy or reduced toxicity in treated patients; the patients individually and the health system, who can pursue its main aim (improved health) with little or no increase in its costs.

Originality of the paper. *The results of this study underline the importance of taking into account both the clinical outcome and economic evaluations of therapeutic options and, in line with previous literature (Vainieri et al., 2019), support managerial and "hybrid" professional roles in healthcare decision-making to achieve a better overall performance.*

In our case study, the considerable economic benefits obtained with the adoption of personalized treatment plans based on the results of a genetic tests are associated with a clear clinical benefits (prevention of serious adverse events and death), in a situation where the costs of the drugs are negligible. In other situations, in which different subgroups may be candidate to different tailored and possibly costly treatments, considerations related to the overall budget impact will become more relevant, although the clear demonstration of substantial health benefits for the patients will usually prevail.

In conclusion, the main implication of this project is the demonstration that not necessarily scientific medical advances, particularly in the field of precision medicine, are associated with increased costs, and that precision medicine can lead to improvements in the efficiency of the mechanisms of health delivery, and sometimes even to savings. This also justifies the incentives that are currently used and should continue to be used to encourage companies to invest in this area.

Keywords: *Precision medicine; personalized medicine; genetic test; cost-effectiveness analysis; value-based reimbursement; research investment*

References

- ARONSON N. (2015), "Making personalized medicine more affordable", *Annals of the New York Academy of Sciences*, vol. 1346, n. 1, pp. 81-89.
- BRAZIER J., RATCLIFFE J., SALOMAN J., TSUCHIYA A. (2007), *Measuring and Valuing Health Benefits for Economic Evaluation*. Oxford University Press.
- CARLSON J.J., SULLIVAN S.D., GARRISON L.P., NEUMANN P.J., VEENSTRA D.L. (2010), "Linking payment to health outcomes: A taxonomy and examination of performance-based reimbursement schemes between healthcare payers and manufacturers", *Health Policy*, vol. 96, n. 3, pp. 179-190.
- CICCOLINI J., MERCIER C., DAHAN L., EVRARD A., BOYER J.C., RICHARD K., DALES J.P., DURAND A., MILANO G., SEITZ J.F., LACARELLE B. (2006), "Toxic death-case after capecitabine + oxaliplatin (XELOX), "administration: Probable implication of dihydropyrimidine deshydrogenase deficiency", *Cancer Chemotherapy and Pharmacology*, vol. 58, n. 2, pp. 272-275.
- CORTEJOSO L., GARCÍA-GONZÁLEZ X., GARCÍA M.I., GARCÍA-ALFONSO P., SANJURJO M., LÓPEZ-FERNÁNDEZ L.A. (2016), "Cost-effectiveness of screening for DPYD polymorphisms to prevent neutropenia in cancer patients treated with fluoropyrimidines", *Pharmacogenomics* vol. 17, n. 9, pp. 979-984.
- DEENEN M.J., MEULENDIJKS D., CATS A., SECHTERBERGER M.K., SEVERENS J.L., BOOT H., SMITS P.H., ROSING H., MANDIGERS C.M.P.W., SOESAN M., BEIJNEN J.H., SCHELLENS J.H.M. (2016), "Upfront genotyping of DPYD*2A to individualize fluoropyrimidine therapy: A safety and cost analysis", *Journal of Clinical Oncology*, vol. 34, n. 3, pp. 227-234.
- DREW L. (2016), "Pharmacogenetics: The right drug for you", *Nature* 2016 537:7619, vol. 537, n. 7619, pp. S60-S62.
- DRUMMOND M.F., O'BRIEN B., STODDART G.L., TORRANCE G.W. (1998), "Methods for the Economic Evaluation of Health Care Programmes, Second Edition", In *American Journal of Preventive Medicine* vol. 14, n. 3, pp. p. 243.
- EPPINGER E., KAMPRATH M. (2011), "Sustainable Business Model Innovation in Personalized Medicine", Conference Capter in *R&D Management Conference "R&D, Sustainability & Innovation - The Need for New Ideas, Initiatives and Alliances"*, Linköping, Sweden, June 28-30, 2011.
- GARAU M., TOWSE A., GARRISON L., HOUSMAN L., OSSA D. (2012), "Can and should value-based pricing be applied to molecular diagnostics?", [Http://Dx.Doi.Org/10.2217/Pme.12.99](http://Dx.Doi.Org/10.2217/Pme.12.99), vol. 10, n. 1, pp. 61-72. <https://doi.org/10.2217/PME.12.99>
- GARRISON L.P., AUSTIN M.J.F. (2007), "The economics of personalized medicine: A model of incentives for value creation and capture", *Drug Information Journal*, vol. 41, n. 4, pp. 501-509.
- GARRISON L.P., TOWSE A. (2019), "A strategy to support efficient development and use of innovations in personalized medicine and precision medicine", *Journal of Managed Care and Specialty Pharmacy*, vol. 25, n. 10, pp. 1082-1087.
- HENRICKS L.M., LUNENBURG C.A.T.C., DE MAN F.M., MEULENDIJKS D., FREDERIX G.W.J., KIENHUIS E., CREEMERS G.J., BAARS A., DEZENTJÉ V.O., IMHOLZ A.L.T., JEURISSEN F.J.F., PORTIELJE J.E.A., JANSEN R.L.H., HAMBERG P., TEN TIJE A.J., DROOGENDIJK H.J., KOOPMAN M., NIEBOER P., VAN DE POEL M.H.W., SCHELLENS J.H.M. (2018), "DPYD genotype-guided dose individualisation of fluoropyrimidine therapy in patients with cancer: a prospective safety analysis", *The Lancet Oncology*, vol. 19, n. 11, pp. 1459-1467.

- LAKDAWALLA D.N., DOSHI J.A., GARRISON L.P., PHELPS C.E., BASU A., DANZON P.M. (2018), “Defining Elements of Value in Health Care-A Health Economics Approach: An ISPOR Special Task Force Report [3]. *Value in Health*, vol. 21, n. 2, pp. 131-139.
- LARGILLIER R., ETIENNE-GRIMALDI M.C., FORMENTO J.L., CICCOLINI J., NEBBIA J.F., GINOT A., FRANCOUAL M., RENÉE N., FERRERO J.M., FOA C., NAMER M., LACARELLE B., MILANO G. (2006), “Pharmacogenetics of Capecitabine in Advanced Breast Cancer Patients”, *Clinical Cancer Research*, vol. 12, n. 18, pp. 5496-5502.
- LEGA F., PRENESTINI A., SPURGEON P. (2013), “Is management essential to improving the performance and sustainability of health care systems and organizations? A systematic review and a roadmap for future studies”, *Value in Health*, vol. 16, n. 1 SUPPL.
- NATIONAL CANCER INSTITUTE (2013), “*Definition of precision medicine - NCI Dictionary of Cancer Terms - National Cancer Institute* (p. 45735), “<https://www.cancer.gov/publications/dictionaries/cancer-terms/def/precision-medicine>
- NEUMANN P.J., COHEN J.T., OLLENDORF D.A. (2021), “Drug-Pricing Debate Redux - Should Cost-Effectiveness Analysis Be Used Now to Price Pharmaceuticals?”, *New England Journal of Medicine*, vol. 385, n. 21, pp. 1923-1924.
- NUTI S., VAINIERI M., BONINI A. (2010), “Disinvestment for re-allocation: A process to identify priorities in healthcare”, *Health Policy*, vol. 95, n. 2-3, pp. 137-143.
- PAGÁN J.A., BROWN H.S., ROWE J., SCHNEIDER J.E., VEENSTRA D.L., GUPTA A., BERGER S.M., CHUNG W.K., APPELBAUM P.S. (2021), “Genetic Variant Reinterpretation: Economic and Population Health”, *Management Challenges*, vol. 24, n. 3, pp. 310-313.
- TERKOLA R., ANTOÑANZAS F., POSTMA M. (2017), “Economic evaluation of personalized medicine: a call for real-world data”, *European Journal of Health Economics* vol. 18, n. 9. Pp. 1065-1067.
- TOFFOLI G., INNOCENTI F., POLESEL J., DE MATTIA E., SARTOR F., DALLE FRATTE C., ECCA F., DREUSSI E., PALAZZARI E., GUARDASCIONE M., BUONADONNA A., FOLTRAN L., GARZIERA M., BIGNUCOLO A., NOBILI S., MINI E., FAVARETTO A., BERRETTA M., D’ANDREA M., CECCHIN E. (2019), “The Genotype for DPYD Risk Variants in Patients With Colorectal Cancer and the Related Toxicity Management Costs in Clinical Practice”, *Clinical Pharmacology & Therapeutics*, vol. 105, n. 4, pp. 994-1002.
- TALIC M., BAR-SELA G., BENY A., VISEL B., HAIM N. (2003), “Severe Toxicity Related to the 5-Fluorouracil/Leucovorin Combination (The Mayo Clinic Regimen)”, *American Journal of Clinical Oncology*, vol. 26, n. 1, pp. 103-106.
- VAINIERI M., FERRÈ F., GIACOMELLI G., NUTI S. (2019), “Explaining performance in health care: How and when top management competencies make the difference”, *Health Care Management Review*, vol. 44, n. 4, pp. 306-317.
- VAN KUILENBURG A.B.P. (2004), “Dihydropyrimidine dehydrogenase and the efficacy and toxicity of 5-fluorouracil”, *European Journal of Cancer*, vol. 40, n. 7, pp. 939-950.
- VEENSTRA D.L., MANDELBLATT J., NEUMANN P., BASU A., PETERSON J.F., RAMSEY S.D. (2020), “Health economics tools and precision medicine: Opportunities and challenges”, *Forum for Health Economics and Policy*, vol. 23, n. 1.

Enhancing Fair Trade customer engagement: the role of social media advertising (Work-in-progress)

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Framing of the research. *The Fair Trade (FT) is a social movement that allows a fair and sustainable development of the global economy (Fisher, 2009). Aligning targets and objectives with the Agenda 2030 Sustainable Development Goals (UN - SDGs, 2015), the FT contributes to inclusive and sustainable economic growth (Goal 8), and promotes responsible consumption and production patterns (Goal 12). The FT functions as a system, where ATOs, namely Alternative Trade Organizations, purchase from an international context and sell to their own countries (Moore, 2004). These “intermediate organizations” (Simeoni et al., 2020) therefore support small and marginalized producers from the Global South through economic empowerment, ensuring them fair, equitable working and living conditions and providing them access to the global market (Stiglitz and Charlton, 2005).*

A second major objective of the FT movement consists in raising public awareness about the inequities of the economic system and campaigning in order to gain customers’ support in developed countries (WFTO, 2017a; Chatzidakis et al., 2016). Customers worldwide are increasingly aware of the negative externalities of the current production and consumption systems (Gillani et al., 2021), and sustainability is now a priority for a growing number of people (CGS, 2019). Ethical consumption, which is defined as purchasing behaviors that fulfill ethical and environmental concerns (Harrison et al., 2055) is a growing phenomenon and recent research suggests that this global shift toward more sustainable purchasing behaviors is especially relevant for younger consumers (Robichaud and Hu, 2021; Deloitte, 2022.). FT movement has grown consistently in the last decades, suggesting a positive customer response to production based on ethical standards (Ribeiro-Duthie et al., 2021), and FT core strategy is to continuously engage more partners and expand sales (Fairtrade International, 2021). Indeed, for FT movement to produce a significant impact on the global economic system, FT certified products need to appeal to a wider audience (Cheng, 2015). The wider adoption of FT products would mean a higher number of producers able to enter the FT system and benefit from premium prices (Bezençon and Blili, 2009). In other words, for FT system to increase market penetration, the traditional producer focus needs to be combined with consumer focus (Karjalainen and Moxham, 2013).

Extant research on FT consumer behaviors has examined customers’ willingness to pay for FT products (Loureiro and Lotade, 2005; De Pelsmacker et al., 2005; Ruggeri et al., 2021), their attitudes and motivations to buy FT products (Doran, 2009; Hwang and Kim, 2018; Gillani et al., 2021), also suggesting a gap between customer attitudes and actual behaviors (Yamoah et al. 2016).

From a marketing perspective, research has also highlighted the effectiveness of communication strategies in order to raise customer awareness (Wright and Heaton 2006; Gillani et al., 2021). In this regard, extant studies have mostly focused on FT product labels, which help consumers to identify commodities as FT certified, and has highlighted the positive effect of providing ethical product information on customers’ purchase decision making (Andorfer and Liebe, 2012; Gillani et al., 2021) and their willingness to pay (Ruggeri et al., 2021). In parallel, customers’ lack of sufficient awareness and availability of information are reported among main reasons customers do not buy FT products (Han and Stoel, 2017; Ruggeri et al., 2021). The credibility of the label itself has been reported as an additional barrier, since competing labelling programs and certifications may confuse customers, and undermine certifications credibility and reliability (Hwang and Kim, 2018; Nilsson et al., 2004; Giampietri et al., 2018). Knowledge building and consumer trust are vital to FT, since knowledge positively correlates to purchasing behaviors (De Pelsmacker et al., 2007), and customer trust is necessary to develop purchase and re-purchase intentions (Ruggeri et al., 2021; Robichaud and Hu, 2021), customer engagement and loyalty (Lassoued and Hobbs, 2015; Giampietri et al., 2018; Hartmann et al., 2015).

From a marketing perspective, social media may be an effective tool inform customers and motivate responsible purchasing behavior (Han and Stoel, 2017; Wang et al., 2012). Social media marketing is an effective strategy to enhance and maintain relationships with customers (Khadim et al., 2018), because it is interactive, participatory and less intrusive than traditional marketing (Alalwan, 2018; Cheung et al., 2019). Marketers are increasingly integrating

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social media advertising (SMA) in their advertising programs because it plays a considerable role in influencing customers' attitudes and behaviors towards a brand (Arora and Agarwal, 2019; Singh and Ahlluwalia; 2021; Cheung et al., 2019; Voorveld et al., 2018).

Previous research has found that informativeness, credibility and entertainment of the advertising contribute to the development of positive attitudes toward the advertising, which in turns relate to positive attitudes and behaviors towards the brand being advertised (Ling et al., 2010; Arora and Agarwal, 2019; Singh and Ahlluwalia; 2021). Advertising informativeness refers to the ability to effectively provide all relevant information about product and services being advertised (Ducoffe, 1996; Ling et al., 2010). Seeking information is among the main motivations for using internet and social media (Singh and Ahlluwalia; 2021; Muntinga et al., 2011) and, in SMA, advertising informativeness increases because of the interactivity of the digital environment, and the availability of comprehensive and update information (Alalwan, 2018). Advertising credibility refers to the ability to gain customers' trust, favoring customers' perceptions of reliability and believability about the advertising (Ling et al., 2010; MacKenzie and Lutz, 1989). SMA, because of peer-to-peer communication and user generated communication, is generally more credible and reliable than traditional advertising (Chu and Kim, 2011; Khadim, 2018). Sincerity that derives from "horizontal" social interaction makes SMA a credible source of information (Arora and Agarwal, 2019; Mangold and Faulds, 2009; Kartajaya et al., 2016). Advertising entertainment refers to the extent to which advertising is enjoyable, eye-catching, and amusing (Ling et al., 2010; Ducoffe, 1996). Pleasure and entertainment are important reasons for using internet and social media (Singh and Ahlluwalia, 2021) and SMA is generally more enjoyable than traditional advertising, because of high levels of creativity and attractiveness (Voorveld et al., 2018; Alalwan, 2018). Because of these reasons, SMA is generally considered more valuable to customers than traditional advertising, and it is therefore more effective in shaping positive customers' attitudes and behaviors (Arora and Agarwal, 2019). Recent studies have found that SMA that is informative, credible, and enjoyable is related to positive customer attitudes and engagement (Nordin et al., 2019; Voorveld et al., 2018), purchase and re-purchase intentions (Singh and Ahlluwalia; 2021; Alalwan, 2018), brand loyalty (Khadim et al., 2018), WoM and E-WoM (Cheung et al., 2019).

In sum, SMA may be an effective tool to overcome informativeness and credibility concerns, that often prevent FT purchasing intentions and behaviors. Moreover, because of its interactive and enjoyable nature, SMA may also be effective in strengthening and enhancing relations with FT customers and in building customer engagement. However, the role of social media and SMA in FT communication and promotion has often been neglected by previous research (Han and Stoel, 2017; Robichaud and Hu, 2021).

Purpose of the paper. For the FT movement to have a significant impact on the global economic system, it is necessary to enhance customer relations and expand commercial objectives (Karjalainen and Moxham, 2013). Despite customers' growing awareness about the negative externalities of the current production and consumption systems (Gillani et al., 2021), previous research has reported lack of sufficient knowledge and trust as main barriers to FT purchase intentions and communication efforts from FT organizations are required in order to gain customer trust and engagement (Bezençon and Blili, 2009.) From a marketing perspective, SMA is an effective tool to educate customers and strengthen customer relations because it is more credible, informative and pleasant than traditional advertising (Voorveld et al., 2018; Cheung et al., 2019). Therefore, the aim of this research is to investigate the impact of online communication on FT customer engagement. More precisely, the research examines the relation between informativeness, credibility and entertainment of SMA by a FT organization and customer engagement, which is assessed in terms of re-purchase intentions, frequency of purchasing and WoM, including E-WoM. Because of the aforementioned literature, the following hypotheses are formulated:

H1: Informativeness of FT social media advertising is positively related to customer engagement

H2: Credibility of FT social media advertising is positively related to customer engagement

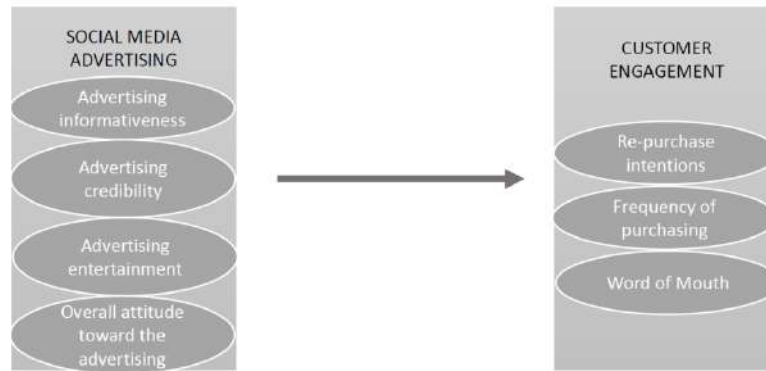
H3: Entertainment of FT social media advertising is positively related to customer engagement

Lastly, since informativeness, credibility and entertainment of the advertising contribute to the development of favorable customer attitudes toward the advertising, the research also investigates the relation between overall attitude toward FT advertising and customer loyalty.

H4: An overall positive attitude toward FT social media advertising is positively related to customer engagement

The conceptual model is reported in Figure 1.

Fig. 1: Conceptual model



Source: Authors' elaboration

Methodology. In order to empirically test the hypotheses developed in the previous section, data are collected through an online survey. The questionnaire was firstly administered during January 2022, and the data collection is ongoing. Following a convenience sampling technique (Saunders et al., 2009), a link to the survey was posted on different Facebook pages and respondents were invited to voluntarily participate in the study survey.

After filling the demographic information, respondents are presented with three advertisings by Altromercato (Altromercato Impresa Sociale Soc. Coop), which is the most important Italian ATOs, and third in the world (WFTO, 2017b). Advertisings were taken from Altromercato 2020-2023 campaign: #consumioscegli (consume or choose) from the most common social media platform, i.e., Facebook, Instagram, and YouTube. Respondents then are asked to fill the online questionnaire. The study instrument was developed by adapting items from prior literature on the FT system, online communication, social media advertising, and customers attitudes and behaviors. Specifically, measures for credibility, informativeness, entertainment of the advertising and overall attitude toward the advertising were adapted from Ling et al. study (2010). Customer engagement was measured in terms of FT products re-purchase intentions, frequency of re-purchase intentions (Hwang and Kim, 2018), WoM, including E-WoM (Cheung et al., 2019). All scale items were measured on a five-point Likert scale ranging from 1 - strongly disagree, to 5 - strongly agree.

A pilot test was conducted before starting the main data collection, in order to ensure the validity and reliability of the study instrument (Saunders et al., 2009). The questionnaire was pre-tested with a sample of graduated students, that had participated to a university seminar on FT. These respondents were excluded from the actual data analysis.

At the present step of the research, the sample is made of 83 Italian respondents, with a majority of female (64%), the average age is 31 years, spanning from 18 to 68. Most of respondents (65%) have a university degree.

Data analysis was performed with the aid of SPSS.

Results. Respondents display a very positive overall attitudes toward the FT advertisings (4,23) and on average believe that the advertisings are credible (4,12), informative (3,97) and entertaining (3,69). Repurchase intentions and the intention to purchase FT products more frequently in the future are quite high on average (3,66 and 3,6 respectively). The intention to generate WoM is lower but still positive (3,22), with E-WoM rated lower than traditional WoM on average. Descriptive statistics are reported in Table 2.

In order to investigate the relationship between FT advertisings and customer engagement, a correlation analysis was performed. All dimensions of advertising are correlated with each other and with the overall attitude toward the advertising. Re-purchase intentions, frequency of repurchasing and WoM are also positively correlated with each other. Preliminary results provide support for all research hypotheses: informativeness, credibility and entertainment of the advertising are positively correlated to re-purchase intentions, frequency of re-purchase intentions and WoM, thus supporting H1, H2 and H3. The overall attitude toward the advertising is also positively correlated with re-purchase intentions, frequency of re-purchase intentions and WoM, and therefore H4 is supported as well. The correlation matrix is reported in Table 3.

Tab. 2: Descriptive statistics

Items	Mean	SD	Min	Max
Credibility_1	3,99	1,01	1	5
Credibility_2	4,23	0,85	1	5
Credibility_3	4,14	0,9	1	5
Credibility_Overall	4,12			
Informativeness_1	4	1,02	1	5
Informativeness_2	3,84	0,99	1	5
Informativeness_3	4,06	0,87	2	5
Informativeness_Overall	3,97			
Entertainment_1	3,93	0,97	2	5
Entertainment_2	3,34	1,09	1	5
Entertainment_3	3,72	1	1	5
Entertainment_4	3,76	0,93	2	5
Entertainment_Overall	3,69			
Overall attitude	4,23	0,94	1	5
Repurchase intentions	3,66	0,99	1	5
Frequency of repurchase	3,6	1,02	1	5
WoM	3,58	1,05	1	5
E-WoM_1	3,23	1,05	1	5
E-WoM_2	2,87	1,19	1	5
E-WoM_3	3,2	1,11	1	5
WoM_Overall	3,22			

Source: Authors' elaboration

Tab. 3: Correlation matrix

	Credibility overall	Informativeness overall	Entertainment overall	Overall attitude	Repurchase intentions	Frequency of repurchase	WoM Overall
Credibility overall	1	,722[a]	,356[a]	,411[a]	,577[a]	,535[a]	,509[a]
Sig. (2-tailed)		0	0,001	0	0	0	0
Informativeness overall	,722[a]	1	,610[a]	,502[a]	,591[a]	,604[a]	,555[a]
Sig. (2-tailed)	0		0	0	0	0	0
Entertainment overall	,356[a]	,610[a]	1	,520[a]	,596[a]	,587[a]	,535[a]
Sig. (2-tailed)	0,001	0		0	0	0	0
Overall attitude	,411[a]	,502[a]	,520[a]	1	,620[a]	,539[a]	,534[a]
Sig. (2-tailed)	0	0	0		0	0	0
Repurchase intentions	,577[a]	,591[a]	,596[a]	,620[a]	1	,792[a]	,760[a]
Sig. (2-tailed)	0	0	0	0		0	0
Frequency of repurchase	,535[a]	,604[a]	,587[a]	,539[a]	,792[a]	1	,772[a]
Sig. (2-tailed)	0	0	0	0	0		0
WoM Overall	,509[a]	,555[a]	,535[a]	,534[a]	,760[a]	,772[a]	1
Sig. (2-tailed)	0	0	0	0	0	0	0

[a] Significant at .05 level

Source: Authors' elaboration

Research limitations. The present research is still a work in progress, and several limitations can be listed. The first important limit concerns the difference between correlation and causation. The limited sample size does not allow to check for reverse causality, e.g., by performing a regression analysis or structural equation modeling, but it could be possible that prior customer engagement with the FT system is a predictor of positive attitudes toward the advertising. Moreover, customer engagement with the FT system does not only depend on the effectiveness of advertising campaigns. Other dimensions, such as personal motivations and moral values (Doran, 2009; Hwang and Kim, 2018) should be taken into account. A larger sample size would also allow to investigate the role played by demographic characteristics in affecting FT customer attitudes and behavioral intentions (Hwang and Kim, 2018; Robichaud and Hu, 2021). Lastly, at the present time, results are limited to a specific sample. The future steps of the research will therefore be aimed at enlarging the sample size in order to address the current limitations and increase the generalizability of results.

Managerial implications. Although the research is still a work in progress, some preliminary implications can be outlined. First, results indicate that Altromercato 2020-2023 campaign is informative, credible, entertaining and that generates a positive customer overall attitude toward the advertisings. Because of these characteristics, Altromercato campaign is also able to elicit positive customer responses, in terms of re-purchase intentions and higher frequency of purchasing. In addition, Altromercato campaign stimulates the generation of WoM both online and offline. These

results confirm the success of the current campaign and provide Altromercato marketers useful insights for the planning of future campaigns.

More generally, the results of the study support the use of online communication and SMA as an effective tool to achieve customer engagement also for other organizations within the FT system. FT advertising should provide relevant and updated information, stimulate customer trust by favoring perceptions about the reliability of the information, also leveraging entertainment dimensions to make the advertising more attractive. Credible, informative and pleasant advertising, by reducing information asymmetries and enhancing customers trust, elicits positive customer attitudes in terms of re-purchase intentions, frequency of re-purchase intentions and WoM. SMA is therefore useful in educating FT customers and in raising customer awareness about the inequities of the current production and consumption system, which is one of the main goals of the FT movement (WFTO, 2017a). In addition, SMA by eliciting positive customer responses may help FT products to appeal to a wider audience and increase market penetration. This in turn would allow more producers to enter in the system and benefits from economic empowerment (Karjalainen and Moxham, 2013). Online communication and SMA therefore should be integrated within FT traditional marketing strategies, since they are vital to the growth of the FT system.

Originality of the paper. The internet revolution has allowed companies and organizations to achieve unprecedented audience (Singh and Ahluwalia; 2021) and today two-thirds of the world's population accesses the internet via mobile devices (Datareportal, 2021). It is not surprising that social media marketing has called the attention of marketers both in theory and in practice (Voorveld et al., 2018), and extant research has acknowledged the powerful role of SMA in strengthening customer relations compared to traditional advertising (Cheung et al., 2019; Singh and Ahluwalia; 2021). Nevertheless, to the best of our knowledge, very few studies have examined the role of online communication and SMA in generating customer engagement toward the FT system (Han and Stoel, 2017; Robichaud and Hu, 2021). For the FT to have a significant impact on the global economy and reduce inequalities, customer support and engagement is necessary, and findings of our research suggest the SMA may be the appropriate tool in achieving these goals. In this respect, this study adds to existing literature in several ways. First, it supports previous research dealing with advertising dimensions (Ling et al., 2020; Singh and Ahluwalia; 2021; Voorveld et al., 2018), providing additional evidence that informativeness, credibility and entertainment of advertising generate positive attitudes towards the advertising, which in turn generate positive attitudes towards the brand being advertised. Second, this study provides valuable contributions to extant research on social media marketing and SMA (Arora and Agarwal, 2019; Cheung et al., 2019), by supporting the usefulness of online communication to gain customer engagement. Lastly, although preliminary, findings of this study add new and significant knowledge to the stream of research dealing with FT customer attitudes and behaviors (Hwang and Kim, 2018; Gillani et al., 2021) and open the way for new research in this direction.

Keywords: Fair Trade; Customer Engagement; Social Media Advertising; Credibility; Informativeness; Entertainment.

References

- ALALWAN A. (2018), "Investigating the impact of social media advertising features on customer purchase intention", *International Journal of Information Management*, vol. 42, pp. 65-77.
- ANDORFER V., LIEBE U. (2012), "Research of Fair Trade consumption - A Review", *Journal of Business Ethics*, vol. 106, pp. 415-435.
- ARORA T., AGARWAL B. (2019), "Empirical Study on Perceived Value and Attitude of Millennials Towards Social Media Advertising: A Structural Equation Modelling Approach", *Vision*, vol. 23, n. 1, pp. 56-69.
- BEZENÇON V., BLILI S. (2009), "Fair-trade managerial practices: Strategy, organization and engagement", *Journal of Business Ethics*, vol. 90, n. 1, pp. 95-113.
- CHATZIDAKIS A., KASTANAKIS M., STATHOPOULOU A. (2016), "Sociocognitive determinants of consumers' support for the fair trade movement", *Journal of Business Ethics*, vol. 133, n. 1, pp. 95-109.
- CHENG A. (2015), *Fair trade becomes a fashion trend*, available at: <https://www.wsj.com/articles/fair-trade-becomes-a-fashion-trend-1436307440> Accessed in January 2022.
- CHEUNG M L., PIRES G., ROSENBERGER P. (2020), "The influence of perceived social media marketing elements on consumer-brand engagement and brand knowledge", *Asia Pacific Journal of Marketing and Logistics*, vol. 32, n.3, pp. 695-720.
- CHU S.C., KIM Y. (2011), "Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites", *International Journal of Advertising*, vol. 30, n. 1, pp. 47-75.
- CGS (2019), *CGS survey reveals sustainability is driving demand and customer loyalty*, available at: <http://www.globenewswire.com/news-release/2019/01/10/1686144/0/en/CGS-Survey-Reveals-Sustainability-Is-Driving-Demand-and-Customer-Loyalty.html> Accessed in January 2022. Accessed in January 2022.
- DATAREPORTAL (2021), *Digital 2021 October global Statshot report*, available at: <https://datareportal.com/reports/digital-2021-october-global-statshot>. Accessed in January 2022.
- DELOITTE (2022), *Shifting sands: Are consumers still embracing sustainability? Changes and key findings in sustainability and consumer behaviour in 2021*, available at: <https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html>. Accessed in February 2022.

- DE PELSMACKER P., DRIESEN L., RAYP G. (2005), "Do consumers care about ethics? Willingness to pay for fair-trade coffee", *Journal of Consumer Affairs*, vol. 39, n. 2, pp. 363-385
- DE PELSMACKER P., JANSSENS W. (2007), "A model for fair trade buying behaviour: the role of perceived quantity and quality of information and of product-specific attitudes", *Journal of Business Ethics*, vol. 75, n. 4, pp. 361-380
- DORAN C. (2009), "The role of personal values in Fair Trade consumption", *Journal of Business Ethics*, vol. 84, pp. 549-563.
- DUCOFFE R. H. (1996), "Advertising value and advertising on the web-Blog@ management", *Journal of Advertising Research*, vol. 36, n. 5, pp. 21-32.
- FAIRTRADE INTERNATIONAL (2021), *2020-2021 Annual report*, available at: <https://www.fairtrade.net/library/2020-2021-annual-report>. Accessed in February 2022.
- FISHER E. (2009), "Introduction: The policy trajectory of fair-trade", *Journal of International Development*, vol. 21, pp. 985-1003.
- GIAMPIETRI E., VERNEAU F., DEL GIUDICE T., CARFORA V., FINCO A. (2018), "A theory of planned behaviour perspective for investigating the role of trust in consumer purchasing decision related to short food supply chains", *Food Quality and Preference*, vol. 64, pp. 160-166.
- GILLANI A., KUTAULA S., LEONIDOU L., CHRISTODOULIDES P. (2021), "The Impact of Proximity on Consumer Fair Trade Engagement and Purchasing Behavior: The Moderating Role of Empathic Concern and Hypocrisy", *Journal of Business Ethics*, vol. 169, pp. 557-577.
- HAN T., STOEL L. (2017), "Using rich media to motivate fair-trade purchase", *Journal of Research in Interactive Marketing*, vol. 11, n. 4, pp. 361-379.
- HARRISON R., NEWHOLM T., SHAW D. (2005), *The Ethical Consumer*, SAGE, London.
- HARTMANN M., KLINK J., SIMONS J. (2015), "Cause related marketing in the German retail sector: Exploring the role of consumers' trust", *Food Policy*, vol. 52, pp. 108-114.
- HWANG K., KIM H. (2018), "Are Ethical Consumers Happy? Effects of Ethical Consumers' Motivations Based on Empathy Versus Self-orientation on Their Happiness", *Journal of Business Ethics*, vol. 151, pp. 579-598.
- KHADIM R.A., HANAN M.A., ARSHAD A., SALEEM N., KHADIM L.A. (2018), "Revisiting antecedents of brand loyalty: impact of perceived social media communication with brand trust and brand equity as mediators", *Academy of Strategic Management Journal*, vol. 17, n. 1, pp. 1-13.
- KARJALAINEN K., MOXHAM C. (2013), "Focus on Fairtrade: Propositions for integrating Fairtrade and supply management research", *Journal of Business Ethics*, vol. 116, pp. 267-282.
- KARTAJAYA H., KOTLER P., SETIAWAN I. (2016), *Marketing 4.0. Moving from Traditional to Digital*, Wiley.
- LASSOUED R., HOBBS J.E. (2015), "Consumer confidence in credence attributes: The role of brand trust", *Food Policy*, vol. 52, pp. 99-107
- LING K.C., PIEW T.H., CHAI L.T. (2020), "The determinants of consumers' attitude towards advertising", *Canadian Social Science*, vol. 6, n. 4, pp. 114-126.
- MACKENZIE S.B., LUTZ R.J. (1989), "An empirical examination of the structural antecedents of attitude toward the ad in an advertising pretesting context", *The Journal of Marketing*, vol. 53, n. 2, pp. 48-65.
- MANGOLD W.G., FAULDS D.J. (2009), "Social media: The new hybrid element of the promotion mix", *Business Horizons*, vol. 52, n. 4, pp. 357-365.
- MOORE G. (2004), "The fair-trade movement: Parameters, issues and future research", *Journal of Business Ethics*, vol. 53, n. 1-2, pp. 73-86.
- MUNTINGA D.G., MOORMAN M., SMIT E.G. (2011), "Introducing COBRAs: Exploring motivations for brand-related social media use", *International Journal of Advertising*, vol. 30, n. 1, pp. 13-46.
- RUGGERI G., CORSI S., NAYGA R. (2021), "Eliciting willingness to pay for fairtrade products with information", *Food Quality and Preference*, vol. 87, 104066.
- SAUNDERS M.N.K., LEWIS P., THORNHILL A. (2009), *Research methods for business students* (5th edn.), Prentice Hall, New York.
- SIMEONI F., BRUNETTI F., MION G., BARATTA R. (2020), "Ambidextrous organizations for sustainable development: The case of fair-trade systems", *Journal of Business Research*, vol. 112, pp. 549-560.
- SINGH S., AHLUWALIA S. (2021), "Unboxing the black box: demystifying the impact of consumers' psychological motivations on their perceptions of online advertising", *Vision*, pp. 1-12.
- STIGLITZ J., CHARLTON A. (2005), *Fair-trade for all - How trade can promote development*, Oxford University Press, Oxford.
- UN GENERAL ASSEMBLY (2015), *Transforming our world: the 2030 Agenda for Sustainable Development*, available at: <https://www.refworld.org/docid/57b6e3e44.html>. Accessed in January 2022.
- VOORVELD H., VAN NORT G., MUNTINGA D.G., BRONNER F. (2018), "Engagement with Social Media and Social Media Advertising: The Differentiating Role of Platform Type", *Journal of Advertising*, vol. 47, n. 1, pp. 38-54.
- WANG X., YU C., WEI Y. (2012), "Social media peer communication and impacts on purchase intentions: a consumer socialization framework", *Journal of Interactive Marketing*, vol. 26, n. 4, pp. 198-208.
- WFTO (2017a), *Ten Principles of Fair Trade*, available at: <https://wfto.com/sites/default/files/WFTO%20-10%20Principles%20of%20Fair%20Trade%20282017%29.pdf> Accessed in January 2022.

- WFTO (2017b), *World Fair Trade Organization Annual Report 2017*, available at: <https://wfto.com/sites/default/files/WFTO%20Annual%20Report%202017.pdf> Accessed in January 2022.
- WRIGHT L.T., HEATON S. (2006), "Fair Trade marketing: an exploration through qualitative research", *Journal of Strategic Marketing*, vol. 14, n. 4, pp. 411-426.
- YAMOAH F.A., DUFFY R., PETROVICI D., FEARNE A. (2016), "Towards a framework for understanding fairtrade purchase intention in the mainstream environment of supermarkets", *Journal of Business Ethics*, vol. 136, n. 1, pp. 181-197.

The impact of socially relevant content and aroused emotions in social media consumer engagement behaviour

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Framing of the research. *The digital transition is a necessary step for traditional retailers, who are increasingly embracing new digital technologies to keep up with the times. In addition to relying on external delivery services to start competing in the online segment as Carrefour (FR) is doing with the delivery company Uber Eats (Temiz and Broo, 2020), major efforts are being directed in marketing and communication to keep attracting people to the shop. Some companies such as Tesco (U.K.) or Kroger (U.S.) have been among the pioneers in using digital signage to attract people into the shop (Dennis et al., 2010; Willems et al., 2017). Concurrently, more of these chains are focusing on digital advertising and the usage of growing media such as social media. Retailers in countries like the U.S., UK, Germany, and China are the industry that spends more on digital advertising (Statista Inc, 2020). In particular, a recent survey made on retail marketing professionals shows that 96% of U.S. retailers spend ads on Facebook, and overall, 50% of them spend more than half of their total marketing budget on social (Smartly.io, 2020) to create more consumer engagement and to increase the brand visibility.*

Notwithstanding that the social media ad expenditure continues to grow, these communication efforts will fail if marketers will not understand how to wisely calibrate their content to enhance consumer engagement (Dolan et al., 2019). However, scholars who studied the social media phenomenon within the food-retail industry mainly focused on the consumers' perspective identifying their interest in developing consciousness about food-related information such as supermarket products' healthiness, consumers' rights, or simply new recipes (Panagiotopoulos et al., 2015; Pucci et al., 2019; Samoggia et al., 2019). Despite this, these studies did not investigate the antecedents on consumers' engagement behavior towards supermarkets. Other studies which aimed to investigate how companies can maximize consumer engagement through social media mainly focused on the tone of the content (Dolan et al., 2019; de Vries et al., 2012), or on the choice of the media type (Ashley and Tuten, 2015; Kim et al., 2015; Schultz, 2017), but often neglected the role emotions (Schreiner et al., 2019) aroused from particular topics and reached contradictory findings. Moreover, none of them ever considered the propensity or the aversion of consumers to engage with certain types of industries. Supermarkets, particularly, have the peculiarity of being a segment characterized by a weak affection from consumers, who consider them anonymous "non-places" (Aubert-Gamet and Cova, 1999; Augé, 1995).

Purpose of the paper. *Against this background, and considering the aforementioned gaps, this study aims to provide a better understanding of the antecedents of consumer engagement behavior towards grocery stores' social media brand accounts. Drawing on the Regulatory engagement theory (RET) (Higgins and Scholer, 2009), this research investigates the relationship between socially relevant supermarkets' social media content publication and their consumers' engagement. In addition, referring to the social sharing of emotions theory (Rimé, 2009), the paper explores the mediating role emotions played in this relationship. In particular, we aim to respond to the following research questions formulating specific hypotheses.*

RQ1: is there any topic particularly relevant for supermarkets?

H1: Socially relevant content posted by supermarkets' social network brand pages positively affects consumers' engagement behavior.

RQ2: If social-related content stimulates consumer engagement behavior, why does this happen?

H2: The emotions aroused from socially relevant content mediate the relationship between content social relevance and social media consumer engagement behavior.

Methodology. *Following Voorveld's (2019) research propositions, the study aims to improve social media engagement contributions with real social media data instead of conceptual works or questionnaires. The authors retrieve official social network data from their official API by using, as done by prior marketing researchers, social media analytics software (Jernigan and Rushman, 2014; Marchand et al., 2017). The software used is "Socialbakers*

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Suite”, considered one of the market leaders in the field (Featured Customers, 2020). The study opts to quantitatively analyze the retrieved data by using the IBM SPSS Statistics v27 software.

Sampling collection included the identification of the 20 top European food retailers, as analyzed in the Global Powers of Retailing Report annually provided by Deloitte (2020), which identifies the top 250 world retailers ranked according to their financial year revenues. Retailer types included in the sample selection are “supermarkets”, “hypermarkets/supercenters/superstores”, “discount stores” and “Cash & Carry/Warehouse Club”. The authors opted to examine their Facebook accounts since it results to be the most common social network (Statista Inc, 2021). Second, for each retailer, the authors identified its most followed Facebook account (several retailers have more than one). The chain Tesco resulted in having no Facebook official account, and the authors decided to select the 21st EU retailer to replace it. The twenty identified Facebook accounts belong to companies from eight different countries: UK, France, Germany, Italy, Switzerland, Netherlands, Portugal, Spain. Third, the authors retrieved all the social media communication from the selected retailers posted during the “first wave” pandemic period from the 1st of March 2020 to the 30th of June 2020. The total number of social media posts detected are 2.534. Afterward, we identify all Covid-19 related content by using the analytics software labelling functionality with including Covid-19 related keywords in the relative countries’ official language.

Firstly, the independent variable, content social relevance (SR), is categorized as the content related vs not related to the selected social issue (Covid-19) with a binomial dummy variable. Secondly, the study considers as the dependent variable the social media consumers’ engagement behaviour considered as the sum of so-called users “interactions” per every post, which are reactions (likes, loves, smiles), comments, and content sharing (Dolan et al., 2019; Schultz, 2017; Zhang et al., 2017). Third, to identify the mediator, emotions, the authors rely on the AI algorithm (Jernigan and Rushman, 2014; Marchand et al., 2017) of the used software to distinguish the positiveness, neutrality or negativity of the sentiment of the 973.285 users comments to the retailers’ posts. The emotion level (EM) is measured by summing the comments that explicitly express positive or negative feelings per each post and excluding comments with neutral feeling. The higher the number, the more the post is considered able to generate emotions. Finally, the authors added several control variables to enforce the robustness of the model. First, the authors take into consideration the number of total followers (TF) that a brand page has (Zhang et al., 2017), since the same number of interactions generated by a post have different weights depending on the total number the brand page. The authors take into account the media type chosen to communicate the posts (photo, video, carousels, status, link ect) since prior research suggests the media choice can influence engagement (Kim et al., 2015; de Vries et al., 2012), by categorizing these nominal variables in several dummy variables. Moreover, to better assess the social relevance of the coronavirus topic, the authors consider the Covid cases ratio (CCR) of the total population that contracted Covid-19 until the 30th of June 2020 by country by taking official primary data from the European Centre for Disease Prevention and Control database (2020). Finally, analysis is enriched by adding a the “boosted posts” variable. According to Facebook (2021) definition, “A boosted post is a post to your Page’s timeline that you can apply money to in order to boost it to an audience of your choosing.”...and it “is the simplest way to advertise on Facebook.” It is arguable to believe that if a post thanks to “boosting” reaches more users, then it will receive more interactions. Thanks to the used software’s AI algorithm, the authors can identify if a post is boosted or not. Then the authors identify the boosted posts (BP) and the non-boosted posts with a binomial dummy variable.

The authors opted for the four-step Baron and Kenny (1986) approach, recently adopted by other scholars investigating in CSR or Social Media topics (Nirino et al., 2020; Paek et al., 2013) to test the mediating effect of emotions on the relationship between content social relevance, and the active consumer engagement behaviour. The first step tests if the causal variable (SR) affects the dependent variable (SMCEB; Model 1). The second step tests the relationship between the mediator variable (EM) and the dependent variable (SMCEB), looking for a significant effect. In step three, the relationship between SR (causal variable) and EM (mediator) is verified. In the last step, the relationship between the causal variable (SR) and the dependent variable (SMCEB) should be controlled by the mediator variable (EM); the relationship is fully mediated if the connection between SR and SMCEB becomes non-significant, as suggested by Baron and Kenny (1986) and there is a partial mediation if the effect of SR on SMCEB is reduced and still significant. In detail:

(1) Step 1: Causal effect between SR and SMCEB

$$\text{Model 1: SMCEB}_t = \alpha + \beta_1 \text{SR}_{t-1} + \beta_2 \text{TF}_t + \beta_3 \text{Photot} + \beta_4 \text{Videot} + \beta_5 \text{Linkt} + \beta_6 \text{Statust} + \beta_7 \text{Carouselt} + \beta_8 \text{CCR}_t + \beta_9 \text{BP}_t + \varepsilon$$

(2) Step 2: Direct effect of EM on SMCEB

$$\text{Model 2: SMCEB}_t = \alpha + \beta_1 \text{EM}_t + \beta_2 \text{TF}_t + \beta_3 \text{Photot} + \beta_4 \text{Videot} + \beta_5 \text{Linkt} + \beta_6 \text{Statust} + \beta_7 \text{Carouselt} + \beta_8 \text{CCR}_t + \beta_9 \text{BP}_t + \varepsilon$$

(3) Step 3: Effect of SR on EM

$$\text{Model 3: EM}_t = \alpha + \beta_1 \text{SR}_{t-1} + \beta_2 \text{TF}_t + \beta_3 \text{Photot} + \beta_4 \text{Videot} + \beta_5 \text{Linkt} + \beta_6 \text{Statust} + \beta_7 \text{Carouselt} + \beta_8 \text{CCR}_t + \beta_9 \text{BP}_t + \varepsilon$$

(4) Step 4: Mediation effect including EM and SR as independent variables

$$\text{Model 4: SMCEB}_t = \alpha + \beta_1 \text{SR}_{t-1} + \beta_2 \text{TF}_t + \beta_3 \text{Photot} + \beta_4 \text{Videot} + \beta_5 \text{Linkt} + \beta_6 \text{Statust} + \beta_7 \text{Carouselt} + \beta_8 \text{CCR}_t + \beta_9 \text{BP}_t + \beta_{10} \text{EM}_t + \varepsilon$$

To assess the mediator effect, the authors test the significance between SMCEB, SR and EM. In the first three models, the relationship between SMCEB, SR and EM must be significant; otherwise, the model does not understand the mediating effect. Furthermore, in the fourth model, the impact of the mediator variable must be significant and

positive, so we compare the value of β_1 in the first model with the level of β_1 in the last model. The overall value of β_1 in the fourth model must be lower than the first one. If in model 4, the significance of β_1 decreases compared to model 1, it is possible to assume a full or partial mediation of EM on the relationship between SR and SMCEB.

Results. Model 1 confirms the existence of a significant positive direct relationship (Beta = 0,096 and P value < 0.01) between the content social relevance, in this case the posts concerning Covid-19 pandemic issue, and active social media consumer engagement confirming hypothesis 1. Significant control variables resulting from the model are the Covid cases ratio (Beta = 0.075 and P value < 0.01), boosted posts (Beta = 0.148 and P value < 0.01) and the media type status (Beta = 0.054 and P value < 0.05). The model's results cannot support prior literature (Zhang et al., 2017) assessing that total followers are an impactful variable which in the model results to be not significant. Moreover, Model 1 cannot support prior literature assessing that vivid media types such as carousels, photos, and videos enhance consumer engagement since none of them is significant, and on the contrary, the only media type resulting positively significant (status) is the one identified by literature as the less vivid (Schultz, 2017; de Vries et al., 2012).

Model 2 supports that EM strongly affect social media consumer engagement behaviour (Beta = 0.424 and P value < 0.01). Model 3 individuates a triggering role of content with high social relevance, in this case Covid-19, (Beta = 0.164 and P value < 0.01) on emotions sharing. Model 2 and Model 3 are preliminary tests necessary to consent to including both independent variables in the next final model.

Finally, Model 4 which includes both independent variables SR and EM, supports that there is a strong direct relationship between EM and SMCEB (Beta = 0.419 and P value < 0.01) but the relationship between SR and SMCEB results to be not significant. These findings attest that EM plays a fully mediating role on the relationship between SR and SMCEB backed also by the R squared which in model 4 is 0.200 gaining exponential robustness from the 0.042 from the first model including the only SR independent variable, confirming hypothesis 2. Additionally, the model attributes a statistically significant relevance to the boosted posts (Beta = 0.114 and P value < 0.01), which result to be significant in every tested model, and to the number of total follower (Beta = -0.044 and P value < 0.05) which surprisingly affects negatively the active social media consumer engagement behaviour, in contrast with prior research (Zhang et al., 2017). A possible interpretation of this result can be the fact that the higher is the public that potentially can read the consumers emotive comments on social media, the more they tend to be shy. All the tested media types in the final model are not statistically significant, thus not able to support prior research (Dolan et al., 2019; Kim et al., 2015; Schultz, 2017; de Vries et al., 2012).

Research limitations. It must be noted that this study has some limitations. First this study was conducted on a limited sample of supermarkets. A future study could test the hypothesis on a larger sample comparing also different cultural behaviors from different countries which could affect the SR/SMCEB relationship. Secondly, the resource in the authors' hands were allowing them to conduct the research just on a single social media. Third, the study examined a particularly relevant social topic but did not focused on other possible ones.

Managerial implications. The findings of this research can be helpful for all social media practitioners in the food grocery field but can give some takeaways also for other practitioners from other sectors. Indeed, the results of this research suggests that social media managers from supermarkets should stop being shy, avoiding communication on social related topics, as they usually tend to do (Samoggia et al., 2019); this study encourages them to communicate on content with a high social relevance, since it will stimulate engagement. Especially supermarkets with large and different kinds of customers, and characterized by a poor branding embeddedness (Augé, 1995), could perhaps focus on communication on topics that attract interest of all the social classes such as the results evidenced with the Covid-19 topic. It cannot be excluded that other content with a great public and social importance, for example the Football World cup, the Olympic games, or the governments' elections could stimulate more consumer engagement on supermarkets social media brand pages. However, it is fundamental to distinguish between communication on a social and controversial issue, and defending a position on a topic, which can cause different reactions on the consumer base. Additionally, the research outcome puts in result the crucial role of emotions. Beyond the topic choice, social media practitioners are encouraged to always take into account that the more they are able to arouse strong emotions through their content, explicitly reflected on the comment's feelings, the more they will be able to stimulate the engagement of their consumers.

Originality of the paper. By testing this relationship, the authors support the validity of the Regulatory Engagement Theory (Higgins and Scholer, 2009) in the field of social media marketing, and in line with Zhang et al. (2017) sustain that people tend to engage more with topics that have a precise fit with their interests. Going beyond the concept of the specific interest on a topic by a niche of consumers, the paper contributes to the literature supporting that a vast and heterogeneous population of consumers, such as the supermarkets' shoppers, can still be engaged by topic of the public domain with high social relevance. Thus, the Covid pandemic confirms to be a topic of tremendous social interest for most of all the segments of the European food retailers' consumers. Moreover, the authors followed the call for research evidenced by Schreiner et al (2019), on the role of the emotions in the relationship between social media content and active social media consumer engagement. Specifically, the study identifies the topic social relevance as an antecedent of emotional expression which in turn positively affects active consumer engagement behaviour. Emotions confirms to be a mediator of this relationship also when the topic is general and not particularly interesting for a certain consumer segment, but socially relevant. Finally, the study supports the validity of the social sharing of emotions theory (Rimé, 2009) within the supermarkets' social media paradigm.

Keywords: *Social Media Engagement; Baron & Kenny; Covid-19; Supermarket*

References

- ASHLEY C., TUTEN T. (2015), "Creative Strategies in Social Media Marketing: An Exploratory Study of Branded Social Content and Consumer Engagement", *Psychology & Marketing*, vol. 32, n. 1, pp. 15-27.
- AUBERT-GAMET V., COVA B. (1999), "Servicescapes: From Modern Non-Places to Postmodern Common Places", *Journal of Business Research*, vol. 44, n. 1, pp. 37-45.
- AUGÉ M. (1995), *Non-Places: Introduction to an Anthropology of Supermodernity*, Verso.
- BARON R.M., KENNY D.A. (1986), "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations.", *Journal of Personality and Social Psychology*, vol. 51, n. 6, p. 1173.
- DENNIS C., NEWMAN A., MICHON R., JOSKO BRAKUS J., TIU WRIGHT L. (2010), "The mediating effects of perception and emotion: Digital signage in mall atmospherics", *Journal of Retailing and Consumer Services*, vol. 17, n. 3, pp. 205-215.
- DOLAN R., CONDUIT J., FRETHEY-BENTHAM C., FAHY J., GOODMAN S. (2019), "Social media engagement behavior: A framework for engaging customers through social media content", *European Journal of Marketing*, vol. 53, n. 10, pp. 2213-2243.
- ECDPC. (2020), "Download historical data (to 14 December 2020) on the daily number of new reported COVID-19 cases and deaths worldwide", *European Centre for Disease Prevention and Control*, 14 December, available at: <https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide> (accessed 19 April 2021).
- FACEBOOK. (2021), "The difference between boosted posts and Facebook ads", *Facebook Business Help Centre*, available at: <https://en-gb.facebook.com/business/help/317083072148603> (accessed 12 April 2021).
- FEATURED CUSTOMERS. (2020), "Summer 2020 Brand Intelligence".
- HIGGINS E.T., SCHOLER A.A. (2009), "Engaging the consumer: The science and art of the value creation process", *Journal of Consumer Psychology*, vol. 19, n. 2, pp. 100-114.
- JERNIGAN D.H., RUSHMAN A.E. (2014), "Measuring youth exposure to alcohol marketing on social networking sites: Challenges and prospects", *Journal of Public Health Policy*, vol. 35, n. 1, pp. 91-104.
- KIM D.-H., SPILLER L., HETTICHE M. (2015), "Analyzing media types and content orientations in Facebook for global brands", *Journal of Research in Interactive Marketing*, vol. 9, n. 1, pp. 4-30.
- MARCHAND A., HENNIG-THURAU T., WIERTZ C. (2017), "Not all digital word of mouth is created equal: Understanding the respective impact of consumer reviews and microblogs on new product success", *International Journal of Research in Marketing*, vol. 34, n. 2, pp. 336-354.
- NIRINO N., FERRARIS A., MIGLIETTA N., INVERNIZZI A.C. (2020), "Intellectual capital: the missing link in the corporate social responsibility-financial performance relationship", *Journal of Intellectual Capital*, vol. ahead-of-print, n. ahead-of-print, available at: <https://doi.org/10.1108/JIC-02-2020-0038>.
- PAEK H.J., HOVE T., JUNG, Y., COLE R.T. (2013), "Engagement across three social media platforms: An exploratory study of a cause-related PR campaign", *Public Relations Review*, vol. 39, n. 5, pp. 526-533.
- PANAGIOTOPOULOS P., SHAN L.C., BARNETT J., REGAN Á., MCCONNON Á. (2015), "A framework of social media engagement: Case studies with food and consumer organisations in the UK and Ireland", *International Journal of Information Management*, vol. 35, n. 4, pp. 394-402.
- PUCCI T., CASPRINI E., NOSI C., ZANNI L. (2019), "Does social media usage affect online purchasing intention for wine? The moderating role of subjective and objective knowledge", *British Food Journal*, vol. 121, n. 2, pp. 275-288.
- RIMÉ B. (2009), "Emotion Elicits the Social Sharing of Emotion: Theory and Empirical Review", *Emotion Review*, vol. 1, n. 1, pp. 60-85.
- SAMOGGIA A., BERTAZZOLI A., RUGGERI A. (2019), "Food retailing marketing management: social media communication for healthy food", *International Journal of Retail & Distribution Management*, vol. 47, n. 9, pp. 928-956.
- SCHREINER M., FISCHER T., RIEDL R. (2019), "Impact of content characteristics and emotion on behavioral engagement in social media: literature review and research agenda", *Electronic Commerce Research*, available at: <https://doi.org/10.1007/s10660-019-09353-8>.
- SCHULTZ C.D. (2017), "Proposing to your fans: Which brand post characteristics drive consumer engagement activities on social media brand pages?", *Electronic Commerce Research and Applications*, vol. 26, n. 6, pp. 23-34.
- SMARTLY.IO. (2020), "Social Media Advertising Trends in Retail: a 2020 Perspective", available at: <https://cdn2.hubspot.net/hubfs/1570479/Ebooks/eTail%202020%20Smartly%20Report%205.0-V1.pdf>.
- STATISTA INC. (2020), "Social Media Advertising Report", *Statista*, available at: <http://www.statista.com/outlook/dmo/digital-advertising/social-media-advertising/worldwide> (accessed 5 April 2021).

- SU L., SAHU P., SINGH A., WALLACE A., LEE V., SOLTYSIAK P. (2020), *Global Powers of Retailing Report*, n. 23, Deloitte Touche Tohmatsu Limited, pp. 1-45.
- TEMIZ S., BROO D.G. (2020), "Open Innovation Initiatives to Tackle COVID-19 Crises: Imposter Open Innovation and Openness in Data", *IEEE Engineering Management Review*, presented at the IEEE Engineering Management Review, vol. 48, n. 4, pp. 46-54.
- VOORVELD H.A.M. (2019), "Brand Communication in Social Media: A Research Agenda", *Journal of Advertising*, vol. 48, n. 1, pp. 14-26.
- DE VRIES L., GENSLER S., LEEFLANG P.S.H. (2012), "Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing", *Journal of Interactive Marketing*, vol. 26, n. 2, pp. 83-91.
- WILLEMS K., BRENGMAN M., VAN DE SANDEN S. (2017), "In-store proximity marketing: experimenting with digital point-of-sales communication", *International Journal of Retail & Distribution Management*, vol. 45, n. 7/8, pp. 910-927.
- ZHANG Y., MOE W.W., SCHWEIDEL D.A. (2017), "Modeling the role of message content and influencers in social media rebroadcasting", *International Journal of Research in Marketing*, vol. 34, n. 1, pp. 100-119

Employees' perceived Corporate Social Responsibility in the retail sector

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Framing of the research. *This paper highlights the prominence of the relationship between Corporate Social Responsibility (CSR) and Job Satisfaction (JS). The endurance of such a relationship can determine long-term beneficial effects for the employees and the organization itself. At the same time, the literature alludes to the ambiguity of the performance within the CSR-JS framework. During the last two decades, Corporate Social Responsibility (CSR) has gained prominence among scholars and practitioners studying ethics related to business (Aguinis and Glavas, 2012). It contributes to the organization's competitive advantage, creating value for the shareholders, and influencing stakeholders' conduct (El Akremi et al., 2018). In the last years, researchers started to head their interest to micro CSR. It focuses on the CSR influence on the employees' attitudes and behaviors (Aguinis and Glavas, 2012; Temminck et al., 2015; Zhou et al., 2017). Precisely, micro CSR refers to "the study of the effects and experiences of CSR on individuals as examined at the individual level of analysis" (Rupp and Mallory, 2015, p. 216). It assumes that the employees' perceptions of the organizational activities can affect employee outcomes (e.g., work roles, feelings and attitudes, customer-oriented behaviors, and job-related factors) (Cropanzano et al., 2003; Hur et al., 2018). Recent studies in the field of business ethics and organizational behavior examined the effects of employees' sense-making or perceptions of an organization's CSR actions on employees' attitudes and performance (Aguinis and Glavas, 2012; De Roeck and Maon, 2016; Farooq et al., 2014; Hillenbrand et al., 2012; Hur et al., 2016; Hur et al., 2018). Authors suggest CSR is context-specific, i.e., the set of actions and practices to develop a CSR attitude inside the organization differs from one industry to another (Aguinis, 2011; Vadakkepatt et al., 2021). Specific industries show peculiar characteristics and modes to implement CSR practices (Kang et al., 2010), producing varying results in terms of outcome. Several authors searched for a cross-industry results validation (e.g., Valentine and Fleischman, 2008; Golob and Podnar, 2021; Zhao et al., 2020). Other works focus on a specific industry (e.g., casino, hotel) to discover CSR-related paths (e.g., Hyun et al., 2021; Youn et al., 2018; Zientara et al., 2015). Although the CSR literature is ample and proliferating, only a few contributions have studied CSR at the individual level in the retail sector. Specifically, very few studies have focused on retail from the employees' perspective. Some authors highlighted the need to test models based on employees' perceptions of CSR and job-related outcomes, e.g., Job Satisfaction (JS) (Aguilera et al., 2007; Aguinis and Glavas, 2012). Employees' JS is a relevant issue. Achieving higher JS levels would allow retailers to obtain a better organizational balance by retaining, attracting, and recruiting a competent workforce (Chung et al., 2012; Rhoads et al., 2002). Satisfied employees would be more inclined to stand on retail careers (Kim et al., 2009). Literature unveils criticalities about the retailing job payment, variety, autonomy, commitment, and turnover (Rhoads et al., 2002). These findings stress the relevance of the issue. Combining the high impact of CSR and JS with the relative literature gaps, the prominence of the CSR-JS relationship emerges. The endurance of such a relationship can determine long-term beneficial effects for people and the organization itself.*

Purpose of the paper. *To the best of the authors' knowledge, no study captures and explains the peculiarity of the CSR-JS relationship emerging in the retail context. In summary, a bold literature gap lies at the intersection between CSR and JS relationship from the employees' perspective (e.g., micro CSR). To address the issue, our research aims to answer the following research questions:*

RQ: Is the Employees' perceived Corporate Social Responsibility (CSR) positively related to Job Satisfaction (JS)?

CSR and JS are two multidimensional constructs measured with specific scales (El Akremi et al., 2018; Turker, 2009). Therefore, we decide to perform an exploratory factor analysis (EFA) to identify the multidimensional structure of each construct and reveal their intrinsic complexity. We evaluate how many factors generate separately for CSR and JS. Subsequently, we explore the relationships between the higher-order construct latent structures by performing a causal relationship model connecting the two constructs' dimensions.

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Based on the previous premise, we formulate the following hypothesis:

H1: Employees' perceived CSR significantly and positively impacts JS.

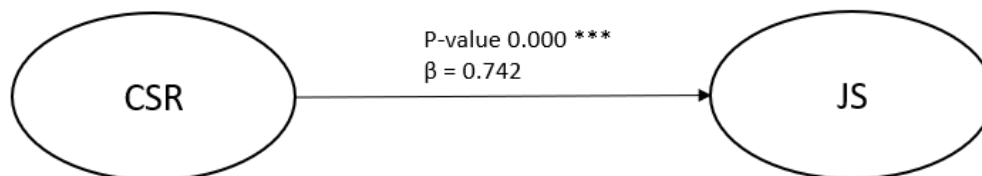
Empirical studies focused on retailing demonstrates an inverse correlation between employees' satisfaction and the measures of productivity, efficiency, and profitability: so that the most productive stores are those in which employees are less satisfied (Silvestro, 2002). Employee satisfaction was negatively and significantly correlated both with store profit margin and labor productivity indicator (contribution per staff hour). Sales per square m2 is a traditional measure used in retailing (Christen et al., 2006) among the different performance measures. Therefore, the present study incorporates the sales for square as a moderating variable by analyzing the differences between the two contexts: 1) high sales per square store and 2) low sales per square store. The present work analyses if high-low sales per square store represent factors affecting the relationship between CSR and JS.

H2: Space productivity (e.g., Sales per m2) negatively impacts the relationship between CSR and JS such that the positive relationship is more intense in lower performance stores.

Methodology. This study is developed by using a dataset from an Italian survey performed on retail chain employees and supervisors. The human resource management administered the survey to understand the overall organizational climate perceptions. It mainly focuses on the perceived job satisfaction within the organization, working environment, safety, organizational well-being, relationships between colleagues and superiors. The survey was administered in 7 superstores in the North-Western Italian region of Liguria. Each superstore has several departments such as apparel, cosmetics, outdoor clothing, sporting goods, home appliances, fresh products (e.g., fruit, vegetables, meat, poultry, cold cuts, dairy products, gastronomy, fish market). Overall, 717 responses were received. The study hinges on a structured questionnaire. All the questions are measured on a ten-point Likert scale (1 = "totally disagree" to 10 = "totally agree"). The authors divided the survey into two parts by performing a manual content analysis. We selected items used by previous studies to measure the constructs. The first set of items was associated with CSR. We relied on the items included in the scale developed by Turker (2009). It distinguishes four types of CSR initiative according to the stakeholders targeted: CSR to customers, CSR to employees, CSR to government, and CSR to secondary social stakeholders (i.e., not involving human relationship) and non-social stakeholders (i.e., environment, society, NGOs, and future generations). The second set of items represented JS variables. We selected items derived from the multi-item scales of Spector (1985), Netemeyer et al. (1997), and Hu et al. (2010). In particular, we selected items connected to internal satisfaction (Hu et al., 2010), such as the payment, the work itself, the relationship with the supervisor, and colleagues. To create the measures implied to verify the existence of a relationship between CSR and JS, the authors performed an explorative factor analysis (EFA) separately on each set of variables.

Results. The authors test hypothesis 1 (H1) by running a structural equation model. The analysis is performed through the software R package "lavaan" (Rosseel, 2012). The fitness of the model is tested through different indicators: $\chi^2 = 1092.031$; SRMR = 0.040; CFI = 0.957; TLI = 0.950; RMSEA = 0.061, NFI = 0.941; df = 304. The fitness values demonstrate that the robustness of the model is good since they all exceed the acceptability threshold suggested by the literature (Hooper et al., 2008). Manifest variables were allowed to covariate depending on the modification indices (MI > 4.0). The analysis shows that CSR significantly and positively impacts JS ($\beta = 0.742$; z-value = 13.810) (Figure 1), confirming H1.

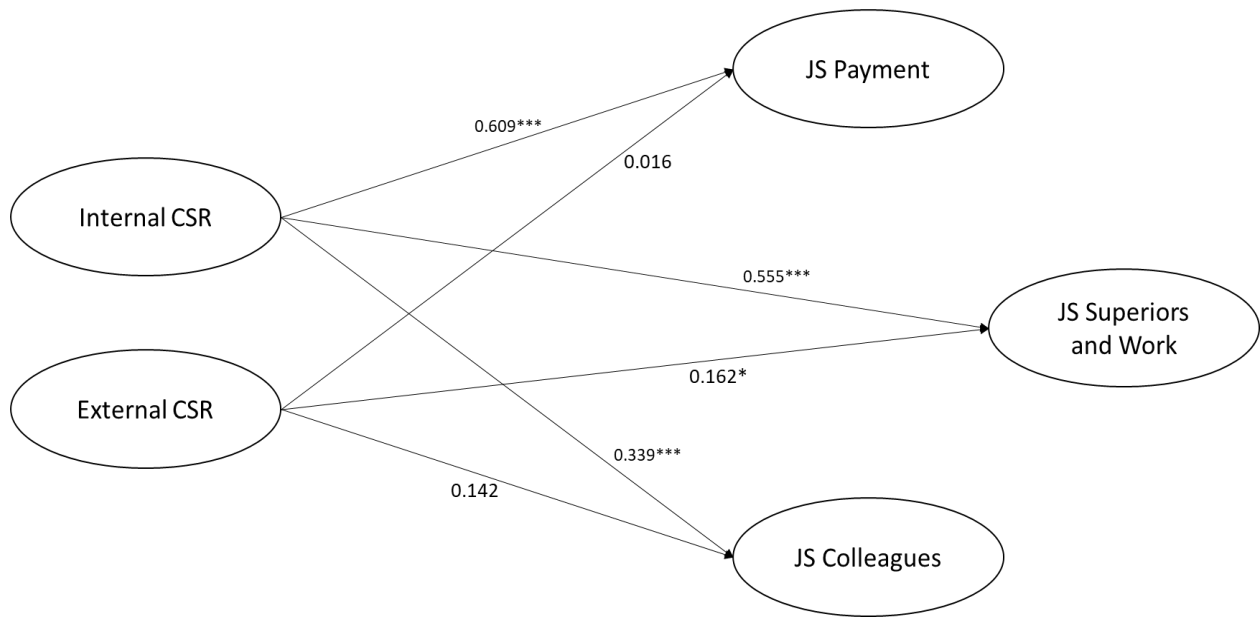
Fig. 1: Structural equation model with standardized estimates about CSR-JS relationship.



Source: authors' elaboration.

Figure 2 shows the results of the decomposed analysis. External CSR does not significantly affect JS Payment ($\beta = 0.009$; z-value = 0.131) and JS Colleagues ($\beta = 0.104$; z-value = 1.284). Therefore, H1d and H1f are not supported. External CSR significantly and positively affects JS Superiors and Work ($\beta = 0.173$; z-value = 2.515), confirming H1e. On the other side, H1a, H1b, H1c are supported since Internal CSR significantly and positively influences JS Payment ($\beta = 0.609$; z-value = 8.554), JS Superiors and Work ($\beta = 0.555$; z-value = 7.742), and JS Colleagues ($\beta = 0.339$; z-value = 4.271). Overall, the results highlight that the Internal CSR more significantly and with a higher intensity influences the JS dimensions than External CSR does.

Fig. 2: Structural equation model with standardized estimates about CSR dimensions and JS dimensions



*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Source: authors' elaboration.

After having calculated the mean value of Sales per m², the authors labeled “high” the supermarket with Sales per m² above the mean value and “low” the supermarket with Sales per m² below the mean value. They obtained two groups depending on the Sales per m². Higher CSR and JS average values correspond to higher sales ($CSR_{Hmean}=0.024$; $JS_{Hmean}=0.020$). On the opposite, lower CSR and JS values seem to reflect lower sales ($CSR_{Lmean}=-0.024$; $JS_{Lmean}=-0.028$). However, the Wilcoxon test showed that CSR and JS mean by group differences are not statistically significant ($p > 0.05$).

At this point, the authors run the multigroup regression model using Sales per m² as groups. Results shows that CSR significantly and positively influences JS ($\beta = 0.676$, $z\text{-value} = 17.916$) in the group with low sales. If we consider the group with high sales, the relationship remains significant but decreases in intensity ($\beta = 0.471$, $z\text{-value} = 10.549$). To ensure that this difference is statistically significant, the authors performed a Chi-Squared Difference Test. It highlighted a good level of statistical significance ($Pr > \chi^2 = 0.002^{**}$). The authors concluded that lower sales determine a higher intensity of the CSR-JS relationship ($\beta_{CSR} - \beta_{JS} = 205$). Contrarily, this relationship tends to decrease when sales grow.

Research limitations. Like all empirical research, several limitations characterize the research. The first limitation concerns data. To explore the moderating effect of Sales per m² on the CSR-JS relationship, they replicated Sales per m² for all the units of the same superstore. Authors are aware that it represents a limitation of the work and an opportunity for future research. Another limitation refers to the cross-sectional design of the study. This approach does not allow us to capture the robustness of the causal relationships. Researchers should employ a longitudinal design to assess more precise causality in future models. Limitations refer to the context of the analysis. Our research focuses on a single industry (retailing), on a single case, on a specific retail channel (superstore): it could be interesting to verify if the results differ in other business environments. In addition, our data were collected in Italy, so it is questionable whether our findings apply to other countries. Future studies are needed to ascertain that our conclusions do not depend on the national, industry, and other contextual factors involved in the particular case we examined. Finally, limitations refer to the impact of this study on the stakeholders. This paper lacks to investigate the firm's CSR policies and their effect on the employees' perception; further studies might head to understand this impact. Experimental settings may represent proper designs. The same research might be performed on customers and other stakeholders. In summary, focusing on the research domain, we see our study as the first step toward a more complex further research aimed at testing in a single model the relationship between the key concept of CSR, JS, customer satisfaction, and loyalty, inserting the moderating role space productivity, with the aim to investigate the strengths of these relationships in slow-productive stores and high-productive stores and the impact of final performance (e.g. store margin).

Managerial Implications. The study results have significant practical and managerial implications.

First, analyzing the impact of the employees' perceived CSR on job satisfaction provides several insights for the sustainability/CSR manager and the human resource manager. These managers need to consider these profiles when

planning strategic CSR, considering that the employees' satisfaction is relevant to the firm's success. The bi-factor measure of CSR (external/internal) allows the exploration of the mechanisms by which employees are impacted and thus can inform firm strategies of implementing CSR. Companies need to communicate to their employees the content of their External CSR efforts, such as literature identified that some employees prefer to work for socially responsible companies, believing that such firms give them more opportunities for personal growth. This communication can also help the company attract more motivated applicants and hire resources oriented to do the best within their target company. But the major challenge for managers is to increase employees' awareness of the Internal CSR initiatives because these profiles have the most powerful impacts on the JS and the different dimensions of JS.

Focusing on the retailing sectors, compared to other marketing-related positions, in-store employees are generally less satisfied with their jobs (Rhoads et al., 2002): retail employees are characterized by long hours, physical strain, and tedious routines (Rhoads et al., 2002); retail employees often have to balance the expectations of both customers and managers and are requested to be at the same time service-oriented and productive. Moreover, they are continuously monitored and more likely to be involved in personal communication with supervisors due to their proximity to them. The low level of satisfaction creates a high turnover effect in retail. Turnover can also be detrimental when it occurs during the implementation of training plans. For this reason, retail companies need to attract employees and incentivize them to grow with the company by establishing a company image that appeals to new generations of workers. Consequently, the CSR lever may be important in order to shape the employees' satisfaction with a positive impact on the entire firm. The effectiveness of CSR communication can help to resolve this problem. Moreover, retail employees are also required to reach high performance during intense work periods.

Our study finds that the more productive sales points are characterized by a weaker relationship between CSR and JS. For this reason, the store management policies should not depress the CSR policies with an excessive orientation toward productivity. In this vein, this study helps manage the short-long term performance orientation. The study demonstrates that the orientation toward productivity is only a driver of short-term performance. Stressing space productivity jeopardizes the positive relationship between CSR and JS, reducing the efficacy of CSR policies in terms of the quality of the internal climate. On the contrary, the store management policies should interiorize the CSR policies to create a more positive organizational environment and stimulate the JS, a pillar of business sustainability and long-term performance.

Originality of the paper. As far as we know, no previous studies have focused on how the employees' perceived CSR could affect JS in the retail sector. Therefore, our paper adds to the relatively limited research on the analysis of the micro-level of CSR. It investigates a relevant issue from a context-specific perspective. To the best of the authors' knowledge, this is the first work to analyze the effects of the sales, i.e., a productivity indicator, on the previous relationship. It confirms the hypothesis that a negative moderating effect of sales per square m² emerges on the relationship between the employees' perceived CSR and JS.

Keywords: Corporate Social Responsibility, Job Satisfaction, employee, retail

References

- AGUINIS H. (2011), "Organizational responsibility: Doing good and doing well", In Zedeck S. (Ed.), *APA handbook of industrial and organizational psychology*, American Psychological Association, vol. 3, pp. 855-879.
- AGUILERA R.V., RUPP D.E., WILLIAMS C.A., GANAPATHI J. (2007), "Putting the S back in corporate social responsibility: A multilevel theory of social change in organizations", *Academy of management review*, vol. 32, n. 3, pp. 836-863.
- AGUINIS H., GLAVAS A. (2012), "What we know and don't know about corporate social responsibility: A review and research agenda", *Journal of management*, vol. 38, n. 4, pp. 932-968.
- CHRISTEN M., IYER G., SOBERMAN D. (2006), "Job satisfaction, job performance, and effort: A reexamination using agency theory", *Journal of marketing*, vol. 70, n. 1, pp. 137-150.
- CHUNG T.L., RUTHERFORD B., PARK J. (2012), "Understanding multifaceted job satisfaction of retail employees", *International Journal of Retail & Distribution Management*, vol. 40, n. 9, pp. 699-716.
- CROPANZANO R., GOLDMAN B.M., FOLGER R. (2003), "Deontic justice: The role of moral principles in workplace fairness", *Journal of Organizational Behavior*, vol. 24, pp. 1019-1024.
- DE ROECK K., MAON F. (2016), "Building the theoretical puzzle of employees' reactions to corporate social responsibility: An integrative conceptual framework and research agenda", *Journal of Business Ethics*, vol. 149n. 3, pp. 609-625.
- EL AKREMI A., GOND J.P., SWAEN V., DE ROECK K., IGALENS J. (2018), "How Do Employees Perceive Corporate Responsibility? Development and Validation of a Multidimensional Corporate Stakeholder Responsibility Scale", *Journal of Management*, vol. 44, n. 2, pp. 619-657.
- FAROOQ O., PAYAUD M., MERUNKA D., VALETTE - FLORENCE P. (2014), "The impact of corporate social responsibility on organizational commitment: Exploring multiple mediation mechanisms", *Journal of Business Ethics*, vol. 125, n. 4, pp. 563-580.

- GOLOB U., PODNAR K. (2021), "Corporate marketing and the role of internal CSR in employees' life satisfaction: Exploring the relationship between work and non-work domains", *Journal of Business Research*, vol. 131, pp. 664-672.
- HILLENBRAND C., MONEY K., PAVELIN S. (2012), "Stakeholder defined corporate responsibility for a pre-credit-crunch financial service company: Lessons for how good reputations are won and lost", *Journal of Business Ethics*, vol. 105, n. 3, pp. 337-356.
- HOOPEL D., COUGHLAN J., MULLEN M.R. (2008), "Structural Equation Modelling: Guidelines for Determining Model Fit", *The Electronic Journal of Business Research Methods*, vol. 6, n. 1, pp. 53-60.
- HU X., KAPLAN S., DALAL R.S. (2010), "An examination of blue-versus white-collar workers' conceptualizations of job satisfaction facets", *Journal of Vocational Behavior*, vol. 76, n. 2, pp. 317-325.
- HUR W.M., MOON T.W., LEE H.G. (2018), "Employee engagement in CSR initiatives and customer-directed counterproductive work behavior (CWB): The mediating roles of organizational civility norms and job calling", *Corporate Social Responsibility and Environmental Management*, vol. 25, n. 6, pp. 1087-1098.
- HUR W.M., MOON T.W., KO S.H. (2016), "How employees' perceptions of CSR increase employee creativity: Mediating mechanisms of compassion at work and intrinsic motivation", *Journal of Business Ethics*, vol. 153, n. 3, pp. 629-644.
- HYUN M.Y., GAO L., LEE S. (2021), "Corporate social responsibility (CSR), ethical climate and pride in membership moderated by casino dealers' customer orientation", *International Journal of Contemporary Hospitality Management*, vol. 33, n. 10, pp. 3256-3276.
- KIM H., KNIGHT D., CRUTSINGER C. (2009), "Generation Y employees' retail work experience: the mediating effect of job characteristics", *Journal of Business Research*, vol. 62, n. 5, pp. 548-56.
- NETEMEYER R.G., BOLES J.S., MCKEE D.O., MCMURRIAN R. (1997), "An investigation into the antecedents of organizational citizenship behaviors in a personal selling context", *Journal of marketing*, vol. 61, n. 3, pp. 85-98.
- RHOADS G.K., SWINYARD W.R., GEURTS M.D., PRICE W.D. (2002), "Retailing as a career: a comparative study of marketers", *Journal of Retailing*, vol. 78, n. 1, pp. 71-6.
- ROSSEEL Y. (2012), "lavaan: An R Package for Structural Equation Modeling", *Journal of Statistical Software*, vol. 48, n. 2, pp. 1-36.
- RUPP D.E., MALLORY D.B. (2015), "Corporate social responsibility: Psychological, person-centric, and progressing", *Annual Review of Organizational Psychology and Organizational Behavior*, vol. 2, pp. 211-236.
- SILVESTRO R. (2002), "Dispelling the modern myth: Employee satisfaction and loyalty drive service profitability", *International journal of operations & production management*, vol. 22, n. 1, pp. 30-49.
- SPECTOR P.E. (1985), "Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey", *American journal of community psychology*, vol. 13, n. 6, pp. 693-713.
- TEMMINCK E., MEARNS K., FRUHEN L. (2015), "Motivating employees towards sustainable behaviour", *Business Strategy and the Environment*, vol. 24, n. 6, pp. 402-412.
- TURKER D. (2009), "Measuring corporate social responsibility: A scale development study", *Journal of business ethics*, vol. 85, n. 4, pp. 411-427.
- VADAKKEPATT G.G., WINTERICH K.P., MITTAL V., ZINN W., BEITELSPACHER L., ALOYSIUS J., REILMAN J. (2021), "Sustainable retailing", *Journal of Retailing*, vol. 97, n. 1, pp. 62-80.
- VALENTINE S., FLEISCHMAN G. (2008), "Ethics programs, perceived corporate social responsibility and job satisfaction", *Journal of Business Ethics*, vol. 77, n. 2, pp. 159-172.
- YOUN H., LEE K., LEE S. (2018), "Effects of corporate social responsibility on employees in the casino industry", *Tourism Management*, vol. 68, pp. 328-335.
- ZHAO X., WU C., CHEN C.C., ZHOU Z. (2020), "The Influence of Corporate Social Responsibility on Incumbent Employees: A Meta-Analytic Investigation of the Mediating and Moderating Mechanisms", *Journal of Management*, vol. 48, n. 1, pp. 114-146.
- ZHOU Z., LUO B.N., TANG T.L.P. (2017), "Corporate social responsibility excites 'exponential' positive employee engagement: The Matthew effect in CSR and sustainable policy", *Corporate Social Responsibility and Environmental Management*, vol. 25, n. 4, pp. 339-354.
- ZIENTARA P., KUJAWSKI L., BOHDANOWICZ-GODFREY P. (2015), "Corporate social responsibility and employee attitudes: evidence from a study of Polish hotel employees", *Journal of Sustainable Tourism*, vol. 23, n. 6, pp. 859-880.

Fight the Self and save the Planet: When feeling guilty and paying the bill isn't that easy

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Framing of the research. *In a society where sustainable development stands as a job to be done (Holmberg and Sandbrook, 2019) and where sustainable consumption gets every day more fundamental for the planet and its inhabitants (Liu et al., 2017), understanding how consumer choices on sustainable consumption form and evolve might be crucially relevant.*

Till now, scholars devoted considerable endeavors to identify and assess enabling (e.g. Trudel, 2009) and inhibiting (e.g. Bray et al., 2011) conditions for a choice of sustainable consumption, and they also explored several supportive outcomes (e.g. White et al., 2019) and detrimental consequences (Schütte and Gregory-Smith, 2015).

Special attention among these factors deserved guilt, which appears to act as a focal construct. Guilt, indeed, stands as a pivotal outcome from former unsustainable consumption practices that influence subsequent choices of the consumer (e.g. Onwezen et al., 2014; Mkono and Huges, 2020).

More precisely, a consumption choice that harms sustainability in the consumer perception breeds guilt feelings that trigger a causal attribution and a perception of agency, increasing salience of perceived personal responsibility and impacts power. While not able to neutralize this responsibility, the consumer regulates subsequent consumption choices to counterbalance past behavior (Antonetti and Maklan, 2014).

With some notable exceptions (Bray et al., 2010) this broad line of reasoning finds support from a wide array of studies. Moving from the broader set of ethical decisions, Steenhaut and van Kenhove (2006) theorize on the mediating effect that guilt has on the consumer beliefs' relationship with ethical intentions and find support for their hypothesis in a series of experiments. Grounding on the broad tradition on heuristics in decision making, Theotokis and Manganari (2015) find that choice architectures based on opt-out mechanisms outperform those based on opt-in because of the stronger effect that anticipated guilt for opt-out exerts on sustainable consumption choices. Taking an institutional posture, Cowan and Kinley (2014) argue that environmental guilt is revelatory of perceived social pressure, which leads consumers to willingness to pay a premium price for the environmental-friendly option: they find support for their hypothesis in the setting of green apparel market, based on a self-administered survey from 220 participants. Chen and Moosmayer (2020) identify interdependence self-construal as a negatively moderating effect and show that consumers who define themselves strongly through their relationships with close others are less likely to compensate for guilt through ethical consumption. Digging into the consumer-brand relationship, Newman and Brucks (2018) conduct a series of experiments and find that guilt (pride) drives vicarious moral cleansing (licensing) behavior by consumers, based on their brand of reference positioning. Releasing the assumption of rationality and deliberate choices, Chatzidakis (2015) proposes that persecutory and reparative guilt anxieties govern ethical choices in consumptions beyond individual awareness. Finally, mirroring sustainable consumption choices, Culiberg and colleagues (2021) investigate anti-consumption choices and show anticipated guilt effects on the intentions to reduce consumption and to recommend congruent self-regulation.

A common thread across such a notable body of studies is that guilt is modeled in its role within ethical and sustainable consumption choices with a punctual logic, based on a cross-sectional design. This approach allows for a fine-grained understanding of the specific mechanics that link guilt to its causes in backward-looking behaviors, and/or consequences on intentions about prospective behaviors of the consumer. However, the same approach breeds a non-negligible shortcoming: the implicit assumption that at every consumption occasion the guilt accident resolves in a closed-loop, without evolutionary effects on the consumer value system, attitudes, and behaviors over time. What if, instead, consumers are faced with a continuum of choices between acting in support of, or at the detriment of, a sustainable society? Could the pivotal role of guilt evolve and contribute to sustainable consumption choices throughout more articulated conceptual structures? According to some, there is a clear possibility for a broader scope of guilt effects over time (Antonetti and Maklan, 2014; Truelove et al., 2020). Yet, further research is needed to unveil the elicitation-consumption processes that explain how consumers evolve over time (Antonetti et al., 2015).

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Purpose of the paper. *The purpose of our study is to investigate the longer-run role that guilt takes within routine behaviors and over a series of consumption experiences, where the consumer repeatedly faces the ethical decision if to go for sustainable consumption or not. Our research is rooted in prior studies on the cultural premises of sustainable consumption (Dolan, 2002) and the structural socio-cultural perspective of the transition towards a sustainable consumer society (Duroy, 2011; Soron, 2010). We draw upon consumer culture theory - CCT - (e.g. Arnould, 1989, Peñaloza, 1994) with the purpose to explore how the consumer evolves into this transition, based on repeated consumption experiences into a new, unfamiliar environment, which challenges the system of beliefs, the behavioral norms, and the inherent consumption habits, and pushes for the consumer identity reconsideration and reconfiguration. More precisely, we ask how the stratification of repeated consumption experiences that alternate sustainability-supportive and sustainability-detrimental choices concur throughout guilt-spread out and guilt-neutralization tactics to the transition of the consumer identity into an agency territory.*

In exploring sustainable consumer identity formation, and the assimilation and resistance tensions that emerge within repeated consumption experiences, we aim at tackling guilt within ethical and sustainable consumption choices from a different angle and based on alternative theoretical assumptions. Departing from bounded rationality and choice optimization frames, we look at the interaction with consumption objects as a context where construction of 'self' takes place based on behavioral routines and out-of-the path experiences that re-shape the consumer identity. This approach is not entirely new to ethical and sustainable consumption choices: The case is well illustrated by Soron (2010:177): 'many routine forms of consumption are not driven primarily by self-identity concerns, this does not mean that such concerns are irrelevant. Automobile dependency in the industrial world, for instance, may be seen as a structural problem attributable to collective decisions over land-use policy and transportation infrastructure. At the same time, individuals' relative degree of commitment to this transportation system, their critical awareness of its negative social and environmental consequences, and their willingness to mobilize for alternatives to it, may indeed be strongly influenced by their psycho-cultural attachment to cars and the sense of freedom, empowerment and personal identity they derive from the everyday experience of driving. In this sense, the question of self-identity may not account for all environmentally significant forms of consumption, but it remains relevant to the extent that it helps us to address the challenges faced by people struggling to identify and confront the collective problems with which their own everyday life-activities are entwined.' We bring this case forward by looking at the iterative deconstruction and reconstruction process of consumer identity elicited by countervailing experiences that breed, and neutralize, guilt for the environmental impact of consumption (e.g. Perera and Hewege, 2021).

In the remainder, we illustrate the methodology, the preliminary results out of a pilot study, and the implications and limitations we expect at the end of our research.

Methodology. *The research is at a pilot, exploratory stage. Following Soron (2010) we have casted the empirical procedures within the mobility market. This is a setting unanimously considered critical for sustainability, and in the plain shift from non-sustainable consumption routines (e.g. individual transportation means based on thermal engines such as diesel cars) towards sustainable consumption new modalities (e.g. mobility as a service solutions based on public transportation, carbon-free powertrains), as well confirmed after the COP 21 agreement settled in Paris by 190 countries on 12/2015, which sees specific chapters in action plan approved from major countries worldwide, specific for the mobility industries, and norming the transition towards zero emission transportation. Both because of social movement pressures, and because of regulatory innovations, this context offers unprecedented occasion to investigate how consumers may challenge prior consumption routines and migrate towards sustainable consumption practices.*

We based our procedures on the exploratory research tradition (Macinnis, 2011) and grounded theory prescriptions (e.g. Eisenhardt 1989; Glaser and Strauss 1967) to identify and delineate the phenomenon under investigation, and capture the meanings that lay behind people's reactions to events and processes (Miles and Huberman, 1994). Twenty-two semi-structured in-depth interviews were collected in December 2021, both in person and virtually (e.g., via Teams), with mobility end-users living and/or working in and around the broader urban Milan area, a city seeming particularly indicated to explore the phenomenon, as it is one of the increasingly innovative international cities in Europe. The twenty-two interviews were registered and transcribed verbatim and lasted 42 minutes on average and were transcribed into 156 pages, supplemented by 65 pages of notes. To obtain further information on automotive mobility behaviours specifically, two days of participant observation were carried out in a multi-brand, first- and second-hand car dealer in December 2021. Opportunistic conversations with visitors were also carried out to explore emergent, unexpected issues. Participants were equally distributed between men and women, had different nationalities, belonged to Generations Z, Y, and X (age range 18-69), had different backgrounds and performed different jobs and activities. A purposeful sampling was employed, following Patton (2002) (Table 1 presents the informants' table).

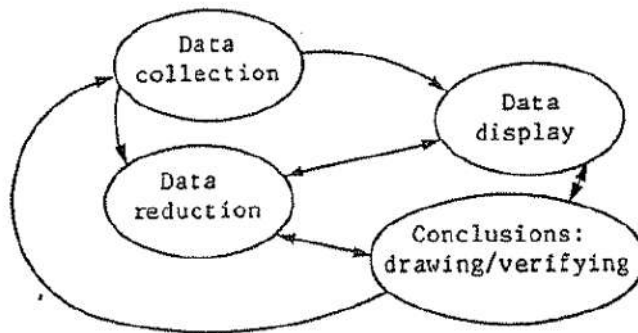
Tab. 1: Informants' table

Informant code	Country of origin	Gender	Age	Job title
Int_1	Italy	M	33	Purchasing Manager
Int_2	Colombia	M	36	University Professor
Int_3	Austria	M	69	Entrepreneur
Int_4	Italy	M	22	MSc Student & Start-Upper
Int_5	Italy	M	43	Auditor
Int_6	Italy	M	64	Engineer
Int_7	USA	F	43	English Teacher
Int_8	Italy	F	25	Consultant
Int_9	Italy	F	54	Hair Stylist
Int_10	Italy	F	67	Consultant
Int_11	USA	F	35	People Manager

Informant code	Country of origin	Gender	Age	Job title
Int_12	Italy	M	21	BSc Student
Int_13	Italy	F	54	Journalist
Int_14	Italy	M	35	University Professor
Int_15	Italy	F	18	High School Student
Int_16	Italy	F	26	Welfare worker
Int_17	Italy	F	21	BSc Student
Int_18	Italy	M	23	MSc Student
Int_19	Italy	M	52	Sales Rep.
Int_20	Italy/Ger	F	33	Lawyer
Int_21	Italy	F	61	French Teacher
Int_22	Italy	M	58	Operations Manager

Data were analyzed by following the stages (“concurrent flows of activity”) suggested by Miles and Hubermann (1994): data reduction, data display, and conclusions drawing/verification (see Figure 1 for a visual representation): The first stage involved listening to each interview at least once and undertaking a reiterated reading of every transcript. Most relevant quotations and comments were highlighted and noted. In the second stage, these data were organized and coded, by clustering data units (e.g., statements, sentences) into common, recurrent, first-order themes to identify any patterns or regularities. In the third stage the process was repeated to categorize first-order into second-order themes. The interviews were analyzed through an inductively developed coding scheme.

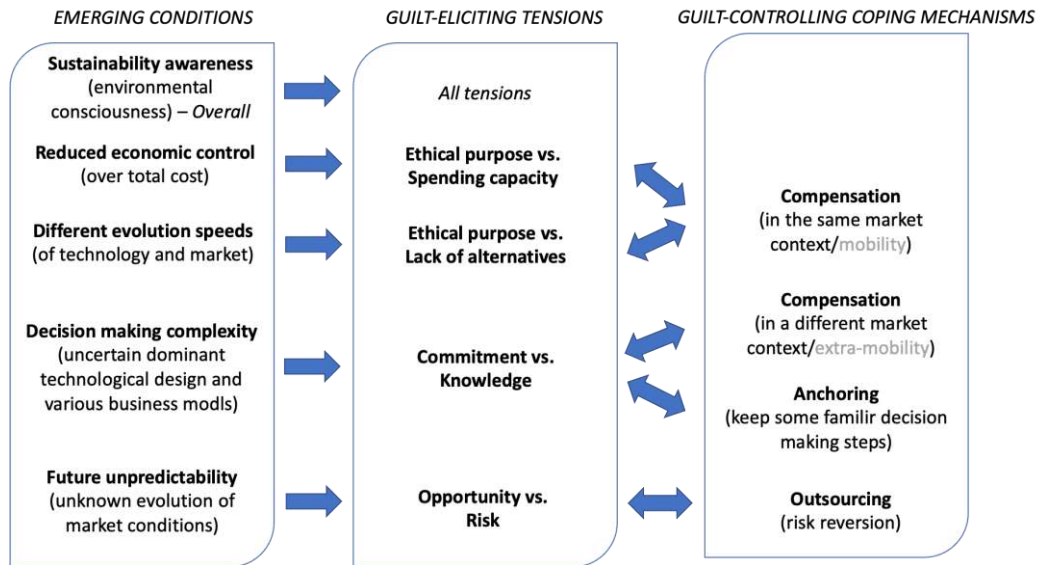
Fig. 1: Data elaboration procedures



Results. Though still in its initial and pilot stages, our research suggests some preliminary findings. In the first place, it allows identifying a series of tensions arising from the new, specific, usage conditions and unprecedented consumption characteristics raised by the new mobility paradigm. These tensions arise because of consumers' impossibility to reconcile their values and beliefs with their actual set of behaviors - which are amplified in the case of comparison with other peers that appear to better manage the situation. Such tensions cause a feeling of guilt, that creates a sense of frustration and impotence in the consumer. While such tensions are not always immediately addressable - as the new context conditions often still do not allow consumers to act accordingly to fully resolve them - consumers tend to develop a set of responses that match the perceived tensions for reducing them to a point that permits guilt feelings to vanish and leave instead the floor to a sense of accomplishment. Thus, in the second place, our study identifies a set of coping mechanisms that consumers are implementing in order to address the experienced tensions and the underlying sense of guilt.

Figure 2 recapitulates our preliminary findings framework and the matching between the guilt-eliciting tensions (between values, beliefs, desirable behaviors and actual ones) and the coping mechanisms that consumers put into place to address them. The new, emerging condition that is triggered by (and grounds its roots in) the dynamic and context of new mobility, is also identified and highlighted.

Fig. 2: Preliminary finding framework



Major changes in the mobility landscape (in terms of technological disruptions and new business models) create a new, unprecedented market setting in which consumers have yet to understand the new role they will have to play as old paradigms are no longer valid.

First, electrification of mobility has made the investment for an owned car skyrocket: the expense required to obtain an equivalent vehicle is now much higher compared to the past. At the same time, consumer awareness is changing as well, as an increasing number of individuals accept alternative and sustainable mobility modes and have developed a stronger environmental consciousness. A tension arises in the consumer due to this emerging condition: how to reconcile the nascent ethical purpose (oftentimes corroborated by others' behaviors and stated priorities) with the own spending capacity? Our interviews show that consumers are faced with a reality check that makes them feel guilty because of an "I wish I could, but I can't" feeling. The following quote highlights this tension: "A few days ago I just bought a new car. I really wanted a less polluting one, but - setting technology-related uncertainties aside - an electric vehicle would have been too expensive for me. So, I chose a second-hand diesel car, to navigate the next years but even though I'm happy with my purchase, I don't feel well about it". (INT_1). Our respondents try to address such tensions by implementing compensatory coping mechanisms, that are supposed to reduce their guilt feelings. In these cases, compensation strategies often occur in the context of other mobility behaviors, as the following quote exemplifies: "At least when I don't have to drive my [gasoline-fueled] car, I always try to go on foot or take public transport". (INT_10).

In some other cases, the sustainability awareness the consumer developed clashes with the impossibility of behaving consistently. The fact that mobility is in a phase of ferment inevitably produces gaps among different transport alternatives' ability to be more or less environmentally sustainable. For instance, trains are more advanced per se in terms of environmental friendliness, the automotive industry is rushing for decarbonization, and the airline industry is still lagging behind because of its inherent dependence on fossil fuels. However, finding a viable alternative for a long-haul flight from Europe to the United States is still difficult. So, the ethical purpose that consumers would want to materialize and the lack of alternatives, that is, the impossibility or unavailability to change some of their established habits, arises another tension that consumers tend to solve through the adoption of the same compensation mechanism mentioned above: "I fly back home to the US at least twice a year. I always feel a little bit guilty about it because I know this is not good for the planet. So, every year I pay for my emissions by donating money to various sustainability projects to try to minimize that impact". (INT_11). Also this kind of guilt-controlling coping mechanism is within the mobility domain, as the impossibility to act well in the context of one transportation mode is directly compensated economically.

In addition, while it is now clear that electrification will be a protagonist of future mobility, there are still many concurrent technological variants on the market (PHEV, FEV, BEV, etc.), without a fully established or dominant standard so far. At the same time, new business model options (such as leasing or long-term-rental or sharing), incredibly widen the spectrum of alternatives and combinations of alternatives a consumer is exposed to. This decision making complexity represents another source of tension for the consumer, as s/he is feeling a drive to behave more sustainably, but does not feel skilled enough to make an informed decision. The following quote presents well this commitment-knowledge tension: "There is so much out there right now, it's hard to understand where to start from". (INT_17). Our interviews display two possible types of coping mechanisms that consumers tend to implement - which can be either alternative or concurrent. The first one is again a compensating mechanism, however, as consumers' knowledge in the mobility domain is limited in this case, the compensation occurs in a different context: "Up to now, I don't think I behave in a very environmentally sustainable way in my transportation journeys, even though I do care.

Also, [to compensate], I think next year I won't be doing so much online shopping. Moreover, I always try to do my waste sorting very attentively". (INT_14). Another mechanism involves anchoring to the current decision making process, not changing all its elements and steps all at once. For example, one respondent explains that: "All this is so new... If I could change my car now, I would take an electric one, but I would buy it, I would make the traditional purchase, as all these business models are very new to me. It's true, if I started getting informed, I would probably figure out how it works. But electric cars are already something so new, that I don't want to add additional elements of novelty. (INT_16).

Eventually, while behaving in a more ethical and sustainable way is becoming a concrete priority for consumers, they don't want it to come (fully) at their own expense. How the market of the future will look like is still a question mark: for instance, it is unclear whether electric vehicles will have a viable second-hand market, how long net-zero incentives are going to last, and if they will continue applying also to hybrid cars. So, consumers don't want to bear the transition risk associated to navigating to both a new technology and a "better", more conscious behavior and thus experience a tension between opportunity and risk: "My fear is that what I do today could go against me like a boomerang in the future". (INT_19). The coping mechanism our respondents mentioned to use to match this tension, is related to outsourcing, as they basically revert the risk, trying to offload it upstream (making, for instance, the carmaker or dealer carrying it): "I would definitely take my first electric car in leasing, I don't want the risk to be on me at the end. It's a technology that is still under development, so there is too much uncertainty surrounding it". (INT_3); "I chose to lease my electric Smart because I want to be able to give the car back to the dealer at any time, without being forced to buy a new one afterwards or having to worry about the second-hand market". (INT_20).

Research limitations. This study is proposed as a work-in-progress based on a paper abstract. Some limitations are inherent to the pilot nature of the first wave of data collection. Follow-up procedures are scheduled and their outcome may be eventually integrated in the next stage of the study. With this disclaimer, the study limitations are inherent to the design. The data collection and analysis procedures have been thoroughly implemented but their scope does not have generalization power equivalent to large-scale, quantitative studies. This limitation is however well counterbalanced by the depth of analysis allowed by the exploratory design. Another limitation may be inherent to the social desirability bias that permeates discussion topics tied to sustainability. This limitation shall be fixed by further research insisting more on non-participant observation and unintrusive data collection techniques based on social interaction such as focus groups. Finally, albeit investigating for longitudinal topics, self-reflective techniques of projection such as in-depth interview do not allow to directly capture the evolutionary nature of the phenomenon under investigation. This limitation shall be fixed via methodological triangulation, integrating the initial exploratory study with a subsequent longitudinal design.

Originality of the paper. Notwithstanding the inherent limitations and the level of maturity of this study, we are confident the paper could bring fruitful debate at the SIMA conference and within our community of reference. First and most important, the paper brings a valuable and rich CCT perspective into the realm of sustainable consumption studies. While this is not an entirely new approach, it allows us to capture the role of guilt from an under-investigated and multifaceted perspective that has the power to enrich our understanding of how choices for sustainable consumption develop and materialize throughout experience. Second, our study is novel in investigating consumption routines, where sustainability-supportive choices alternate with sustainability-detrimental ones, thus triggering a complex sequence of guilt-spread out and guilt-neutralization tactics that concur over time to the transition of the consumer identity into an agency territory. To the best of our knowledge, there is no prior research addressing this topic, which is arguably very relevant for a society looking with high attention at the shift of consumer behavior out of unsustainable practices for the environment. Finally, our study offers interesting insights into the practices that consumers experiment to cope with guilt effects, thereby further advancing prior research on counterbalancing strategies as an alternative to neutralization.

Keywords: sustainable development; sustainable consumption; guilt; ethical choice; consumer acculturation; assimilation; resistance; qualitative research; CCT.

References

- ANTONETTI P., STAN M. (2014), "Feelings that make a difference: How guilt and pride convince consumers of the effectiveness of sustainable consumption choices", *Journal of business ethics*, vol. 124, n. 1, pp. 117-134.
- ANTONETTI P., BAINES P., LORNA W. (2015), "From elicitation to consumption: assessing the longitudinal effectiveness of negative emotional appeals in social marketing", *Journal of Marketing Management*, vol. 31, n. 9-10, pp. 940-969.
- ARNOULD E.J. (1989), "Toward a broadened theory of preference formation and the diffusion of innovations: Cases from Zinder Province, Niger Republic", *Journal of Consumer Research*, vol. 16, n. 2, pp. 239-267.
- BRAY J., JOHNS N., KILBURN D. (2011), "An exploratory study into the factors impeding ethical consumption", *Journal of business ethics*, vol. 98, n. 4, pp. 597-608.
- CHATZIDAKIS A. (2015), "Guilt and ethical choice in consumption: A psychoanalytic perspective", *Marketing Theory*, vol. 15, n. 1, pp. 79-93.

- CHEN Y., DIRK C. MOOSMAYER. (2020), “When guilt is not enough: Interdependent self-construal as moderator of the relationship between guilt and ethical consumption in a Confucian context”, *Journal of Business Ethics*, vol. 161, n. 3 , pp. 551-572.
- COWAN K., KINLEY T. (2014), “Green spirit: consumer empathies for green apparel”, *International Journal of Consumer Studies*, vol. 38, n. 5 493-499.
- CULIBERG B. (2022), “The Role of Moral Foundations, Anticipated Guilt and Personal Responsibility in Predicting Anti-consumption for Environmental Reasons”, *Journal of Business Ethics*, pp. 1-17.
- DOLAN P. (2002), “The sustainability of “sustainable consumption””, *Journal of Macromarketing*, vol. 22, n. 2, pp. 170-181.
- DUROY Q. (2011), “The path to a sustainable economy: sustainable consumption, social identity and ecological citizenship”, *International Journal of Green Economics*, vol. 5, n. 1, pp. 1-14.
- EISENHARDT K.M. (1989), “Building theories from case study research”, *Academy of management review*, vol. 14, n. 4, pp. 532-550.
- GLASER B., STRAUSS A. (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Mill Valley, CA: Sociology Press.
- HOLMBERG J., SANDBROOK R. (2019), “Sustainable development: what is to be done?”, *Policies for a small planet*. Routledge, pp. 19-38.
- LIU YUE, et al. (2017), “Understanding the evolution of sustainable consumption research”, *Sustainable Development* 25.5 414-430.
- MACINNIS D.J. (2011), “A framework for conceptual contributions in marketing”, *Journal of Marketing*, vol. 75, n. 4 , pp. 136-154.
- MILES M.B., HUBERMAN A.M. (1994), *Qualitative data analysis: An expanded sourcebook*. sage,
- MKONO M., HUGHES K. (2020), “Eco-guilt and eco-shame in tourism consumption contexts: Understanding the triggers and responses”, *Journal of Sustainable Tourism*, vol. 28, n. 8, pp. 1223-1244.
- NEWMAN K.P., MERRIE B. (2018), “The influence of corporate social responsibility efforts on the moral behavior of high self-brand overlap consumers”, *Journal of Consumer Psychology*, vol. 28, n. 2, pp. 253-271.
- NIINIMÄKI K. (2010), “Eco-clothing, consumer identity and ideology”, *Sustainable development*, vol. 18.3 pp.150-162.
- ONWEZEN M.C., BARTELS J., ANTONIDES G. (2014), “The self-regulatory function of anticipated pride and guilt in a sustainable and healthy consumption context”, *European Journal of Social Psychology*, vol. 44, n. 1, pp. 53-68.
- PATTON M.Q. (2002), “Two decades of developments in qualitative inquiry: A personal, experiential perspective”, *Qualitative social work*, vol. 1, n. 3, pp. 261-283.
- PEÑALOZA L. (1994), “Atravesando fronteras/border crossings: A critical ethnographic exploration of the consumer acculturation of Mexican immigrants”, *Journal of consumer research*, vol. 21, n. 1, pp. 32-54.
- PERERA C.R., HEWEGE C.R. (2021), “Evolving Prosumer Identity in Sustainable Consumption: Deconstructing Consumer Identity”, *Social and Sustainability Marketing*. Productivity Press, pp. 175-198.
- SCHÜTTE L., GREGORY-SMITH D. (2015), “Neutralisation and mental accounting in ethical consumption: the case of sustainable holidays”, *Sustainability*, vol. 7, n. 6, pp. 7959-7972.
- SORON D. (2010), “Sustainability, self-identity and the sociology of consumption”, *Sustainable development*, vol. 18, n. 3 , pp. 172-181.
- STEENHAUT S., VAN KENHOVE P. (2006), “The mediating role of anticipated guilt in consumers’ ethical decision-making”, *Journal of business ethics*, vol. 69, n. 3 , pp. 269-288.
- THEOTOKIS A., MANGANARI E. (2015), “The impact of choice architecture on sustainable consumer behavior: The role of guilt”, *Journal of Business Ethics*, vol. 131, n. 2 , pp. 423-437.
- TRUDEL R. (2019), “Sustainable consumer behavior”, *Consumer psychology review*, vol. 2, n. 1, pp. 85-96.
- TRUELOVE H.B., NUGENT M.R. (2020), “Straw wars: Pro-environmental spillover following a guilt appeal”, *Journal of Environmental Psychology*, vol. 72 p. 101521.
- WHITE K., HABIB R., HARDISTY D.J. (2019), “How to SHIFT consumer behaviors to be more sustainable: A literature review and guiding framework”, *Journal of Marketing*, vol. 83, n. 3, pp. 22-49.

Climate Change threats, needs frustration, and consumer responses: An exploratory study

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Objectives. Defined by many as the “Biggest threat modern humans have ever faced” (WHO, 2021), climate change is a system of both actual and potential changes in environmental conditions with negative repercussions for consumer well-being (Evans, 2019).

Because the survival and well-being of people depend on the environmental system (IPCC, 2022), one may expect consumers to behave more pro-environmentally under the menace of Climate Change. This may not always be the case though, as empirical evidence shows that we still place an unsustainable burden on the physical environment (Wells et al., 2011). Overconsumption, excessive resource usage, and the generation of pollution and waste are degrading the environmental systems necessary for life on earth (WRI, 2022). It is thus crucial to investigate how consumers respond to Climate Change threats to assess whether and how perceptions of such threats affect their pro-environmental behavior for the better or worse (e.g., Diamond et al., 2010; Reser et al., 2011).

Research investigating consumers under Climate Change threats, and external threats more broadly, has proliferated in the field of social psychology (e.g., Reser et al., 2011; Kouchaki, and Desai, 2015; Swim et al., 2021; Wang et al., 2021) and marketing (e.g., Perry and Quarantelli, 2007; Perera, and Hewege, 2018; Kemp et al., 2021). Existing research in social psychology has investigated how external threats generate ontological insecurity for individuals (Reser et al., 2011; Swim et al., 2011), including perceptions of uncertainty (NCCARF, 2009), anxiety (Dodds, 2021), fear, and worry about the future (Reser et al., 2011). Such negative psychological states, in turn, may activate self-protective and defensive modes that constitute adaptive responses. Existing research in marketing has examined the impact on consumption of isolated natural disasters (e.g., Friedrickson et al. 2003; Kemp et al., 2014) and, more broadly, isolated, negative events such as terror attacks (e.g., Herzenstein et al., 2015; van der Wal et al., 2018; Baumert et al., 2020), pandemics, and diseases (e.g., Kirk and Rifkin, 2020; Chiu et al., 2021). Overall, these studies show that consumers rely on a variety of consumption strategies to shield themselves from negative experiences and unpleasant feelings (Kemp et al., 2014; Mandel et al., 2017). Sneath et al. (2009) noted that depression experienced by residents of the Gulf Coast after Hurricane Katrina impacted impulsive and compulsive buying behavior. Also, loss of control (Cutright, 2012), mortality salience (Ferraro et al., 2005), and uncertainty (Faraji-Rad and Pham, 2017) correlated with consumers' increased preferences for logos and products that compensate for negative feelings (Cutright, 2012). Finally, fear and anxiety resulting from a pandemic were associated with purchasing in larger quantities because of consumers' increased attention to satisfying immediate needs (Krishen and Bui, 2015), higher hopes of garnering more protection from the unknown (Kemp et al., 2021) and stress coping (Kouchaki and Desai, 2015).

However, to the best of our knowledge, none of the previous studies has specifically investigated how Climate Change threats affect consumer need frustration and how need frustration may in turn elicit eco-unfriendly consumption behaviors. Voiding this gap is theoretically relevant because Climate Change may affect the satisfaction of diverse human needs, such as those related to food (Ellis and Albrecht, 2017; UNICEF, 2019), well-being (e.g. Dodds, 2021; Kemp et al., 2021), mental health (e.g. Thompson, 2021; WHO, 2021), social equalities (Swim et al., 2011; NOAA, 2021), and social stability (IRP, 2016) (for a review see Swim et al., 2011). Need frustration, in turn, can lead to climate denial or harm (Wullenkord, 2019) because consumers may tend to focus more on self-interest, increase defensiveness (Heissel et al., 2018; Benita et al., 2019), and overlook prosocial goals (Sheldon and Kasser, 2008; Kouchaki, and Desai, 2015).

The purpose of this paper is thus to explore whether and how consumer eco-unfriendly behavior reflects the perceived need frustration due to Climate Change threats. Our research questions are:

RQ1: How do Climate Change threats affect consumer need frustration?

RQ2: What are the psychological consequences of such need frustration?

RQ3: How does need frustration trigger eco-unfriendly behavior?

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As a part of an ongoing mixed-method study, we present the results of a qualitative study based on ZMET interviews. Our preliminary results offer three theoretical contributions. First, we unveil the most relevant threats that consumers associate with Climate Change; second, we explore whether such threats generate needs frustration and delve into the types of needs that are mostly affected; third, we explore how needs frustration induced by Climate Change threats is associated to eco-(un)friendly consumption behavior. Our findings also inform practitioners and policymakers on how to communicate Climate Change threats in a way that avoids undesired eco-unfriendly behaviors.

Methodology. Considering the paucity of previous studies on the topic at hand, we adopted a qualitative approach based on in-depth interviews. We adopted a convenience sampling procedure to select respondents. Data were collected in Italy, with 25 participants in this study. They ranged from 19 to 63 years old, with 70 percent young adults, 55 percent female, and 45 percent male.

Interviews were conducted according to the Zaltman Metaphor Elicitation Technique (ZMET), which integrates projective techniques with semi-structured in-depth interviews to help respondents provide narratives that would reveal their perceptions and feelings of particular phenomena (Zaltman and Coulter, 1995; Zaltman, 1997).

Before conducting the interviews, we gave guidelines to the participants to allow them to understand the topic and reflect on it. Lastly, we asked them to collect at least 10 images from books, magazines, newspapers, or the Internet that should have indicated what Climate Change threats meant to them (Zaltman and Coulter, 1995). These images provided the stimuli for the ZMET interviews. Because consumers collected their pictures, they were in control of the stimuli used in the guided conversation (Zaltman and Coulter, 1995).

Interviews lasted approximately an hour and followed the ZMET steps (Zaltman and Coulter, 1995). Specifically, we adopted nine steps, such as “storytelling”, “missed issues and images”, “sorting task”, “construct elicitation”, “most representative image”, “opposite image”, “sensory images”, “mental map”, and “summary image.”

For example, the “sensory images” step consisted of asking the participant to think about the concept under investigation through other senses because people think with all the senses at their disposal (e.g., MacDougall, 1992); conversely, in the “mental map” step, we reviewed all of the constructs discussed and asked the participant if the constructs were accurate representations of what they meant. Next, the participant created a map to illustrate the connections among important constructs related to the topic.

All interviews were recorded and transcribed. After further analysis, we arrived at a consensus regarding the identification of meta themes (McCracken, 1988; Thompson, 1997).

Findings. Following the research questions, we divided our findings into three thematic areas: 1) the satisfaction of needs hampered by Climate Change (RQ1); 2) the cognitive and affective responses elicited by need frustration (RQ2); the eco-(un)friendly consumption behavior possibly generated by need frustration (RQ3).

For the first macro-area, the combined analysis of negative aspects that participants perceived as threats induced by Climate Change and the threat level resulted in five main macro themes. Each theme corresponded to the frustration of specific needs:

1. *Physiological needs:* Physiological needs are the basic needs of living, such as the need for food and water. Respondents perceived these basic needs to be endangered by Climate Change. For the respondents, natural food is less, and less seasonal; drinking water is scarcer due to droughts; the air is more polluted.
 “An escalation can start with food. Certain plants and food were growing and cultivated because of a certain climate. Now they can no longer be cultivated. It won't be possible to eat certain food anymore.” (Pietro)
 On this level, respondents that perceived physiological needs frustration perceived a threat to human survival (Boone et al., 2014).
2. *Safety needs:* Security needs are the psychological needs for safety. Climate Change makes individuals feel deprived of safety, stability, and certainty (Chen et al., 2015). Respondents seemed disoriented, destabilized, and unsettled. Respondents mentioned that Climate Change may destroy one's psychological health and mood.
 “Such a situation requires a continuous problem-solving ability on top of the others. Surviving peacefully can become difficult. This makes me feel bad.” (Davide)
 Respondents perceived the world as unsafe and unpredictable.
 “Climate Change destabilizes me. It detaches me for a moment from the center of what I'm doing, or what I am anyway. We do not know what the other consequences will be. In concrete terms, how would we react? Will there be wars? Will there still be pandemics? Exactly... how do we deal with it?” (Federica)
 Respondents also felt deprived of their health in terms of “somaterratic illnesses” (Albrecht et al., 2007) because they live in ecosystems that are contaminated and which could generate viruses and diseases.
3. *Social needs:* Social needs include needs for love and belongings, which can be fulfilled by relationships. Respondents said that Climate Change affects the ability to feel at home, to recognize where one is, and to belong to a living place. “Solastalgia” (Albrecht et al., 2007), emotional or existential distress caused by environmental change, emerged from the interviews and was perceived as a form of “psychoterratic illness” where the toxic pollution of the environment creates mental illness that breaks relationships between individuals and their territory.
 “What we see around us affects our psychological well-being. So, climate change can also affect the feeling one has of being in a familiar environment, for example. If I were to find myself in a completely different environment from the one I've always seen, I would feel a strong sense of disorientation.” (Davide)
 Global Climate Change deprives people of traditional food, cultural heritage, and, in this way, their own identity.
4. *Esteem needs:* Esteem needs refer to respect, recognition, and competence. Respondents felt their self-efficacy and competence were menaced. They felt incapable of achieving desired outcomes and doubtful about their self-efficacy.

“Climate Change makes me feel like a loser because my generation and myself underestimated the problem or neglected to do what was in our power to preserve the Earth.” (Ippazio)

5. *Self-actualization needs*: Self-actualization needs refer to personal growth and meaning-making. The respondents linked Climate Change to their reproductive choices (Schneider-Meyerson and Leong, 2019). “One wonders whether it makes sense to have children in the era of Climate Change, knowing that you are leaving them in this kind of environment.” (Renato)

Other respondents mentioned the sacrifices individuals make to build their future but also noticed that all of them could be interrupted by the disastrous consequences of Climate Change.

Overall, the prevailing frustrations that emerged focused on physiological and security needs: threats to survival, health, stability, and certainty were the needs majorly affected by Climate Change. However, some respondents felt that Climate Change affected their social and personal sphere, in terms of the need to belong, effectiveness competence, and fulfillment.

In the second macro-area (RQ2), the needs frustration determines cognitive and affective responses.

Cognitive and evaluative responses include:

- *Uncertainty*: Climate change leads to ontological uncertainty due to the inherent variability and unpredictability of the phenomenon (Refgaard et al., 2005; Shen et al., 2019). Interestingly, whereas a general sense of uncertainty for external factors emerges, this type of insecurity is internalized and becomes uncertainty on a personal level.

“I perceive personal uncertainty. As if the questions one is already asking are being exacerbated.” (Mattia)

- *Lack of control*: Climate Change is perceived as something out of our control.

“How could this be countered? We reached a point where the situation is getting out of control.” (Cecilia)

Affective responses varied based on whether the causes of the Global Climate Change were human-made or not.

If respondents perceived Climate Change as human-made, the main emotional responses they mentioned were:

- *Anger*: Anger emerged as respondents assigned high levels of responsibility to other people (Coombes and Holladay, 2005).

“Climate change makes me angry. But my anger is all about people's attitudes!” (Marco)

- *Disgust*: Disgust involves appraisals associated with a strong impulse to avoid and distance oneself immediately from the object (Lerner et al., 2004).

“I have associated climate change with this animal, which I find repulsive because it is scaly, slimy and above all hostile in a certain sense.” (Mattia)

If respondents perceived Climate Change as not human-made, the main emotional responses they mentioned were:

- *Fear and Anguish*: Many of the respondents felt that they don't have control of their lives. Particularly, they perceived Climate Change to be highly unpredictable and that they had no control on it. Also, fear motivates people to exert effort to get out of threatening situations or remove negative feelings (Lerner and Keltner, 2001).

“I am afraid of climate events that are stronger than me, summers that are too hot, I am afraid of many things... it's just that it's not tangible to me. That's the point. I mean... I can't... Climate change is an intangible problem, you can't see it and it could crush you.” (Valeria)

- *Sadness*: Respondents felt that Climate Change was caused by uncontrollable causes and there is no one to blame, and they felt need of relief and comfort.

“I feel sad because if I want to build a family in the future, I ask myself: but under what conditions? Can I guarantee them stability?” (Cecilia)

- *Anxiety*: Anxiety stems from facing an immediate, concrete, and overwhelming danger (Lazarus, 1991). Respondents engaged in recurrent negative thought patterns which often heightened levels of anxiety and allow individuals to focus attention on immediate needs (Krishen and Bui, 2005).

“The image that immediately came to mind was a Pollock painting. Because it is extremely chaotic and extremely...full of color and undefined lines! It gives me the idea of chaos and the anxiety I feel towards all the losses we are having because of this Climate Change.” (Federica)

- *Helplessness*: Helplessness tends to occur when people perceive their potential of coping with a goal-incongruent event to be low (Chaxel, 2016). The respondents felt incapable of removing obstacles to improving the situation generated by Climate Change.

“I have this sense of helplessness towards the irreversibility of the situation, and this often makes me feel nervous. I see an inexorable flow of changes.” (Giada)

In the third macro-area (RQ3), needs frustration and subsequent psychological mechanisms generate the eco-(un)friendly consumption behavior (RQ3).

It was difficult for respondents to make a conscious introspection on how Climate Change may affect their consumption. In some cases, where need frustration was weak, more sustainable consumption behaviors emerged. “I care about this issue, and as far as food is concerned, for example, I try to moderate my consumption, I try to buy products from local farmers. Where I can, I try to mitigate the situation.” (Federica)

Conversely, when need frustration was strong, the respondents mentioned that they may have adopted consumption strategies to improve their psychological states. Overconsumption, impulsive behaviors and purchasing overpackaged products were the strategies adopted by some of the respondents to manage specific stressors.

“Sometimes I eat more food when I am more stressed. It happens when I think about things like Climate Change.” (Davide)

Such eco-unfriendly behaviors were mainly observed when Climate Change was perceived as non-human-made, highly unpredictable threat.

Research limits. The exploratory nature of the work does not allow for a generalization of the results. However, as a part of an ongoing mixed-method study, the second step is a quantitative study.

Practical implications. Our results have implications for practitioners and policy makers. First, a deeper perspective on individual perceptions of the threats posed by Climate Change and how these threats impact the satisfaction of needs helps us understand why consumers may adopt consumption behaviors at the expense of the environment. Climate Change is a phenomenon capable of generating the biggest threat modern humans have ever faced (WHO, 2021). Ensuring that decisions have a positive effect on the ecosystem is crucial. In terms of communication, information should be presented in a way that helps an individual not to be overwhelmed by the negative affect that leads to thoughts and cognitions related to threat and unsustainable compensatory consumption. They should face the multiple threats of climate change, try to “deal with it” (Reiss et al., 2019) and not move toward palliative behaviors and attitudes. Communication with huge and threatening information may lead to defense mechanisms (Uhl et al., 2016). Instead, providing concrete guidelines and encouragement to address the issue could lead to very positive results (Reiss et al., 2019).

Originality of the study. The present study addresses a major void in the marketing literature by investigating the relationships between Climate Change threats, the resulting frustration of needs and possibly associated eco-unfriendly consumption behaviors. This is the first study to investigate the role that need frustration induced by Climate Change plays in generating cognitive and affective responses, and eco-unfriendly behavioral outcomes. We reveal the most relevant Climate Change threats that consumers perceive; we explore whether such threats generate needs frustration and delve into the types of needs that are mostly affected; we finally explore how needs frustration induced by Climate Change threats is associated to eco-unfriendly consumption behavior.

Key words: threat; climate change; consumer response; consumption; need frustration.

References

- ALBRECHT G., SARTORE G.M., CONNOR L., HIGGINBOTHAM N., FREEMAN S., KELLY B., STAIN H., TONNA A., POLLARD G. (2007), “Solastalgia: the distress caused by environmental change”, *Australasian Psychiatry*, vol. 15.
- BANHAM R. (2020), “Emotion, Vulnerability, Ontology: Operationalising ‘Ontological Security’ for Qualitative Environmental Sociology”, *Environmental Sociology*, vol. 6, n. 2, pp. 132-42.
- BAUMERT T., MERCEDES DE OBESSO M., VALBUENA E. (2020), “How does the terrorist experience alter consumer behavior? An analysis of the Spanish case”, *Journal of Business Research*, vol. 115, pp. 357-364.
- CAMPBELL M.C., INMAN J.J., KIRMANI A., PRICE L.L. (2020), “In Times of Trouble: A Framework for Understanding Consumers’ Responses to Threats”, *Journal of Consumer Research*, vol. 47, pp. 311-325.
- CARVER C. S., SCHEIER M.F., WEINTRAUMB J.K. (1989), “Assessing Coping Strategies: A Theoretically Based Approach”, *Journal of Personality and Social Psychology*, vol. 56, n. 2, pp. 267-83.
- CHIU W., OH G., CHO H. (2021), “Impact of COVID-19 on consumers’ impulse buying behavior of fitness product: A moderated mediation model”, *Journal of Consumer Behavior*, vol. 21, pp. 245-258.
- DODDS J. (2021), “The psychology of climate anxiety”, *BJPsych Bulletin*, vol. 45, pp. 222-226.
- DUHACHEK A. (2005), “Coping: A Multidimensional, Hierarchical Framework of Responses to Stressful Consumption Episodes”, *Journal of Consumer Research*, vol. 32, n. 1, pp. 41-53.
- EVANS G.W. (2019), “Projected Behavioral Impacts of Global Climate Change”, *Annual Review of Psychology*, vol. 70, pp. 6-26.
- HAN D., DUHACHEK A., RUCKER D. D. (2015). “Distinct threats, common remedies: How consumers cope with psychological threat”, *Journal of Consumer Psychology*, vol. 25, pp. 531-545.
- HICKMAN C. (2020), “We need to (find a way to) talk about Eco-anxiety”, *Journal of Social Work Practice*, vol. 34, n. 4, pp. 411-424.
- KIRK C. P., RIFKIN L. S. (2020), “I’ll trade you diamonds for toilet paper: Consumer reacting, coping and adapting behaviors in the COVID-19 pandemic”, *Journal of Business Research*, Vol. 117, pp. 124-131.
- KEMP E., KENNET-HANSEL P.A., WILLIAMS K.H. (2014), “The Calm before the Storm: Examining Emotion Regulation Consumption in the Face of an Impending Disaster”, *Psychology&Marketing*, vol.31, n. 11, pp. 933-945.
- KEMP E., BUI M., PORTER M. (2021), “Preparing for a crisis: examining the influence of fear and anxiety on consumption and compliance”, *Journal of Consumer Marketing*, vol. 38, n. 3, pp. 282-292.
- KOLES B., WELLS V., TADAJEWSKI M. (2018), “Compensatory consumption and consumer compromises: a state-of-the-art review”, *Journal of Marketing Management*, vol. 34, n. 1-2, pp. 96-133.
- KOUCHAKI M., DESAI S.D. (2014), “Anxious, Threatened, and Also Unethical: How Anxiety Makes Individuals Feel Threatened and Commit Unethical Acts”, *Journal of Applied Psychology*, vol. 100, n. 2, pp. 360-375.
- LAZARUS R., FOLKMAN S. (1984), *Stress, Appraisal and the Coping Process*, New York, NY: Spring New York.
- MASLOW A. H. (1943), *A theory of human motivation*, *Psychological Review*, vol. 50, n. 4, pp. 370-396.

- PERERA C., HEWEGE C. (2018), "Climate change risk perceptions among green conscious young consumers", *Journal of Consumer Marketing*, vol. 35, n. 7, pp. 754-766.
- PERRY R. W., QUARANTELLI E.L. (ed.) (2007), *What is a Disaster? New Answers to Old Questions*, Philadelphia: Xlibris.
- RESER J.P., MORRISSEY S.A., ELLUL M. (2011), "The Threat of Climate Change: Psychological Response, Adaptation, and Impacts", in: Weissbecker, I. (eds) *Climate Change and Human Well-Being*. International and Cultural Psychology. Springer, New York, NY.
- SWIM J., CLAYTON S., DOHERTY T., GIFFORD R., HOWARD G., RESER J., STERN P., WEBER E., (2011), "Psychology and Global Climate Change: Addressing a Multi-faceted Phenomenon and Set of Challenges", *American Psychological Association*.
- VAN DER WAL A.J., VAN HOREN F., GRINSTEIN A. (2018). "Temporal Myopia in Sustainable Behavior under Uncertainty". *International Journal of Research in Marketing*, vol. 35, n. 3, pp. 378-393.
- WEINER, B. (1986). *An attributional theory of motivation and emotion*, Springer-Verlag, New York.
- ZALTMAN G. (1997), "Rethinking market research: putting people back in", *Journal of Marketing Research*, vol. 34, n. 34, pp. 424-437.
- ZALTMAN G., COULTER R.H. (1995), "Seeing the Voice of the Customer: Metaphor-Based Advertising Research", *Journal of Advertising Research*, vol. 35, n. 4, pp. 35-51.

Websites

<https://www.un.org>
<https://www.who.int>
<https://ec.europa.eu>
<https://www.weforum.org>
<https://www.wri.org>
<https://www.worldometers.info>
<https://www.resourcepanel.org>
<https://www.gov.uk>
<https://ec.europa.eu>
<https://www.unicef.org>
<https://www.ipcc.ch>

In che modo le organizzazioni possono sfruttare il valore dei big data? Una review sistematica della letteratura

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Inquadramento della ricerca. *I big data ricoprono un ruolo sempre più rilevante nella ricerca accademica e nella pratica manageriale. Attualmente, il mercato dei big data vale più di 55 miliardi di dollari di ricavi e si prevede che crescerà fino a 103 miliardi di dollari entro il 2027 (Statista, 2020). Anche se i big data risultano vantaggiosi per le aziende in termini di innovazione ed efficienza del processo decisionale, possono rilevare delle criticità che finora sono state sottovalutate. Affinché le aziende possano sfruttare i vantaggi legati ai big data piuttosto che sostenere i relativi costi, e al fine di cogliere appieno il relativo potenziale, riteniamo che la costruzione di una mappa chiara dell'intera gamma dei possibili usi dei big data sia necessaria.*

Obiettivo del paper. *Lo scopo di questo studio è quello di fornire una mappa generale delle molteplici applicazioni dei big data e dei conseguenti effetti nelle diverse aree di business. Inoltre, distinguiamo gli effetti connessi alle applicazioni dei big data nei contesti delle organizzazioni pubbliche e private, e discutiamo i modi in cui le aziende raccolgono, gestiscono e interpretano grandi quantità di informazioni. Presentiamo, poi, diversi tipi di metodologie adottate in letteratura.*

Metodologia. *Abbiamo inizialmente identificato la parola chiave "big data" su Scopus, con limitazione alle aree di "business, management e accounting" (7096 articoli). Successivamente, abbiamo introdotto il concetto di Business Model Innovation (BMI); a partire da Sorescu (2017), abbiamo identificato tre elementi costitutivi (i.e., creazione di valore, acquisizione di valore, e trasmissione di valore) utili a spiegare l'innovazione nei modelli di business. Abbiamo quindi rivisto la stringa di query includendo i termini: "modello di business", "creazione di valore", "acquisizione di valore" e "trasmissione di valore", in associazione con "big data". Dal momento che i big data rappresentano un fenomeno piuttosto recente, ci siamo concentrati su articoli pubblicati nel periodo 2015-2020 (701 studi). In terzo luogo, abbiamo combinato le parole chiave esistenti con le principali aree di business per identificare ulteriormente i modi in cui i big data possono aiutare le organizzazioni a creare, acquisire, e trasmettere valore. Per raccogliere i punti di vista dei manager, attraverso Qualtrics abbiamo contattato 150 ex partecipanti ai corsi MBA a tempo pieno e part-time che si sono svolti presso una delle principali Business School europee nel 2020. I dati raccolti dai manager fanno riferimento alle seguenti aree di business: finanza; relazioni con i clienti; consegna/servizi post-acquisto, ingegneria e analisi tecnica, programmazione e pianificazione, governance, ricerca e sviluppo, logistica, marketing, produzione, sviluppo prodotto, risorse umane, vendite, e supply chain. Per identificare i nostri termini di ricerca finali, abbiamo incluso in Scopus tutte le parole chiave sopra menzionate (1.630 studi). Inoltre, sulla base della Academic Journal Guide 2018 ("ABS List"), abbiamo selezionato solo articoli pubblicati su riviste con rating 3, 4 e 4* (324 articoli).¹*

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¹ *La stringa finale utilizzata per la ricerca su Scopus è la seguente: TITLE-ABS-KEY ((“big data”) AND (“business model” OR “innovation” OR “value creation” OR “value capture” OR “value delivery” OR marketing OR sales OR “customer service” OR “R&D” OR “research and development” OR “post sales” OR finance OR “supply chain” OR logistics OR forecasting OR engineering OR distribution OR production OR recruiting OR governance OR “product development” OR “product management”)) AND (LIMIT-TO (SRCTYPE, “j”)) AND (LIMIT-TO (PUBSTAGE, “final”)) AND (LIMIT-TO (SUBJAREA, “BUSI”)) AND (LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2013)) AND (LIMIT-TO (EXACTSRCTITLE, “Technological Forecasting And Social Change”) OR LIMIT-TO (EXACTSRCTITLE, “International Journal Of Production Research”) OR LIMIT-TO (EXACTSRCTITLE, “Industrial Marketing Management”) OR LIMIT-TO (EXACTSRCTITLE, “Journal Of Business Research”) OR LIMIT-TO (EXACTSRCTITLE, “International Journal Of Production Economics”) OR LIMIT-TO (EXACTSRCTITLE, “Production And Operations Management”) OR LIMIT-TO (EXACTSRCTITLE, “International Journal Of Forecasting”) OR LIMIT-TO (EXACTSRCTITLE, “Tourism Management”) OR LIMIT-TO (EXACTSRCTITLE, “Decision Support Systems”) OR LIMIT-TO*

Risultati. La revisione sistematica della letteratura che abbiamo condotto permette di mappare gli usi dei big data che sono stati finora considerati in letteratura (Tabella 1). In particolare, abbiamo identificato 324 studi che si sono occupati dell'utilizzo dei big data da parte delle imprese, distinguendo tra organizzazioni private e pubbliche ed evidenziando il modo in cui i big data sono stati raccolti. La maggior parte degli studi riferiti alle organizzazioni private (96 su 167) si è focalizzata sulla raccolta interna di big data, mentre i restanti 71 studi sono relativi all'acquisizione esterna di tali informazioni. Allo stesso modo, la maggior parte delle organizzazioni pubbliche raccoglie i big data internamente (88 su 157), mentre i restanti 69 articoli trattano l'acquisizione esterna di grandi quantità di informazioni. Con riferimento alla metodologia di ricerca adottata, l'approccio misto risulta il più comune sia per le organizzazioni private (n = 46) che per quelle pubbliche (n = 36); il discorso concettuale è maggiormente utilizzato nel contesto delle organizzazioni pubbliche (n = 34) piuttosto che in quelle private (n = 25). Inoltre, la metodologia qualitativa è stata finora utilizzata raramente, sia nel caso di organizzazioni private (n = 18) che di organizzazioni pubbliche (n = 12). Per quanto riguarda l'analisi quantitativa, abbiamo riscontrato che 11 studi totali sono stati pubblicati nell'ambito di organizzazioni private e 17 nell'ambito di organizzazioni pubbliche. Infine, 20 review della letteratura sui big data hanno riguardato le organizzazioni private e 16 quelle pubbliche. Abbiamo infine analizzato l'effetto complessivo dei big data sulle imprese. La maggior parte degli articoli mette in evidenza gli effetti positivi derivanti dalla raccolta e dall'uso dei big data, mentre solo 11 studi hanno considerato problemi associati al fenomeno (e.g., privacy, sicurezza, governance, questioni etiche).

Tab. 1: Mappa relativa all'utilizzo dei big data nelle organizzazioni, per area di business individuata²

TIPO DI ORGANIZZAZIONE	FONTE DEI BIG DATA	AREA DI BUSINESS	AUTORI
PRIVATA	Acquisizione esterna	Relazioni con clienti	(Aloysius et al., 2016; Line et al., 2020; Sivarajah et al., 2020; Zhang, Wang, Cui, et al., 2020)
		Consegna e post-vendita	(Ostrom et al., 2015)
		Programmazione e pianificazione	(Boone et al., 2019; Lau et al., 2018; Lee, 2017; Yu et al., 2019)
		Ricerca e sviluppo	(El-Kassar and Singh, 2019; Farooqui et al., 2020; Ghasemaghaei and Calic, 2020; Lee, 2018)
		Logistica	(Lamba and Singh, 2019a)
		Marketing	(Chong et al., 2016; Erevelles et al., 2016; Jabbar et al., 2020; Liu, 2020; Liu et al., 2016; Steinhoff et al., 2019; Wedel and Kannan, 2016)
		Produzione	(Cohen, 2018; Farooqui et al., 2020; Feng and Shanthikumar, 2018; Frank et al., 2019)
		Sviluppo prodotto	(Jin et al., 2016)
		Risorse umane	(Mahmood and Mubarak, 2020)
		Supply chain	(e.g., Aryal et al., 2018; Bansal et al., 2020; Baryannis et al., 2019; Brinch, 2018; Chehbi-Gamoura et al., 2020)
		Utilizzo congiunto	(e.g., Bălan, 2018; Chen, 2018; Corbett, 2018; Elia et al., 2020; Fisher and Raman, 2018)
	Venduti a terzi	(Ghasemaghaei and Calic, 2020; Line et al., 2020; Wang et al., 2016; Wiener et al., 2020)	
	Raccolta interna	Relazioni con clienti	(Kitchens et al., 2018; Line et al., 2020; Zhang and Xiao, 2020)
		Consegna e post-vendita	(Huang et al., 2018; Opresnik and Taisch, 2015; Ostrom et al., 2015; Seitz et al., 2020)
		Ingegneria e analisi tecnica	(Zhang, Wang, Ding, et al., 2020)
		Programmazione e pianificazione	(Boone et al., 2019; Dubey, Gunasekaran, Childe, Roubaud, et al., 2019; Fang et al., 2020)

(EXACTSRCTITLE, "Production Planning And Control") OR LIMIT-TO (EXACTSRCTITLE, "Marketing Science") OR LIMIT-TO (EXACTSRCTITLE, "Information And Management") OR LIMIT-TO (EXACTSRCTITLE, "International Journal Of Operations And Production Management") OR LIMIT-TO (EXACTSRCTITLE, "Management Science") OR LIMIT-TO (EXACTSRCTITLE, "Transportation Research Part E Logistics And Transportation Review") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of Marketing") OR LIMIT-TO (EXACTSRCTITLE, "IEEE Transactions On Engineering Management") OR LIMIT-TO (EXACTSRCTITLE, "International Journal Of Contemporary Hospitality Management") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of Product Innovation Management") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of Service Research") OR LIMIT-TO (EXACTSRCTITLE, "Information Society") OR LIMIT-TO (EXACTSRCTITLE, "International Journal Of Hospitality Management") OR LIMIT-TO (EXACTSRCTITLE, "International Journal Of Research In Marketing") OR LIMIT-TO (EXACTSRCTITLE, "International Journal Of Electronic Commerce") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of Information Technology") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of Supply Chain Management") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of Travel Research") OR LIMIT-TO (EXACTSRCTITLE, "Public Administration Review") OR LIMIT-TO (EXACTSRCTITLE, "Journal Of The Academy Of Marketing Science") OR LIMIT-TO (EXACTSRCTITLE, "Technovation") OR LIMIT-TO (EXACTSRCTITLE, "British Journal Of Management") OR LIMIT-TO (EXACTSRCTITLE, "Business And Society") OR LIMIT-TO (EXACTSRCTITLE, "California Management Review") OR LIMIT-TO (EXACTSRCTITLE, "Decision Sciences") OR LIMIT-TO (EXACTSRCTITLE, "European Journal Of Marketing")

² La Tabella 1 riporta alcuni tra i principali paper analizzati. Per la bibliografia esaustiva, si prega di fare riferimento alla sezione "Bibliografia" che segue.

		Governance	(Mikalef et al., 2020; Shukla and Tiwari, 2017)		
		Ricerca e sviluppo	(Arthur and Owen, 2019; El-Kassar and Singh, 2019; Ghasemaghaei and Calic, 2020; Lee, 2018)		
		Logistica	(Lamba and Singh, 2019a; Liu et al., 2020; Zhong et al., 2015, 2017)		
		Marketing	(Dong and Yang, 2020; Erevelles et al., 2016; Jabbar et al., 2020; Martin, 2016; Sivarajah et al., 2020)		
		Produzione	(Chien et al., 2017; Choi et al., 2018; Cohen, 2018; Farooqui et al., 2020; Frank et al., 2019; Gunasekaran et al., 2018)		
		Sviluppo prodotto	(Johnson et al., 2017)		
		Risorse umane	(Mahmood and Mubarak, 2020)		
		Vendite	(Hallikainen et al., 2020)		
		Supply chain	(e.g., Aryal et al., 2018; Bansal et al., 2020; Baryannis et al., 2019; Brinch, 2018; Chehbi-Gamoura et al., 2020)		
		Utilizzo congiunto	(e.g., Akter et al., 2020; Chen, 2018; Corbett, 2018)		
		Vendita a terzi	(Cohen, 2018; Ghasemaghaei and Calic, 2020; Gunasekaran et al., 2017)		
		PUBBLICA	Acquisizione esterna	Relazioni con clienti	(Lee et al., 2019; Line et al., 2020; Sivarajah et al., 2020; Zhang, Wang, Cui, et al., 2020)
				Consegna e post-vendita	(Ostrom et al., 2015)
Programmazione e pianificazione	(Boone et al., 2019; Chong et al., 2017; Lau et al., 2018; Saito et al., 2016)				
Governance	(Flyverbom et al., 2017; Julsrud and Krogstad, 2020; Jun and Chung, 2016; Shukla and Tiwari, 2017)				
Ricerca e sviluppo	(Lee, 2017; Troilo et al., 2017; Yu et al., 2019)				
Logistica	(Lamba and Singh, 2019b; Li and Wang, 2017)				
Marketing	(e.g., Chong et al., 2016; Edwards et al., 2017; Erevelles et al., 2016; Jabbar et al., 2020; Liu et al., 2016)				
Produzione	(e.g., Choi et al., 2018; Cohen, 2018; Farooqui et al., 2020; Frank et al., 2019; Gunasekaran et al., 2018)				
Sviluppo prodotto	(Jin et al., 2016)				
Risorse umane	(Mahmood and Mubarak, 2020; Sena and Ozdemir, 2020)				
Supply chain	(e.g., Aryal et al., 2018; Bansal et al., 2020; Baryannis et al., 2019; Brinch, 2018; Chehbi-Gamoura et al., 2020; Huang et al., 2018)				
Utilizzo congiunto	(e.g., Bălan, 2018; Chen, 2018; Corbett, 2018; Elia et al., 2020)				
Vendita a terzi	(Tachizawa et al., 2015; Wang et al., 2016; Wiener et al., 2020)				
Raccolta interna	Relazioni con clienti		(Kitchens et al., 2018; Line et al., 2020; Sivarajah et al., 2020)		
	Consegna e post-vendita		(Mehmood et al., 2017; Opresnik and Taisch, 2015; Ostrom et al., 2015; Seitz et al., 2020; Zhang, Wang, Ding, et al., 2020)		
	Programmazione e pianificazione		(Boone et al., 2019; Dubey, Gunasekaran, Childe, Papadopoulos, et al., 2019; Fang et al., 2020; Lau et al., 2018)		
	Governance		(Shukla and Tiwari, 2017)		
	Ricerca e sviluppo		(Ghasemaghaei and Calic, 2020; Lee, 2018; Lehrer et al., 2018; Troilo et al., 2017; Wu et al., 2020)		
	Logistica		(Lamba and Singh, 2019a; Zhong et al., 2015)		
	Marketing		(Dong and Yang, 2020; Erevelles et al., 2016; Trusov et al., 2016; Wedel and Kannan, 2016; Xu et al., 2016; Yang et al., 2020)		
	Produzione		(e.g., Chien et al., 2017; Choi et al., 2018; Cohen, 2018; Farooqui et al., 2020; Frank et al., 2019; Gunasekaran et al., 2018)		
	Sviluppo prodotto		(Hajli et al., 2020)		
	Risorse umane		(Mahmood and Mubarak, 2020)		
	Vendite		(Boldsova, 2020)		
	Supply chain		(e.g., Aryal et al., 2018; Baryannis et al., 2019; Brinch, 2018; Chavez et al., 2017; Chehbi-Gamoura et al., 2020; Chen et al., 2015)		
	Utilizzo congiunto		(e.g., Akter et al., 2020; Chandry et al., 2017; Chen, 2018; Corbett, 2018; Dubey et al., 2020; Dutta and Bose, 2015)		
	Vendita a terzi		(Cohen, 2018; Guha and Kumar, 2018; Huang et al., 2018; Lau et al., 2018; Opresnik and Taisch, 2015; Wang et al., 2016; Wiener et al., 2020)		

Limiti della ricerca. Ci sono alcune limitazioni dello studio che aprono anche la strada a potenziali nuove linee di ricerca. In primis, questa review non ha analizzato che tipo di teorie sono state finora utilizzate, mentre future ricerche potrebbero classificare i diversi tipi di teorie utilizzate con riferimento ai big data. Inoltre, per la nostra analisi sono stati selezionati solo articoli e recensioni, mentre sono stati esclusi libri e atti di convegno. Studi futuri potrebbero invece prendere in considerazione questi altri tipi di pubblicazioni per arricchire la comprensione del fenomeno, e gettare ulteriore luce sulle modalità di creazione, cattura e trasmissione del valore.

Implicazioni manageriali. Con il nostro studio contribuiamo ad ampliare la conoscenza scientifica dei big data, presentando una prospettiva che integra i big data e i modelli di business, consentendo di comprendere meglio le modalità attraverso cui le aziende possono monetizzare il valore dei big data. Dal punto di vista teorico, la presente review sistematica della letteratura contribuisce all'ampliamento della conoscenza dei big data, chiarendo anche gli effetti ad essi associati, considerando i diversi tipi di aree di business, tipologie di aziende, e metodologie di ricerca adottate. Dal punto di vista manageriale, la mappa dei vari usi dei big data fornisce a manager e decision-maker indicazioni e suggerimenti sul loro potenziale utilizzo. Inoltre, questo studio avverte i manager di prestare attenzione al lato oscuro dei big data: sebbene pochi articoli abbiano evidenziato questi aspetti, ci sono prove iniziali che i big data

hanno costi che possono superare i ricavi. In questo modo, i manager possono pianificare meglio la raccolta, la gestione e l'interpretazione dei big data per creare, acquisire e trasmettere valore.

Originalità del paper. La quantità di dati globali si sta espandendo in modo esponenziale e le aziende stanno cercando di capire come monetizzare il valore di queste informazioni. Ci sono diversi aspetti che possono essere presi in considerazione quando si utilizzano i big data, e abbiamo contribuito a chiarirli con il nostro studio. In questo modo, abbiamo fornito una panoramica completa degli effetti prodotti dai big data, comprendendo vantaggi e svantaggi, negli specifici contesti in cui i big data possono essere utilizzati. Ciò ha comportato l'identificazione di 14 diverse aree di business, di metodologie di ricerca adottate da studi precedenti (i.e., quantitativa, qualitativa, review, concettuale, mista) e del tipo di organizzazione considerata, differenziando tra privato e pubblico. Grazie a queste categorizzazioni è stato delineato lo stato dell'arte sui big data, e si è contribuito alla comprensione scientifica complessiva di questo fenomeno, mentre abbiamo anche evidenziato i filoni di ricerca che dovrebbero essere approfonditi in studi futuri. Infine, abbiamo fornito consigli pratici a manager e policy-maker sul modo in cui le organizzazioni possono trarre il massimo vantaggio dai big data.

Parole chiave: Big data, creazione del valore, modelli di business, innovazione dei modelli di business, review sistematica della letteratura

Bibliografia

- AKTER S., MOTAMARRI S., HANI U., SHAMS R., FERNANDO M., MOHIUDDIN BABU M., NING SHEN K. (2020), "Building dynamic service analytics capabilities for the digital marketplace", *Journal of Business Research*, vol. 118, pp. 177-188.
- ALOYSIUS J.A., HOEHLE H., VENKATESH V. (2016), "Exploiting big data for customer and retailer benefits: A study of emerging mobile checkout scenarios", *International Journal of Operations & Production Management*, vol. 36, n. 4, pp. 467-486.
- ARTHUR K.N.A., OWEN R. (2019), "A Micro-ethnographic Study of Big Data-Based Innovation in the Financial Services Sector: Governance, Ethics and Organisational Practices", *Journal of Business Ethics*, vol. 160, n. 2, pp. 363-375.
- ARYAL A., LIAO Y., NATTUTHURAI P., LI B. (2018), "The emerging big data analytics and IoT in supply chain management: a systematic review", *Supply Chain Management: An International Journal*, vol. 25, n. 2, pp. 141-156.
- BĂLAN C. (2018), "The disruptive impact of future advanced ICTs on maritime transport: a systematic review", *Supply Chain Management: An International Journal*, vol. 25, n. 2, pp. 157-175.
- BANSAL P. (TIMA), GUALANDRIS J., KIM N. (2020), "Theorizing Supply Chains with Qualitative Big Data and Topic Modeling", *Journal of Supply Chain Management*, vol. 56, n. 2, pp. 7-18.
- BARYANNIS G., VALIDI S., DANI S., ANTONIOU G. (2019), "Supply chain risk management and artificial intelligence: state of the art and future research directions", *International Journal of Production Research*, vol. 57, n. 7, pp. 2179-2202.
- BOLDOSOVA V. (2020), "Telling stories that sell: The role of storytelling and big data analytics in smart service sales", *Industrial Marketing Management*, vol. 86, pp. 122-134.
- BOONE T., GANESHAN R., JAIN A., SANDERS N.R. (2019), "Forecasting sales in the supply chain: Consumer analytics in the big data era", *International Journal of Forecasting*, vol. 35, n. 1, pp. 170-180.
- BRINCH M. (2018), "Understanding the value of big data in supply chain management and its business processes: Towards a conceptual framework", *International Journal of Operations & Production Management*, vol. 38, n. 7, pp. 1589-1614.
- CHAVEZ R., YU W., JACOBS M.A., FENG M. (2017), "Data-driven supply chains, manufacturing capability and customer satisfaction", *Production Planning & Control*, vol. 28, n. 11-12, pp. 906-918.
- CHEHBI-GAMOURA S., DERROUCHE R., DAMAND D., BARTH M. (2020), "Insights from big Data Analytics in supply chain management: an all-inclusive literature review using the SCOR model", *Production Planning & Control*, vol. 31, n. 5, pp. 355-382.
- CHEN D.Q., PRESTON D.S., SWINK M. (2015), "How the Use of Big Data Analytics Affects Value Creation in Supply Chain Management", *Journal of Management Information Systems*, vol. 32, n. 4, pp. 4-39.
- CHEN P.T. (2018), "Medical big data applications: Intertwined effects and effective resource allocation strategies identified through IRA-NRM analysis", *Technological Forecasting and Social Change*, vol. 130, pp. 150-164.
- CHIEN C.F., LIU C.W., CHUANG S.C. (2017), "Analysing semiconductor manufacturing big data for root cause detection of excursion for yield enhancement", *International Journal of Production Research*, vol. 55, n. 17, pp. 5095-5107.
- CHOI T.M., WALLACE S.W., WANG Y. (2018), "Big Data Analytics in Operations Management", *Production and Operations Management*, vol. 27, n. 10, pp. 1868-1883.
- CHONG A.Y.L., CH'NG E., LIU M.J., LI B. (2017), "Predicting consumer product demands via Big Data: the roles of online promotional marketing and online reviews", *International Journal of Production Research*, vol. 55, n. 17, pp. 5142-5156.

- CHONG A.Y.L., LI B., NGAI E.W.T., CH'NG E., LEE F. (2016), "Predicting online product sales via online reviews, sentiments, and promotion strategies: A big data architecture and neural network approach", *International Journal of Operations & Production Management*, vol. 36, n. 4, pp. 358-383.
- COHEN M.C. (2018), "Big Data and Service Operations", *Production and Operations Management*, vol. 27, n. 9, pp. 1709-1723.
- CORBETT C.J. (2018), "How Sustainable Is Big Data?", *Production and Operations Management*, vol. 27, n. 9, pp. 1685-1695.
- DONG J.Q., YANG C.H. (2020), "Business value of big data analytics: A systems-theoretic approach and empirical test", *Information & Management*, vol. 57, n. 1, p. 103124.
- DUBEY R., GUNASEKARAN A., CHILDE S.J., BRYDE D.J., GIANNAKIS M., FOROPON C., ROUBAUD D., *et al.* (2020), "Big data analytics and artificial intelligence pathway to operational performance under the effects of entrepreneurial orientation and environmental dynamism: A study of manufacturing organisations", *International Journal of Production Economics*, vol. 226, p. 107599.
- DUBEY R., GUNASEKARAN A., CHILDE S.J., PAPADOPOULOS T., LUO Z., WAMBA S.F., ROUBAUD D. (2019), "Can big data and predictive analytics improve social and environmental sustainability?", *Technological Forecasting and Social Change*, vol. 144, pp. 534-545.
- EL-KASSAR A.N., SINGH S.K. (2019), "Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices", *Technological Forecasting and Social Change*, vol. 144, pp. 483-498.
- EREVELLES S., FUKAWA N., SWAYNE L. (2016), "Big Data consumer analytics and the transformation of marketing", *Journal of Business Research*, vol. 69, n. 2, pp. 897-904.
- FANG W., GUO Y., LIAO W., RAMANI K., HUANG S. (2020), "Big data driven jobs remaining time prediction in discrete manufacturing system: a deep learning-based approach", *International Journal of Production Research*, vol. 58, n. 9, pp. 2751-2766.
- FAROOQUI A., BENGTTSSON K., FALKMAN P., FABIAN M. (2020), "Towards data-driven approaches in manufacturing: an architecture to collect sequences of operations", *International Journal of Production Research*, vol. 58, n. 16, pp. 4947-4963.
- FENG Q., SHANTHIKUMAR J.G. (2018), "How Research in Production and Operations Management May Evolve in the Era of Big Data", *Production and Operations Management*, vol. 27, n. 9, pp. 1670-1684.
- FOSTER K., PENNINTI P., SHANG J., KEKRE S., HEGDE G.G., VENKAT A. (2018), "Leveraging Big Data to Balance New Key Performance Indicators in Emergency Physician Management Networks", *Production and Operations Management*, vol. 27, n. 10, pp. 1795-1815.
- FRANK A.G., DALENOGARE L.S., AYALA N.F. (2019), "Industry 4.0 technologies: Implementation patterns in manufacturing companies", *International Journal of Production Economics*, vol. 210, pp. 15-26.
- GAWANKAR S.A., GUNASEKARAN A., KAMBLE S. (2020), "A study on investments in the big data-driven supply chain, performance measures and organisational performance in Indian retail 4.0 context", *International Journal of Production Research*, vol. 58, n. 5, pp. 1574-1593.
- GHASEMAGHAEI M., CALIC G. (2019), "Does big data enhance firm innovation competency? The mediating role of data-driven insights", *Journal of Business Research*, vol. 104, pp. 69-84.
- GHASEMAGHAEI M., CALIC G. (2020), "Assessing the impact of big data on firm innovation performance: Big data is not always better data", *Journal of Business Research*, vol. 108, pp. 147-162.
- GROVER V., CHIANG R.H.L., LIANG T.P., ZHANG D. (2018), "Creating Strategic Business Value from Big Data Analytics: A Research Framework", *Journal of Management Information Systems*, vol. 35, n. 2, pp. 388-423.
- GUHA S., KUMAR S. (2018), "Emergence of Big Data Research in Operations Management, Information Systems, and Healthcare: Past Contributions and Future Roadmap", *Production and Operations Management*, vol. 27, n. 9, pp. 1724-1735.
- GUNASEKARAN A., PAPADOPOULOS T., DUBEY R., WAMBA S.F., CHILDE S.J., HAZEN B., AKTER S. (2017), "Big data and predictive analytics for supply chain and organizational performance", *Journal of Business Research*, vol. 70, pp. 308-317.
- GUNASEKARAN A., YUSUF Y.Y., ADELEYE E.O., PAPADOPOULOS T. (2018), "Agile manufacturing practices: the role of big data and business analytics with multiple case studies", *International Journal of Production Research*, vol. 56, n. 1-2, pp. 385-397.
- GUPTA S., HAOZHE C., HAZEN B.T., KAUR, GONZALEZ. (2019), "Circular economy and big data analytics: A stakeholder perspective", *Technological Forecasting and Social Change*, vol. 144, pp. 466-474.
- GUPTA S., MODGIL S., GUNASEKARAN A. (2020), "Big data in lean six sigma: a review and further research directions", *International Journal of Production Research*, vol. 58, n. 3, pp. 947-969.
- HAJLI N., TAJVIDI M., GBADAMOSI A., NADEEM W. (2020), "Understanding market agility for new product success with big data analytics", *Industrial Marketing Management*, vol. 86, pp. 135-143.
- HALLIKAINEN H., SAVIMÄKI E., LAUKKANEN T. (2020), "Fostering B2B sales with customer big data analytics", *Industrial Marketing Management*, vol. 86, pp. 90-98.
- HARTMANN P.M., ZAKI M., FELDMANN N., NEELY A. (2016), "Capturing value from big data - a taxonomy of data-driven business models used by start-up firms", *International Journal of Operations & Production Management*, Emerald Group Publishing Limited, vol. 36, n. 10, pp. 1382-1406.

- HOFMANN E. (2017), "Big data and supply chain decisions: the impact of volume, variety and velocity properties on the bullwhip effect", *International Journal of Production Research*, vol. 55, n. 17, pp. 5108-5126.
- HOPP W.J., LI J., WANG G. (2018), "Big Data and the Precision Medicine Revolution", *Production and Operations Management*, vol. 27, n. 9, pp. 1647-1664.
- HUANG Y., PORTER A.L., CUNNINGHAM S.W., ROBINSON D.K.R., LIU J., ZHU D. (2018), "A technology delivery system for characterizing the supply side of technology emergence: Illustrated for Big Data & Analytics", *Technological Forecasting and Social Change*, vol. 130, pp. 165-176.
- JOHNSON J.S., FRIEND S.B., LEE H.S. (2017), "Big Data Facilitation, Utilization, and Monetization: Exploring the 3Vs in a New Product Development Process: BIG DATA VOLUME, VARIETY, AND VELOCITY", *Journal of Product Innovation Management*, vol. 34, n. 5, pp. 640-658.
- JULSRUD, DR.T.E., KROGSTAD, DR.J.R. (2020), "Is there enough trust for the smart city? exploring acceptance for use of mobile phone data in oslo and tallinn", *Technological Forecasting and Social Change*, vol. 161, p. 120314.
- JUN C.N., CHUNG C.J. (2016), "Big data analysis of local government 3.0: Focusing on Gyeongsangbuk-do in Korea", *Technological Forecasting and Social Change*, vol. 110, pp. 3-12.
- KACHE F., SEURING S. (2017), "Challenges and opportunities of digital information at the intersection of Big Data Analytics and supply chain management", *International Journal of Operations & Production Management*, vol. 37, n. 1, pp. 10-36.
- KRISTOFFERSEN E., BLOMSMA F., MIKALEF P., LI J. (2020), "The smart circular economy: A digital-enabled circular strategies framework for manufacturing companies", *Journal of Business Research*, vol. 120, pp. 241-261.
- KUO Y.H., KUSIAK A. (2019), "From data to big data in production research: the past and future trends", *International Journal of Production Research*, vol. 57, n. 15-16, pp. 4828-4853.
- LAMBA K., SINGH S.P. (2019a), "Dynamic supplier selection and lot-sizing problem considering carbon emissions in a big data environment", *Technological Forecasting and Social Change*, vol. 144, pp. 573-584.
- LAMBA K., SINGH S.P. (2019b), "Dynamic supplier selection and lot-sizing problem considering carbon emissions in a big data environment", *Technological Forecasting and Social Change*, vol. 144, pp. 573-584.
- LAU R.Y.K., ZHANG W., XU W. (2018), "Parallel Aspect-Oriented Sentiment Analysis for Sales Forecasting with Big Data", *Production and Operations Management*, vol. 27, n. 10, pp. 1775-1794.
- LEE C.K.H. (2017), "A GA-based optimisation model for big data analytics supporting anticipatory shipping in Retail 4.0", *International Journal of Production Research*, vol. 55, n. 2, pp. 593-605.
- LEE H.L. (2018), "Big Data and the Innovation Cycle", *Production and Operations Management*, vol. 27, n. 9, pp. 1642-1646.
- LIU C., FENG Y., LIN D., WU L., GUO M. (2020), "Iot based laundry services: an application of big data analytics, intelligent logistics management, and machine learning techniques", *International Journal of Production Research*, vol. 58, n. 17, pp. 5113-5131.
- MAHMOOD T., MUHAMMAD SHUJAAT MUBARIKBAND MUBARIK M.S. (2020), "Balancing innovation and exploitation in the fourth industrial revolution: Role of intellectual capital and technology absorptive capacity", *Technological Forecasting and Social Change*, vol. 160, p. 120248.
- MARIANI M.M., FOSSO WAMBA S. (2020), "Exploring how consumer goods companies innovate in the digital age: The role of big data analytics companies", *Journal of Business Research*, vol. 121, pp. 338-352.
- MARTIN K. (2016), "Data aggregators, consumer data, and responsibility online: Who is tracking consumers online and should they stop?", *The Information Society*, vol. 32, n. 1, pp. 51-63.
- MEHMOOD R., MERITON R., GRAHAM G., HENNELLY P., KUMAR M. (2017), "Exploring the influence of big data on city transport operations: a Markovian approach", *International Journal of Operations & Production Management*, vol. 37, n. 1, pp. 75-104.
- MELANDER L., PAZIRANDEH A. (2019), "Collaboration beyond the supply network for green innovation: insight from 11 cases", *Supply Chain Management: An International Journal*, vol. 24, n. 4, pp. 509-523.
- MIKALEF P., BOURA M., LEKAKOS G., KROGSTIE J. (2019), "Big Data Analytics Capabilities and Innovation: The Mediating Role of Dynamic Capabilities and Moderating Effect of the Environment", *British Journal of Management*, vol. 30, n. 2, pp. 272-298.
- NGUYEN DANG TUAN M., NGUYEN THANH N., LE TUAN L. (2019), "Applying a mindfulness-based reliability strategy to the Internet of Things in healthcare - A business model in the Vietnamese market", *Technological Forecasting and Social Change*, vol. 140, pp. 54-68.
- NUNAN D., DI DOMENICO M. (2017), "Big Data: A Normal Accident Waiting to Happen?", *Journal of Business Ethics*, vol. 145, n. 3, pp. 481-491.
- ROBMAN B., CANZANIELLO A., VON DER GRACHT H., HARTMANN E. (2018), "The future and social impact of Big Data Analytics in Supply Chain Management: Results from a Delphi study", *Technological Forecasting and Social Change*, vol. 130, pp. 135-149.
- SAITO T., TAKAHASHI A., TSUDA H. (2016), "Optimal room charge and expected sales under discrete choice models with limited capacity", *International Journal of Hospitality Management*, vol. 57, pp. 116-131.
- SANDERS N.R. (2016), "How to Use Big Data to Drive Your Supply Chain", *California Management Review*, vol. 58, n. 3, pp. 26-48.

- SEITZ A., GRUNOW M., AKKERMAN R. (2020), “Data driven supply allocation to individual customers considering forecast bias”, *International Journal of Production Economics*, vol. 227, p. 107683.
- SENA V., OZDEMIR S. (2020), “Spillover effects of investment in big data analytics in B2B relationships: What is the role of human capital?”, *Industrial Marketing Management*, vol. 86, pp. 77-89.
- SESTINO A., PRETE M.I., PIPER L., GUIDO G. (2020), “Internet of Things and Big Data as enablers for business digitalization strategies”, *Technovation*, vol. 98, p. 102173.
- SHEN B., CHOI T.M., CHAN H.L. (2019), “Selling green first or not? A Bayesian analysis with service levels and environmental impact considerations in the Big Data Era”, *Technological Forecasting and Social Change*, vol. 144, pp. 412-420.
- SHENG J., AMANKWAH-AMOAH J., WANG X. (2017), “A multidisciplinary perspective of big data in management research”, *International Journal of Production Economics*, vol. 191, pp. 97-112.
- SORESCU A. (2017), “Data-Driven Business Model Innovation: BUSINESS MODEL INNOVATION”, *Journal of Product Innovation Management*, vol. 34, n. 5, pp. 691-696.
- STEINHOFF L., ARLI D., WEAVERN S., KOZLENKOVA I.V. (2019), “Online relationship marketing”, *Journal of the Academy of Marketing Science*, vol. 47, n. 3, pp. 369-393.
- TRUSOV M., MA L., JAMAL Z. (2016), “Crumbs of the Cookie: User Profiling in Customer-Base Analysis and Behavioral Targeting”, *Marketing Science*, vol. 35, n. 3, pp. 405-426.
- VITARI C., RAGUSEO E. (2020), “Big data analytics business value and firm performance: linking with environmental context”, *International Journal of Production Research*, vol. 58, n. 18, pp. 5456-5476.
- WAMBA S.F., GUNASEKARAN A., AKTER S., REN S.J., DUBEY R., CHILDE S.J. (2017), “Big data analytics and firm performance: Effects of dynamic capabilities”, *Journal of Business Research*, vol. 70, pp. 356-365.
- WANG G., GUNASEKARAN A., NGAI E.W.T., PAPADOPOULOS T. (2016), “Big data analytics in logistics and supply chain management: Certain investigations for research and applications”, *International Journal of Production Economics*, vol. 176, pp. 98-110.
- WEDEL M., KANNAN P.K. (2016), “Marketing Analytics for Data-Rich Environments”, *Journal of Marketing*, vol. 80, n. 6, pp. 97-121.
- XU Z., FRANKWICK G.L., RAMIREZ E. (2016), “Effects of big data analytics and traditional marketing analytics on new product success: A knowledge fusion perspective”, *Journal of Business Research*, vol. 69, n. 5, pp. 1562-1566.
- YANG Y., SEE-TO E.W.K., PAPAGIANNIDIS S. (2020), “You have not been archiving emails for no reason! Using big data analytics to cluster B2B interest in products and services and link clusters to financial performance”, *Industrial Marketing Management*, vol. 86, pp. 16-29.
- YU L., ZHAO Y., TANG L., YANG Z. (2019), “Online big data-driven oil consumption forecasting with Google trends”, *International Journal of Forecasting*, vol. 35, n. 1, pp. 213-223.
- ZAKI M., THEODOULIDIS B., SHAPIRA P., NEELY A., TEPEL M.F. (2019), “Redistributed Manufacturing and the Impact of Big Data: A Consumer Goods Perspective”, *Production Planning & Control*, vol. 30, n. 7, pp. 568-581.
- ZHANG C., WANG X., CUI A.P., HAN S. (2020), “Linking big data analytical intelligence to customer relationship management performance”, *Industrial Marketing Management*, vol. 91, pp. 483-494.
- ZHANG Y., HUANG Y., PORTER A.L., ZHANG G., LU J. (2019), “Discovering and forecasting interactions in big data research: A learning-enhanced bibliometric study”, *Technological Forecasting and Social Change*, vol. 146, pp. 795-807.
- ZHONG R.Y., HUANG G.Q., LAN S., DAI, Q.Y., CHEN X., ZHANG T. (2015), “A big data approach for logistics trajectory discovery from RFID-enabled production data”, *International Journal of Production Economics*, vol. 165, pp. 260-272.

Governance e Purpose: le caratteristiche del CdA impattano sull'adozione di un purpose sociale?

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Inquadramento della ricerca. Il dibattito sullo scopo aziendale nel sistema economico moderno ha acquisito un notevole slancio nell'ultimo decennio (George et al, 2021; Hollensbe et al., 2014). Sempre più spesso, le imprese for-profit sono chiamate ad adottare purpose sociale (PS), che la letteratura recente suggerisce essere positivamente correlato con i risultati della responsabilità sociale d'impresa (RSI). Nello specifico, l'adozione di un PS può portare ad una maggiore stewardship aziendale nei confronti di persone, valori e risorse naturali (Hollensbe et al., 2014), ad una maggiore creazione di valore sociale grazie ad un orientamento verso più stakeholder (Harrison et al., 2020), o ad una maggiore implementazione di innovazioni sistemiche volte ad affrontare le sfide della sostenibilità, come il cambiamento climatico o le disuguaglianze sociali (Henderson, 2021b). Eppure, l'adozione di un PS non è un processo semplice (Quinn and Thakor, 2018; Rey et al., 2019). Esso richiede un cambiamento significativo di valori, credenze e comportamenti all'interno dell'azienda. Tale rivoluzione è impegnativa a causa della presenza di norme radicate (Greenwood & Hinings, 1996) e non avviene da sola (Schaltegger et al., 2016). Sono dunque necessari sforzi individuali per incorporare il PS nei processi decisionali delle imprese (Morrison and Mota, 2021) e nei modelli di business (Schaltegger et al., 2016). In altri termini, risulta cruciale la spinta interna di individui appartenenti all'azienda, i cosiddetti "agenti di cambiamento".

Tra questi, il consiglio di amministrazione (CdA) gioca un ruolo vitale nel guidare il cambiamento strategico (Golden and Zajac, 2001) in quanto contribuisce al processo decisionale strategico sia monitorando che consigliando il management (Hillman and Dalziel, 2003). Nelle imprese for-profit il CdA rappresenta, dunque, uno dei più importanti agenti di cambiamento per l'adozione di un PS, dato il suo "ruolo generativo che comporta l'interpretazione e la reinterpretazione della missione alla luce delle tendenze attuali e delle circostanze mutevoli" (Ebrahim et al., 2014, p. 85). Il CdA, come organo di governo dell'azienda, è responsabile della definizione dello scopo aziendale (Mayer, 2021; Tuggle et al., 2010) e di assicurare che esso sia effettivamente integrato nei modelli di business e nelle strategie aziendali (Ebrahim et al., 2014). In tal senso, il CdA può svolgere un ruolo trasformativo nell'adozione strategica di un PS che influisce direttamente sulla transizione sostenibile delle imprese. Pertanto, indagare il ruolo del consiglio come agente di cambiamento per l'adozione di un PS è fondamentale per comprendere meglio come le imprese for-profit possano guidare una maggiore performance di RSI (Eccles et al, 2014; Henderson, 2021b; Hillman and Dalziel, 2003).

Ogni CdA differisce in termini di composizione e caratteristiche degli amministratori, che hanno un impatto sulle dinamiche e sull'efficacia del consiglio, influenzando così la performance aziendale. Per questo motivo, lo studio delle caratteristiche del CdA è diventato un argomento di estremo interesse nella letteratura manageriale. Data la crescente pressione sui temi della sostenibilità, negli ultimi anni molti studiosi hanno analizzato l'impatto delle caratteristiche del CdA sulle performance di RSI, evidenziando risultati contrastanti (Endrikat et al, 2021). Tuttavia, le performance di RSI non sono sempre indicative di un reale impegno nel perseguire un PS, dato che potrebbero anche derivare da strategie di greenwashing. Per quanto ne sappiamo, nessuno studio ha ancora esaminato come le caratteristiche del CdA impattino sul PS delle aziende.

Obiettivo del paper. Il nostro studio si propone di colmare tale gap, esplorando l'impatto delle caratteristiche del CdA sull'adozione di un PS nelle aziende for-profit. In particolare, la nostra ricerca si propone di rispondere alla seguente domanda di ricerca: "quali caratteristiche del consiglio di amministrazione influenzano la probabilità di adottare un PS nelle imprese for-profit?"

Basandoci sulle principali teorie sul consiglio di amministrazione, ossia la teoria dell'agenzia (Fama and Jensen, 1983; Hill and Jones, 1992), la resource-dependence theory (Mallin et al., 2013; Mallin and Michelon, 2011) e l'upper-echelons theory (Hambrick and Mason, 1984), ci focalizziamo sulle seguenti caratteristiche: dimensione del consiglio, indipendenza del board, età media degli amministratori, diversità di genere e di nazionalità all'interno del CdA, tenure, network interno all'azienda e livello di istruzione del CdA.

Metodologia. Abbiamo condotto uno studio empirico quantitativo su un campione di 580 imprese for-profit europee. Il nostro campione di partenza proviene dalle 5357 aziende europee disponibili tramite il database BoardEx,

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delle quali abbiamo accesso alle informazioni riguardanti la composizione del CdA e le caratteristiche degli amministratori al 31 dicembre 2020. Abbiamo utilizzato dati cross-sectional a causa dell'impossibilità di recuperare dati longitudinali sull'adozione di PS da parte delle aziende. Tuttavia, come hanno dimostrato precedenti ricerche sul CdA (e.g. Ben-Amar and Zeghal, 2011; Hu and Loh, 2018), pur non catturando gli effetti temporali, le analisi cross-sectional possono fornire evidenze rilevanti, soprattutto in contesti di ricerca esplorativa.

Al fine di individuare le aziende che adottano un PS, abbiamo raccolto i dati di RSI forniti da Refinitiv Eikon. Tali dati sono disponibili per 1799 aziende del campione di BoardEx. Per sviluppare la variabile dipendente "adozione di PS", abbiamo poi consultato i siti web delle singole aziende. Poiché la raccolta di dati manuali per l'intera popolazione avrebbe richiesto troppo tempo, abbiamo optato per una tecnica di campionamento casuale semplice, che assicura che ogni azienda abbia le stesse possibilità di essere selezionata (Kgoroadira et al., 2019). Abbiamo selezionato casualmente un terzo delle aziende dall'intera popolazione, ottenendo un totale di 600 aziende. Venti sono state poi eliminate a causa di valori mancanti, ottenendo il campione finale di 580 osservazioni. Tale dimensione del campione ha un potere statistico sufficiente per l'analisi, in quanto è in linea con la dimensione minima del campione richiesta dalla formula di Yamane (Yamane, 1967) e soddisfa il requisito di dieci osservazioni per variabile (Austin and Steyerberg, 2015; Cappa et al., 2021) (Austin and Steyerberg, 2015; Cappa et al., 2021), dato che abbiamo elaborato una variabile indipendente e sette variabili di controllo in ogni modello.

L'analisi consiste in due fasi. In primo luogo, abbiamo utilizzato la tecnica del propensity score matching (PSM). Questo ci consente di determinare le caratteristiche del CdA rilevanti nell'influenzare l'adozione di un PS, controllando al contempo i bias di autoselezione. Per verificare la robustezza dei risultati del PSM, abbiamo eseguito l'analisi utilizzando diverse tecniche di matching: (1) Kernel, (2) Nearest-Neighbor (NN), e (3) Radius. Poiché il nostro studio analizza le imprese che adottano un PS rispetto a quelle non lo adottano, la variabile di trattamento è l'adozione di un PS (PS), ossia una dummy che assume valore 1 o 0. Le aziende con un PS sono state identificate sulla base di tre criteri, che devono essere soddisfatti congiuntamente: 1) l'azienda ha pubblicato una relazione extra finanziaria, ad esempio report RSI/H&S/Sustainability, separatamente o come sezione integrata nella relazione annuale, nel 2019 o 2020; 2) la relazione extra finanziaria dell'azienda copre almeno il 50% delle attività globali dell'azienda; 3) l'azienda rivela esplicitamente l'adozione di uno PS specifico. I primi due criteri sono stati valutati utilizzando le informazioni del software Refinitiv Eikon, mentre la dichiarazione del purpose è stata esaminata analizzando il sito web di ciascuna azienda e i documenti aziendali pubblici.

Le variabili di matching utilizzate per la costruzione dei propensity score sono state individuate sulla base della teoria sul corporate purpose (Birkinshaw et al., 2014; Hollensbe et al., 2014) e sui precedenti risultati empirici (Caliendo and Kopeinig, 2008). Poiché queste dovrebbero essere determinanti sia delle variabili di trattamento, sia di quelle di risultato, solo le variabili che influenzano simultaneamente l'adozione di un PS e le caratteristiche del CdA dovrebbero essere incluse nel modello. In particolare, abbiamo selezionato le seguenti variabili di corrispondenza per le imprese con un PS e senza un PS: ricavi, attività, capitale proprio, debito e numero di dipendenti. Per misurare queste variabili, i dati finanziari e dei dipendenti sono stati recuperati attraverso il software Refinitiv Eikon.

Le variabili di risultato riguardano invece le caratteristiche del consiglio di amministrazione. In particolare, basandoci sulla letteratura precedente sul CdA abbiamo esaminato le seguenti variabili: (1) dimensione del consiglio, misurata come il numero di amministratori che siedono nel consiglio; (2) indipendenza, misurata sia attraverso la percentuale di amministratori indipendenti all'interno del CdA sia in termini di CEO duality, (3) età media degli amministratori e presenza all'interno del consiglio di amministratori under 45; (5) gender diversity, ossia la percentuale di donne all'interno del CdA; (6) percentuale di nazionalità differenti all'interno del board; (7) tenure degli amministratori, sia nel CdA sia nell'azienda; (8) dimensione del network interno, misurato come numero medio di individui con i quali gli amministratori si incontrano durante il lavoro, altre attività o ruoli di formazione nella stessa azienda; (9) istruzione del CdA, misurata sia in termini di numero di titoli posseduti, in media, dagli amministratori, sia come livello di istruzione attraverso una variabile ordinale che assume valore da 1 (diploma) a 5 (PhD).

In secondo luogo, per testare l'effettivo impatto di tali caratteristiche sulla probabilità di adottare un PS, abbiamo eseguito un'analisi di regressione logistica, in cui PS è la variabile dipendente, le caratteristiche del CdA sono le variabili indipendenti, analizzate separatamente in regressioni distinte, e le variabili di controllo sono le variabili di matching utilizzate per il PSM.

Risultati. Nel complesso, i nostri risultati evidenziano che le caratteristiche specifiche del consiglio di amministrazione influenzano l'adozione di un purpose sociale. In particolare, i risultati mostrano che l'indipendenza del consiglio, la dimensione del network interno, la presenza di donne e il background educativo degli amministratori impattano positivamente sull'adozione di un PS; al contrario, l'età media e la tenure del CdA hanno un impatto influenzando negativamente la probabilità che l'azienda adotti un PS. Tali risultati sono confermati sia dal PSM che dalle regressioni logistiche.

In particolare, i risultati confermano le prove contrastanti sull'influenza delle dimensioni del consiglio di amministrazione sul processo decisionale strategico (Cornforth, 2001; Golden and Zajac, 2001; Goodstein et al., 1994). Mentre i risultati del propensity score matching non mostrano differenze significative nelle dimensioni del consiglio di amministrazione delle aziende PS e non-PS, i risultati della regressione logistica suggeriscono che le dimensioni del consiglio di amministrazione influenzano positivamente l'adozione di PS. Se, da un lato, coordinare diversi membri del consiglio verso l'adozione di un PS può essere complesso, soprattutto quando entrano in gioco valori e credenze personali (Ellsworth, 2002; Wade-Benzoni et al., 2002), dall'altro, una maggiore dimensione del consiglio può favorire l'allineamento strategico verso la risoluzione degli obiettivi sociali, cioè l'adozione di PS.

Infatti, potrebbe essere più facile concentrarsi sull'interesse collettivo nel caso in cui le decisioni siano prese da più persone.

La presenza di amministratori indipendenti risulta avere un impatto positivo sull'adozione del PS. Come sottolineato da ricerche precedenti, l'indipendenza è cruciale per evitare comportamenti opportunistici, che possono essere particolarmente rilevanti in caso di PS dove il primato del profitto finanziario non è contemplato. Infatti, l'indipendenza del consiglio assicura che le aziende non sacrifichino lo sviluppo sostenibile di lungo termine in favore di un approccio a breve termine che mira solo a massimizzare il profitto immediato. Inoltre, studi precedenti hanno dimostrato che gli amministratori indipendenti sono garanti degli interessi di tutti gli stakeholder, non solo degli azionisti (Aguilera et al., 2021; García-Sánchez and Martínez-Ferrero, 2018; Walls et al., 2012). Pertanto, anche se non direttamente coinvolti nella strategia, la presenza di amministratori indipendenti spinge verso la definizione di uno scopo sociale, favorendo l'adozione di strategie a beneficio della società nel suo complesso.

Inoltre, i nostri risultati dimostrano che la permanenza nel consiglio di amministrazione è associata negativamente e significativamente all'adozione di PS. Tale risultato suggerisce che più a lungo gli amministratori sono stati nei consigli di amministrazione o hanno lavorato per l'azienda, meno saranno probabilmente motivati a introdurre cambiamenti adottando un PS.

Contrariamente alla letteratura esistente, i nostri risultati indicano effetti negativi della presenza di amministratori giovani sull'adozione del PS. Perera, Auger and Klein (2018) hanno sostenuto che le generazioni più giovani mostrano una maggiore sensibilità alle questioni ambientali e sociali e risultano più flessibili nel guidare il cambiamento strutturale all'interno delle organizzazioni a favore del bene sociale. Tuttavia, all'interno dei CdA, i direttori più giovani possono anche essere ostacolati nell'implementazione del cambiamento dai direttori più anziani che sono abituati alle pratiche del "si è sempre fatto così". Inoltre, gli incentivi retributivi per mantenere lo status quo e le opportunità di crescita professionale possono paralizzare notevolmente gli amministratori più giovani ad adottare il PS, che rappresenta un cambiamento radicale nella struttura strategica dell'azienda (Henderson, 2021a; Izzo & Vanderwielen, 2018).

L'effetto positivo del livello di istruzione degli amministratori sull'adozione di un PS mostrato dai risultati è coerente con i precedenti studi di corporate governance che hanno mostrato che esso influenza positivamente le performance di sostenibilità (Chams and García-Blandón, 2019; Post et al., 2011). Gli amministratori con un elevato background educativo risultano infatti maggiormente attenti alla RSI. Oltre alla maggiore consapevolezza sui problemi ambientali e sociali dovuta ad alti livelli di istruzione, un'ulteriore spiegazione può essere individuata nella maggiore motivazione pro-sociale degli individui, che a sua volta ha un impatto positivo sulla volontà di adottare un PS.

Inoltre, i nostri risultati mostrano che all'aumentare del numero di donne nei consigli di amministrazione, aumenta anche la probabilità di adottare un PS. Questo conferma i recenti studi sulla diversità di genere che hanno sottolineato la capacità delle donne di spostare il focus della corporate governance da una prospettiva incentrata sugli azionisti a una prospettiva multi-stakeholder (De Masi et al., 2021). In particolare, l'adozione della PS richiede di andare oltre la massimizzazione del profitto per guardare ai bisogni delle persone e dell'ambiente (Mayer, 2021), e la diversità di genere impatta positivamente su tale capacità aziendale in quanto le donne sono più sensibili alle iniziative di sostenibilità rispetto agli uomini (Amorelli and García-Sánchez, 2020; Boulouta, 2013). La presenza di donne all'interno del CdA tende dunque a valorizzare l'impatto sociale dell'impresa, spingendo verso l'adozione di un PS.

Infine, la dimensione del network interno del CdA influenza positivamente la probabilità di adottare un PS. Infatti, le strette connessioni dei membri del CdA con i dipendenti dell'azienda facilitano l'implementazione del PS, che a sua volta, risulta guidare l'impegno, la creatività e lo sforzo dei dipendenti (Henderson, 2021a). All'interno di questo circolo auto-rinforzante, la condizione preliminare è che i membri del CdA si connettano il più possibile con i dipendenti, come verificato empiricamente dalla nostra analisi. Più alte sono le connessioni tra consiglio e dipendenti, maggiore è la probabilità di adottare un PS. Inoltre, la condivisione di attività e ruoli tra gli individui è la base per costruire l'unità organizzativa, che è necessaria per realizzare il cambiamento, come nel caso dell'adozione di un PS.

Complessivamente, i nostri risultati forniscono la prova che il CdA può essere un agente di cambiamento chiave per l'adozione di un PS, in quanto sia le caratteristiche strutturali del consiglio di amministrazione (dimensioni del consiglio, indipendenza, dimensione del network interno e tenure) che le caratteristiche personali degli amministratori (istruzione, diversità di genere ed età) influenzano la probabilità di adottare un PS.

Limiti della ricerca. Il nostro studio presenta alcune limitazioni che danno luogo a molteplici spunti per ricerche future. In primo luogo, abbiamo eseguito un'analisi cross-sectional che può minare la generalizzabilità dei nostri risultati. Sebbene i database BoardEx e Refinitive Eikon forniscano dati longitudinali, non abbiamo trovato una misura longitudinale valida sull'adozione del purpose sociale. Ricerche future potrebbero superare questa limitazione osservando l'evoluzione temporale dell'adozione di un PS da parte delle aziende.

In secondo luogo, abbiamo esaminato l'impatto delle caratteristiche del consiglio di amministrazione sull'adozione del purpose sociale, ma non sull'implementazione dello stesso. I metodi qualitativi, come gli studi di casi multipli, possono valutare efficacemente l'effettiva attuazione dello scopo sociale. Pertanto, per valutare adeguatamente gli effetti delle caratteristiche del CdA sull'effettiva attuazione del PS, si potrebbero utilizzare metodologie miste.

In terzo luogo, non abbiamo considerato la performance di sostenibilità. In particolare, l'impegno a risolvere un bisogno sociale diverso dalla massimizzazione del profitto dovrebbe anche aumentare la performance aziendale sostenibile. I ricercatori sono invitati, dunque, a studiare come le diverse caratteristiche dei consigli d'amministrazione delle imprese abbiano un impatto sulla performance sostenibile, differenziandosi per l'attuazione dello scopo sociale.

Inoltre, poiché utilizziamo dati secondari, ci siamo limitati ad analizzare le caratteristiche osservabili del consiglio di amministrazione e non abbiamo potuto esaminare le dinamiche interne al consiglio che favoriscono l'adozione di un purpose sociale. Ricorrendo ad altre metodi di raccolta dati, sarebbe affascinante capire, ad esempio, se, come e quanto il purpose aziendale rappresenti oggetto di discussione all'interno del consiglio.

Implicazioni manageriali. Il nostro studio apporta diversi contributi teorici. In primo luogo, contribuisce all'intersezione delle teorie della corporate governance e dello scopo aziendale dimostrando empiricamente che il CdA è un agente di cambiamento chiave per muoversi verso l'adozione di un PS. In secondo luogo, contribuiamo al filone della letteratura che studia il CdA e la RSI suggerendo che le caratteristiche del CdA non solo influenzano le pratiche e le performance della RSI, come rivelato dalla ricerca precedente, ma anche l'adozione di strategie progettate per avere un impatto sociale oltre la massimizzazione del profitto. In terzo luogo, evidenziando quali caratteristiche del consiglio di amministrazione influenzano l'adozione della RSI, forniamo prove a sostegno del ruolo strategico del consiglio di amministrazione che va oltre la semplice approvazione delle decisioni di gestione strategica. In quarto luogo, in accordo con la teoria l'upper-echelons theory, abbiamo evidenziato che non sono importanti soltanto le caratteristiche strutturali e demografiche del CdA in quanto le qualità personali degli amministratori sono particolarmente rilevanti per l'adozione di un PS. Infatti, il capitale umano dei CdA è cruciale per dare significato ontologico alla gestione strategica delle organizzazioni e le caratteristiche personali sono elementi non trascurabili quando si devono perseguire obiettivi pro-sociali, soprattutto in contesti di business for-profit. Infine, incoraggiamo la pratica aziendale a riconoscere la complementarità tra governance aziendale e purpose sociale e a maturare consapevolezza in merito alle caratteristiche personali e strutturali del consiglio che promuovono l'integrazione di un purpose sociale nell'organizzazione. Così facendo, forniamo anche una guida utile agli investitori nella selezione degli amministratori.

Originalità del paper. In questo studio dimostriamo empiricamente l'importanza dei meccanismi interni di governance per integrare il purpose all'interno dell'azienda. Diversamente da altri studi, evidenziamo come le aziende possano muoversi verso un purpose sociale facendo leva su specifiche caratteristiche del consiglio di amministrazione. In particolare, coltivare la rete con i dipendenti, accogliere membri indipendenti nel consiglio e promuovere la diversità di genere sono fattori chiave per facilitare il cambiamento strategico volto a risolvere le grandi sfide del nostro tempo. Tale ricerca rappresenta il primo tentativo di esaminare quantitativamente la relazione tra CdA e purpose sociale, contribuendo significativamente all'avanzamento teorico sul tema. Infatti, i risultati, generalizzabili grazie all'oggettività dei dati secondari raccolti, forniscono evidenze preliminari da cui ulteriori ricerche possono partire per indagare in modo più dettagliato l'impatto del CdA sul purpose sociale.

Parole chiave: Corporate governance; Consiglio di Amministrazione; Purpose Sociale; RSI

Bibliografia

- AGUILERA R.V., ARAGÓN-CORREA J.A., MARANO V., TASHMAN P.A. (2021), "The Corporate Governance of Environmental Sustainability: A Review and Proposal for More Integrated Research", *Journal of Management*, vol. 47, n. 6, pp. 1468-1497.
- AMORELLI M.F., GARCÍA-SÁNCHEZ I.M. (2020), "Critical mass of female directors, human capital, and stakeholder engagement by corporate social reporting", *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 1, pp. 204-221.
- AUSTIN P.C., STEYERBERG E.W. (2015), "The number of subjects per variable required in linear regression analyses", *Journal of Clinical Epidemiology*, vol. 68, n. 6, pp. 627-636.
- BEN-AMAR W., ZEGHAL D. (2011), "Board of directors' independence and executive compensation disclosure transparency: Canadian evidence", *Journal of Applied Accounting Research*, vol. 12, n. 1, pp. 43-60.
- BIRKINSHAW J., FOSS N.J., LINDENBERG S. (2014), "Combining purpose with profits, *MIT Sloan Management Review*, vol. 55, n. 3, pp. 49-56. <https://www.researchgate.net/publication/279324286>
- BOULOUTA I. (2013), "Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance", *Journal of Business Ethics*, vol. 113, n. 2, pp. 185-197.
- CALIENDO M., KOPEINIG S. (2008), "Some practical guidance for the implementation of propensity score matching", *Journal of Economic Surveys*, vol. 22, n. 1, pp. 31-72.
- CAPPA F., ORIANI R., PERUFFO E., MCCARTHY I. (2021), "Big Data for Creating and Capturing Value in the Digitalized Environment: Unpacking the Effects of Volume, Variety, and Veracity on Firm Performance*", *Journal of Product Innovation Management*, vol. 38, n. 1, pp. 49-67.
- CHAMS N., GARCÍA-BLANDÓN J. (2019), "Sustainable or not sustainable? The role of the board of directors", *Journal of Cleaner Production*, vol. 226, pp. 1067-1081.
- CORNFORTH C. (2001), "What Makes Boards Effective? An examination of the relationships between board inputs, structures, processes and effectiveness in non-profit organisations", *Corporate Governance: An International Review*, vol. 9, n. 3, pp. 217-227.
- DE MASI S., SŁOMKA-GOŁĘBIOWSKA A., BECAGLI C., PACI A. (2021), "Toward sustainable corporate behavior: The effect of the critical mass of female directors on environmental, social, and governance disclosure", *Business Strategy and the Environment*, vol. 30, n. 4, pp. 1865-1878.

- EBRAHIM A., BATTILANA J., MAIR J. (2014), "The governance of social enterprises: Mission drift and accountability challenges in hybrid organizations", *Research in Organizational Behavior*, vol. 34, pp. 81-100.
- ECCLES R.G., IOANNOU I., SERAFEIM G. (2014), "The impact of corporate sustainability on organizational processes and performance", *Management Science*, vol. 60, n. 11, pp. 2835-2857.
- ELLSWORTH R. R. (2002), "The New Corporate Realities, In *Leading with purpose: The New Corporate Realities*, Stanford University Press. [https://www.sup.org/books/pages/3376/Preface and Introduction.pdf](https://www.sup.org/books/pages/3376/Preface%20and%20Introduction.pdf)
- ENDRIKAT J., DE VILLIERS C., GUENTHER T.W., GUENTHER E.M. (2021), "Board Characteristics and Corporate Social Responsibility: A Meta-Analytic Investigation", *Business and Society*, vol. 60, n. 8, pp. 2099-2135.
- FAMA E.F., JENSEN M.C. (1983), "Separation of ownership and control", *Journal of Law & Economics*, vol. XXVI, pp. 163-188.
- GARCÍA-SÁNCHEZ I. M., MARTÍNEZ-FERRERO J. (2018), "How do independent directors behave with respect to sustainability disclosure?", *Corporate Social Responsibility and Environmental Management*, vol. 25, n. 4, pp. 609-627.
- GEORGE G., HAAS M.R., MCGAHAN A.M., SCHILLEBEECKX S.J.D., TRACEY P. (2021), "Purpose in the For-profit Firm: A Review and Framework for Management Research:", <https://doi.org/10.1177/01492063211006450>, vol. XX, n. X, pp. 1-29.
- GOLDEN B.R., ZAJAC E.J. (2001), "When will boards influence strategy? Inclination \times power = strategic change", *Strategic Management Journal*, vol. 22, n. 12, pp. 1087-1111.
- GOODSTEIN J., GAUTAM K., BOEKER W. (1994), "The effects of board size and diversity on strategic change", *Strategic Management Journal*, vol. 15, n. 3, pp. 241-250.
- GREENWOOD R., HININGS C.R. (1996), "Understanding radical organizational change: Bringing together the old and the new institutionalism", *Academy of Management Review*, vol. 21, n. 4, pp. 1022-1054.
- HAMBRICK D.C., MASON P.A. (1984), "Upper Echelons: The Organization as a Reflection of Its Top Managers", *Academy of Management Review*, vol. 9, n. 2, pp. 193-206.
- HARRISON J.S., PHILLIPS R.A., FREEMAN R.E. (2020), "On the 2019 Business Roundtable "Statement on the Purpose of a Corporation", *Journal of Management*, vol. 46, n. 7, pp. 1223-1237.
- HENDERSON R. (2021a), "Innovation in the 21st century: Architectural change, purpose, and the challenges of our time", *Management Science*, vol. 67, n. 9, pp. 5479-5488.
- HENDERSON R. (2021b), "Changing the purpose of the corporation to rebalance capitalism", *Oxford Review of Economic Policy*, vol. 37, n. 4, pp. 838-850.
- HILL C.W.L., JONES T.M. (1992), "Stakeholder-Agency Theory", *Journal of Management Studies*, vol. 29, n. 2, pp. 131-154.
- HILLMAN A.J., DALZIEL T. (2003), "Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives", *The Academy of Management Review*, vol. 28, n. 3, pp. 383.
- HOLLENSBE E., WOOKEY C., HICKEY L., GEORGE G. (2014), "Organizations with purpose", *Academy of Management Journal*, vol. 57, n. 5, pp. 1227-1234.
- HU M., LOH L. (2018), "Board governance and sustainability disclosure: A cross-sectional study of Singapore-listed companies", *Sustainability (Switzerland)*, "vol. 10, n. 7, pp. 2578.
- IZZO J.B., VANDERWIELEN J. (2018), "The Purpose Revolution: How Leaders Create Engagement and Competitive Advantage in an Age of Social Good, In *The Purpose Revolution*, Berrett-Koehler Publishers.
- KGOROEADIRA R., BURKE A., VAN STEL A. (2019), "Small business online loan crowdfunding: who gets funded and what determines the rate of interest?", *Small Business Economics*, vol. 52, n. 1, pp. 67-87.
- MALLIN C.A., MICHELON G. (2011), "Board reputation attributes and corporate social performance: An empirical investigation of the US Best Corporate Citizens", *Accounting and Business Research*, vol. 41, n. 2, pp. 119-144.
- MALLIN C., MICHELON G., RAGGI D. (2013), "Monitoring Intensity and Stakeholders' Orientation: How Does Governance Affect Social and Environmental Disclosure?", *Journal of Business Ethics*, vol. 114, n. 1, pp. 29-43.
- MAYER C. (2021), "The Future of the Corporation and the Economics of Purpose", *Journal of Management Studies*, vol. 58, n. 3, pp. 887-901.
- MORRISON A.D., MOTA R. (2021), "A Theory of Organizational Purpose", *Academy of Management Review*.
- PERERA C., AUGER P., KLEIN J. (2018), "Green Consumption Practices Among Young Environmentalists: A Practice Theory Perspective", *Journal of Business Ethics*, vol. 152, n. 3, pp. 843-864.
- POST C., RAHMAN N., RUBOW E. (2011), "Green Governance: Boards of Directors' Composition and Environmental Corporate Social Responsibility", *Business & Society*, vol. 50, n. 1, pp. 189-223.
- QUINN R.E., THAKOR A.V. (2018), "Creating a Purpose-Driven Organization: How To Get Employees To Bring Their Smarts and Energy To Work", *Harvard Business Review (HBR)*, "vol. 96, n. 4, pp. 78-85.
- REY C., BASTONS M., SOTOK P. (2019), "Purpose-driven organization", In *Springer Nature*, Springer Nature.
- SCHALTEGGER S., LÜDEKE-FREUND F., HANSEN E.G. (2016), "Business Models for Sustainability: A Co-Evolutionary Analysis of Sustainable Entrepreneurship, Innovation, and Transformation", *Organization and Environment*, vol. 29, n. 3, pp. 264-289.
- TUGGLE C.S., SIRMON D.G., REUTZEL C.R., BIERMAN L. (2010), "Commanding board of director attention: Investigating how organizational performance and ceo duality affect board members' attention to monitoring", *Strategic Management Journal*, vol. 31, n. 9, pp. 946-968.

- WADE-BENZONI K.A., HOFFMAN A.J., THOMPSON L.L., MOORE D.A., GILLESPIE J.J., BAZERMAN M.H. (2002), "Barriers to resolution in ideologically based negotiations: The role of values and institutions", *Academy of Management Review*, vol. 27, n. 1, pp. 41-57.
- WALLS J.L., BERRONE P., PHAN P.H. (2012), "Corporate governance and environmental performance: Is there really a link?", *Strategic Management Journal*, vol. 33, n. 8, pp. 885-913.
- YAMANE T. (1967), *Statistics: An introductory analysis*, Harper and Row

L'interdipendenza tra creazione e appropriazione di valore nelle alleanze strategiche: un quadro dinamico e linee future di ricerca

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Inquadramento della ricerca. *Una questione che attira ampia attenzione negli studi di strategia riguarda il modo in cui le imprese possono migliorare le proprie prestazioni attraverso le alleanze strategiche, definite come accordi volontari tra imprese che implicano lo scambio, la condivisione o il co-sviluppo di prodotti, tecnologie o servizi (Gulati 1998, p. 293). Il filone di studi che ha da sempre attenzionato questo problema ha tipicamente risposto ad una delle due domande chiave: (a) come le aziende creano valore attraverso le alleanze strategiche; e (b) come le aziende appropriano valore dalle alleanze strategiche. Sebbene la creazione e l'appropriazione di valore permettano entrambi di capire i risultati delle alleanze strategiche, essi sono comunque due concetti molto distinti (Coff 1999; Lepak et al. 2007). La differenza tra creazione di valore e appropriazione di valore è simile a quella tra benefici comuni e privati (Khanna et al. 1998). La creazione di valore determina l'entità del valore che i partner possono trarre da un'alleanza nel suo insieme (benefici comuni). Al contrario, l'appropriazione del valore descrive l'ammontare del valore creato che un'impresa focale riesce ad acquisire e, in alcuni casi, gli altri vantaggi privati che un'impresa può ottenere. L'appropriazione di valore può quindi indicare due aspetti: (a) la distribuzione dei benefici comuni tra i partner dell'alleanza; e (b) la capacità di un'impresa di ottenere unilateralmente risorse o competenze dai suoi partner.*

Sebbene questi processi abbiano suscitato un profondo interesse nella ricerca sulle alleanze, la letteratura esistente presenta due limiti significativi. In primo luogo, la letteratura sulla creazione di valore e la letteratura sull'appropriazione di valore si sono sviluppate principalmente come flussi separati (Lavie 2007). Di conseguenza, è importante mappare i meccanismi chiave e i costrutti teorici alla base rispettivamente della creazione e dell'appropriazione di valore.

In secondo luogo, non esiste ad oggi un quadro completo e dinamico che spieghi l'interdipendenza tra creazione di valore e appropriazione di valore nelle alleanze strategiche. A prima vista esiste una sequenza chiara tra i due processi nel senso che il valore deve essere creato prima di poter essere appropriato dai partner di una alleanza strategica (Khanna et al. 1998; MacDonald e Ryall 2004); tuttavia, il valore atteso che i partner pensano di poter appropriare in futuro in realtà può influenzare il comportamento dei partner nel creare valore (Lavie 2007; Lepak et al. 2007). Pertanto, l'interdipendenza e la potenziale causalità reciproca tra creazione e appropriazione di valore richiedono l'attenzione degli studiosi.

Obiettivo del paper. *Questo studio si pone l'obiettivo di fornire una solida base attraverso la quale è possibile esaminare l'interdipendenza tra creazione e appropriazione di valore nelle alleanze strategiche. Per raggiungere questo obiettivo, in primo luogo, conduciamo una revisione sistematica della letteratura sulla creazione e l'appropriazione di valore negli ultimi tre decenni per identificare i meccanismi alla base dei due processi di valore. In secondo luogo, esaminiamo alcune delle interdipendenze tra i meccanismi identificati e come queste si dispiegano dinamicamente. A tal proposito, presentiamo un quadro dinamico che mostra le relazioni tra specifiche coppie di meccanismi lungo le tre fasi di un'alleanza strategica: 1) la pianificazione dell'alleanza, in cui i meccanismi di appropriazione di valore atteso influenzano i meccanismi di creazione di valore; 2) l'alleanza in corso, in cui vediamo l'effetto inverso, nel senso che i meccanismi di creazione di valore influenzano i meccanismi di appropriazione di valore; e 3) la valutazione dell'alleanza, in cui gli attuali meccanismi di appropriazione di valore influenzano i meccanismi di creazione di valore. Infine, identifichiamo alcuni percorsi di ricerca per arricchire ulteriormente la comprensione dell'interdipendenza tra i meccanismi di creazione di valore ed i meccanismi di appropriazione di valore.*

Metodologia. *Per raggiungere questo obiettivo, abbiamo suddiviso il campionamento della letteratura in otto fasi:*

Fase 1: abbiamo condotto una ricerca sistematica di articoli nel campo della economia e gestione delle imprese utilizzando il database ISI Web of Science e prendendo un arco temporale molto ampio (1988-2020). Questa scelta ci ha permesso di catturare i primi lavori sulle alleanze fino ad oggi. Per quanto concerne le parole chiave scelte,

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abbiamo cercato in modo specifico articoli che riportassero “alleanza e creazione di valore” o “alleanze e appropriazione di valore”. Seguendo lo studio di Wassmer (2010), abbiamo anche utilizzato parole chiave che fossero sinonimi o correlati come ad esempio “generazione di valore” e “acquisizione di valore”, nonché “joint venture”, “coalizione”, “collaborazione”, “cooperazione”, “partnership”, “accordo”, “relazione interaziendale” e “relazione inter-organizzativa”. Al termine di questa ricerca, abbiamo raccolto 163 documenti;

Fase 2: sulla base di studi precedenti (Picone et al. 2014), abbiamo filtrato il campione utilizzando quattro criteri: (i) lingua (inglese); (ii) tipi di documenti (articolo); (iii) aree di ricerca (economia); e (iv) titoli delle fonti. Inizialmente, abbiamo selezionato le seguenti riviste che sono generalmente considerate di alto livello nel campo della economia e gestione delle imprese per via del loro impact factor a 5 anni (Castañer e Oliveira 2020): *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Management Science*, *Journal of International Business Studies*, *Journal of Management Studies*, *Organization Science*, e *Strategic Management Journal*. Questi criteri ci hanno permesso di selezionare 79 articoli, pubblicati tra maggio 1988 e giugno 2020.

Fase 3: due degli autori hanno ulteriormente analizzato i titoli e gli abstract degli articoli per scoprire se fossero realmente focalizzati sulla creazione o l'appropriazione di valore nelle alleanze. Sempre gli stessi autori hanno poi valutato gli articoli separatamente. Per i casi in cui la valutazione di un titolo o di un abstract non fosse conclusiva, l'articolo è stato letto da entrambi gli autori per determinare se dovesse essere incluso nel nostro studio (Wassmer 2010). Per garantire la validità interna ed esterna della valutazione di ogni articolo, abbiamo altresì coinvolto nel processo di valutazione altri due studiosi di strategia. Nello specifico, la valutazione degli articoli è stata incrociata da un dottorando specializzato in alleanze (per garantire la validità interna), e da un post-doc che opera sul tema della diversificazione, un'area diversa ma connessa a quella oggetto di studio in questo paper (per garantire la validità esterna). Abbiamo quindi deciso di escludere 29 articoli dalla nostra analisi poiché si trattava di articoli incentrati sulla creazione o sull'appropriazione di valore in contesti diversi dalle alleanze, o incentrati sulle alleanze, ma non sulla creazione o appropriazione di valore. Questo criterio ha quindi ristretto il focus su 50 articoli;

Fase 4: abbiamo esaminato il livello di analisi dei 50 articoli e abbiamo notato che le relazioni diadiche (ovvero tra due partner) sono state studiate in 43 dei 50 articoli. Per comprendere in modo appropriato l'interdipendenza tra la creazione e l'appropriazione di valore senza indebita confusione tra i livelli di analisi diversi (diade, triade, network, portfolio, etc), ci siamo concentrati su un livello di analisi, quello diadico;

Fase 5: abbiamo deciso di espandere la ricerca della letteratura nel seguente modo. Poiché la qualità dei libri e dei capitoli di libri è più variabile di quella degli articoli pubblicati nelle principali riviste e che il processo editoriale per le pubblicazioni di libri può essere meno rigoroso di quello utilizzato per gli articoli di riviste scientifiche, siamo consapevoli che non tutti i capitoli di libri possono essere considerati come utile. Tuttavia, abbiamo ritenuto che la serie di libri "Research in strategic alliances" potesse essere una fonte utile, poiché ha mostrato la sua longevità e beneficia della costante direzione editoriale di uno studioso molto esperto sul tema delle alleanze strategiche, ovvero TK Das. Dopo aver esaminato i 164 capitoli di libro che sono stati pubblicati in questa serie di libri, ne abbiamo identificati 17 come rilevanti (seguendo gli stessi criteri adottati nella Fase 3);

Fase 6: data la sua storia come fonte di ricerca rilevante e credibilità generale, abbiamo ampliato la cornice del nostro giornale includendo *Long Range Planning*, dove abbiamo identificato 7 articoli rilevanti;

Fase 7: abbiamo verificato i nostri risultati cercando articoli su Google Scholar. In questo modo, abbiamo trovato altri otto articoli su riviste rispettabili che soddisfano i criteri dei contenuti;

Fase 8: a seguito di studi precedenti sull'argomento (es. Wassmer 2010) abbiamo esaminato i riferimenti di questi 75 articoli e capitoli di libro raccolti, trovando 3 ulteriori articoli rilevanti per il nostro studio.

Abbiamo letto gli articoli utilizzando un approccio simile a James et al. (2013), ovvero attraverso una sintesi completa dei 78 articoli esaminati, delle loro basi teoriche e delle ipotesi principali, e dei loro contributi chiave alla creazione di valore e/o appropriazione di valore. Sulla base di questa sintesi, abbiamo organizzato la letteratura identificando i meccanismi di creazione ed appropriazione di valore più importanti ed estraendo alcune tipologie di interdipendenze tra coppie di meccanismi di creazione e appropriazione di valore. Infine, organizziamo queste interdipendenze attraverso un quadro dinamico per le tre fasi dell'alleanza (vale a dire la pianificazione dell'alleanza, l'alleanza in corso e la valutazione dell'alleanza).

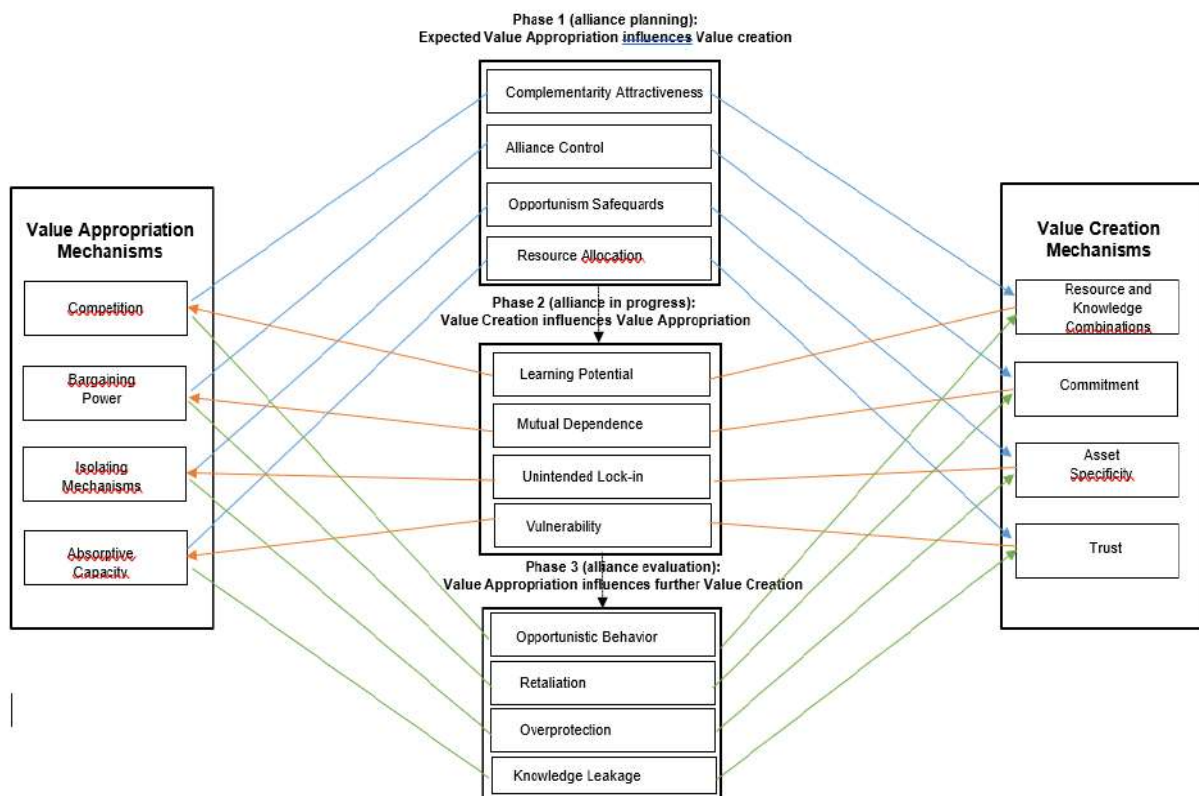
Risultati. Abbiamo identificato quattro meccanismi di creazione di valore (vale a dire, *resource and knowledge combinations*, *asset specificity*, *trust* e *commitment*) e quattro meccanismi di appropriazione del valore (vale a dire, *bargaining power*, *competition*, *absorptive capacity* e *isolating mechanisms*). Dopo aver identificato i meccanismi di creazione e appropriazione del valore, discutiamo ora delle loro interdipendenze. La letteratura sottolinea che i meccanismi di creazione di valore e di appropriazione di valore sono costrutti interconnessi (Adegbesan e Higgins 2011) e alcune delle interdipendenze tra i meccanismi di creazione di valore ed i meccanismi di appropriazione del valore evolvono nel tempo (Bouncken et al. 2020; Dyer, Singh e Hesterly 2018). Inoltre, gli studiosi riconoscono che esiste una relazione circolare o codipendente questi meccanismi (Dyer et al. 2018, Lepak et al. 2007). L'adozione di un approccio dinamico è utile perché fornisce maggiori informazioni sui modelli di interdipendenza tra i meccanismi di creazione di valore ed i meccanismi di appropriazione di valore (Dyer et al. 2018; Elfenbein e Zenger 2017; Lieberman, Balasubramanian e Garcia-Castro 2018). Un quadro dinamico che comprende più fasi dell'alleanza (piuttosto che una singola fase di interazione) fornisce una migliore comprensione di queste interdipendenze (Lavie 2006). Seguendo Gulati e Singh (1998), concettualizziamo le interdipendenze come sequenziali.

Sebbene una discussione completa delle relazioni tra tutti i meccanismi sia al di fuori dello scopo di un extended abstract come questo, ci concentriamo sulle coppie di meccanismi di appropriazione di valore e di creazione di valore tra i quali le dipendenze si verificano lungo le tre fasi di un'alleanza: 1) la pianificazione dell'alleanza, in cui i meccanismi di appropriazione di valore atteso influenzano i meccanismi di creazione di valore; 2) l'alleanza in corso, in cui vediamo l'effetto inverso, nel senso che i meccanismi di creazione di valore influenzano i meccanismi di appropriazione di valore; e 3) la valutazione dell'alleanza, in cui gli attuali meccanismi di appropriazione di valore influenzano i meccanismi di creazione di valore.

Nel descrivere i modelli di interdipendenza, descriviamo quattro coppie di meccanismi in ciascuna delle tre fasi. È importante sottolineare che le stesse coppie di meccanismi mostrano direzioni e forme di interdipendenza diverse a seconda della fase dell'alleanza. Queste coppie sono: (a) resource and knowledge combinations (un meccanismo di creazione di valore) e competition (un meccanismo di appropriazione di valore); (b) commitment (un meccanismo di creazione di valore) e bargaining power (un meccanismo di appropriazione di valore); (c) asset specificity (un meccanismo di creazione di valore) e isolating mechanisms (un meccanismo di appropriazione di valore); e (d) trust (un meccanismo di creazione di valore) e absorptive capacity (un meccanismo di appropriazione di valore).

Descriviamo questi modelli a coppie per illustrare la rilevanza e la diversità delle interdipendenze che esistono tra i meccanismi di creazione di valore ed i meccanismi di appropriazione di valore, e come queste interdipendenze operano in direzioni diverse a seconda di ogni fase. Questo approccio aiuta a rappresentare l'interdipendenza aggregata tra creazione e appropriazione di valore in quanto tutti i meccanismi di creazione e appropriazione di valore identificati sono coinvolti, sebbene in coppie separate. Inoltre, identifichiamo fattori separati che spiegano le interdipendenze per ciascuna coppia di meccanismi e per ogni fase. Pertanto, la nostra rassegna illumina la complessa struttura delle interdipendenze tra creazione di valore e appropriazione di valore nelle alleanze. La Figura 1 riassume i meccanismi che abbiamo identificato (nelle colonne di sinistra e di destra) e il quadro dinamico delle interdipendenze tra questi meccanismi.

Fig. 1: Un quadro dinamico delle interdipendenze tra i meccanismi di creazione di valore ed i meccanismi di appropriazione di valore nelle alleanze strategiche



Limiti della ricerca. Uno dei limiti di questa ricerca è rappresentato dai criteri di selezione che sono stati utilizzati per la raccolta degli articoli. I criteri utilizzati nelle prime fasi della metodologia probabilmente influiscono sulla numerosità del campione analizzato. Pertanto, sarebbe opportuno poter utilizzare criteri meno restrittivi (come ad esempio altri sinonimi relativi alla performance delle imprese, journals con un impact factor più basso, altri database come Scopus, etc.) per incrementare la numerosità del campione di letteratura analizzato e poter così offrire una sintesi più completa e ampia della letteratura sulla creazione e sull'appropriazione di valore nelle alleanze strategiche.

Implicazioni manageriali. Questo studio offre diverse implicazioni manageriali. In primo luogo, i manager che gestiscono le alleanze strategiche dovrebbero prestare attenzione alla differenza tra i processi di creazione di valore ed i processi di appropriazione di valore. Mentre la creazione di valore è il processo che porta alla generazione di

benefici comuni per tutti i partner di un'alleanza, l'appropriazione del valore è invece il processo che determina la distribuzione di benefici comuni ai singoli partner dell'alleanza e alla capacità del singolo partner di acquisire vantaggi privati che non sono disponibili per gli altri partner. In secondo luogo, al fine di gestire questi due processi in modo più efficace, i manager delle imprese partner dovrebbero riconoscere l'importanza dei meccanismi sottostanti la creazione e l'appropriazione di valore. In terzo luogo, questo studio richiama l'attenzione dei manager sul fatto che i processi di creazione e appropriazione di valore, lungi dall'essere in contrasto tra loro, sono in realtà in un circuito potenzialmente virtuoso. E' soltanto attraverso una dovuta ed attenta considerazione dei processi di creazione e appropriazione di valore in modo congiunto che i manager possono essere in grado di avviare e trarre profitto da una sequenza di cicli di creazione e appropriazione di valore, anticipando e risolvendo le tensioni che possono emergere tra i due processi di valore.

Originalità del paper. *Questo studio si propone di offrire tre contributi. In primo luogo, sebbene alcuni studiosi sostengano che risulti necessario analizzare la creazione e l'appropriazione di valore in modo congiunto (ad esempio, Lepak et al. 2007), i progressi in questa direzione sono stati relativamente lenti. Attraverso una review sistematica della letteratura sulla creazione e appropriazione del valore, abbiamo posto le basi per affrontare le interdipendenze tra questi processi di valore. In secondo luogo, attraverso un'analisi attenta delle relazioni tra i meccanismi sottostanti ai due processi di valore, abbiamo identificato alcune delle interdipendenze tra creazione e appropriazione di valore nelle alleanze strategiche e come queste relazioni si dispiegano dinamicamente. In terzo luogo, identificando un insieme strutturato e completo di opportunità di ricerca per studi futuri, miriamo a guidare e stimolare il progresso della ricerca integrativa sull'interdipendenza tra creazione di valore e appropriazione di valore nelle alleanze.*

Parole chiave: *alleanze strategiche; creazione di valore; appropriazione di valore; interdipendenza; literature review*

Bibliografia

- ADEGBESAN J.A., HIGGINS M.J. (2011), "The intra-alliance division of value created through collaboration", *Strategic Management Journal*, vol. 32, pp. 187-211.
- BOUNCKEN R.B., FREDRICH V., KRAUS S. (2020), "Configurations of firm-level value capture in cooptation", *Long Range Planning*, n. 53, p. 101869.
- CASTAÑER X., OLIVEIRA N. (2020), "Collaboration, coordination, and cooperation among organizations: Establishing the distinctive meanings of these terms through a systematic literature review", *Journal of Management*, vol. 46, pp. 965-1001.
- COFF R.W. (1999), "When competitive advantage doesn't lead to performance: the resource-based view and stakeholder bargaining power", *Organization Science*, vol. 10, pp. 119-133.
- DYER J.H., SINGH H., HESTERLY W.S. (2018), "The relational view revisited: A dynamic perspective on value creation and value capture", *Strategic Management Journal*, vol. 39, pp. 3140-3162.
- ELFENBEIN D.W., ZENGER T. (2017), "Creating and capturing value in repeated exchange relationships: The second paradox of embeddedness", *Organization Science*, vol. 28, pp. 894-914.
- GULATI R. (1998), "Alliances and networks", *Strategic Management Journal*, vol. 19, pp. 293-317.
- GULATI R., SINGH H. (1998), "The architecture of cooperation: managing coordination costs and appropriation concerns in strategic alliances", *Administrative Science Quarterly*, vol. 43, pp. 781-814.
- JAMES S.D., LEIBLEIN M.J., LU S. (2013), "How firms capture value from their innovations", *Journal of Management*, vol. 39, pp. 1123-1155.
- KHANNA T., GULATI R., NOHRIA N. (1998), "The dynamics of learning alliances: competition, cooperation, and relative scope", *Strategic Management Journal*, vol. 19, pp. 193-210.
- LAVIE D. (2007), "Alliance portfolios and firm performance: a study of value creation and appropriation in the U.S. software industry", *Strategic Management Journal*, vol. 28, pp. 1187-1212.
- LEPAK D.P., SMITH K.G., TAYLOR M.S. (2007), "Value creation and value capture: a multilevel perspective", *Academy of Management Review*, vol. 32, pp. 180-194.
- LIEBERMAN M.B., GARCIA-CASTRO R., BALASUBRAMANIAN N. (2017), "Measuring value creation and appropriation in firms: The VCA model", *Strategic Management Journal*, vol. 38, pp. 1193-1211.
- MACDONALD G., RYALL M.D. (2004), "How do value creation and competition determine whether a firm appropriates value?" *Management Science*, vol. 50, pp. 1319-1333.
- PICONE P.M., DAGNINO G.B., MINÀ A. (2014), "The origin of failure: a multidisciplinary appraisal of the hubris hypothesis and proposed research agenda", *Academy of Management Perspectives*, vol. 28, pp. 447-468.
- WASSMER U. (2010), "Alliance portfolio: A review and research agenda", *Journal of Management*, vol. 36, pp. 141-171.

Smart business models: an agrifood system perspective towards a sustainable competitiveness of SMEs

ATTILIO BRUNI* COSTANZA NOSI**

Framing of the research. *Small and medium-sized enterprises (SMEs) are the backbone of the EU-28 economy, representing 99% of total businesses. SMEs offer 66% of the employment of non-financial companies in the EU-28, generating 57% of the comprehensive added value (European Court of Auditors, 2020). Even the agrifood sector, one of the most important sectors in the EU, is mainly populated by micro, small and medium-sized enterprises.*

The Lazio agrifood system is one of the most important in Italy and represents 3% of the wealth of the entire regional economy, contributing 6.3 billions in annual turnover to 5% of the national agrifood (Lazio Region, 2020). A sector that can count on a wide range of products of the highest quality and high safety standards, on a strong link with the territory and its traditions. In addition, Lazio's agrifood is characterized by a marked propensity for innovation, especially by medium-large enterprises, while a very substantial (more than the national average) part of small and micro enterprises, has a still limited propensity for innovation.

However, innovation and digitalization are at the center of a transformation process oriented towards a more sustainable development that contributes to building a healthier and more equitable agrifood system, capable of safeguarding natural resources, protecting the well-being of the environment and improving people's quality of life, as well as contributing to the regional development and national competitiveness (Annosi, et al. 2020; Vlachopoulou, 2021).

The 4.0 revolution driven by digitalization is leading companies towards profound transformations with radical changes in business models, strategies, processes, products and services (Urbinati et al., 2018).

Accordingly, the agrifood sector constitutes a fertile ground for the integration of advanced technological contents that derive from different fields such as biotechnologies, nanotechnologies, internet of things (IoTs), new materials, aerospace, which allow the creation of highly innovative smart solutions (Garzoni et al., 2020), such as precision farming or plant production in extreme environments.

Despite this, few studies have so far investigated the relationship between smart technologies, digitization and the agrifood industry (García-Álvarez de Perea et al., 2019). Therefore, more investigations are needed to explore the opportunities and challenges that smart technologies can bring for agrifood SMEs and their business models and understand their management implications (Vlachopoulou et al., 2021; Annosi, et al., 2020).

To do this, the basic assumption of the proposed study is that the agrifood business is an adaptive ecosystem that exhibits complex dynamics (Vlachopoulou, 2021, Zhang et al., 2018). As a system, agrifood is transversal to a multiplicity of sectors and is connected to a variety of fields: agriculture, industry, commerce, environment, energy, ICT, health, education, third sector, infrastructure and so on. The awareness of the number of factors that can affect its performance and sustainability, together with the number of actors that populate it and the different functions they perform, has gradually led scholars, operators and policy makers to consider the traditional models of analysis typically based on a supply chain perspective ineffective (Halberg and Westhoek, 2019; European Commission, 2018).

According to this perspective, in fact, the term "food system" allows to capture the complex nature of the classic value chain of primary agriculture - from production factors to agricultural and livestock production, yields and emissions - and to understand its natural, technical and technological, economic and social aspects, including those related to logistics, processing, packaging, marketing, commercialization, consumption and disposal of food and the links between them (United Nations Environment Programme, 2016). The adoption of a systems approach therefore goes beyond the vision of food supply as a linear process, with passive consumers placed at one end and farmers at the other, and considers agrifood a highly complex system, characterized by circularity and feedback loops of both a physical and social nature, with important interdependencies with the biosphere and with the services and products of other ecosystems on which food production ultimately depends (National Research Council, Institute of Medicine, 2015).

Previous studies (Fit4Food2030, 2019) have demonstrated the relevance of the systemic and multi-actor approach of food systems also for understanding the innovative processes taking place in agribusiness and designing policy interventions related to research and innovation (R&I) to foster transformations towards more market-oriented,

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sustainable, inclusive and resilient systems. Similar to the holistic perspective of food, R&I can also be conceived as a system that encompasses a multiplicity of actors, including universities, research institutes, education, research and business development, online platforms, innovative startups, communities and citizens, the third sector, political institutions, and local governments. This approach also overcomes the traditional linear view of R&I that assumed a technology push model, where innovation starts with research results, which are further developed by the industry and then introduced into the market, where the innovation is sold and used.

Successful innovations are increasingly the result of a process of value co-creation and cross-fertilization between civil society, industry, academia and scientific research, and public institutions that has been identified in the theoretical paradigm of the *Quadruple Helix Model* (Kolehmainen et al., 2015; Carayannis and Campbell, 2009). More recently, the model has been expanded to include a “fifth helix” (*Quintuple Helix Model*) (Carayannis et al., 2012). Defined as the “natural environment” by the authors, the fifth helix includes the contribution that non-organized civil society, i.e., not belonging to the third sector, makes to innovative processes. This category includes new types of entrepreneurs, such as social and sustainable entrepreneurs, food sharing platforms, food banks, social supermarkets, solidarity purchasing groups, active citizens, etc., all acting collectively to share and/or collaborate around a common resource, which often produce in an open way in favor of society, generating benefits of widespread interest (Montanari and Mizzau, 2016). Innovations are therefore the result of interactions and exchange of knowledge, products and services between a multiplicity of actors belonging to different ecosystems. These innovations lead in almost all cases to the need to change the business model, i.e. the way in which the company and its stakeholders are able to generate value for the market and the environment (Zott et al., 2011), as well as to ensure a sustainable and lasting profitability in the medium to long term (Osterwalder and Pigneur, 2010).

In particular, the literature (Bocken et al., 2016; Baden-Fuller and Haefliger, 2013; Teece, 2010) identifies three main dimensions that explain the business model of a company: value creation, value proposition and value capture. The first dimension defines how and by what means companies create value along the value chain using the resources and capabilities of intra- and inter-organizational processes; the value proposition includes the set of solutions designed for customers and the ways in which they are offered; value capture represents the way in which the company's value offering is transformed into revenues that, by adequately covering costs, guarantee a sustainable performance over time. Rather than looking at individual products or processes as the object of innovation, BMI refers to a system of products, services, technology and/or information flows that goes beyond the firm itself (Massa et al., 2018; Amit and Zott, 2012; Johnson, 2010) and, regardless of the degree of innovativeness, business model innovation requires changes to all three dimensions.

Despite the fact that scholars and policy makers are aware of the complexity and interdependencies that are created between different organizations in R&I processes, at the basis of a reconfiguration of the relational architecture of agrifood companies and of the ways in which they create value, therefore of the business model, most studies and experiments in the field adopt a perspective that is excessively circumscribed and typically focused on technological innovation that impacts and increases the efficiency of production processes (CASA, 2019). A recent research conducted on the digitization paths of agrifood in Europe (SMART AGRI HUBS, 2019), has revealed that even in the perceptions of operators the increase in productivity is the most important driver for the adoption of new technologies.

Actually, the drive for innovation in business models is generated, in many sectors, by the pervasiveness in the economic and social systems of three distinct but highly interdependent phenomena (digital, sharing and green economy), causing radical changes that are redesigning the determinants of successful business models (Caroli, 2021).

In fact, business models and related innovations have been subject of increasing studies in recent years (Nielsen et al., 2018; Massa et al., 2018; Foss and Saebi, 2017) which have proved, despite their conceptual differences, a fundamental tool for understanding how companies create, offer and capture value. Analyzing the business models of the most innovative agrifood companies can help to rethink and redesign the way companies achieve their goals, understand new types of innovation and direct them towards the creation of social, environmental and economic value (Luoma et al. 2021; Massa et al., 2018).

Purpose of the paper. Adopting a systemic and multi-actor perspective of research and innovation in food systems, the study intends to investigate the business model innovation (BMI) processes of agrifood SMEs of the Lazio region in order to identify the enabling contextual elements and critical success factors that favor their implementation, scalability and replication in other contexts.

Methodology. This work summarizes and presents a three-year research project that is in its initial phase. This contribution illustrates the progress of a previous work presented at the SIM 2020 conference (Nosi et al. 2020).

The research involves three phases: 1) a systematic literature review and the construction of a repertoire of projects carried out in the EU related to BMI in food systems, 2) an exploratory analysis based on the case-study methodology; 3) a descriptive-explicative survey on agrifood SMEs.

In particular, 1) *Systematic literature review (SLR) and project inventory*: a systematic review of the scientific literature and grey literature, and a mapping and analysis of projects implemented or underway to foster the development of BMI in food systems on secondary data aimed at creating a solid knowledge base of the phenomenon investigated to carry out subsequent field research. 2) *Multiple case-study analysis*: an exploratory research based on the methodology of case studies aimed at analyzing BMIs in the food systems of Lazio to identify best practices and investigate the paths through which these best practices can be scaled and replicated in other contexts. 3) *Cluster and network analysis*: a descriptive-explicative research based on the survey methodology to be carried out on companies operating in the agrifood business aimed at understanding the degree of awareness that entrepreneurs have regarding

the key mechanisms to achieve an effective BMI, identifying possible causal links between specific factors and business characteristics, relational networks and success/impact of innovation, understanding whether the most innovative companies can be traced to specific categories/types (clusters) and whether there are networks of actors (networks) that are more effective than others in fostering innovation impact.

Adopting the systemic and multi-actor perspective of R&I in food systems, the study intends to investigate the business model innovation processes of small and medium-sized agrifood enterprises in Lazio. In particular, the project intends to answer the following research questions:

- What are, based on national and international literature and experiences, the best approaches to analyze and foster BMI processes in food systems? What are the characteristics of the most successful projects?
- What are the critical success factors that have led some innovative SMEs in Lazio to implement BMI processes capable of having a positive economic, social and environmental impact (best practices)?
- What are the paths through which these best practices can be scaled up and replicated in other territorial contexts in order to be able to significantly and positively influence the entire regional food system?
- What are the perceptions of Lazio agrifood entrepreneurs regarding the critical success factors for the implementation of BMI? Is there a disconnect between these and what has emerged from previous studies and analysis of regional best practices?
- Is it possible to identify causal links between specific factors and company characteristics, relational networks and the success/impact of business innovation so as to trace the most innovative companies back to “typical categories” (clusters)?
- Are there networks of actors that are most effective in fostering impactful BMI? If so, is it possible to identify more “core” organizations that are important nodes in innovation networks?
- What are the managerial implications that can be provided to agrifood operators and policy indications to support future choices by public decision makers?

In the first phase of the research, dedicated to the systematic literature review, we started to select scientific articles. The literature review was set up on the EBSCO database - Business Source Complete - and Scopus, limiting to articles published in the period between January 2018 and February 2022. The research and selection of keywords was carried out with the aim of allowing a review of the literature, in relation to the objectives and of the research. We have combined the keywords “business” “model”, “innovation”, “food” “agrifood”.

The keywords were combined one by one using the Boolean operator “AND” and also resorting to the use of “OR”. In the first research phase, 377 results were identified (Tab. 1).

Tab. 1: Keyword List - Literature review

Keywords	Output
“Business” AND “Model” AND “innovation” AND “food” OR “agrifood”	367

In the second phase, these 377 works were examined on the basis of the title and keywords, choosing the eligibility criteria listed below. Specifically, the works that: a) were not written in English have been eliminated; b) did not explicitly concern food and agrifood; c) presented specifications without links to the business model.

The work of “skimming” the research outputs led to a first selection of 126 scientific articles (Table 2). The work of reviewing the literature with the screening of entire eligible articles is underway. The aim of this phase is to define the “final database” of articles suitable for the purpose of the research.

Tab. 2: Database - Result number of articles obtained

N. of Articles identified by search strings in the EBSCO Business source Complete and Scopus database.	N. of Articles identified (title and keyword screening) based on the chosen eligibility criteria: a) written in English; b) explicit reference to food and agrifood; c) links to the business model.	N. of Works suitable for the purpose of the research (full article screening).
Was limited to articles published on 1.1.2018-28.2.2022		
367	126	Work in progress

Results. The expected results are: to contribute to the advancement of scientific and technical knowledge on BMI in food systems; to identify best practices in Lazio and the causal links between specific business factors/characteristics, relational networks and the impact of BMI that improve relations with the market; to identify networks of actors that are more effective in fostering BMI impact and to verify the existence of more “central” organizations that are important nodes in innovative networks; to provide managerial implications for operators in the sector and policy indications for public decision-makers.

In particular, the expected results of the project are the following:

- to achieve a systematization of the academic and grey literature on BMI in food systems and to identify the most effective theoretical approaches and interpretative paradigms to study the phenomenon. The results of this study

- are of benefit to the scientific community, but also to practitioners and policy makers who can benefit from an advancement of knowledge in this area;
- ii) contribute to the knowledge of the entrepreneurial fabric of the Lazio food systems, shedding light on BMI processes, the relative critical success factors and the relevant networks of relationships, with a view to sustainable. Understanding these dynamics can provide useful policy indications to increase the innovation potential of regional food systems and undertake training/communication actions aimed at entrepreneurs to improve their ability to design and implement effective innovation processes. It can also provide important elements to identify priority areas of intervention towards which to direct financial resources;
 - iii) identify clusters of more innovative companies that share certain company characteristics or that exploit specific contextual factors. This can be useful for policy makers to identify “typical categories” of companies that can act as “forerunners”, encouraging cooperation and the spread of innovation in the area, and to identify gaps (in terms of resources, skills, knowledge, relationships, etc.) between these and less innovative companies in order to address interventions aimed at filling them;
 - iv) identify the networks of actors in the region that are most effective in achieving successful innovation. This can constitute an important element of information for the public decision-maker to plan initiatives aimed at increasing the competitiveness of businesses that are not punctual and circumscribed, but include more organizations in a systemic and network perspective. It can also benefit the companies themselves by increasing their knowledge and awareness of which are the most dynamic networks and organizations with which to undertake more profitable relationships.

Research limitations. Although this work represents research in its initial phase, and therefore a first effort to bridge the knowledge gap on the smart agrifood business model, some limitations should be emphasized. First, the subjective choice of keywords that will affect the results. Furthermore, the study will examine agrifood production and processing companies by analyzing the critical success factors in the innovation of business models from the point of view of companies without focusing on the distinctive characteristics of the various operators in the supply chain, including commerce. Exploring the specificities of the innovation processes of these sectors (and focusing on each actor) represents the next step of this research project.

Managerial implications. The results of this research aim to provide actionable insights for Lazio agrifood operators that are interesting in a strategy of innovation of business models oriented towards a sustainable growth perspective. In detail, the research aims to highlight the processes and critical success factors that allow companies to seize and implement the innovation opportunities deriving from increasingly pervasive changes in society and in the economy (eg digital, green and sharing economy) to redesign the determinants of the success of their business models.

Originality of the paper. This study represents one of the first attempts to analyze the Lazio agrifood business adopting a systemic approach based on a multi-actor and value co-creation perspective. Furthermore, it takes explicitly into account digitally-based innovations that are considered of paramount importance in enhancing the competitiveness of a traditional sector such as the agricultural industry.

Keywords: business model; agrifood; innovation; sustainable competitiveness; SMEs; Lazio.

References

- ANNOSI M.C., BRUNETTA F., CAPO F. (2020), “Digitalization in the agri-food industry: the relationship between technology and sustainable development”, *Management Decision*, vol. 58, n. 8, pp. 1737-1757.
- BADEN-FULLER C., HAEFLIGER S. (2013), *Business models and technological innovation*. Long Range Planning, 46, pp. 419-426.
- BOCKEN N., DE PAUW I., BAKKER C., VAN DER GRINTEN B. (2016), “Product design and business model strategies for a circular economy”, *Journal of Industrial and Production Engineering*, vol. 33, n. 5, pp. 308-320.
- CARAYANNIS E.G., BARTH T.D., CAMPBELL D.F. (2012), “The Quintuple Helix innovation model: global warming as a challenge and driver for innovation”, *Journal of Innovation and Entrepreneurship*, vol. 1, n. 2, pp. 1-12.
- CARAYANNIS E.G., CAMPBELL D.F.J. (2009), “Mode 3’ and ‘Quadruple Helix’: Toward a 21st Century Fractal Innovation Ecosystem”, *International Journal of Technology Management*, vol. 46, n. 3/4, pp. 201-234.
- CAROLI M. (2021), *Economia e gestione sostenibile delle imprese*, McGrawHill, p. 121.
- CASA (2019), Synthesis of existing food systems studies and research projects in Europe, available at https://scar-europe.org/images/FOOD/Deliverables/Synthesis_Food_System_RI-KI-02-19-410-EN-N.pdf, last access 2020/03/28.
- CORTE DEI CONTI EUROPEA (2020), *Lo strumento per le PMI in azione: un programma efficace ed innovativo che fa fronte alle sfide*, *Relazione Speciale*. <https://www.eca.europa.eu/it/Pages/DocItem.aspx?did=52862>
- DONNER M., DE VRIES, H. (2021), How to innovate business models for a circular bio-economy?’, *Business Strategy & the Environment*, vol. 30, n. 4, pp. 1932-1947.
- EUROPEAN COMMISSION (2018), FOOD 2030: Future-Proofing our Food systems through Research and Innovation, <https://op.europa.eu/en/publication-detail/-/publication/76d1b04c-aefa-11e7-837e-01aa75ed71a1>, last access 2020/03/23.

- Fit4Food2030 (2019), Research and innovation policy for future-proofing the food system, available at https://fit4food2030.eu/wp-content/uploads/2019/08/FIT4FOOD2030_D4.3_Research-and-innovation-policy-for-future-proofing-the-food-system-3.pdf, last access 2020/03/23.
- FOSS N., SAEBI T. (2017), “Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go?”, *Journal of Management*, vol. 43, n. 1, pp. 200-227.
- GARCIA-ÁLVAREZ DE PEREA J., RAMIREZ-GARCIA C., DEL CUBO-MOLINA A. (2019), “Internationalization Business Models and Patterns of SMEs and MNEs: A Qualitative Multi-Case Study in the Agrifood Sector”. *Sustainability*, vol. 11, n. 2755, pp 1-26.
- GARZONI A., DE TURI I., SECUNDO G., DEL VECCHIO P. (2020), “Fostering digital transformation of SMEs: a four levels approach”, *Management Decision*, vol. 58, n. 8, pp. 1543-1562.
- HALBERG N., WESTHOEK H. (2019), Synthesis of existing Food Systems studies and research projects in Europe. A SCAR SWG Food Systems study, https://scar-europe.org/images/SCAR_Documents/Reports_outcomes_studies/FS2_CASA_Template_food_systems_research_policy_report_final_05042019.pdf, last access 2020/03/23.
- IOM (Institute of Medicine) and NRC (National Research Council), (2015), *A framework for assessing effects of the food system*. Washington, DC: The National Academies Press.
- KOLEHMAINEN J., IRVINE J., STEWART L., KAROCSONYI Z., SZABO’ T., ALARINTA J., NORBERG A. (2015), “Quadruple Helix, Innovation and the Knowledge Based Development: Lessons from Remote, Rural and Less-Favoured Regions”, *Journal of the Knowledge Economy*, vol. 7, n. 1, pp. 23-42.
- LUOMA P., TOPPINEN A., PENTTINEN E. (2021), “The Role and Value of Data in Realising Circular Business Models - a Systematic Literature Review”, *Journal of Business Models*, vol. 9, n. 2, pp. 44-71.
- MASSA L., VISCUSI G., TUCCI C. (2018), Business models and complexity, *Journal of Business Models* 6(1): 70-82.
- MONTANARI F., MIZZAU L. (2016), *I luoghi dell’innovazione aperta. Modelli di sviluppo territoriale e inclusione sociale*, Quaderni Fondazione G. Brodolini, Studi e Ricerche, available at http://www.fondazionebrodolini.it/sites/default/files/pubblicazioni/file/q55_webversion_def.pdf, last access 2020/03/23.
- NIELSEN C., MONTEMARI M., PAOLONE F., MASSARO M., DUMAY J., LUND M. (2018), *Business models: a research overview*, Routledge, London.
- NOSI C., MICHELINI L., IASEVOLI G., GRIECO C. (2020), “Smart Business Model. Una prospettiva dell’agrifood system per accrescere la competitività delle PMI”, *XVII Annual Conference of the Italian Marketing Society, 28-30 October 2020, LIUC - Cattaneo University of Castellanza, Varese*, ISBN978-88-943918-4-8.
- OSTERWALDER A., PIGNEUR Y. (2010), *Business Model Generation*, Hoboken: John Wiley & Sons, Inc.
- REGIONE LAZIO (2020), *Smart Specialisation Strategy (S3)*, p. 91, available at <http://www.lazioinnova.it>.
- SMART AGRI HUBS (2019), Connecting the dots to unleash the innovation potential for digital transformation of the European agri-food sector, Needs assessment report, available at <https://smartagrihubs.eu/Deliverables/pdfs/D4.1-Needs-Assessment-Report-2nd-release-final.pdf>, last access 2020/03/28.
- TEECE D.J. (2010), “Business Models, Business Strategy and Innovation”, *Long Range Planning*, vol. 43, n. 2-3, pp. 172-194.
- UNEP, (2016) *Food Systems and Natural Resources*. A Report of the Working Group on Food Systems of the International Resource Panel. Westhoek, H, Ingram J., Van Berkum, S., Özay, L., Hajer M. United Nations Environment Programme (UNEP), Nairobi and Paris.
- URBINATI A., CHIARONI D., CHIESA V., FRATTINI F. (2018), The role of digital technologies in open innovation processes: an exploratory multiple case study analysis, *Research and Development Management*.
- VLACHOPOUOU M., ZIAKIS C., VERGIDIS K., MADAS M. (2021), “Analyzing AgriFood-Tech e-Business Models”, *Sustainability*, vol. 13, n. 5516, pp. 1-17.
- ZHANG W., GOWDY J., BASSI, A.M., SANTAMARIA M., DECLERK F. (2018), Systems thinking: an approach for understanding ‘eco-agri-food systems’. In TEEB for Agriculture & Food: Scientific and Economic Foundations. Geneva: UN Environment; Ingram, J. (2011), A food systems approach to researching food security and its interactions with global environmental change. *Food Security*, vol. 3, n. 4, pp. 417-431.
- ZOTT C., AMIT R., MASSA L. (2011), “The business model: recent developments and future research”, *Journal of Management*, n. 37, pp. 1019-1042.

Websites

<http://www.lazioinnova.it/reti-cluster-innovazione/agrifood/>

<http://www.societamanagement.it>

<http://www.sinergiejournal.it>

Detecting the non-contextual drivers of innovation: conceptual model and tool of investigation

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Framing of the research. *This contribution shows the first results of more comprehensive, multi-step research, aiming to explore the non-contextual drivers of innovation, which means those drivers transcend location, culture, and other contingencies. The need for this research relies on two main reasons. Firstly, innovation is widely recognized as the most relevant source of competitiveness for firms and economic systems, thus emphasizing the need to detect the factors that may be leveraged to support its development. Many studies have been developed since 1994 to picture the inner dynamics of innovation and how it may be triggered. In almost half of the available studies, Scholars employed systemic or contextual perspectives. As a result, they usually interpret innovation as a complex and dynamic socio-technical, socio-economic, and socio-economic phenomenon that engages people, culture, technology, and assets. However, what is rarely discussed are the driving forces behind the innovation, which are non-contextual factors enabling the process. This gap represents the second reason inspiring our investigation.*

Depending on the above, we developed the following research questions:

R1. When, where, how, and why may there be types of innovation that appear non-contextual?

R2. What are the drivers of innovation that transcend cultural, geographic, and sectoral loci?

To answer them, we combined the Quintuple Helix Model (Carayannis and Campbell, 2021; Carayannis et al., 2017) and the Innovation Process Research (Matitz and Chaerki, 2018), focusing on the role played by each helix in each stage of the innovation process. Moreover, a multi-step approach was designed to detect the drivers of innovation and propose a tool for future research.

The Oslo Manual (OECD/Eurostat, 2005) defined innovation as 'the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. In the simplest representation, the innovation process is mainly based on three fundamental stages, namely the invention (discovery), implementation (development), and diffusion (use/commercialization of innovation) (Carayannis et al., 2015; Meissner, 2019; Godin, 2006; Niosi, 1999). However, introducing and implementing innovative ideas is a very complex and costly process (Calza et al., 2015), involving different players (cooperating companies - including suppliers and customers, private and public R&D facilities, and (business) external R&D facilities) (Meissner and Zaichenko 2012). Thus, many authors have adopted the term 'ecosystems' to emphasize the role that these players and their interaction have in introducing, developing, and diffusing new ideas into the market. Among the most well-known system frameworks, the Helix Models were built to how the different propellers foster knowledge production and innovation, thus supporting economic growth, democracy, and environmental performance (Carayannis et al., 2021 - Sustainability; Carayannis et al., 2020 JoKE). The Triple Helix Model, developed by Etzkowitz and Leydesdorff (2000), considers innovation occurring through the interactions among three 'helices,' namely Government, University, and Industry. These interactions expand knowledge resources and improve the institutional capabilities to create innovative products and technologies (Kotilainen et al., 2016). In 2009, 2010, Carayannis and Campbell expanded the Triple Helix by adding Civil Society - non-governmental organizations (NGOs), formal and informal associations and communities of interests and practices - to Government, University, and Industry, to balance the top-down driving forces to innovation with bottom-up movements (Carayannis et al., 2020 JoKE; 2018 a, b; 2017; 2010; 2009). In the Quintuple Helix innovation model, the 'natural environment of society' is also seen as a driver of innovation and knowledge production, therefore emphasizing the importance of ecology, the environment, environmental sustainability, and climate (Carayannis et al., 2021, Sustainability; Carayannis et al., 2021, IEEE, Carayannis, et al., 2012). In the Quintuple Helix innovation Model, the Government, the University, the Industry, the Civil Society, and the Environment are the heart of the innovation ecosystem and interact using the two fundamental elements of innovation and knowledge. Remarkably, each helix is expected to feed the circuit

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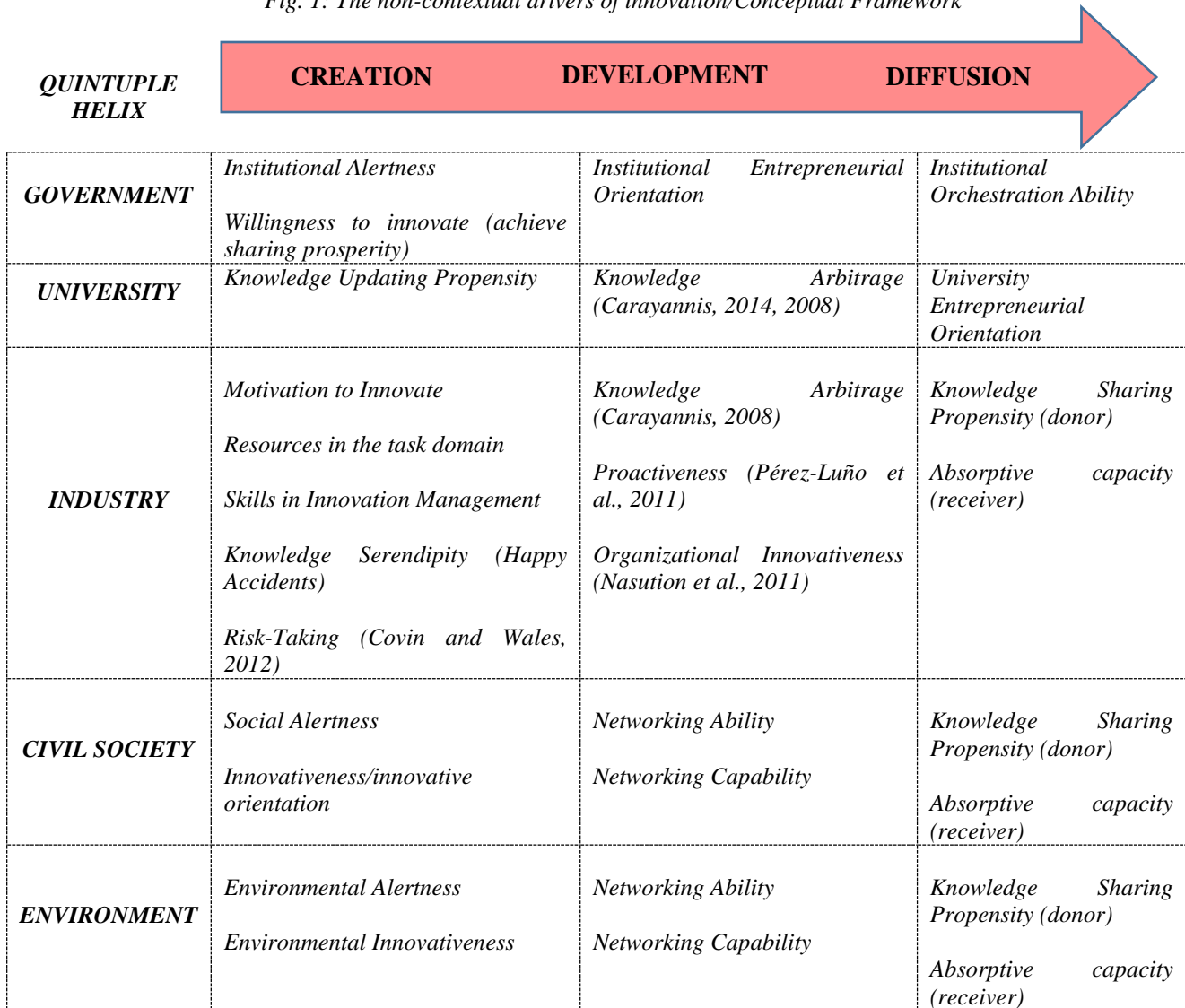
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of knowledge creation and sharing and interact with all the other sub-systems, thus enabling the emergence of concrete operational innovation paths (Carayannis et al., 2021 JoKE). Despite this, each helix may contribute differently in each stage of the innovation stage, since 'what is good for innovation at one point in the process, maybe bad for it in another' (Cropley et a., 2013, p. 388). Solving this paradox means investigating how Government, the University, the Industry, the Civil Society, and the Environment trigger the discovery, the development, and the diffusion of the innovations. As a result of this effort, we proposed an integrated framework for identifying the drivers of innovation matching the Quintuple Helix Model (Carayannis and Campbell, 2021; Carayannis et al., 2017) and the Innovation Process Research (Matitz and Chaerki, 2018).

Figure 1 shows the main results of our extensive literature review.

Fig. 1: The non-contextual drivers of innovation/Conceptual Framework



Source: authors' elaboration

Then, table 1 provides the definition and source for each category. The category arises at the combination helix/stage of the innovation process. We finally identified twenty-nine categories (3 for GOV; 3 for UNI; 10 for IND; 6 for CIV; 6 for ENV).

Tab. 1: Definitions and primary sources

HELIX	CATEGORY	DEFINITION	SOURCES
GOVERNMENT (GOV)	INSTITUTIONAL ALERTNESS (IA)	Government capacity/sensitivity to recognize external changes and turn external threats into opportunities for growth	Our adaptation of Tang et al. (2012)
	WILLINGNESS TO INNOVATE (WI)	Attitude, perceptions, and mindset towards innovation, guided by the goal of achieving shared prosperity	Our elaboration
	INSTITUTIONAL ENTREPRENEURIAL ORIENTATION (IEO)	Behaviors of institutions that engage in entrepreneurial activities and that are characterized by innovativeness (Inn), proactiveness (Proac), and risk-taking (Rt)	Our adaptation of Meynhardt and Diefenbach (2012)
	INSTITUTIONAL ORCHESTRATION ABILITY (IOA)	Ability to purposefully build and manage inter-firm innovation networks among all the actors in the ecosystem	Our adaptation of Dhanaraj and Parkhe, (2006)
UNIVERSITY (UNI)	KNOWLEDGE UPDATING PROPENSITY (KUP)	Propensity/ability to define research and teaching domains more respondents with environmental dynamics and industry requirements	Our elaboration
	KNOWLEDGE ARBITRAGE (KA)	Capacity to integrate unique insights and experiences from multiple deals to develop knowledge and competencies aligned with the market's requests	Our elaboration
	UNIVERSITY ENTREPRENEURIAL ORIENTATION (SEO)	Ability and willingness of the University to transfer its research results from the laboratory to the economic system - contributing to the economic development	Todorovic et al. (2011)
INDUSTRY (IND)	MOTIVATION TO INNOVATE (MI)	The primary orientation of the organization toward innovation	Our adaptation of Amabile and Pratt (2016)
	RESOURCE IN THE TASK DOMAIN (RTD)	Everything the organization - tangible and non-tangible resources- are available to aid creative work in a targeted area, that is, the area targeted for innovation.	Our adaptation of Amabile and Pratt, (2016)
	SKILLS IN INNOVATION MANAGEMENT (SiIM)	Ability and process to combine raw resources - tangible and intangible - in new ways - Management practices that influence innovation	Our adaptation of Amabile and Pratt (2016)
	KNOWLEDGE SERENDIPITY (KSER)	Faculty of making fortunate discoveries by accident /happy accidents	Our elaboration
	RISK-TAKING (RT)	Willingness to commit resources to projects, ideas, or processes whose outcomes are uncertain and for which the cost of failure would be high.	Covin and Wales, (2012)
	KNOWLEDGE ARBITRAGE (KA)	Capacity to create, identify, reallocate and recombine knowledge assets more effectively and efficiently. Applying knowledge working successfully in one industry to another one	Our elaboration
	PROACTIVENESS (PROAC)	Willingness to initiate actions that competitors respond to. Adoption of innovation generated by others	Covin and Slevin (1989)
	ORGANIZATIONAL INNOVATIVENESS (OINN)	Level of development and implementation of new ideas	Our adaptation on Nausiton et al., (2011)
	ABSORPTIVE CAPACITY (ACAP)	Ability to acquire (Ac), assimilate (Ass), transform (Trans), and exploit knowledge (Exploit)	Our adaptation of Zahra and George (2002)
	KNOWLEDGE TRANSFER PROPENSITY (KTP)	Firms' ability and willingness to share knowledge	Our elaboration
CIVIL SOCIETY (CIV)	SOCIAL ALERTNESS (SA)	The ability of Civil Society to 'perceive' the opportunities arising from social problems, to detect them, and find valuable solutions	Our adaptation of Tang et al. (2012)
	SOCIAL INNOVATIVENESS (SI)	Providing innovative solutions to social problems/to satisfy societal needs	Our adaptation on Nausiton et al., (2011)
	NETWORKING ABILITY (NA)	Ability to develop and use networks to face social challenges	Mu et al. (2017)
	NETWORKING CAPABILITY (NC)	Competency to purposefully search and find net-work partners, manage and leverage network relationships for value creation	Mu et al. (2017)
	ABSORPTIVE CAPACITY (ACAP)	Ability to acquire (Ac), assimilate (Ass), transform (Trans), and exploit knowledge (Exploit)	Our adaptation of Zahra and George (2002)
	KNOWLEDGE TRANSFER PROPENSITY (KTP)	Firms' ability and willingness to share knowledge	Our elaboration
ENVIRONMENT (ENV)	ENVIRONMENTAL ALERTNESS (EA)	Ability of 'Environment' to detect environmental problems and find valuable solutions	Our adaptation on Nausiton et al., (2011)
	ENVIRONMENTAL INNOVATIVENESS (EI)	Providing innovative solutions to environmental problems	Our adaptation on Nausiton et al., (2011)
	NETWORKING ABILITY (NA)	Ability to develop and use networks to face social challenges	Mu et al. (2017)
	NETWORKING CAPABILITY (NC)	Competency to purposefully search and find net-work partners, manage and leverage network relationships for value creation	Mu et al. (2017)
	ABSORPTIVE CAPACITY	Ability to acquire (Ac), assimilate (Ass), transform (Trans), and exploit knowledge (Exploit)	Our adaptation of Zahra and George (2002)
	KNOWLEDGE TRANSFER PROPENSITY (KTP)	Firms' ability and willingness to share knowledge	Our elaboration

Source: authors' elaboration

Purpose of the paper. *This extending abstract aims to present the first results of more exhaustive ongoing research about the non-contextual drivers of innovation that adopts the 'Quintuple Helix Model' and the 'Innovation Process Research' as investigation perspectives.*

Methodology. *Based on the developed framework, we provided a first set of items able to depict the meaning of each category. This activity, named items generation, inspired Churchill (1979) and DeVellis (2003). Then, items purification (through discussion with a panel of experts) and survey validation (factorial analysis) followed.*

At the end of the process, we identified 221 items. We also added 14 open-ended questions to clarify the meaning of the respondent's answers and to interpret their motivations (Lazarsfeld, 1935). Next, we discussed the survey with five expert students (Ph.D. and lecturers) and professionals to identify further the items deemed appropriate to represent each category and evaluate the clarity and readability of the whole questionnaire. Participants were asked to determine how representative each item/question was of the adopted category (1="definitely not representative" and 5="definitely representative"). Through this process, we finally deleted nine items/questions. We modified 41 items to reduce ambiguity and confusion. 2 open-ended questions were also added to singling out the decisive aspects of the provided opinions. After this panel discussion, 212 items lasted, detailed as the following: 35 items for Government (GOV); 25 items for University (UNI); 70 items for Industry (IND); 41 items for Civil society (CIV) and Environment (ENV), respectively. Each item was codified according to its category and progressively numbered. Sixteen open-ended questions were included in the final output.

The final survey was administrated through the web to reach the highest number of respondents possible and guarantee their independence from the ongoing research. The target population consisted of individuals from the five selected areas of investigation (helixes of the quintuple model): GOV, UNI, IND, CIV, and ENV. The survey was administered July- October 2021; respondents were asked to rate their agreement/disagreement about the provided statements using a 5 point Likert scale (Strongly disagree = 1/ Strongly agree = 5). For only two questions, we used a Likert-scale very poor=1/excellent=5. Participants were also asked to complete demographic data, reporting their gender, age, highest education, job tenure, organization dimension, industry, and role in the ecosystem. We received 1.618 responses, detailed as the following: 578 answers belonging to UNI (accounting for the 35,72 % of the sample); 452 answers belonging to IND (accounting for the 27,94 % of the sample); 209 answers belonging to CIV (12,92 % of the sample); 201 answers belonging to ENV (12, 42%), and 178 answers belonging to GOV (11% of the sample)

Since, at this stage of our research, the primary purpose was validating a multi-item survey, factor analysis appears to be the most effective method to reducing the high numbers of variables we have identified in the first stage of the investigation. Before engaging in the factorial analysis, we also tested the sampling adequacy through KMO and used Bartlett's test of sphericity to trial the null hypothesis. The appropriateness of factor analysis was supported by Bartlett's test of sphericity, significant at $\alpha < .05$ for all the helixes. Moreover, the KMO yielded a value > 0.6 for each construct, suggesting to proceed with the analysis (Huck, 2012; Hair et al., 2010; Pallant, 2020; Tabachnick & Fidell, 2019).

We standardized data before employing the Principal Component Analysis (PCA) in line with the above results. This factorial analysis reduces the dimensionality of many interrelated variables while retaining as much as possible the variation present in the data set. We employed SPAD 5.5. to examine data, since SPAD is particularly effective in carrying out factorial analysis, the last one suggesting which dimensions, defined as independent, clearly overlap.

As Hair et al. (1998) sustained 'factor loadings greater than ± 0.30 are considered to meet the minimal level; loadings of ± 0.40 are considered more important; and if the loadings are ± 0.50 or greater, they are considered practically significant' (p.111). Following the authors' prescription, we used 0.55 as the minimum 'cut-off value' when examining GOV to guarantee the best trade-off between the goodness of representativeness and the number of the selected indicators. Nevertheless, factor loadings of 0.6 were considered for UNI, IND, CIV, and ENV. Since the purpose of the scale validation is identifying reflective measures for all the dimensions of our theoretical model, we also adopted qualitative reasoning to specify which items captured the developed constructs. As result, we retained (or excluded) some items (characterizing for factor loadings closed to the cut-off value) because of their explicative relevance (/irrelevance). This approach is in line with Flatten et al. (2011): 'Formative measures cannot be developed utilizing survey research and stochastic approaches; in any case, there is no established guideline on how to develop these measures in the literature. For formative measures, qualitative reasoning is more important in determining whether all facets of a construct have been captured' (p. 108).

Table 3 shows the final output, the 5H-INN, as a collection of all the retained items.

Results. *The 5H-INN survey is the main output of our efforts. It represents a new tool of investigation mainly focusing on the non-contextual drivers of innovation. The 5H-INN survey accounts for 53 items grouped regarding a specific combination of driver/helix and represents a reliable and valid instrument to explore innovation within ecosystems by focusing on Government, Universities, Firms, Civil Society, and the Environment and their role they have in creating, developing, and diffusing innovation within a given ecosystem.*

Tab. 3: The 5H-INN Survey

N	DRIVERS OF INNOVATION	HELIX
		GOVERNMENT
1	Welfare-driven Innovative attitude	We are encouraged to innovate to achieve increasing collective prosperity
2		We strongly believe innovating will benefit the community
3		This institution rarely behaves hesitantly (reverse coded)
4	Institutional Orchestration Ability	In this institution, we are always able to assess the value of relevant knowledge arising within our ecosystem
5		In this institution, we are able to coordinate and cooperate with all the actors in the ecosystems
6		In this institution, we facilitate ecosystem's members to learn from each other
7		In this institution, formal communication channels and exchange forums are used to enhance socialization and promote knowledge mobility within the ecosystem
8		In this institution, we are able to create relationships based on mutual trust, communication, and commitment
9		In this institution, we are able to influence other actors in the ecosystem.
		UNIVERSITY
10	Knowledge Updating Propensity	Information from new business development resource centers (such as the local chamber of commerce, small business center at the local university, small business administration website, entrepreneurs, or others) are regularly checked to prompt perceive new industry requests
11		Research domains are aligned with the main environmental and industry changes
12	University Entrepreneurial Orientation	In this University, we encourage students to seek practical applications for their research
13		In this University, applied research is emphasized in (most) the departments
14		In this University, our department has a reputation for its contribution to industry or society, compared to other similar departments in our province
15		In this University, we are good at identifying new opportunities, compared to other similar departments in this province
16		In this University, we are recognized by industry or society for our flexibility and innovativeness
17		In this University, we encourage industry involvement in the research activities of our faculty members.
		INDUSTRY
18	Entrepreneurial Ambition	This organization is marked by a system for developing creative ideas
19		Available resources are sufficient to aid people's creative work
20		Projects (targeting innovation) are adequately financed
21		People can easily access the information they need to get their tasks
22		Organizational infrastructures are sufficient to support people's creative work
23		In general, in my organization, we constantly use technology to enhance service quality
24	Cross- fertilization learning capacity	My firm enables learning from multiple deals/knowledge domains
25		In this firm/organization, employees are expected to deal with information beyond our industry
26		In this firm/organization, ideas and concepts are communicated cross-departmental/cross-group
27		In this firm/organization, cross-departmental/cross-group support to solve problems is emphasized
28		In this firm/organization, employees are used to absorbing new knowledge as well as preparing it for further purposes and making it available
29		In this firm/organization, employees successfully link existing knowledge with new insights
30		In this firm/organization, employees are able to apply new knowledge in their practical work.
		CIVIL SOCIETY
31	Social capital exploitation ability	We are actively engaged in the provision of innovative solutions to complex social issues
32		We spend a lot of time developing connections with others
33		We know a lot of influential people, and we are well connected
34		We can call our large network of partners on for support when we really need to get things done
35		We can design an appropriate mechanism to navigate the dynamics of the partner network
36		We can design an appropriate mechanism to navigate the dynamics of the partner network
37		We constantly assess and analyze our relationships with partners so that we know what adjustments to make
38	Cross- fertilization learning capacity	In this organization, cross-departmental/cross-group support to solve problems is emphasized
39		In this organization, participants/members successfully link existing knowledge with new insights.
		ENVIRONMENT
40	Environmental Alertness	We are used to perceiving environmental damages as valuable chances to pursue sustainability
41		We have an extraordinary ability to detect environmental problems and find original solutions to solve them
42	Social capital exploitation ability	We spend a lot of time and effort at work networking with others
43		We have developed an extensive network of partners
44		We can call our extensive network of partners for support when we need to get things done
45		We have a system in place to help us search globally to identify appropriate network partners
46		We have a system in place to help us search widely to look for the right partners
47		We can design an appropriate mechanism to navigate the dynamics of the partner network
48		We can fine-tune network partnership relationships
49		We constantly assess and analyze our relationships with partners so that we know what adjustments to make
50	Absorptive Capacity	In this organization, participants/members are motivated to use information sources (only) within our industry
51		In this organization, participants/members have the ability to structure and use collected knowledge
52		In this organization, participants/members are used to absorbing new knowledge as well as preparing it for further purposes and making it available
53		In this organization, we have the ability to work more effectively by adopting new technologies.

Source: Authors' elaboration

Research limitations. *As no model is perfect, the 5H-INN lacks in picturing the dynamic behavior of the helixes. Adopting a dynamic system perspective may be helpful in future investigations to represent the interactions among the different components of the Quintuple Helix Model and the non-contextual drivers of innovation.*

Managerial implications. *In this first stage of our more comprehensive research about the non-contextual drivers of innovation, we propose an integrated framework that combines the Quintuple Helix Model and the Innovation Process Research. In so doing, we developed and validated the 5H-INN Survey as an innovative and valuable tool to be applied independently from 'time' and 'space.'*

The 5H-INN survey helps the researchers to conduct more systematic analyses. Moreover, it contributes to the theoretical advancements supporting a broader understanding of the innovative dynamics within the ecosystems. Since the survey focuses on the non-contextual factors of innovation, it finds potential application to any kind of ecosystem (from business to service ecosystems), serving as a foundation for comparing findings across studies and research settings. In sum, the 5H-INN survey makes it possible to explore how each helix contributes to innovation independently from contextual forces, advantaging the scholars belonging to different research areas. While detailing the drivers of innovation, we also identified new constructs, opening to future research and new debates about the effectiveness of bandwagon effects and contingencies on innovation adoption and diffusion. From a practical point of view, this study provides practitioners with a valuable tool to assess the innovative orientation of all the actors populating an ecosystem. Potentially, the 5H-INN survey enables comparisons among the different propensity to innovate among the different helixes of the ecosystem, suggesting to whom additional investments should be addressed to upgrade and improve the ecosystem's innovative performance.

Originality of the paper. *When dealing with innovation and innovation ecosystems, the mainstream usually focuses on the geographical and sectoral loci, thus neglecting the non-contextual factors enabling the process. To fill this gap, we propose an integrated framework for identifying the drivers of innovation (different from cultural, geographic, and sectoral loci) that combines the Quintuple Helix Model and the Innovation Process Research. In so doing, we developed and validated the 5H-INN Survey as an innovative and valuable tool to be applied independently from 'time' and 'space.'*

Keywords: *Ecosystems; 5H-INN Survey; Innovation; Innovation Ecosystems; Quintuple Helix Model*

References

- AMABILE T.M., PRATT M.G. (2016), "The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning", *Research in organizational behavior*, vol. 36, pp. 157-183.
- CALZA F., CANESTRINO R., CANNAVALE C. (2015), "A cultural insight for knowledge transfer: An interpretative model of innovation spreading at local level", *Journal of Global Economics, Management and Business Research*, pp. 129-142.
- CARAYANNIS E.G., DEL GIUDICE, M. TARBA S., SOTO-ACOSTA P. (2021), "Building Entrepreneurial Ecosystems: Exploring Ambidexterity in Technology and Engineering Management", *IEEE Transactions on Engineering Management*, vol. 68, n. 2, pp. 347-349.
- CARAYANNIS E.G., DEZI L., GREGORI G., CALO E. (2021), "Smart environments and techno-centric and human-centric innovations for Industry and Society 5.0: A quintuple helix innovation system view towards smart, sustainable, and inclusive solutions", *Journal of the Knowledge Economy*, pp. 1-30.
- CARAYANNIS E.G., CAMPBELL D.F. (2021), "Democracy of climate and climate for democracy: The evolution of Quadruple and Quintuple Helix innovation systems", *Journal of the Knowledge Economy*, vol. 12, n. 4, pp. 2050-2082.
- CARAYANNIS E.G., CAMPBELL D.F., GRIGOROUDIS E. (2021), "Democracy and the Environment: How political freedom is linked with environmental sustainability", *Sustainability*, vol. 13, n. 10, pp. 5522.
- CARAYANNIS E.G., ACIKDILLI G., ZIEMNOWICZ C. (2020), "Creative destruction in international trade: insights from the quadruple and quintuple innovation Helix models", *Journal of the Knowledge Economy*, vol. 11, n. 4, pp. 1489-1508.
- CARAYANNIS E.G., FERREIRA J.J., JALALI M.S., FERREIRA F.A. (2018), "MCDA in knowledge-based economies: Methodological developments and real-world applications", *Technological Forecasting and Social Change*, vol. 131, pp. 1-3.
- CARAYANNIS E.G., GRIGOROUDIS E., CAMPBELL D.F., MEISSNER D., STAMATI D. (2018), "The ecosystem as helix: an exploratory theory-building study of regional co-opetitive entrepreneurial ecosystems as quadruple/quintuple helix innovation models", *R&d Management*, vol. 48, n. 1, pp. 148-162.
- CARAYANNIS E.G., CAPUTO F., DEL GIUDICE M. (2017, September), "Technology transfer as driver of smart growth: a quadruple/quintuple innovation framework approach", In *10th Annual Conference of the EuroMed Academy of Business*.
- CARAYANNIS E.G., SINDAKIS S., WALTER C. (2015), "Business model innovation as lever of organizational sustainability", *The Journal of Technology Transfer*, vol. 40, n. 1, pp. 85-104.
- CARAYANNIS E.G. (2014), "Strategic knowledge arbitrage and serendipity (SKARSE™) in action", *Journal of the Knowledge Economy*, vol. 5, n. 2, pp. 203-211.

- CARAYANNIS E.G., BARTH T.D., CAMPBELL D.F. (2012), "The Quintuple Helix innovation model: global warming as a challenge and driver for innovation", *Journal of innovation and entrepreneurship*, vol. 1, n. 1, pp. 1-12.
- CARAYANNIS E.G., CAMPBELL D.F. (2010), "Triple Helix, Quadruple Helix and Quintuple Helix and how do knowledge, innovation and the Environment relate to each other?: a proposed framework for a trans-disciplinary analysis of sustainable development and social ecology", *International Journal of Social Ecology and Sustainable Development (IJSESD)*, vol. 1, n. 1, pp. 41-69.
- CARAYANNIS E.G., CAMPBELL D.F. (2009), "'Mode 3' and 'Quadruple Helix': toward a 21st-century fractal innovation ecosystem", *International journal of technology management*, vol. 46, n. 3-4, pp. 201-234.
- CARAYANNIS E.G. (2008), "Knowledge-driven creative destruction, or leveraging knowledge for competitive advantage: Strategic knowledge arbitrage and serendipity as real options triggered by co-opetition, co-evolution and co-specialization", *Industry and Higher Education*, vol. 22, n. 6, pp. 343-353.
- CHURCHILL JR G.A. (1979), "A paradigm for developing better measures of marketing constructs", *Journal of marketing research*, vol. 16, n. 1, pp. 64-73.
- COVIN J. G., SLEVIN D.P. (1989), "Strategic management of small firms in hostile and benign environments", *Strategic management journal*, vol. 10, n. 1, pp. 75-87.
- COVIN J.G., WALES W.J. (2012), "The measurement of entrepreneurial orientation", *Entrepreneurship theory and practice*, vol. 36, n. 4, pp. 677-702.
- CROPLEY D.H., CROPLEY A.J., CHIERA B.A., KAUFMAN J.C. (2013), "Diagnosing organizational innovation: Measuring the capacity for innovation", *Creativity Research Journal*, vol. 25, n. 4, pp. 388-396.
- DEVELLIS R.F. (2003), *Scale development: Theory and applications*. Thousand Oaks, CA: Sage Publications.
- DHANARAJ C., PARKHE A. (2006), "Orchestrating innovation networks", *Academy of management review*, vol. 31, n. 3, pp. 659-669.
- ETZKOWITZ H., LEYDESDORFF L. (2000), "The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university-industry-government relations", *Research Policy*, vol. 29, n. 2, pp. 109-123.
- FLATTEN T.C., ENGELEN A., ZAHRA S.A., BRETTEL, M. (2011), "A measure of absorptive capacity: Scale development and validation", *European Management Journal*, vol. 29, n. 2, pp. 98-116.
- GODIN B. (2006), "The linear model of innovation: The historical construction of an analytical framework", *Science, Technology, & Human Values*, vol. 31, n. 6, pp. 639-667.
- HAIR J.F., ANDERSON R.E., TATHAM R.L., BLACK W.C. (1998), *Multivariate Data Analysis* (5th ed.), Upper Saddle River, NJ: Prentice-Hall.
- HAIR J.F., BLACK W.C., BABIN B.J., ANDERSON R.E. (2010), *Multivariate Data Analysis: A Global Perspective*, 7th ed.; Pearson Prentice Hall Publishing: Upper Saddle River, NJ, USA.
- HUCK S.W. (2012), *Reading statistics and research*, London, UK: Pearson Education.
- KOTILAINEN K., SOMMARBERG M., JÄRVENTAUSTA P., AALTO P. (2016, November), "Prosumer-centric digital energy ecosystem framework", In *Proceedings of the 8th international conference on Management of Digital EcoSystems* (pp. 47-51),
- LAZARSFELD P.F. (1935), "The art of asking WHY in marketing research: three principles underlying the formulation of questionnaires", *National marketing review*, vol. 1, n. 1, pp. 26-38.
- MATITZ Q.R.S., CHAERKI K.F. (2018), "Process philosophy's potential contributions to innovation process research within organization studies", *Innovation & Management Review*, vol. 15, n. 4, pp. 386-393.
- MEISSNER D. (2019), "Public-private partnership models for science, technology, and innovation cooperation", *Journal of the Knowledge Economy*, vol. 10, n. 4, pp. 1341-1361.
- MEISSNER D., ZAICHENKO S. (2012), "Regional balance of technology transfer and innovation in transitional economy: empirical evidence from Russia", *International Journal of Transitions and Innovation Systems*, vol. 2, n. 1, pp. 38-71.
- MEYNHARDT T., DIEFENBACH F.E. (2012), "What drives entrepreneurial orientation in the public sector? Evidence from Germany's federal labor agency", *Journal of Public Administration Research and Theory*, vol. 22, n. 4, pp. 761-792.
- MU J., THOMAS E., PENG G., DI BENEDETTO A. (2017), "Strategic orientation and new product development performance: The role of networking capability and networking ability", *Industrial Marketing Management*, vol. 64, pp. 187-201.
- NASUTION H.N., MAVONDO F.T., MATANDA M.J., NDUBISI N.O. (2011), "Entrepreneurship: Its relationship with market orientation and learning orientation and as antecedents to innovation and customer value", *Industrial marketing management*, vol. 40, n. 3, pp. 336-345.
- NIOSI J. (1999), "Fourth-generation R&D: From linear models to flexible innovation", *Journal of business research*, vol. 45, n. 2, pp. 111-117.
- OECD, Eurostat (2005), "Oslo manual - guidelines for collecting and interpreting innovation data," In Paris 2005, Sp 46 (3rd ed.),
- PALLANT J. (2020), *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. London, UK: Routledge.

- PÉREZ-LUÑO A., WIKLUND J., CABRERA R.V. (2011), "The dual nature of innovative activity: How entrepreneurial orientation influences innovation generation and adoption", *Journal of Business Venturing*, vol. 26, n. 5, pp. 555-571.
- TABACHNICK B.G., FIDELL L.S., (2019) *Using multivariate statistics*. California State University - Northridge: Pearson.
- TANG J., KACMAR K.M.M., BUSENITZ L. (2012), "Entrepreneurial alertness in the pursuit of new opportunities", *Journal of business venturing*, vol. 27, n. 1, pp. 77-94.
- TODOROVIC Z.W., MCNAUGHTON R.B., GUILD P. (2011), "ENTRE-U: An entrepreneurial orientation scale for universities", *Technovation*, vol. 31, n. 2-3, pp. 128-137.
- ZAHRA S.A., GEORGE G. (2002), "Absorptive capacity: A review, reconceptualization, and extension", *Academy of management review*, vol. 27, n. 2, pp. 185-203.

Value co-creation in innovation-driven M&As: a framework on post-merger integration

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Abstract

Framing of the research. *Mergers and Acquisitions (M&As) are an opportunity for dimensional and quality development, expansion in the market and economic growth, but also a way to innovate and to enhance firm know-how (Cartwright et al., 2006). M&As consist of a series of progressive phases that allow the consolidation of participating firms, the growth and achievement of the objectives established during the planning stage (Bhagwan et al., 2018).*

In literature it is possible to identify different approaches to M&A processes (Paulsen et al., 2001; Schuler e Tarique, 2006; Manyika et. al, 2011; D'Arcaria et. al, 2017) as well as different topics studied by scholars.

A large number of M&As have recently been realized to acquire and/or develop innovation, patents and/or knowledge. In point of fact, these operations allow fast transfer of knowledge, patents and innovation and, for this reason, sometimes represent the only way to effectively compete in turbulent environments (Klevorick et al., 1995; Puranam and Srikanth, 2007; Hsu et al., 2021). M&As are also helpful in the process of digitisation and more and more firms are being acquired that rely heavily on digital technology (Hanelt et al., 2021).

For these reasons, M&As motivated by innovation enhancement and/or exploitation and technology transfer were studied by various authors also looking in-depth at the various phases that make up the operation process; these phases are the keys to its success (Ranft and Lord, 2000; Cummings and Teng, 2003; Puranam et al., 2003; Ranft, 2006; Rossi et al., 2009; Katz, 2021).

Analysing the phases of a M&A the most difficult is the post-merger integration (Searby, 1969; Shrivastava, 1986; Haspeslagh and Jamison, 1991; Chatterjee et al., 1992; Bannert e Tschirky, 2004; Galpin and Herndon, 2007; Tunisini et al., 2013; Graebner et al., 2017; Oh and Johnston, 2020; Safavi, 2021). In fact, although a growth strategy is perfectly planned, it may not lead to the hoped-for success if the post integration process is not properly planned, managed and monitored.

The post-merger integration process is strategic, indeed an interesting paper by Galpin (2021) states that, given the crisis initiated by the Covid-19 pandemic, there will be a major new wave of M&As where one of the most relevant factors will be the management of post-merger integration for successful transactions.

Among these studies those that investigate the reasons why M&A fail is of particular interest to this paper, in that they highlight the fact that often this failure is due to the complexity of the post-merger integration phase (Mark and Mirvis, 1985,1986; Buono and Bowditch, 1989; Cartwright and Cooper, 1993; Kearney, 1998; Cicellin et al., 2012; Thellisson and Meier, 2021). Moreover, failure more often occurs when M&A are motivated by innovation acquisition and/or exploitation, where it has been found that the characteristics of the participating firms, especially the target firm, affect the whole integration process (Hitt et al., 1991; Birkinshaw et al., 2000). In this context failure almost seems linked to the post-merger integration process, also because the innovative characteristics of the companies involved determine the development of new problems at this stage; new difficulties linked to the characteristics of the transferred innovation, the personnel and the structural differences of the merging firms emerge (Widjaja, 2008).

This particular topic, in the domain of M&A, has become even more important in recent times due to the fact that nowadays innovation is one of the main motivations of this operation (Teece, 1986; Chakrabarti and Souder, 1987; Hitt et al., 1991; Ahuja and Katila, 2001; Chen et al., 2020; Hanelt et al., 2021); M&A are able to quickly transfer knowledge and technology, accelerating the growth processes of firms involved.

The post-merger integration phase in M&A motivated by innovation has been extensively dealt with in literature, looking at its various facets, for example: levels of autonomy of the target firm (Ranft and Lord, 2003; Puranam et al., 2003; Ranft, 2006; Puranam and Srikanth, 2007; Paruchuri et al. 2006; Safavi, 2021); staff behaviour in M&A (Luo, 2021); knowledge transfers methods (Cummings and Teng, 2003; Li and Wang, 2020).

However, no scholar has analysed the effects of M&A motivated by innovation following the value co-creation

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approach (Grönroos, 2012; Leavy, 2014; Alves, Fernandes and Raposo, 2016) and, in particular, the strategic perspective (i.e. Ramaswamy and Ozcan, 2014). The first one attempts to analyse co-created innovation between size-unequal partners, a SME and a large-size firm, focussing on the post-merger phase (Gundolf et al., 2012) through a literature review of the latter; the second one studies technological development and innovation looking at value co-creation between companies and their supply chain in the strategic alliance domain (Monteiro et al., 2013); the last paper (Heim et al., 2018) focus on the application of a value co-creation view in the settings of the international business considering the post-merger process in service industry.

Therefore, a gap in literature exists on the effects and dynamics of value co-creation in M&A motivated by innovation acquisition and/or exploitation that considers not only the participating firms but also all involved stakeholders.

Purpose of the paper. Starting from the highlighting gap in the literature the extended abstract aims at initiating this research field. In particular, the research will develop a theoretical framework that will focus on the potential effects of M&A, assuming a value co-creation approach for the many stakeholders directly and/or indirectly affected by M&A. The proposed framework paves the way for further considerations about value co-creation dynamics potentially emerging in the post-merger integration phase of an M&A motivated by innovation, highlighting that M&A can also be a way to more easily embrace this approach and start to co-create value just at the beginning of the post-merger integration phase if careful planning has been done, followed by attentive implementation.

Methodology. At first, the study conducts a brief literature review on the post-merger integration phase in M&A motivated by innovation and value co-creation following a strategic perspective and then builds a conceptual framework in two stages, looking at the effects and dynamics of M&A motivated by innovation, following the assumed perspective.

Results. The literature on M&As motivated by innovation and in particular on post-merger integration and its problems offers a springboard to analyse some important issues of the last phase of the operation, in light of the value co-creation approach. The framework proposed is composed of two stages:

- Stage 1 illustrates the special issues related to the post-integration phase of the M&A process motivated by innovation;
- Stage 2 represents the possible locus of value co-creation and the potential actors involved, besides firms engaged in M&A.

Stage 1 emphasises the aspects to be considered and the problems to be solved, given they are the basis for successful M&A. Indeed, this step is essential to build the second stage of the framework as it gives an understanding of how to plan and manage the post-integration phase of the M&A process and how to bypass and/or solve the main problems emerging at this point.

Focusing on Stage 1 and on the firms participating in M&A (just two of them have been considered to simplify this first research step), it is important to pay attention to three main aspects: the level of autonomy and/or integration between the two firms involved in the operation, the cultural, structural and managerial factors involved as well as the human resources side of M&A. The first aspect to be considered is the level of autonomy and/or integration between the target firm and the buyer firm (Chatterjee et al., 1992; Dao and Bauer, 2021).

It is quite clear that in M&As, and especially in M&A motivated by innovation, dominance of the buyer over the target firm could be really risky. The second aspect – Stage 1- is related to cultural, structural and managerial factors (Buono et al., 1989; Luo, 2021). Indeed, the two or more participating firms bring their main features to the concentration operation, among them, obviously, the corporate culture that represents one of the most complex elements to be carefully managed because it is strongly rooted in every single organization.

Finally - in Stage 1 of the proposed framework, it is necessary to pay particular attention to the role of human resources. Considering the human factor does not mean, however, looking at purely economic-financial aspects related to the integration of personnel, but focusing on how to better include new human resources into the pre-existing workforce (Quattrociochi et al., 2018). In this particular context it is important to pay great attention to the psychological implications of the entry of new people into a pre-existing reality, but also to the possible reaction of people already working in this organization who see the entry of new workers within their context as a possible threat (Bremser et al., 1999) or again the employee retention/turnover (Degbey et al., 2021). The aspects emphasised with the first stage of the model can be summarised with Khan et al. (2021) expression "socialisation integration mechanisms" that state how leadership, socialization integration mechanisms, and degree of autonomy of the target firm are important variables that contribute to the success of M&A. The authors also affirm that "the socialization integration mechanism" is related to the post-M&A integration process which is embedded in the social aspect of acculturation of acquirer and target employees" (Khan et al., 2021, p. 3). Indeed, to monitor and better manage these aspects of post integration, some scholars propose the creation of an "integration team" (Widjaja, 2008).

This working group should be composed of individuals belonging to both firms involved in M&A to ensure the success of the integration, paying attention to the peculiarities of both organizations.

This team is of paramount importance in supporting managers of both the firms involved and the resulting organization; it allows management to continue running current operations without "distracting itself" from competitive dynamics, customers and also the day-to-day firm life during the M&A process.

Stage 2 of the proposed framework, shows firms involved in M&A that are already integrated, having embraced a value co-creation approach, which allows them to focus on the possible locus of value co-creation linked to the post-

merger phase of M&A. Value co-creation develops, at a first glance, with various actors: competitors, customers, suppliers and the market in general.

In relation to competitors, as mentioned above, M&A might “distract” the resulting firm from competition and competitors could profit from this situation. If the value co-creation approach is embraced some competitors could be interested in collaborating in some projects and/or in sharing some resources or in profiting from the innovation to develop other products and/or services and/or processes also in different businesses. The second element of the framework indicates that M&A represent a value co-creation opportunity with customers.

It is clear that firms involved in M&A – not only motivated by innovation – must continue to focus on customers also to reassure them in relation to the effects of M&A, especially of the fact that M&A will not imply changes to their consumption habits. However, it is true that customers may be involved in the entire process of M&A, also to change some organization goals, features and routines and not only suggest and/or develop new features or entire products and/or services. Furthermore, in view of value co-creation, the management and sharing of consumer knowledge between firms is crucial.

As far as suppliers are concerned, M&A operations are a source of development and innovation for these subjects as well. From the union of the two firms, changes can also occur in production methods and/or in logistics and this can also be beneficial to the supplier engaged in value co-creation. Supplier support is essential to develop new products that match customer needs, but it is also of paramount importance when an innovation is introduced and some changes are needed, for example, to match the new features and/or phases of manufacturing.

The latter consideration helps to understand why M&A can also lead to a value co-creation mind-set at a whole market level. Indeed, like suppliers who can enlarge their experience domains also the organization resulting from M&A can and probably does so, more than suppliers. The new organization emerging from M&A, whose roots are in old relationships and interactions, has the opportunity to reshape its relationships and interactions with all actors in a different way, trying to involve them more and differently in all of its activities at any level.

Research limitations. The lack of empirical experimentation of the framework is the main limitation of this extended abstract. Future avenues of research can be suggested both from a theoretical point of view, enhancing the analysis of the proposed framework and adding other stakeholders to those already considered in the present study., as well as from an empirical point of view, through case studies also pertaining to various industries.

In addition, in view of the expected new wave of M&As following the Covid-19 pandemic (Galpin, 2021), the model could be re-analysed and its validity tested as new dynamics emerge. A comparison between the applicability of the model before and after the pandemic crisis may offer interesting developments to fully understand the logic of value co-creation in post-merger integration.

Managerial implications. The findings have several managerial implications for managers who wish to set up an M&A and need to plan a successful post integration process, taking full advantage of the value co-creation positive fall outs. In particular, the suggestion to shift the mind-set to a value co-creation approach following the strategic perspective could make the post-integration phase of M&A easier and/or less risky, even if more studies are needed both at a theoretical and an empirical level to validate this hypothesis. The model can be useful for managers to understand how to motivate and involve the different stakeholders mentioned in the integration process and how to benefit from the support of a good integration team. By providing a systemic view of the post-merger integration process, the model allows managers to highlight and pay attention to possible aspects often not considered essential in the planning phase, and to have a broader view of the effects of M&A not only for their own firms, but for the whole network of actors and relationships involved.

Originality of the paper. The proposed framework just opens the way to further considerations about value co-creation dynamics potentially emerging in the post-merger integration phase of an M&A motivated by innovation, highlighting that M&A can also be a way to more easily embrace this approach and start to co-create value just at the beginning of the post-merger integration phase if careful planning has been done, followed by attentive implementation.

Moreover, M&As motivated by innovation are an important driver of development and growth for firms and the global economy, and play a key role especially in rebuilding strategies after the volatility in global economy caused by Covid-19 (Kangas, 2021). But, to avoid negative results and loss of investment, especially in this pandemic phase (Tampakoudis et al., 2021), these operations need to be considered and studied in their entire design and implementation process. Therefore, the analysis of M&A in the perspective of value co-creation is crucial. As it turns out, many studies focus on the creation of value deriving from such operations (i.e. Alexandridis et al., 2017; Gupta et al., 2021), but the model underlines the need to look not only at the firms directly involved, but also at all those stakeholders who indirectly can contribute and benefit from the success and best performance of M&As.

Keywords: value co-creation; post-merger integration; M&A; innovation.

References

- ALEXANDRIDIS G., ANTYPAS N., TRAVLOS N. (2017), “Value creation from M&As: New evidence”, *Journal of Corporate Finance*, vol. 45, n. 1, pp. 632-650.
- ALVES H., FERNANDES C., RAPOSO M. (2016), “Value Co-Creation: Concept and Contexts of Application and Study”, *Journal of Business Research*, vol. 69, n. 5, pp. 1626-1633.

- BANNERT V., TSCHIRKY H. (2004), "Integration planning for technology intensive acquisitions". *R&D Management*, vol. 34, n. 5 pp. 481-494.
- BHAGWAN V., GROBBELAAR S.S., BAM W.G. (2018), "A systematic review of the due diligence stage of mergers and acquisitions: towards a conceptual framework", *South African Journal of Industrial Engineering*, vol. 29, n. 3, pp. 217-234.
- BIRKINSHAW J., BRESMAN H., HÅKANSON L. (2000), "Managing the post-acquisition integration process: How the human iintegration and task integration processes interact to foster value creation", *Journal of management studies*, vol. 37, n. 3, pp. 395-425.
- BUONO A.F., BOWDITCH J.L. (1989), *The Human Side of Mergers and Acquisitions*, BeardBooks, Washington.
- CARTWRIGHT S., COOPER C. (1993), "The psychological impact of mergers and acquisitions on the individual: A study of building society managers". *Human Relations*, vol. 46, pp. 327-347.
- CHATTERJEE S., LUBATKIN M., SCHWEIGER D.M., WEBER Y. (1992), "Cultural Differences and Shareholder Value in Related Mergers: Linking Equity and Human Capital". *Strategic Management Journal*, vol. 13, pp. 319-334.
- CICELLIN M., CONSIGLIO S. (2012), "I processi di fusione e acquisizione: le implicazioni per le risorse umane e la "soft due diligence"", *Journal of General Management*, vol. 26, n. 2.
- CUMMINGS J.L., TENG B.S. (2003). "Transferring R&D knowledge: the key factors affecting knowledge transfer success", *Journal of Engineering & Technology Management*, vol. 20 n. 1, pp. 39-68.
- D'ARCARIA L., DI TORO G., GUTTUSO L., MASCIOLI F., RUIU C. (2017), "Merger & Acquisition Competenze Hr per un merger di successo". Available at <http://www.freeyourtalent.eu/blog/wp-content/uploads/2017/05/MandA-Definitivo.pdf>.
- DAO M.A., BAUER F. (2021), "Human integration following M&A: Synthesizing different M&A research streams". *Human Resource Management Review*, vol. 31, n. 3, pp. 100746.
- DEGBEY W.Y., RODGERS P., KROMAH M.D., WEBER Y. (2021), "The impact of psychological ownership on employee retention in mergers and acquisitions", *Human Resource Management Review*, vol. 31, n. 3, pp. 100745.
- GALPIN T.J. (2021), "As another M&A wave begins: three keys to success", *Strategy & Leadership*. Available at https://www.researchgate.net/profile/Timothy-Galpin/publication/350074008_As_another_MA_wave_begins_three_keys_to_success/links/6077e4638ea909241efe27b6/As-another-M-A-wave-begins-three-keys-to-success.pdf
- GALPIN T.J., HERNDON M. (2007), *The complete guide to mergers and acquisitions*. Jossey-Bass Publishers. San Francisco.
- GRAEBNER M.E., HEIMERIKS K.H., HUY Q.N., VAARA E. (2017), "The process of postmerger integration: A review and agenda for future research", *Academy of Management Annals*, vol. 11, n.1, pp. 1-32.
- GRÖNROOS C. (2012). "Conceptualizing value co-creation: a journey to the 1970s and back to the future", *Journal of Marketing Management*, vol. 28, n. 13-14, pp. 1520-1534.
- GUNDOLF K., MEIER O., MISSONIER A. (2012), "Mergers between size-unequal partners: strategic risks and hurdles". *Journal of Small Business and Enterprise Development*, vol. 19, n. 2, pp. 281-299.
- GUPTA I., MISHRA N., TRIPATHY N. (2021), *The Impact of Merger and Acquisition on Value Creation: An Empirical Evidence*. The Importance of New Technologies and Entrepreneurship in Business Development: In The Context of Economic Diversity in Developing Countries, 194, 1435.
- HANELT A., FIRK S., HILDEBRANDT B., KOLBE L.M. (2021), "Digital M&A, digital innovation, and firm performance: an empirical investigation", *European Journal of Information Systems*, vol. 30, n. 1, pp. 3-26.
- HASPELAGH P.C., JEMISON D.B. (1991), *Managing Acquisitions: Creating Value through Corporate Renewal*. The Free Press. New York.
- HEIM I., HAN T., GHOBADIAN A. (2018), "Value co-creation in ICT services company: a case study of a cross-border acquisition", *Journal of East-West Business*, vol. 24, n. 4, pp. 319-338.
- HITT M.A., HOSKISSON R.E., IRELAND R.D., HARRISON J.S. (1991), "Are acquisitions a poison pill for innovation?", *Academy of Management Executive*, vol. 5, n. 4.
- HSU P.H., HUANG P., HUMPHERY-JENNER M., POWELL R. (2021), "Cross-border mergers and acquisitions for innovation", *Journal of International Money and Finance*, vol. 112, pp. 102320.
- KANGAS O. (2021), *Innovation capability and company valuation: Evidence from global M&A market*. Available at https://lutpub.lut.fi/bitstream/handle/10024/162115/Kari_Kandi.pdf?sequence=2&isAllowed=y.
- KATZ M.L. (2021). "Big Tech mergers: Innovation, competition for the market, and the acquisition of emerging competitors", *Information Economics and Policy*, vol. 54, pp. 100883.
- KEARNERY A.T. (1998), *Global PMI Survey*. Technical report.
- KHAN Z., RAO-NICHOLSON R., AKHTAR P., HE S. (2021), "Cross-border mergers and acquisitions of emerging economies' multinational enterprises—The mediating role of socialization integration mechanisms for successful integration", *Human Resource Management Review*, vol. 31, n. 3, pp. 100578.
- LEAVY B. (2014), "Venkat Ramaswamy – how value co-creation with stakeholders is transformative for producers, consumers and society", *Strategy & Leadership*, vol. 42, n. 1, pp. 9-16.
- KLEVORICK A.K., LEVIN R.C., NELSON R., WINTER S.G. (1995), "On the sources and significance of interindustry differences in technological opportunities", *Research Policy*, vol. 24, pp. 185-205.

- LI K., WANG J. (2020), *How Do Mergers and Acquisitions Foster Corporate Innovation?* Inventor-level Evidence. Working Paper. Available at https://cpb-us-w2.wpmucdn.com/sites.baylor.edu/dist/a/171/files/2020/01/LiWang_human-capital-in-MAs_20200108-2.pdf.
- LUO X. (2021), Modeling and analysis of entrepreneurs' behavior patterns under M&A, *Journal of Physics: Conference Series*, vol. 1774, n. 1, p. 12-37.
- MANYIKA J., CHUI M., BROWN B., BUGHIN J., DOBBS R., ROXBURGH C., BYERS A.H. (2011), *Big data: The next frontier for innovation, competition, and productivity*, McKinsey Global Institute.
- MARKS M.L., MIRVIS P. (1985), "Merger Syndrome: Stress and Uncertainty", *Mergers & Acquisitions*, pp. 50-55.
- MONTEIRO L.O., FARIA FILHO J.R., BARRETO L., CORREA A., ARGOLO A., GRAMACHO J.M. (2013), Strategic alliance in technological development and innovation: Performance evaluation of co-creation between companies and their supply chain. *Journal of Industrial Engineering and Management*, vol. 6 n. 3, pp. 732-741.
- OH J.H., JOHNSTON W.J. (2020), "How post-merger integration duration affects merger outcomes", *Journal of Business & Industrial Marketing*, Vol. 36 No. 5, pp. 807-820.
- PARUCHURI S., NERKAR A., HAMBRICK D.C. (2006), "Acquisition integration and productivity losses in the technical core: Disruption of inventors in acquired companies", *Organization science*, vol. 17, n. 5, pp. 545-562.
- PAULSEN E., HUBER C. (2001), *The Technology M&A Guidebook*. John Wiley and Sons, New York.
- PURANAM P., SINGH H., ZOLLO M. (2003), "A bird in the hand or two in the bush? Integration trade – offs in technology – grafting acquisitions", *European Management Journal*, vol. 21 n. 2, pp. 179-184.
- PURANAM P., SRIKANTH K. (2007), "What they know vs. what they do: how acquirers leverage technology acquisitions", *Strategic Management Journal*, vol. 28 n. 8, pp. 805-825.
- QUATTROCIOCCHI B., FULCO I., CALABRESE M., IANDOLO F., LA SALA A. (2018), "La teoria dei tipi psicologici e la consonanza nel processo di selezione delle risorse umane. La teoria dei tipi psicologici e la consonanza nel processo di selezione delle risorse umane", *Esperienze d'impresa*, 1: 2018, pp. 85-107.
- RAMASWAMY V., OZCAN K. (2014), *The co-creation paradigm*. Stanford University Press.
- RANFT AL, LORD MD. (2000), "Acquiring new knowledge: the role of retaining human capital in acquisitions of high-tech firms", *Journal of High Technology Management Research*, vol. 11, pp. 295–319.
- RANFT A. (2006), *Knowledge preservation and transfer during post-acquisition integration*, in Cooper, C. and Finkelstein, S. (Eds), *Advances in Mergers and Acquisitions*, Vol. 5, JAI, New York, NY.
- ROSSI M., YEDIDIA TARBA S., RAVIV A. (2013), "Mergers and acquisitions in the high tech industry: a literature review", *International Journal of Organizational Analysis*, vol. 21, n. 1, pp. 66-82.
- SAFAVI M. (2021), "Advancing post-merger integration studies: A study of a persistent organizational routine and embeddedness in broader societal context!", *Long Range Planning*, 102071.
- SCHULER R., TARIQUE I. (2005), *Alliance forms and HR issues, implications and significance*. Handbook of Strategic Alliances. Thousand Oaks, CA: Sage, 219-240.
- SEARBY F.W. (1969), "Control post-merger change", *Harvard Business Review*, vol. 47, n. 5, pp. 4-11.
- SHRIVASTAVA P. (1986), "Post-merger integration", *The Journal of Business Strategy*, vol. 7, n. 1, pp. 65-76.
- TAMPAKLOUDIS I., NOULAS A., KIOSSES N., DROGALAS G. (2021), "The effect of ESG on value creation from mergers and acquisitions. What changed during the COVID-19 pandemic?", *Corporate Governance: The International Journal of Business in Society*. Vol. ahead-of-print N. ahead-of-print.
- THELISSON A.S., MEIER O. (2021), "Managerial biases during a merger process in a government-controlled organization", *Journal of Management and Governance*, vol. nd, n. nd, pp.1-24.
- TUNISINI A., BOCCONCELLI R. (2013), "Medie imprese in sviluppo: gli assetti relazionali nei processi di integrazione post-acquisitiva", *Piccola Impresa/Small Business*, vol. 1, n. 1, pp. 9-32.
- WIDJAJA M.M. (2008), *Factors that enhance the post-merger integration (PMI) Process in relation to innovation performance*, Doctoral dissertation, Thesis Management studies. Wageningen University and Research center.

Websites

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Communicating Organizational Image-Identity Congruence through a Performance Management System

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Abstract

In this work in progress, we investigated how an organization may employ its performance management system as a marketing communications instrument to communicate and embed new values among the employees of an organization. In order to do this, we employed image-identity literature as our theoretical paradigm. Through semi-structured interviews and focus groups involving over 150 employees, we identified the elements of performance management systems through which such marketing of values are carried out. We discuss theoretical and managerial implications.

Framing of the research. *Our study deals with how an organization's performance management (PM) systems can be used as a marketing communications tool within the organization, to communicate and embed a new set of values among the employees of an organization. To do so, we considered an organization that had consciously reformulated its espoused values in order to align with current strategic considerations.*

Values refer to preferable modes of conduct or states of existence and provide a framework for those inside and outside the organization to understand why an organization does what it does (Aust, 2000).

Rodrigues and Krishnamurthy (2016) synthesized extant image and identity literature to differentiate between organizational image and organizational identity as follows. On one hand, the Organizational Image is concerned with the impression that those external to the organization have about it. It is two-dimensional. The first dimension is the Projected Image, that is, the product of the aggregated communication of the organization about itself. The projected image is usually deliberately crafted by top management (Hatch and Schultz, 2002). Customers process the organization's projected image alongside other sources such as media, to develop their own opinion of the organization, which in aggregate, becomes the second dimension i.e. their Perceived Image of the organization. On the other hand, Organizational identity is organizational members' collective understanding of the question, 'What kind of organization is this?' Thus, organizational identity refers to members' perceptions of what the features of their organization are (Brown et al., 2006). As regards the difference between Image and Identity, Rodrigues and Krishnamurthy (2016) paraphrased Gioia et al. (2000) as follows: the focus in the image view is on the ways in which identity is communicated by the organization mainly to external audiences. In contrast, identity scholars tend to focus on the internal communication of that identity (Rodrigues and Krishnamurthy, 2016).

When an organization deliberately changes its values in response to strategic needs, it communicates the new values to those outside the organization in order to create a new Organizational Image. However, previous marketing and organizational behavior literature caution that organizational image and identity interact with, and influence each other (Rodrigues and Krishnamurthy, 2016). Therefore, we might expect that unless a new Organizational Identity is embedded within the organization, elements from the old organizational identity will creep into and distort efforts to market a new Organizational Image outside the organization. Identity literature has emphasized message transmission and organizational values as core components of organizational identity (Aust, 2009). It therefore becomes important to understand how a new set of organizational values can be marketed to employees so as to embed them within the new Organizational Identity.

Performance management systems provide a powerful means of embedding new values in an organizational identity, because such systems communicate to employees what the organization considers important to reward (Aguinis, 2013). The elements of a PM system are goal setting, training and development, feedback and mentoring, performance appraisal, pay and incentives (Cascio, 2012; Murphy and Cleveland, 1995; Varma et al., 2008). Further, unlike more traditional processes, PM is concerned with aligning individual employee behavior and performance with the strategic goals of the organization (Aguinis, 2013), and can therefore be used to bring about employee internalization of new organizational values by managing the context in which performance occurs (Gruman and Saks, 2011).

When all elements of a PM system are aligned with the new organizational values, the following outcomes can be

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expected: (i) the organization's PM system communicates the new values consistently to employees, resulting in the new values getting embedded in the new organizational identity; (ii) the organizational identity will be in alignment with the new values of the organization and its strategic orientation; (iii) when the organization engages in external marketing communication of its new values by presenting an organizational image to those outside the organization, the organizational identity inside the organization will be in alignment with the organizational image projected to those outside, and hence no image-identity instability ensues.

In the past decade, organizations have been using PM systems as a form of internal communication, to inform employees of what values and behaviors are expected and rewarded by the organization (Aguinis, 2013). Surprisingly, no study has examined how PM systems can aid in internal communication to market new organizational values to employees, as a step towards creating a new internal organizational identity that is aligned with the new organizational image projected outside. Our paper therefore deals with how the various elements of a PM system can ensure that employees are in line with the organization's newly espoused values.

Purpose of the paper. The objective in this paper was to examine how each element of a PM system can be used as a marketing communications tool within the organization, to signal and embed a new set of values among the employees of an organization.

Methodology.

Sample: We undertook our study in one of India's largest, most profitable IT consulting firms, having its largest operations in India and major markets as the United States and Europe. The organization was known for having a set of five strongly shared values, all of which were employee oriented. While these values helped in retention and development of talented knowledge workers in the early stages of the organization, top management realized that, as the organization grew, the values were not consistent with expectations from the customers in the industry. Thus, the old values were discarded, and three new values were formulated, each of which described behaviors that were required to be consistent across the organization. Our qualitative study involved 156 employees, at various levels of this organization (ranging from levels 1 to 7), and across various locations, and our sample was roughly in proportion to the distribution of employees in the organization across these levels and locations.

Method: We conducted in-depth semi-structured interviews with 76 employees, supplemented by focus-group discussions with a distinct set of 80 employees. Such sampling and methods are in line with previous research that is explorative and seeks to uncover the how and why (Patton, 2002). Through these discussions, we ascertained the following: whether the respondents were aware of the new values and used them in their day to day working lives, and if not, in which elements of the PM system were the marketing of the new values failing.

Results. Our aim in this study was to examine how the PM systems of an organization - goal setting, training and development, feedback and mentoring, performance appraisal, pay and incentives - can be used as a marketing communications tool within the organization, to communicate and embed a new set of values among the employees of an organization. Accordingly, while the third author had undertaken the data collection, the first two authors undertook the analysis; they categorized the data as per the research questions, first independently, and then till agreement was reached (Cho et al., 2013; Fischlmayr and Kollinger, 2010). Significant findings are presented below.

Training and development: It was found that fresh joiners who joined the organization after completing their education had imbibed the new values far more than either older employees or employees brought laterally in from other organizations. One reason for this was the selection process, as new joiners were specifically hired based on their fit with the new organizational values, whereas lateral recruits were hired based on their technical skills. Further, fresh joiners had systematic training sessions in which the new organizational values were marketed to them. While there were some efforts to market the new values to other sets of employees, it was minimal, and not supplemented by a systematic training program regarding the new organizational values. As a result, freshly recruited employees had a stronger understanding of the new organizational values than either existing employees or lateral hires.

Goal setting, performance appraisal, pay and incentives: The new organizational values were not incorporated into the goals set for employees at the beginning of the PM cycle, and therefore did not find their way into either the performance appraisal criteria, or developmental plans. Consequently, whether or not an employee displayed the new organizational values through appropriate behavior had no connection with the pay and incentives he was indexed to. Thus, apart from the training program for fresh recruits, no other internal marketing communication was used. Consequently, no other element of the PM system communicated to the employees the importance of displaying the new organizational values.

Research limitations. As this research was explorative, we employed qualitative research methods such as semi-structured interviews and focus groups covering around 160 respondents. However, this pursuit of depth meant confining ourselves to the experiences and practices of a single organization. Future research could investigate this phenomenon across organizations and perhaps countries, to verify our insights.

Managerial implications. In this study, we examined the role of PM systems as instruments to market new organizational values to employees. In doing so, we identified why the new organizational values were not imbibed by employees, and conversely, how the elements of the PM system can communicate and embed the new organization values.

As mentioned, PM systems can align individual employee behavior and performance with strategic considerations and values, because PM systems in an organization serve as a communication tool (Aguinis, 2013). Minimal marketing about the new values was done in this organization PM system, however. For example, the goal setting process ignored the new organizational values, and therefore, communicated to employees that it did not matter whether or not they

imbibed the new values. Similarly, no systematic training program regarding the new values communicated to old employees and lateral hires that manifesting the new organizational values was important. Because the performance appraisal criteria did not consider whether employees had internalized the new values, pay and incentives were also independent of the extent to which employees imbibed the new organizational values. Expectancy theory states that employees will display only those behaviors that give them desirable rewards (Aguinis, 2013). If employees are to display the new organizational values, all aspects of the PM cycle, including goal setting, training and development, performance appraisal and pay and incentives should consistently be used as internal marketing tools to communicate to employees that displaying the new organizational values are important to the organization, and will be rewarded.

Originality of the paper. To the best of our knowledge, this is the first study regarding how PM systems can aid in internal communication to market new organizational values to employees, therefore attempting to create a new internal organizational identity that is aligned with the new organizational image projected outside. When an organization - such as the one we studied - deliberately changes its values as a strategic response to the customers in its environment, it communicates these new values to customers to create a new Organizational Image. However, since organizational image and identity influence each other (Rodrigues and Krishnamurthy, 2016), in order for the new image to be sustained externally, a new organizational identity consistent with the new image is imperative. Note that communicated values determine that new organizational identity (Aust, 2000). It is therefore important that the new organizational values are effectively marketed within the organization, and the PM systems of the organization provide a powerful and effective tool for such marketing. If all the elements of a PM system consistently signal to employees the importance of incorporating the new organizational values, a new organizational identity will emerge among employees, which will be consistent with, and support, the new organizational image being projected by the organization to its customers.

Keywords: identity; image; performance management; internal marketing; values; change

References

- AGUINIS H. (2013), *Performance Management*, 3rd Edition, Pearson, Boston, MA.
- AUST P.J. (2000), *Communicated values as indicators of organizational identity: An examination of the United Church of God, an International Association's first five years*, Doctoral dissertation, University of Oklahoma.
- BROWN T.J., DACIN P.A., PRATT M.G., WHETTEN D.A. (2006), "Identity, Intended Image, Construed Image, and Reputation: An Interdisciplinary Framework and Suggested Terminology", *Journal of the Academy of Marketing Science*, vol. 34, n. 2, pp. 99-106.
- CASCIO W.F. (2012), "Global Performance Management Systems", in G.K. Stahl and I. Bjorkman (eds), *Handbook of research in international human resource management*, Edward Elgar Publishing, Northampton, MA.
- CHO T., HUTCHINGS K., MARCHANT T. (2013), "Key factors influencing Korean expatriates' and spouses' perceptions of expatriation and repatriation", *International Journal of Human Resource Management*, vol. 24, n. 5, pp. 1051-1075.
- FISCHLMAYR I.C., KOLLINGER I. (2010), "Work-life balance—a neglected issue among Austrian female expatriates", *The International Journal of Human Resource Management*, vol. 21, n. 4, pp. 455-487.
- GIOIA D.A., Schultz M., Corley K.G. (2000), "Identity Dialogues: Where Do We Go from Here?", *Academy of Management Review*, vol. 25, n. 1, pp. 145-7.
- GRUMAN J.A., SAKS A.M. (2011), "Performance Management and Employee Engagement", *Human Resource Management Review*, vol. 21, pp. 123-136.
- HATCH M.J., SCHULTZ M. (2002), "The Dynamics of Organizational Identity", *Human relations*, col. 55 n. 8, pp. 989-1018.
- MURPHY K.R., CLEVELAND J. (1995), *Understanding performance appraisal: Social, organizational, and goal-based perspectives*, SAGE, Thousand Oaks, CA.
- PATTON M. (2002), *Qualitative research and evaluation methods* (3rd ed.), SAGE, Thousand Oaks, CA.
- RODRIGUES C., KRISHNAMURTHY A. (2016), "Mirror, Mirror on the Wall: Identity-Image Interactions for the Sales Force in High Threat Situations", *European Management Review*, vol. 13, n. 4, pp. 307-323.
- VARMA A., BUDHWAR P.S., DENISI A.S. (2008), *Performance management systems: A global perspective*, Routledge, New York.

Sustainability Practices and Firm Value: Evidence from a European Industrial Panel

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Framing of the research. *Over the last decade, sustainable development, defined as development that allows the satisfaction of present needs (economical, environmental, and social) without compromising that of future generations (Brundtland Commission, 1987), has attracted growing interest from regulators, firms, investors, customers, and academics.*

Sustainability has influenced the consolidated relationships between economics and finance with increasing pervasiveness, acquiring greater relevance in terms of breadth and materiality. Breadth, as it goes beyond firms' internal environment, affecting the relationship between regulatory, industrial, and financial systems. Materiality, as academics and operators believe that the triadic relationship between economy, finance, and sustainability is crucial for achieving efficient organizational forms of production.

Given the role of driving force for change that firms play in economic and social development (Wade-Benzoni, 2002), they have been placed in front of new challenges and opportunities in terms of risk-return relationship with shareholders and, more generally, with stakeholders, in order to pursue, within their strategic declination, consistency between economical and financial performance and social issues (Porter and Kramer, 2006; Ng and Zabihollah, 2015; Crespi and Magliavacca, 2020).

To respond to these challenges, firms have declined strategic and operational responses with the aim of proactive adaptation and seize the emerging opportunities, also recalling the need to build and maintain consensus around their initiatives (Golinelli, 2017).

In order to strengthen credibility, reputation, and legitimacy among stakeholders, firms have been pursuing a medium-long term value creation declining their strategies in a triadic vision of risk, return, and social impact (Freeman, 1984; Coulson, 2009; Amini and Bienstock, 2014; Ng and Zabihollah, 2015; Ziolo et al., 2019). Further, Porter and Kramer (2011), theorizing the concept of shared value - i.e., firms' policies and practices that go beyond corporate social responsibility and contribute to competitive advantage while strengthening the communities in which firms operate - suggest a radical change in management thinking and reset the boundaries of capitalism.

Therefore sustainability has been grafted onto firms' governance processes (e.g., risk management, internal control systems, and management compensation) (Callan and Thomas, 2011; Comitato per la Corporate Governance, 2020; Boccuzzi, 2021), decision-making processes and strategies (Davis and Lescott, 2019), i.e. formulation phase (process of synthesis of the values and expectations of the stakeholders, of the values and culture of the enterprise and the repercussions on its evolutionary dynamics) and implementation phase (convergence between any cultural and structural discrepancies, through, where appropriate, organizational and decision-making changes) (Mintzberg, 1994; Ferrara, 1995).

In this context, a multiple objective function emerges, which requires the mediation and conjugation of a plurality of economic (i.e., profitability, productivity, and competitiveness) and sustainability (i.e., social, environmental, and general well-being) objectives, with potential tensions between (i) strategic goals, (ii) product features and (iii) organizational values (D'Amico, 1997; Ferrando, 2010; Turco, 2013; Hengst et al., 2020).

Sustainability issues have become an integral and essential part of the firm's strategic orientation (Sapelli, 1995), which requires extensive changes in corporate culture in order to embrace a medium-long term vision within the definition of strategies and action plans (Boccuzzi, 2021).

However, there is a high risk that sustainability can remain decoupled from or peripheral to organization activities if the main aim is simply to garner external legitimacy (Hengst et al., 2020).

In a nutshell, current extensive and in-depth challenges have determined the emergence of a new management "philosophy", where sustainability falls into essential principles and methodological foundations on which the corporate governance must base its actions (Golinelli and Volpe, 2012).

Moreover, the growing interest in sustainability issues has been further stimulated by a considerable legislative and social impulse, through legislative and regulatory provisions, as well as standards and best practices at the international (e.g., GRI Standards, SASB Standards, TCFD, ISSB, IIRC)(GSSB, 2016; TCFD, 2017; WEF, 2020; IFRS

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Foundation, 2021; GSSB, 2021; IIRC, 2021) and European level (European Taxonomy, Non-Financial Reporting Directive, Corporate Sustainability Reporting Standards)(European Commission, 2021).

Standards, guidelines, principles, and recommendations for non-financial disclosure are increasingly being adopted and implemented by firms to enhance business transparency on sustainability issues (Brogi and Lagasio, 2019). In this regard, non-financial information has been considered to have an impact on a firm's risk profile, value drivers, and valuation (CONSOB, 2017; Bizoumi et al., 2019).

Perhaps, the most pressing challenge that remains to be addressed is the lack of general standards for measuring and reporting sustainability information, which has resulted in turn in inconsistent methodologies, lacks of standardization, scarcity of comparable data (Chatterji et al., 2016; Davis and Lescott, 2019; Gibson et al., 2019; Billio et al., 2020; Cornell and Damodaran, 2020; European Commission, 2020; Berg et al., 2021; CONSOB, 2021; ESMA, 2021).

In summary, stakeholders' compliance constraints have directed firm's actions in terms of social responsibility in order to build and preserve consensus around its initiatives, and, ensure its survival in a highly competitive environment (Chih et al., 2010; Barile et al., 2013; Oliveira et al., 2019).

In this context, sustainability issues have become a new theme for academics in the field of management, and several contributions covering different aspects have been published.

Two main strands of literature can be distinguished in this regard.

On the one hand, the value-enhancing theory holds that the implementation of ESG issues in the corporate strategies generates competitive advantage (Porter and Van Der Linde, 1995; Porter and Kramer, 2011) that promotes the creation of long-term shareholder value (Miralles-Quiròs et al., 2018).

In this regard, a growing body of academic studies have highlighted that good ESG performance (and transparency) leads to better access to capital (Cheng et al., 2014), lower cost of capital (El Ghouli, 2011; Goss and Roberts, 2011; Dhaliwal et al., 2012; Witold and McGlinch, 2019), attract and retain higher-quality resources (Turban and Greening, 1997; Greening and Turban, 2000), increase demand for products and services and/or reduce consumer price sensitivity (Dorfman and Steiner, 1954; Milgrom and Roberts, 1986; Gangi et al., 2019), enhance competitive advantage (Porter and Van Der Linde, 1995; Galbreath, 2013; Wu and Shen, 2013; Bocken et al., 2014; Boccuzzi, 2021) and financial performance (Orlitzky et al., 2003; Cornett et al., 2016; Brogi and Lagasio, 2019).

Furthermore, sustainability strategies can generate efficiencies processes regarding mainstream strategy, controlling the use, and hence cost of resources (Hengst et al., 2020).

Scholars have highlighted the increasing consideration by investors of ESG information, data, and ratings as important aspects that offer insights into a firms' future performance, risk profile, and long-term sustainability policies, leading the accuracy in assessing corporates' material issues and investments (Davis and Lescott, 2019).

Investors consider also corporate culture, reputation, and sustainability to assess the company's ability to create and sustain enterprise value (Marsat and Williams, 2014; Davis and Lescott, 2019).

In addition, a growing body of research confirms that there is a link between ESG and asset performance, where firms with a strong performance on material ESG issues perform better in terms of stock returns, future profitability, higher earnings multiples and lower credit spreads (Goss and Roberts, 2011; Attig et al., 2013; Friedman and Heinle, 2016; Khan et al., 2016; Davis and Lescott, 2019). Thus, sustainability aspects and related reputation effects are intangible aspects valued by the market (Marsat and Williams, 2014).

On the other hand, the shareholder expense theory holds that investing in ESG issues increases costs and puts companies at an economic disadvantage, resulting in lower market values (Miralles-Quiròs et al., 2018).

In this regard, sustainability expenditures may create potential conflicts between affiliated (i.e., investors whose reputation is related to the firm) and non-affiliated (i.e., investors who hold shares in the firm as a part of a diversified portfolio) shareholders, if the marginal effect of sustainability investments decrease firm value (Barnea and Rubin, 2006).

Cornett and Damodaran (2020), distinguishing good and bad companies from an ESG perspective, outline that the claims of ESG payoff are often based on ambiguous and inconclusive research, where the evidence that socially responsible firms have lower discount rates and investors have lower expected returns is stronger than the evidence that good companies deliver higher profits and growth. In addition, there is weak (i) evidence that markets incorporate social responsibility into pricing, (ii) link between ESG and operating performance, and (iii) evidence that investors can generate an excess return with ESG-focused investing.

Moreover, the inclusiveness is primarily due to a lack of key fundamental concepts and theoretical and empirical limitations (e.g., ratings provided by different agencies do not always converge, ESG materiality issues) that makes it difficult to predict the effects of sustainability strategies on economic and financial performance (Wood and Jones, 1995; Chatterji et al., 2016).

This study examines the relationship between ESG performance and firms' value, investigating the effects of the implementation of sustainability conducts on firms' value in a sample of 189 industrial firms listed on the Stoxx Europe 600 over the period 2012-2020.

Our research aims to enrich the existing literature on this topic, investigating the influence of ESG performance on firm value.

Purpose of the paper. *Hypothesis development.* As mentioned above, in recent years sustainability has attracted increasing attention from stakeholders, pushing firms to increase their focus on socially responsible aspects to reinforce their credibility and reputation (Coulson, 2009).

Prior research (Coulson, 2009; Birindelli et al., 2015) reveals that the adoption of corporate social actions and disclosure are positively valued by shareholders.

Moreover, while there is not a unanimous consensus on the effects of each ESG pillar score (i.e. environmental, social, and governance) on shareholder value creation, the adoption of principles that guarantee a deep disclosure on accountability, compliance, transparency and corporate governance practices, with a reduction of agency costs with firms' stakeholders, is undoubtedly reflected positively in shareholders' expectations (Miralles-Quiròs et al., 2018; Crespi & Magliavacca, 2020) and in investors' evaluation process.

In addition, referring to reputation, sustainability can be seen as an intangible resource able to enhance the value of a firm's expected cash flows and/or reduce their variability (Robinson et al., 2011).

However, the enhancement of socially responsible practices and related organizational structures has not yet been accompanied by a disclosure equally reinforced (Birindelli et al., 2015) (also due to the uncertainty and the heterogeneity of the different ESG data used and varying methodologies applied), where the aim is to make a qualitative leap, contextualizing and connecting the various data and placing them both in the strategic orientation and in the economic context in which the company operates. In other words, allowing stakeholders and investors to transform information into knowledge (Rutigliano, 2016).

Carnevale and Mazzuca (2014), testing the direct and indirect effect of the sustainability report on stock prices, highlight that investors appreciate the additional and complementary disclosure provided with a positive effect on stock prices. This conclusion is also supported by Miralles-Quiròs et al. (2018), which observe that ESG performance have a significant impact on stock prices and that investors value the three ESG pillars in a different manner.

In this context, it is possible that market prices have been adjusting to a new equilibrium that reflects sustainability considerations, where highly rated ESG stocks register greater values (Cornett and Damodaran, 2020).

In the light of the above, we develop the following hypothesis to test:

H1: ESG performance is positively associated with firm value.

Methodology. To test our hypothesis, we used multiple regression analysis with panel data, run on 1.371 observations. In this context, we applied a modified version of the model proposed by Ohlson (1995), widely used in valuation research, and Miralles-Quiròs et al. (2018).

$$Price_{it} = \alpha + \beta_1 EPS_{it} + \beta_2 BVPS_{it} + \beta_3 ESG\ score_{it} + \varepsilon_{it}$$

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) earnings per share (EPS), (ii) book value per share (BVPS), and (iii) ESG score.

In the table above (Table 1), we assign names based on the characteristics of the indicators that are related to the factors.

Tab. 1: Measurement of variables

Variable	Definition
<i>Dependent variable</i>	
Price	The latest available closing price at end of the year
<i>Independent variables</i>	
EPS	Normalized net income divided by the number of basic weighted average shares
BVPS	Shareholders equity divided by total common shares outstanding
ESG score	Overall company score based on the self-reported information in the E, S, and G pillars

Our sample consists of 189 industrial firms (belonging to n. 48 industries) listed on the Stoxx Europe 600 (i.e., index with a fixed number of 600 components representing large, mid, and small-capitalization firms among 17 European countries) over the period 2012-2020, in order to gain a heterogeneous panel data that allows us to look for robust results.

Refinitiv Eikon has been used as a database, i.e. a database widely adopted internationally in management studies. This database 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, useful 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 specifically applying the 14,4% of the weight to environmental score (E), the 49,6% of the weight to social score (S) and 36,0% of the weight to governmental score (G). The ESG performance may assume a score in a range between 0 (weak) and 100 (strong).

The tables below (Table 2, Table 3) illustrate the composition of our panel by country and industry.

Tab. 2: ESG score by country

Country	Firms	ESG Score		Environmental Score		Social Score		Governance Score	
		2012	2020	2012	2020	2012	2020	2012	2020
Germany	47	65	72	66	68	67	78	61	69
Italy	20	76	68	82	65	76	73	66	61
Netherlands	18	61	72	59	68	68	79	51	66
Belgium	10	46	62	50	66	41	62	50	59
France	56	58	74	68	79	59	81	48	59
Spain	18	73	77	75	78	82	87	59	58
Austria	4	55	75	62	79	55	74	44	71
Luxembourg	5	55	59	64	45	66	64	28	64
Ireland	8	45	63	40	55	40	64	60	69
Portugal	3	67	76	75	80	71	89	50	53
Mean		60	70	64	68	62	75	52	63
Median		59	72	65	68	66	76	51	63
Min		45	59	40	45	40	62	28	53
Max		76	77	82	80	82	89	66	71
SD		10	6	12	11	14	10	11	6

Tab. 3: ESG score by industry

	2012	2020		2012	2020		2012	2020		2012	2020
Chemicals	58	75	Health Care	60	69	Auto comp.	64	79	Household prod.	80	73
Multi-Utilities	71	80	Electric Utilities	70	77	Construction mat.	67	79	Distributors	33	n.a.
Machinery	43	64	Semicond.	63	67	REITs	81	73	Specialty retail	85	85
Beverages	53	61	Real Estate	n.a.	65	Food prod.	33	75	Building prod.	65	83
Hotels, Restaurants	60	59	Pharma	60	80	Software	73	63	Electrical Eq.	56	79
Constr. & Eng.	59	68	Personal prod.	71	71	Industrial Cong.	62	68	Airlines	51	55
Food	61	69	Multiline R.	n.a.	41	Air Freight & Log.	82	84	Metals & Mining	44	n.a.
Transportation Infr.	66	76	Automobiles	68	84	Renewable Electric	70	67	Media	72	82
Textiles & Apparel	62	74	Trading C.	26	56	Gas Utilities	72	75	Househ. Durables	n.a.	81
Health Care Sup.	69	71	Entertainment	21	43	Oil & Gas	77	78	Packaging	n.a.	83
Aerospace & Def.	50	64	Prof. serv.	47	71	Life sciences serv.	49	68	Energy Equip.	55	n.a.
IT Services	64	66	Telco	58	70	Biotechnology	38	74	Internet Mark. Ret.	n.a.	81

Table 2 provides a summary of mean, median, minimum, maximum, and standard deviation values of the overall ESG scores and its three components over the sample period 2012-2020.

Overall, the average values of each pillar are higher in 2020 than in 2012, with the environmental and social scores that register the highest value. Considering that these scores range on a scale from 0 to 100, the corporate social performance is not particularly high. This increase is also justified by the growing attention of policymakers and stakeholders on corporate social responsibility and ESG practices.

Table 3 provides a summary of mean values of the overall ESG scores by industry over the period 2012-2020, with Specialty Retail that registers the highest value.

Results. Table 4 illustrates the descriptive statistics for both dependent and independent variables. The descriptive statistics table includes statistics, such as minimum, maximum, mean, standard deviation, and correlation.

The statistics show that on average the firms have a score of 66 points out of 100, with a standard deviation of 17, which indicates that firms have good social responsibility practices and disclosure, but not excellent. As reported in Table 2, in 2020 the average highest score is registered in Spain, while the lowest is in Luxemburg.

Tab. 4: Descriptive analysis

Variables	Mean	SD	Min	Max	Price	ESG Score	EPS	BVPS
Price	59,63	73,89	0,38	879,6	- / -			
ESG Score	65,93	17,33	7,49	94,52	0,01	- / -		
EPS	3,88	5,28	0,003	62,05	0,62	0,09	- / -	
BVPS	24,42	27,7	0,45	217,67	0,50	0,18	0,76	- / -

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 certain parameters without making any restrictive assumptions (Verbeek, 2008; Cucari et al., 2018).

Based on Hausman specification test (Hausman, 1978), we apply a fixed effect regression model to test our hypothesis.

We present below the results of the estimations described previously.

Tab. 5: Panel regression analysis

	(1)	(2)
EPS	4,26***	4,04***
BVPS	1,28***	1,03***
ESG Score	-	0,7***
Intercept	12,13***	-27,7***
R-squared	0,17	0,19
p-value	0,000	0,000
Groups	189	189
Observations	1.371	1.371

Note: *** $p \leq 0,001$; ** $p \leq 0,01$; * $p \leq 0,05$.

As shown in Table 5, there is a positive and significant relationship between firm value (price) and EPS and BVPS, thereby confirming the results of previous academic studies (Carnevale and Mazzuca 2014; Miralles-Quiròs et al., 2018).

Moreover, in model 2 there is a positive and significant relationship between ESG score and price (firm value), hence confirming our hypothesis.

In a nutshell, it seems that investors appreciate (i) sustainability aspects and related reputation effects and (ii) the additional and complementary disclosure provided.

Moreover, referring to the dichotomous vision between neoclassical and institutional theory, in the long run, there is a convergence between shareholders' and stakeholders' interests, given the fact that the value of a business (stocks) is equal to the current value of the future cash flows that the company is able to generate (discounted at a risk-adjusted discount rate), which, in the end, depends on the satisfaction of the stakeholders.

On this point, as stated by the theory of creation-diffusion of value, the economic value maximization has to be seen not as an exclusive prerogative for shareholders, but as a rational and measurable objective of the firm for all the stakeholders (Guatri, 1991; Sciarrelli, 1997).

Notwithstanding the results of our analysis, it is necessary to conclude that, due to different accounting methodologies across rating agencies and data providers, 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 further included in the econometric model, considering, for example, each pillar of the ESG score individually and differences among industries and legal systems.

From a theoretical perspective, the lack of comparability of ESG data (and ratings), as a consequence of different methodologies applied (frameworks, measures, key indicators, metrics, data, qualitative judgment, and weighting) by different providers, could influence the reliability of the results and lead to materially different conclusions.

Future research directions should then address further improvements of the identified framework by extending the observed period and including other variables, as well as performing the analysis with different data from a different provider.

Managerial implications. Results have important practical implications for managers, policymakers, and stakeholders, contributing to enriching the literature on the influence of ESG variables on firm strategies, highlighting the dynamical 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 field. In particular, from a theoretical point of view, we contribute to the literature seeking to understand the relationship between ESG performance and firm value. The evidence suggests that existing studies on ESG issues are limited but greater transparency and performance about sustainability practices is expected and positively valued by shareholders.

Keywords: ESG; Company valuation; Sustainability; Firm value.

References

- AMINI M., BIENSTOCK C.C. (2014), "Corporate sustainability; an integrative definition and framework to evaluate corporate practice and guide academic research", *Journal of Cleaner Production*, vol. 76, pp. 12-19.
- ATTIG N., EL GHOUL S., GUEDHAMI O., SUH J. (2013), "Corporate Social Responsibility and Credit Ratings", *Journal of Business Ethics*, vol. 117, n. 4, pp. 679-694.
- BARILE S., SANCETTA G., SIMONE C. (2013), *Business Management*, Cedam, Padova.
- BARNEA A., RUBIN A. (2006), "Corporate Social Responsibility as a Conflict between Shareholders", *Journal of Business Ethics*, vol. 97, n. 1, pp. 71-86.
- BERG F., KOELBEL J., RIGOBON R. (2021), "Aggregate confusion: The divergence of ESG ratings", *working paper*, MIT Sloan School, pp. 1-63.
- BILLIO M., COSTOLA M., HRISTOVA I., LATINO C., PELLIZON L. (2020), "Inside the ESG Ratings (Dis)agreement and performance", *working paper*, pp. 76-93.

- BIRINDELLI G., FERRETTI P., INTONTI M., IANNUZZI A.P. (2015), "On the drivers of corporate social responsibility in banks: evidence from an ethical rating model", *Journal of Management and Governance*, vol. 19, n. 2, pp. 303-340.
- BIZOUMI T., LAZARIDIS S., STAMOU N. (2019), "Innovation in Stock Exchanges: Driving ESG Disclosure and Performance", *Journal of Applied Corporate Finance*, vol. 31, n. 2, pp.72-79.
- BOCCUZZI G. (2021), "Dalla sostenibilità economica alla sostenibilità sociale ESG. Le sfide per l'economia e la finanza", *Bancaria*, n. 10, pp. 37-50.
- BOCKEN N., SHORT S., RANA P., EVANS S. (2014), "A literature and practice review to develop sustainable business model archetypes". *Journal of Cleaner Production*, vol. 65, pp. 42-56.
- BROGI M., LAGASIO V. (2019), "Environmental, social, and governance and company profitability: Are financial intermediaries different?", *Corporate Social Responsibility and Environmental Management*, vol. 26, n. 3, pp. 576-587.
- BRUNDTLAND COMMISSION (1987), "Our Common Future", *Report of the World Commission on Environment and Development*, United Nations.
- CALLAN S.J., THOMAS J.M. (2011), "Executive Compensation, Corporate Social Responsibility, and Corporate Financial Performance: A Multi-Equation Framework", *Corporate Social Responsibility and Environmental Management*, vol. 18, n. 6, pp. 332-351.
- CARNEVALE C., MAZZUCA M. (2014), "Sustainability report and bank valuation: Evidence from European stock markets", *Business Ethics: A European Review*, vol. 23, n. 1, pp. 69-90.
- CHATTERJI A., DURAND R., LEVINE D., TOUBOUL S. (2016), "Do ratings of firms converge? Implications for managers, investors and strategy researchers", *Strategic Management Journal*, vol. 37, n. 8, pp 1597-1614.
- CHENG B., IOANNOU I., SERAFEIM G. (2014), "Corporate social responsibility and access to finance", *Strategic Management Journal*, vol. 35, n. 1, pp. 1-23.
- CHIH H.L., CHIH H.H., CHEN T.Y. (2010), "On the Determinants of Corporate Social Responsibility: International Evidence on the Financial Industry", *Journal of Business Ethics*, vol. 93, n. 1, pp. 115-135.
- COMITATO PER LA CORPORATE GOVERNANCE (2020), *Codice di Corporate Governance*, January.
- CONSOB - COMMISSIONE NAZIONALE PER LE SOCIETÀ E LA BORSA (2017), "Disposizioni Attuative del Decreto Legislativo 30 dicembre 2016, n. 254 Relativo alla Comunicazione di Informazioni di Carattere Non Finanziario", *Documento di consultazione*, July.
- CONSOB - COMMISSIONE NAZIONALE PER LE SOCIETÀ E LA BORSA (2021), *Relazione per l'anno 2020*, 31 marzo.
- CORNELL B., DAMODARAN A. (2020), "Valuing ESG: Doing Good or Sounding Good?", *The Journal of Impact and ESG Investing*, vol. 1, n. 1, pp. 76-93.
- CORNETT M.M., ERHEMAMTS O., TEHRANIAN H. (2016), "Greed or good deeds: An examination of the relation between corporate social responsibility and the financial performance of U.S. commercial banks around the financial crisis", *Journal of Banking and Finance*, vol. 70, pp. 137-159.
- COULSON A.B. (2009), "How should banks govern the environment? Challenging the construction of action versus veto", *Business Strategy and the Environment*, vol. 18, n. 3, pp. 149-161.
- CRESPI F., MIGLIAVACCA M. (2020), "The Determinants of ESG Rating in the Financial Industry: The Same Old Story or a Different Tale?", *Sustainability*, vol. 12, n. 16, pp. 1-20.
- CUCARI N., ESPOSITO DE FALCO S., ORLANDO B. (2018), "Diversity of Board of Directors and Environmental Social Governance: Evidence from Italian Listed Companies", *Corporate Social Responsibility and Environmental Management*, vol. 25, n. 3, pp. 250-266.
- D'AMICO A. (1997), *La funzione armonizzatrice degli interessi convergenti nell'impresa*, Giappichelli Editori, Torino.
- DAVIS T., LESCOTT B. (2019), "ESG as a Value-Creation Tool for Active Investors: A Profile of Inherent Group", *Journal of Applied Corporate Finance*, vol. 31, n. 2, pp. 42-49.
- DHALIWAL D.S., RADHAKRISHNAN S., TSANG A., YANG Y.G. (2012), "Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure", *The Accounting Review*, vol. 87, n. 3, pp. 723-759.
- DORFMAN R., STEINER P.O. (1954), "Optimal advertising and optimal quality", *American Economic Review*, vol. 44, n. 5, pp. 826-836.
- EL GHOUL S., GUEDHAMI O., KWOK C.C.Y., MISHRA D.R. (2011), "Does corporate social responsibility affect the cost of capital?", *Journal of Banking and Finance*, vol. 35, n. 9, pp. 2388-2406.
- ESMA - EUROPEAN SECURITIES AND MARKETS AUTHORITY (2021), *ESMA Letter to EC on ESG Ratings*, ESMA 30-379-423, January.
- EUROPEAN COMMISSION (2020), *Study on Sustainability-Related Ratings, Data and Research*, November.
- EUROPEAN COMMISSION (2021), *Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting*, April.
- FERRANDO P.M. (2010), "Teoria della Creazione del Valore e Responsabilità Sociale dell'Impresa", *Impresa Progetto - Electronic Journal of Management*, n. 1, pp. 1-18.
- FERRARA G. (1995), *Pianificazione strategica*, in Caselli L. (a cura di), *Le parole dell'impresa*, vol. II, *Guida alla lettura del cambiamento*, FrancoAngeli, Milano.

- FREEMAN R.E. (1984), *Strategic Management: A Stakeholder Approach*, Cambridge University Press, Cambridge.
- FRIEDMAN H.L., HEINLE M.S. (2016), “Taste, Information, and Asset Prices: Implications for the Valuation of CSR”, *Review of Accounting Studies*, vol. 21, n. 3, pp. 740-767.
- GALBREATH J. (2013), “ESG in Focus: The Australian Evidence”, *Journal of Business Ethics*, vol. 188, n. 3, pp. 529-541.
- GANGI F., MUSTILLI M., VARRONE N. (2019), “The impact of corporate social responsibility (CSR) knowledge on corporate financial performance: evidence from the European banking industry”, *Journal of Knowledge Management*, vol. 23, n. 1, pp. 110-134.
- GIBSON R., KRUEGER P., SCHMIDT P.S. (2019), “ESG rating disagreement and stock returns”, *working paper*, European Corporate Governance Institute, pp. 1-47.
- GOLINELLI G.M. (2017), *L'Approccio Sistemico Vitale (ASV) al governo dell'impresa*, vol. I, *Verso l'impresa sistema sostenibile*, Cedam, Padova.
- GOLINELLI G.M., VOLPE L. (2012), *Consonanza, Valore, Sostenibilità: Verso l'Impresa Sostenibile*, Cedam, Padova.
- GOSS A., ROBERTS G.S. (2011), “The impact of corporate social responsibility on the cost of bank loans”, *Journal of Banking and Finance*, vol. 35, n. 7, pp. 1794-1810.
- GREENING D.W., TURBAN D.B. (2000), “Corporate social performance as a competitive advantage in attracting a quality workforce”, *Business & Society*, vol. 39, n. 3, pp. 254-280.
- GSSB - GLOBAL SUSTAINABILITY STANDARDS BOARD (2016), *GRI Standards*.
- GSSB - GLOBAL SUSTAINABILITY STANDARDS BOARD (2021), *GRI Standards*.
- GUATRI L. (1991), *La teoria di creazione del valore. Una via europea*, Egea, Milano.
- HAUSMAN J.A. (1978), “Specification tests in econometrics”, *Econometrica: Journal of the Econometric Society*, vol. 46, n. 6, pp. 1251-1271.
- HENGST I.A., JARZABKOWSKI P., HOEGL M., MUETHEL M. (2020), “Toward a process theory of making sustainability strategies legitimate in action”, *Academy of Management Journal*, vol. 63, n. 1, pp. 246-271.
- IFRS FOUNDATION (2021), *IFRS Foundation Trustees' Feedback Statement on the Consultation Paper on Sustainability Reporting*, April.
- IIRC - INTERNATIONAL INTEGRATED REPORTING COUNCIL (2021), *International <IR> Framework*, January.
- KHAN M., SERAFEIM G., YOON A. (2016), “Corporate Sustainability: First Evidence on Materiality”, *The Accounting Review*, vol. 91, n. 6, pp. 1697-1724.
- MARSAT S., WILLIAMS B. (2014), “Does the Market Value Social Pillar?”, *SSRN Electronic Journal*, pp. 1-21 (10.2139/ssrn.2419387).
- MILGROM P., ROBERTS J. (1986), “Price and advertising signals of product quality”, *Journal of Political Economy*, vol. 94, n. 4, pp. 796-821.
- MINTZBERG H. (1994), *The Rise and Fall of Strategic Planning*, Prentice Hall International Limited (trad. it., *Ascesa e declino della pianificazione strategica*, Isedi, Torino, 1996).
- MIRALLES-QUIRÒS M.M., MIRALLES-QUIRÒS J.L., GONÇALVES L.M.V. REDONDO-HERNÁNDEZ J. (2018), “The Value Relevance of Environmental, Social, and Governance Performance: The Brazilian Case The impact of environmental, social, and governance performance on stock prices: Evidence from the banking industry”, *Sustainability*, vol. 10, n. 3, pp. 1-15.
- NG A.C., ZABIHOLLAH R. (2015), “Business sustainability performance and cost of equity capital”, *Journal of Corporate Finance*, vol. 34, pp. 128-149.
- OHLSON J.A. (1995), “Earnings, book values and dividends in equity valuation”, *Contemporary Accounting Research*, vol. 11, n. 2, pp.661-686.
- OLIVEIRA J., AZEVEDO G., SILVA M.J. (2019), “Institutional and economic determinants of corporate social responsibility: institutional perspective”, *Meditari Accountancy Research*, vol. 27, n. 2, pp. 196-227.
- ORLITZKY M., SCHMIDT F.L., RYNES S.L. (2003). “Corporate social and financial performance: A meta-analysis”, *Organization Studies*, vol. 24, n. 3, pp. 403-441.
- PORTER M.E., KRAMER M.R. (2006), “Strategy & Society: The link between competitive advantage and Corporate Social Responsibility”, *Harvard Business Review*, vol. 84, n. 12, pp. 78-92.
- PORTER M.E., KRAMER M.R. (2011), “The Big Idea: Creating Shared Value. How to Reinvent Capitalism and Unleash a Wave of Innovation and Growth”, *Harvard Business Review*, vol. 89, n. 1-2, pp. 62-77.
- PORTER M.E., VAN DER LINDE C. (1995), “Toward a New Conception of the Environment-Competitiveness Relationship”, *Journal of Economic Perspectives*, vol. 9, n. 4, pp. 97-118.
- ROBINSON M., KLEFFNER A., BERTELS S. (2011), “Signaling Sustainability Leadership: Empirical Evidence of the Value of DJSI Membership”, *Journal of Business Ethics*, vol. 101, n. 3, pp. 493-505.
- RUTIGLIANO M. (2016), *Il bilancio delle banche e degli altri intermediari finanziari*, Egea, Milano.
- SAPPELLI G. (1995), *Finalità d'impresa, governo, valori*, in Caselli L. (a cura di), *Le parole dell'impresa*, vol. I, *Guida alla lettura del cambiamento*, FrancoAngeli, Milano.
- SCIARELLI S. (1997), *Economia e Gestione dell'Impresa*, Cedam, Padova.
- TCFD - TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (2017), *Final report. Recommendations of the Task Force on Climate-related Financial Disclosures*, June.

- TURBAN D.B., GREENING D.W. (1997), “Corporate social performance and organizational attractiveness to prospective employees”, *Academy of Management Journal*, vol. 40, n. 3, pp. 658-672.
- TURCO M. (2013), *La cultura aziendale quale leva dello sviluppo integrale dell’azienda e del contesto territoriale*, in GUIDO G., MASSARI S. (a cura di), *Lo sviluppo sostenibile. Ambiente, Risorse, Innovazione, Qualità*, FrancoAngeli, Milano.
- VERBEEK M. (2008), *A Guide to Modern Econometrics*, John Wiley & Sons, Ltd, Chichester.
- WADE-BENZONI K.A. (2002), “A golden rule over time: reciprocity in intergenerational allocation decisions”, *Academy of Management Journal*, vol. 45, n. 5, pp. 1011-1028.
- WEF - WORLD ECONOMIC FORUM (2020), *Measuring Stakeholder Capitalism Towards Common Metrics and Consistent Reporting of Sustainable Value Creation*, September.
- WITOLD J.H., MCGLINCH J. (2019), “ESG, Material Credit Events and Credit Risk”, *Journal of Applied Corporate Finance*, vol. 31, n. 2, pp. 105-117.
- WOOD D.J., JONES R.E. (1995), “Stakeholder mismatching: a theoretical problem in empirical research on corporate social performance”, *International Journal of Organizational Analysis*, vol. 3, n. 3, pp. 229-267.
- WU M.W., SHEN C.H. (2013), “Corporate social responsibility in the banking industry: Motives and financial performance”, *Journal of Banking and Finance*, vol. 37, n. 9, pp. 3529-3547.
- ZIOLO M., FILIPIAK B.Z., BAK I., CHEBA K. (2019), “How to Design More Sustainable Financial Systems: The Roles of Environmental, Social and Governance Factors in the Decision-Making Process”, *Sustainability*, vol. 11, n. 20, p. 1-34.

Il paradosso dell'organizational ambidexterity nelle servitizing firm: qual è il ruolo del narcisismo dell'imprenditore e dell'orientamento imprenditoriale?

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Inquadramento della ricerca. La capacità delle organizzazioni di bilanciare le attività di esplorazione (exploration) e di sfruttamento (exploitation) nella gestione aziendale per crescere e sopravvivere sia in ambienti stabili che instabili viene chiamata *organizational ambidexterity* (Lavie et al., 2010, Osiyevskyy et al., 2020). Ciò si verifica poiché entrambe le tipologie di attività consentono alle organizzazioni di creare opportunità, conoscenze e competenze muovendo da principi diversi (Abebe and Angriawan, 2014). Le attività di esplorazione, infatti, sono correlate alla capacità di sperimentare e sviluppare nuovi prodotti con il fine di soddisfare le esigenze dei clienti e del mercato (Greve, 2007, Mahmood and Mubarak, 2020) e si caratterizzano per un grado di incertezza elevato ed un tempo di ritorno dell'investimento lungo (Hou et al., 2019, Levinthal and March, 1993). Le attività di sfruttamento, invece, attengono all'utilizzo di opportunità, conoscenze e competenze esistenti con l'intento di estendere la conoscenza attuale e arricchire la base di clienti (Abebe and Angriawan, 2014, Hou et al., 2019). Dalle definizioni delle attività di esplorazione e sfruttamento emerge la loro riconducibilità rispettivamente alle innovazioni radicali e incrementali (Abebe and Angriawan, 2014), nonché alla presenza costante nel tempo di elementi contraddittori ma interconnessi, propri del paradosso (Smith and Lewis, 2011). Diversi studi hanno indagato le modalità di implementazione delle strategie di esplorazione e sfruttamento e la gestione delle relative tensioni all'interno di un'azienda al fine di raggiungere l'*organizational ambidexterity* (Laureiro-Martinez et al., 2015, Lavie et al., 2010, Raisch and Birkinshaw, 2008) e il massimo vantaggio competitivo (Bruyaka and Prange, 2020). In particolar modo, l'analisi di questa dualità sotto la lente della teoria del paradosso ha portato il dibattito scientifico ad approcci combinati e sinergici (Andriopoulos and Lewis, 2009, Schad et al., 2016, Raisch and Birkinshaw, 2008, Raisch et al., 2009), dimostrando che il paradosso crea un circolo virtuoso stimolante per le organizzazioni, in termini di crescita, performance e sopravvivenza (Smith and Tushman, 2005, Smith and Lewis, 2011, Putnam et al., 2016).

I cambiamenti nelle condizioni del mercato dei prodotti, nelle preferenze dei consumatori e nell'aumento della commoditization hanno inciso e messo in difficoltà le organizzazioni industriali, richiedendo una continua evoluzione dei modelli di business (Davies, 2004, Neu and Brown, 2008, Matthyssens and Vandenbempt, 2008). Le organizzazioni stanno passando da una logica aziendale orientata al prodotto a una orientata ai servizi, con lo scopo di aumentare il ruolo e l'impatto dei servizi al fine di incrementare le entrate ovvero raggiungere il profitto aziendale e favorire la soddisfazione del cliente (Fischer et al., 2010, Oliva and Kallenberg, 2003, Brown et al., 2009). Gli accademici hanno identificato questo fenomeno con il nome di *servitizing*, intesa come "transizione dai prodotti ai servizi" (Oliva and Kallenberg, 2003, Ceci and Prencipe, 2008) o "infusione di servizi" (Brax, 2005) per sviluppare soluzioni di alto valore (Vandermerwe and Rada, 1988, Oliva and Kallenberg, 2003, Davies, 2004). Tale passaggio viene concettualizzato dagli studiosi attraverso la definizione di nuovi processi di sviluppo dei servizi in termini di determinanti o antecedenti (Lightfoot and Gebauer, 2011), che portano a un'innovazione di successo del servizio all'interno delle varie iniziative lanciate dai produttori (Raddats et al., 2019). Le imprese potrebbero optare per un cambio del paradigma di una parte della propria offerta verso i servizi ovvero adottare cambiamenti incrementali (Barnett et al., 2013), oppure innovare con un approccio radicale il modello di business dei servizi (Kindström and Kowalkowski, 2014, Witell and Löfgren, 2013). La necessità delle organizzazioni di far fronte alle innovazioni radicali e/o incrementali e le relative tensioni allo sviluppo di nuovi servizi mutua il paradosso dell'*organizational ambidexterity*, in linea con la crescente rilevanza che quest'ultimo sta assumendo in numerosi settori (Junni et al., 2013, Shiue et al., 2021, Kohtamäki et al., 2018, Kowalkowski et al., 2017).

Il ruolo dell'imprenditore, pertanto, assume rilevanza assoluta in tale contesto, per via della conoscenza degli individui e delle risorse dell'organizzazione e del comportamento che egli può assumere nella gestione e risoluzione del paradosso dell'*ambidexterity* (Stadler et al., 2014, Lubatkin et al., 2006). In particolar modo, la presente ricerca

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intende focalizzarsi su due aspetti che, fra gli altri, incidono nella definizione delle strategie e nelle decisioni organizzative: i tratti della personalità (Mitchell et al., 2002) e l'orientamento imprenditoriale (Anderson et al., 2015, Miller and Friesen, 1982). I tratti della personalità sono definiti come caratteristiche comportamentali individuali che descrivono i diversi comportamenti delle persone in situazioni comparabili, che tendono a non cambiare nel tempo (Nga and Shamuganathan, 2010, Leonelli et al., 2016). Secondo la letteratura accademica, l'importanza di affermare un profilo psicologico per gli imprenditori risiede nella capacità di comprendere come i loro comportamenti influenzino le strategie e le decisioni organizzative (Mitchell et al., 2002). Fra i vari tratti della personalità indagati dagli studiosi (ad esempio, ottimismo, locus of control, machiavellismo), la nostra ricerca si interessa al narcisismo, inteso come arroganza, grandiosità e superbia di individui che si considerano superiori e ammirevoli, e quindi agiscono come autoritari, sfruttando gli altri con una profonda mancanza di empatia (Campbell et al., 2004, Chatterjee and Hambrick, 2007, Rosenthal and Pittinsky, 2006, Wales et al., 2013, Leonelli et al., 2019a). L'orientamento imprenditoriale (EO) è considerato una forza trainante dietro l'attività imprenditoriale ed emerge come una delle questioni principali della letteratura accademica (Covin and Wales, 2012, Anderson et al., 2015). L'EO include comportamenti imprenditoriali e propensione all'assunzione di rischi (Anderson et al., 2015). I comportamenti imprenditoriali si riferiscono all'intento dell'imprenditore di attuare una strategia di innovazione (ad esempio, essere innovativi) e commercializzare l'invenzione (ad esempio, proattività) (Anderson et al., 2015, Miller and Friesen, 1982). L'inclinazione al rischio riguarda la predisposizione dell'impresa a supportare piani strategici con risultati incerti (Miller, 1983). La scelta di analizzare il narcisismo e l'EO degli imprenditori nello sviluppo di nuovi servizi ricorrendo all'approccio dell'ambidexterity nelle servitizing firm si basa su diversi interessi. Il primo attiene alla comprensione della profonda capacità del tratto narcisistico, qualora presente, di incidere nelle scelte strategiche (Chatterjee and Hambrick, 2007) poiché prevalentemente riscontrabile nel top management (Engelen et al., 2016, Grijalva and Harms, 2014). Il secondo ricollega la necessità dell'EO nell'ambiente delle servitizing firm (Pinar et al., 2017) sicché l'innovazione e la propensione al rischio consentono di rispondere al rinnovamento necessario (Zahra, 1993, Zahra, 1991), per ottenere un vantaggio competitivo e generare nuovo valore per i clienti (Baines et al., 2009, Vandermerwe and Rada, 1988).

Obiettivo del paper. Le servitizing firm, in particolare le PMI, a causa delle loro limitate risorse interne o dello scarso accesso alle risorse esterne, si trovano spesso di fronte alla scelta di bilanciare le attività di esplorazione e sfruttamento (Cao et al., 2009, Junni et al., 2013). Pertanto, il ruolo degli imprenditori è fondamentale per gestire e risolvere il paradosso dell'ambidexterity (Stadler et al., 2014, Lubatkin et al., 2006). Questa affermazione si inserisce bene nel contesto italiano, in cui il ruolo dell'imprenditore è ancora molto rilevante in tutte le organizzazioni e più in generale nella società (Leonelli et al., 2019a, Iaia et al., 2019).

La presente ricerca esamina il paradosso dell'organizational ambidexterity delle servitizing firm, analizzando come i tratti della personalità e l'EO degli imprenditori potrebbero aiutare a gestire l'ambidexterity. Dall'analisi condotta, nessuno studio indaga l'impatto di tali variabili a livello individuale (es. tratto di personalità) e organizzativo (es. EO) nel paradosso dell'organizational ambidexterity per le servitizing firm (Mom et al., 2009). Inoltre, a livello organizzativo, si indaga l'effetto moderatore dell'EO nel rapporto tra narcisismo degli imprenditori e organizational ambidexterity.

Riassumendo, le domande di ricerca affrontate nel presente studio sono: "In che modo il narcisismo degli imprenditori influisce sul paradosso dell'organizational ambidexterity? In che modo EO modera il rapporto tra il narcisismo imprenditoriale e il paradosso dell'organizational ambidexterity?"

Metodologia. Al fine di estrarre 500 piccole imprese è stato effettuato un campionamento randomico dal registro delle imprese delle Camere di Commercio italiane. I parametri individuati per la selezione del campione hanno consentito la selezione d'impresе di piccole dimensioni (meno di 50 dipendenti), ancora in attività (nessuna procedura di liquidazione, cessione o fallimento in atto) e con sede in Italia. Gli imprenditori selezionati sono stati contattati ricorrendo ai profili LinkedIn o agli indirizzi e-mail ufficiali. Nel primo contatto è stato spiegato il progetto di ricerca, specificando il concetto di servitizing e verificando l'implementazione da parte dell'impresa delle strategie di servitizing. In caso affermativo è stata chiesta all'imprenditore la disponibilità a partecipare all'indagine. Solo a coloro che hanno acconsentito è stato inviato il link al questionario, costruito tramite Google Moduli e somministrato tra marzo e novembre 2018. Al fine di incoraggiare la partecipazione degli imprenditori, sono state inviate tre e-mail di sollecito per ricordarne la compilazione.

In totale sono state ricevute 114 risposte utilizzabili con un tasso di risposta del 22,80%, una buona percentuale se comparata con quella di altri studi che hanno intervistato imprenditori reali (Block et al., 2013). I costrutti utilizzati nello studio sono stati misurati utilizzando scale già validate in letteratura, tradotte dalla lingua inglese a quella italiana utilizzando la tecnica della back-translation (Brislin, 1980). Ogni risposta è stata misurata su una scala Likert con risposte che variavano da mai/non sono d'accordo (1) a frequentemente/fortemente d'accordo (5).

Il questionario comprende tre sezioni: la prima, mira ad investigare e costruiti a livello di impresa con l'obiettivo di investigare le attività di esplorazione e sfruttamento, attraverso la scala sviluppata da Mom et al. (2007), e l'orientamento imprenditoriale, usando la scala di Hughes and Morgan (2007); la seconda sezione mira ad investigare il livello di narcisismo degli imprenditori, usando la versione breve del Narcissistic Personality Inventory (NPI-16) creato da Ames et al. (2006); infine, la terza sezione rileva i dettagli personali degli imprenditori come età, sesso, e livello educativo.

La variabile dipendente (organizational ambidexterity) è stata costruita moltiplicando tra di loro le variabili relative alle attività di esplorazione e sfruttamento (Cao et al., 2009).

Prima di procedere all'analisi del modello presentato, è stata condotta la Confirmatory Factor Analysis (CFA) per tutte le scale utilizzate; i risultati della CFA hanno fornito l'adeguato supporto per l'affidabilità e la validità dei costrutti di questo studio. Infine, le ipotesi sono state testate usando l'analisi di regressione gerarchica attraverso il software Stata 16.

Risultati. Le piccole imprese che hanno partecipato all'indagine sono ben dislocate nel territorio italiano (il 38,54% nel Nord e nel Centro, rispettivamente, e il 22,92% nel Sud e Isole), sono relativamente giovani (il 41,67% è stato fondato da meno di 9 anni, il 42,71 da 10-19 anni e il 15,62% da più di 20 anni) e sono di piccole dimensioni (il 53,12% ha meno di 5 dipendenti, il 26,04% tra 6 e 15, il 12,50% tra 16 e 30 e l'8,33% tra 31 e 50). Riguardo agli imprenditori, essi sono principalmente uomini (87,50%), con un'età compresa tra i 40 e 49 anni (40,62%) ed un livello di studio elevato (il 50,00% possiede una laurea magistrale).

La Tabella 1 riporta i risultati delle regressioni. Il modello 1 considera solo le variabili di controllo, il modello 2 include anche la variabile indipendente (cioè il narcisismo degli imprenditori) e la variabile moderatrice (l'orientamento imprenditoriale), mentre il modello 3 include la moderazione vera e propria.

Tab. 1: Risultati l'analisi di regressione gerarchica (N=114).

Variabile dipendente: Organizational ambidexterity	Modello 1		Modello 2		Modello 3	
	β	SE	β	SE	β	SE
Costante	1.039*	0.505	1.278**	0.487	0.981*	0.457
<i>Variabili di controllo</i>						
Educazione dell'imprenditore	-0.098	0.082	-0.149	0.080	-0.161*	0.074
Età dell'imprenditore	-0.010	0.009	-0.008	0.009	-0.004	0.008
Dimensione dell'azienda	-0.051	0.171	-0.118	0.164	-0.029	0.154
Età dell'azienda	0.000	0.016	-0.002	0.015	-0.008	0.014
<i>Area geografica</i>						
Centro	0.186	0.195	0.006	0.194	-0.002	0.179
Sud e Isole	-0.031	0.225	-0.061	0.216	-0.062	0.200
<i>Effetti principali</i>						
Narcisismo dell'imprenditore			-0.290***	0.090	-0.366***	0.086
Orientamento imprenditoriale			-0.004	0.096	0.129	0.095
<i>Effetto moderatore</i>						
Narcisismo dell'imprenditore x Orientamento imprenditoriale					0.361***	0.092
R-squared	0.048		0.157*		0.286***	
Adj R-squared	0.016		0.079		0.211	
RMSE	0.807		0.769		0.712	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

SE= errore standard

L'ipotesi 1 suggeriva che il narcisismo degli imprenditori ha un effetto negativo sull'organizational ambidexterity; questo risultato è supportato sia nel modello 2 sia nel modello 3 della Tabella 1, dove vi è l'esistenza di una relazione negativa e significativa tra il narcisismo degli imprenditori e l'organizational ambidexterity ($\beta = -0.290$, $p < 0.001$; $\beta = -0.366$, $p < 0.001$, rispettivamente). Nel modello 3, la variabile moderatrice (narcisismo dell'imprenditore x orientamento imprenditoriale) ha una relazione positiva e significativa con l'organizational ambidexterity ($\beta = 0.361$, $p < 0.001$), supportando l'ipotesi 2 e cioè alti livelli dell'orientamento imprenditoriale diminuisce l'effetto negativo che il narcisismo imprenditoriale ha sull'organizational ambidexterity. L'effetto della moderazione è stato controllato anche calcolando l'intervallo di Johnson-Neyman ed effettuando l'analisi simple slopes; i risultati confermano le dinamiche sopracitate.

Limiti della ricerca. I limiti di questo studio sono un punto di partenza per ricerche future. In primo luogo, il campione è composto solo da aziende italiane e ciò non consente di determinare se le culture nazionali possono impattare sul narcisismo dell'imprenditore, sull'orientamento imprenditoriale o sull'organizational ambidexterity. In studi futuri si potrebbe replicare la ricerca considerando altri paesi con culture completamente diverse, ad esempio la Cina che ha una cultura più collettivista rispetto alle economie occidentali, e verificare se esse possono influenzare la personalità e le attitudini degli imprenditori. In secondo luogo, posto che l'analisi ha riguardato le piccole imprese, si potrebbe considerare, in futuri studi, un campione di grandi imprese per dimostrare se la dimensione dell'impresa può avere un effetto sulle attività di esplorazione e sfruttamento o sull'orientamento imprenditoriale. In terzo luogo, il focus di questo lavoro è su un solo tratto della personalità; studi futuri potrebbero investigare altri tratti della personalità, tra cui overconfidence, umiltà e locus of control. In ultimo, siccome il setting empirico racchiude dati raccolti in un determinato periodo temporale, si potrebbe replicare il questionario nei prossimi tre o cinque anni in modo da rilevare se l'età o gli eventi della vita (a titolo esemplificativo, la pandemia da COVID-19) possono aver mitigato o ampliato l'effetto del narcisismo.

Implicazioni manageriali. La ricerca condotta presenta implicazioni pratiche per gli imprenditori, gli investitori ed i formatori delle servitizing firm. È emerso che gli imprenditori necessitano una migliore comprensione della rilevanza dei tratti e degli atteggiamenti della personalità poiché questi possono influire su strategie e risultati aziendali. Parimenti, gli investitori potrebbero incorporare le misure riguardanti la rilevazione dei tratti e degli

attributi della personalità, come il narcisismo, negli strumenti utilizzati da venture capitalist, banchieri, agenzie pubbliche e altri investitori, per selezionare e valutare candidati con il potenziale per creare aziende ad alte prestazioni. Infine, gli educatori potrebbero considerare lo sviluppo di corsi ad hoc per lavorare sul miglioramento degli atteggiamenti imprenditoriali dei futuri fondatori di aziende e sui livelli di EO dei futuri imprenditori per garantire la capacità di gestione del paradosso dell'ambidexterity.

Originalità del paper. Lo studio ha esaminato l'influenza del narcisismo degli imprenditori e dell'EO sulla gestione del paradosso dell'organizational ambidexterity nelle servitizing firm. È stato rilevato che il narcisismo ha un effetto negativo sull'ambidexterity e che l'EO modera la relazione mitigando l'effetto negativo del narcisismo. I risultati supportano implicazioni sia teoriche che pratiche. Sul versante teorico, contribuiamo con la letteratura sul paradosso dell'ambidexterity sottolineando l'importanza di gestire le tensioni a livello individuale e organizzativo (Raisch et al., 2009). A livello individuale, lo studio si è concentrato sui tratti personali degli imprenditori, come il narcisismo, dimostrandone l'impatto negativo sulla gestione del paradosso dell'organizational ambidexterity nelle servitizing firm. A livello organizzativo, indagando il ruolo moderatore dell'EO, si contribuisce alla letteratura esistente sottolineando l'importanza di tale dinamica anche nelle piccole imprese. Per quanto conosciuto sino ad ora, queste dinamiche sono solitamente approfondite nelle grandi imprese.

In secondo luogo, un ulteriore contributo è ascrivibile alla letteratura sul narcisismo, esplorando ed evidenziando l'importanza della personalità degli imprenditori nella gestione e nell'organizzazione delle piccole imprese (Leonelli et al., 2019b). I risultati ottenuti sono in linea con la letteratura, confermando che esiste una differenza significativa tra CEO narcisisti e non narcisisti nelle loro scelte strategiche (Chatterjee and Hambrick, 2007) e che gli individui narcisisti tendono ad essere percepiti da altri individui come influenti (Judge et al., 2006, Engelen et al., 2016). Tuttavia, nel paradosso dell'organizational ambidexterity, la figura dell'imprenditore narcisistico è dannosa nella gestione del paradosso stesso. In questo senso, analizzando gli effetti del narcisismo, si contribuisce a un flusso di lavoro più recente sul narcisismo imprenditoriale (Maccoby, 2000, Maccoby, 2003, Kashmiri et al., 2017).

Il terzo contributo attiene alla letteratura sulle servitizing firm mostrando come l'EO potrebbe incidere sullo sviluppo di innovazioni radicali e incrementali nel settore. In dettaglio, concordando con Pinar et al. (2017), è stato dimostrato che l'EO contribuisce fortemente alla gestione del paradosso dell'organizational ambidexterity nelle servitizing firm.

Parole chiave: organizational ambidexterity; paradosso organizzativo; servitizing firm; narcisismo degli imprenditori; orientamento imprenditoriale

Bibliografia

- ABEBE M.A., ANGRIAWAN A. (2014), "Organizational and competitive influences of exploration and exploitation activities in small firms", *Journal of Business Research*, n. 67, pp. 339-345.
- AMES D.R., ROSE P. ANDERSON C.P. (2006), "The NPI-16 as a short measure of narcissism", *Journal of Research in Personality*, n. 40, pp. 440-450.
- ANDERSON B.S., KREISER P.M., KURATKO D.F., HORNSBY J.S. ESHIMA Y. (2015), "Reconceptualizing entrepreneurial orientation", *Strategic Management Journal*, n. 36, pp. 1579-1596.
- ANDRIOPOULOS C., LEWIS M.W. (2009), "Exploitation-Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation", *Organization Science*, n. 20, pp. 696-717.
- BAINES T.S., LIGHTFOOT H.W., BENEDETTINI O., KAY J.M. (2009), "The servitization of manufacturing", *Journal of Manufacturing Technology Management*, n. 20, pp. 547-567.
- BARNETT N.J., PARRY G., SAAD M., NEWNES L.B., GOH Y.M. (2013), "Servitization: Is a Paradigm Shift in the Business Model and Service Enterprise Required?", *Strategic Change*, n. 22, pp. 145-156.
- BLOCK J., SANDNER P. SPIEGEL F. (2013), "How Do Risk Attitudes Differ within the Group of Entrepreneurs? The Role of Motivation and Procedural Utility", *Journal of Small Business Management*, n. 53, pp. 183-206.
- BRAX S. (2005), "A manufacturer becoming service provider - challenges and a paradox", *Managing Service Quality: An International Journal*, n. 15, pp. 142-155.
- BRISLIN R.W. (1980), "Translation and content analysis of oral and written material. In: TRIANDIS H. C. BERRY J. W. (eds.) *Handbook of cross-cultural psychology: Methodology*. Boston, MA: Allyn and Bacon.
- BROWN S.W., GUSTAFSSON A., WITTELL L. (2009), "Beyond products. *Wall Street Journal*, p.144.
- BRUYAKA O., PRANGE C. (2020), "International cultural ambidexterity: Balancing tensions of foreign market entry into distant and proximate cultures", *Journal of Business Research*, n. 118, pp. 491-506.
- CAMPBELL W.K., GOODIE A.S., FOSTER J.D. (2004), "Narcissism, confidence, and risk attitude", *Journal of Behavioral Decision Making*, n. 17, pp. 297-311.
- CAO Q., GEDAJLOVIC E. ZHANG H. (2009), "Unpacking Organizational Ambidexterity: Dimensions, Contingencies, and Synergistic Effects", *Organization Science*, n. 20, pp. 781-796.
- CECI F., PRENCIPE A. (2008), "Configuring Capabilities for Integrated Solutions: Evidence from the IT Sector", *Industry & Innovation*, n. 15, pp. 277-296.

- CHATTERJEE A., HAMBRICK D.C. (2007), "It's All about Me: Narcissistic Chief Executive Officers and Their Effects on Company Strategy and Performance", *Administrative Science Quarterly*, n. 52, pp. 351-386.
- COVIN J.G., WALES W.J. (2012), "The measurement of entrepreneurial orientation", *Entrepreneurship theory and practice*, n. 36, pp. 677-702.
- DAVIES A. (2004), "Moving base into high-value integrated solutions: a value stream approach", *Industrial and corporate change*, n. 13, 7 pp. 27-756.
- ENGELEN A., NEUMANN C., SCHMIDT S. (2016), "Should entrepreneurially oriented firms have narcissistic CEOs?", *Journal of Management*, n. 42, pp. 698-721.
- FISCHER T., GEBAUER H., GREGORY M., REN G., FLEISCH E. (2010), "Exploitation or exploration in service business development? *Journal of Service Management*, n. 21, pp. 591-624.
- GREVE H.R. (2007), "Exploration and exploitation in product innovation", *Industrial and Corporate Change*, n. 16, pp. 945-975.
- GRIJALVA E., HARMS P.D. (2014), "Narcissism: An integrative synthesis and dominance complementarity model", *The Academy of Management Perspectives*, n. 28, pp. 108-127.
- HOU B., HONG J. ZHU R. (2019), "Exploration/exploitation innovation and firm performance: the mediation of entrepreneurial orientation and moderation of competitive intensity", *Journal of Asia Business Studies*, n. 13, 489-506.
- HUGHES M, MORGAN R.E. (2007), "Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. *Industrial marketing management*, n. 36, pp. 651-661.
- IAIA L., VRONTIS D., MAIZZA A., FAIT M., SCORRANO P., CAVALLO F. (2019), "Family businesses, corporate social responsibility, and websites: The strategies of Italian wine firms in talking to stakeholders. *British Food Journal*, n. 121, pp. 1442-1466.
- JUDGE T.A., LEPINE J.A., RICH B.L. (2006), "Loving yourself abundantly: relationship of the narcissistic personality to self-and other perceptions of workplace deviance, leadership, and task and contextual performance", *Journal of Applied Psychology*, n. 91, pp. 762-776.
- JUNNI P., SARALA R.M., TARAS V., TARBA S.Y. (2013), "Organizational Ambidexterity and Performance: A Meta-Analysis", *Academy of Management Perspectives*, n. 27, pp. 299-312.
- KASHMIRI S., NICOL C.D., ARORA S. (2017), "Me, myself, and I: influence of CEO narcissism on firms' innovation strategy and the likelihood of product-harm crises", *Journal of the Academy of Marketing Science*, n. 45, pp. 633-656.
- KINDSTRÖM D., KOWALKOWSKI C. (2014), "Service innovation in product-centric firms: a multidimensional business model perspective", *Journal of Business & Industrial Marketing*, n. 29, pp. 96-111.
- KOHTAMÄKI M., RABETINO R. EINOLA S. (2018), "Paradoxes in servitization. In: Kohtamäki M., Baines T., Rabetino R., Bigdeli A.Z. (eds.) *Practices and tools for servitization*. Cham: Palgrave Macmillan.
- KOWALKOWSKI C., GEBAUER H., KAMP B., PARRY G. (2017), "Servitization and deservitization: Overview, concepts, and definitions. *Industrial Marketing Management*, n. 60, pp. 4-10.
- LAUREIRO-MARTÍNEZ D., BRUSONI S., CANESSA N., ZOLLO M. (2015), "Understanding the exploration-exploitation dilemma: An fMRI study of attention control and decision-making performance", *Strategic Management Journal*, n. 36, pp. 319-338.
- LAVIE D., STETTNER U., TUSHMAN M.L. (2010), "Exploration and exploitation within and across organizations", *Academy of Management Annals*, n. 4, pp. 109-155.
- LEONELLI S., CECI F., MASCIARELLI F. (2016), "The importance of entrepreneurs' traits in explaining start-ups' innovativeness. *Sinergie Italian Journal of Management*, vol. 34, pp. 71-85.
- LEONELLI S., CECI F., MASCIARELLI F. (2019a), "I am apt to show off": exploring the relationship between entrepreneurs' narcissism and start-up innovation", *Sinergie Italian Journal of Management*, vol. 37, pp. 39-62.
- LEONELLI S., MASCIARELLI F., FONTANA F. (2019b), "The impact of personality traits and abilities on entrepreneurial orientation in SMEs", *Journal of Small Business & Entrepreneurship*.
- LEVINTHAL D.A., MARCH J.G. (1993), "The myopia of learning", *Strategic management journal*, n. 14, pp. 95-112.
- LIGHTFOOT H.W., GEBAUER H. (2011), "Exploring the alignment between service strategy and service innovation", *Journal of Service Management*, n. 22, pp. 664-683.
- LUBATKIN M.H., SIMSEK Z., LING Y. VEIGA J.F. (2006), "Ambidexterity and Performance in Small-to Medium-Sized Firms: The Pivotal Role of Top Management Team Behavioral Integration", *Journal of Management*, n. 32, pp. 646-672.
- MACCOBY M. (2000), "Narcissistic leaders: The incredible pros, the inevitable cons", *Harvard Business Review*, n. 78, pp. 68-78.
- MACCOBY M. (2003), *The productive narcissist: The promise and peril of visionary leadership*, New York, NY, Broadway Books.
- MAHMOOD T., MUBARIK M.S. (2020), "Balancing innovation and exploitation in the fourth industrial revolution: Role of intellectual capital and technology absorptive capacity. *Technological forecasting and social change*, n. 160, pp. 120248.

- MATTHYSSENS P. VANDENBEMPT K. (2008), "Moving from basic offerings to value-added solutions: Strategies, barriers and alignment", *Industrial Marketing Management*, n. 37, pp. 316-328.
- MILLER D. (1983), "The correlates of entrepreneurship in three types of firms", *Management Science*, n. 29, pp. 770-791.
- MILLER D., FRIESEN P.H. (1982), "Structural change and performance: Quantum versus piecemeal-incremental approaches", *Academy of Management Journal*, n. 25, pp. 867-892.
- MITCHELL R.K., BUSENITZ L., LANT T., MCDUGALL P.P., MORSE E.A., SMITH J.B. (2002), "Toward a theory of entrepreneurial cognition: Rethinking the people side of entrepreneurship research", *Entrepreneurship Theory and Practice*, n. 27, pp. 93-104.
- MOM T.J.M., VAN DEN BOSCH F.A.J., VOLBERDA H.W. (2007), "Investigating Managers' Exploration and Exploitation Activities: The Influence of Top-Down, Bottom-Up, and Horizontal Knowledge Inflows*", *Journal of Management Studies*, n. 44, pp. 910-931.
- MOM T.J.M., VAN DEN BOSCH F.A.J., VOLBERDA H.W. (2009), "Understanding Variation in Managers' Ambidexterity: Investigating Direct and Interaction Effects of Formal Structural and Personal Coordination Mechanisms", *Organization Science*, n. 20, pp. 812-828.
- NEU W.A., BROWN S.W. (2008), "Manufacturers forming successful complex business services. *International Journal of Service Industry Management*, n. 19, pp. 232-251.
- NGA J.K.H., SHAMUGANATHAN G. (2010), "The influence of personality traits and demographic factors on social entrepreneurship start up intentions", *Journal of Business Ethics*, n. 95, pp. 259-282.
- OLIVA R., KALLENBERG R. (2003), "Managing the transition from products to services. *International Journal of Service Industry Management*, n. 14, pp. 160-172.
- OSIYEVSKYY O., SHIROKOVA G., RITALA P. (2020), "Exploration and exploitation in crisis environment: Implications for level and variability of firm performance", *Journal of Business Research*, n. 114, pp. 227-239.
- PINAR I.S., MAGRO C.G., GARCÍA C.C., COSTA M.J.P. (2017), Corporate Entrepreneurship and Servitization: An integrative model of types of services and activities. 6th International Business Servitization Conference, 2017 Barcelona. 73-73.
- PUTNAM L.L., FAIRHURST G.T., BANGHART S. (2016), "Contradictions, dialectics, and paradoxes in organizations: A constitutive approach", *Academy of Management Annals*, n. 10, pp. 65-171.
- RADDATS C., KOWALKOWSKI C., BENEDETTINI O., BURTON J., GEBAUER H. (2019), "Servitization: A contemporary thematic review of four major research streams. *Industrial Marketing Management*, n. 83, pp. 207-223.
- RAISCH S. BIRKINSHAW J. (2008), "Organizational Ambidexterity: Antecedents, Outcomes, and Moderators", *Journal of Management*, n. 34, pp. 375-409.
- RAISCH S., BIRKINSHAW J., PROBST G. TUSHMAN M. L. (2009), "Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance", *Organization Science*, n. 20, pp. 685-695.
- ROSENTHAL S.A. PITTINSKY T.L. (2006), "Narcissistic leadership", *The Leadership Quarterly*, n. 17, pp. 617-633.
- SCHAD J., LEWIS M.W., RAISCH S., SMITH W.K. (2016), "Paradox Research in Management Science: Looking Back to Move Forward", *Academy of Management Annals*, n. 10, pp. 5-64.
- SHIUE W., TUNCDOGAN A., WANG F., BREDICAN J. (2021), "Strategic enablers of service-sales ambidexterity: A preliminary framework and research agenda. *Industrial Marketing Management*, n. 92, pp. 78-86.
- SMITH W.K., LEWIS M.W. (2011), "Toward a theory of paradox: A dynamic equilibrium model of organizing", *Academy of management Review*, n. 36, pp. 381-403.
- SMITH W.K., TUSHMAN M.L. (2005), "Managing Strategic Contradictions: A Top Management Model for Managing Innovation Streams", *Organization Science*, n. 16, pp. 522-536.
- STADLER C., RAJWANI T., KARABA F. (2014), "Solutions to the exploration/exploitation dilemma: Networks as a new level of analysis. *International Journal of Management Reviews*, n. 16, pp. 172-193.
- VANDERMERWE S., RADA J. (1988), "Servitization of business: Adding value by adding services. *European Management Journal*, n. 6, pp. 314-324.
- WALES W.J., PATEL P.C., LUMPKIN G.T. (2013), "In Pursuit of Greatness: CEO Narcissism, Entrepreneurial Orientation, and Firm Performance Variance", *Journal of Management Studies*, n. 50, pp. 1041-1069.
- WITTELL L., LÖFGREN M. (2013), "From service for free to service for fee: business model innovation in manufacturing firms", *Journal of Service Management*, n. 24, pp. 520-533.
- ZAHRA S.A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: An exploratory study", *Journal of Business Venturing*, n. 6, pp. 259-285.
- ZAHRA S.A. (1993), "A Conceptual Model of Entrepreneurship as Firm Behavior: A Critique and Extension", *Entrepreneurship Theory and Practice*, n. 17, pp. 5-21.

The role of trust in business modelling of Italian benefit corporation: the case of Damiano SpA

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Framing of the research. *In the digital, globalized and interconnected economy, trust is a critical factor of competitiveness. The current context is characterized by the pervasiveness of social networks, massive access to information, new consumption behaviors and the spread of platforms and ecosystems that regulate relationships and exchanges between firms and people. We are at the beginning of a period in which the ways of doing business require greater collaboration.*

The topic of trust originates in sociology and psychology research to study interpersonal phenomena. In this context it was defined as the attribute created by the interaction of different parts (Luhmann, 1979). Over the years, the interest has extended to other scientific areas including managerial studies to understand the intra-firms and inter-firms relationships and the interactions between firms and other stakeholders. The necessity of trust has been mentioned in various contexts such as online platform (Ter Huurne et al., 2017), sharing economy (Pies et al, 2020), accounting and reporting (La Torre et al, 2020) knowledge-management (Lucas, 2005) and marketing (Morgan and Hunt, 1994).

Previous studies have highlighted positive effects of trust on corporate performance such as greater collaborations with firms, lower transaction costs and less opportunistic behaviors. In particular, trust is critical to successful reciprocal exchanges because when it is present, parties are more likely to fulfill their commitments (Colquitt et al, 2012). So trust is a confidence in the reliability of an exchange partner and the source of positive relationship (Neumann et al., 2020).

Social exchange theory, for example, has suggested the importance of trust for the development and quality of exchange relationships in terms of lower uncertainty (Blau, 1964), while social penetration theory highlights the role of information exchange and voluntary disclosure (Altman and Taylor, 1973).

Furthermore, trust is a strategic asset of the transformation process to which firms are called and becomes a factor directly linked to the way to create value both in the short and in the long term. For this reasons, in recent studies it has been considered as a key attribute of business model (Jablonski and Jablonski, 2019).

The study of trust is even more important when associated with the topic of triple sustainability. Its role has been analyzed in terms of sustainable positioning, sustainable branding and voluntary disclosure. For example, several authors have stated that the firm's sustainable image strengthens the bond with the partners (Mezger et al., 2020; Dowell et al., 2020). This implies the importance of strengthening the corporate reputation that is closely related to trust (Doney and Cannon, 1997). While trust is based on the knowledge of the trustee, reputation is a perception and is based on third-party evaluations (Jøsang et al., 2007). A favorable reputation enables firms to gain stakeholder confidence in firms' ability to attract resources and meet performance standards in sustainable ways (Fombrun and Shanley, 1990). A positive consequence will be the lesser monitoring of reciprocal behaviors (Qureshi et al., 2020). Firms should also try to obtain certifications from third parties that can be mentioned in the corporate communication to further strengthen the sustainable image and create greater external trust.

Moreover, the declaration of a clear sustainable mission makes the firm more reliable and induces the parties such as suppliers, employees and consumers to collaborate voluntarily to joint value creation (Pies et al.,2020).

Previous studies, therefore, have focused mainly on issues of marketing. No study has considered in holistically way the role of trust in for-profit firms that voluntarily decide to follow a double mission and to adopt a sustainability-driven hybrid business model, although this topic has recently become the focus of academic research. So, this research gap provides the motivation for the current study.

Hybrid business model combine market and purpose oriented logics, facing the tension of balancing social, environmental and economic logics (Hestad et al, 2020). Its distinct characteristics are represented by (1) the integration between traditional business goals and social and environmental needs; (2) the relevance of relationships with suppliers and customers and (3) the continuous interaction with the market and all stakeholders.

One of the most interesting phenomena that is affecting the debate on hybrid organization is the growing number of firms that are transforming into benefit corporation. Respect to traditional for-profit sustainable enterprise, the configuration of business models of benefit corporations is based on the incorporation of social and environmental needs into the firm's mission, pursuing them in a contemporary and non-sequential way. The Italian version of benefit

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corporation so-called “società benefit” was introduced at the end of 2015. Italy was the first European country to introduce this new legal form.

By contrast, the B-Corps are firms with a certification that regard the level of responsible business conduct. To obtain this certification, the firm is subject to a “B Impact Assessment” (BIA) powered by B-Lab that evaluates firms across five categories: environment, employees, customers, community and governance. In order to become a certified B Corp, a company must meet the performance of these five areas a score a minimum of 80 out of 200 points.

Prior research about benefit corporation and B-Corp have analyze the motivation under the firm transformation (Del Baldo, 2019), the mechanisms to ensure transparency and the accounting systems (Nigri and Del Baldo, 2018), the integration of social and environmental goals into the activities (Stubbs, 2017), the process of organizational design (Moroz et al., 2021), the governance (Nigri et al., 2020) and the impact in sustainable development using structuration theory (Tabares et al. 2021).

Purpose of the paper. Starting from these specificities, our study aims to deepen the relationship between trust and the Italian benefit corporation using business model as an analytical lens.

Specifically, this paper focuses on the following research questions:

- How does trust affect the elements of sustainability-driven hybrid business model of Italian benefit corporation?
- How does the trust generate advantages or disadvantages in Italian benefit corporation?

Methodology. We seek to enhance knowledge about trust and benefit corporation from a business model perspective.

To capture the role of trust resource in the complexity of this new form of enterprise we followed a qualitative research approach, the single case study approach. The rationale behind a qualitative methodology lies in the exploratory nature of the study (Eisenhardt, 1989; Yin, 2014). Case studies can be considered an appropriate research methodology because it provides many insights that facilitate the understanding of different aspects observed while still attempting to produce generalization (Eisenhardt, 1989). The inductive approach is the most appropriate to answer our research question which corresponds to the “how” question requirements as defined by Yin (2014).

In detail, the methodological process is based on these phases: (1) select a case study; (2) choose the method for data collection and collect it (3) proceed to data analysis and create new knowledge about the phenomenon.

The benefit corporation selected is Damiano SpA which is a pioneer in organic food and leader in the industrial transformation of organic almonds industry. They are a four-generations family business with a 45 million euro turnover, 60 employees, more than 500 farmers. Their farming and industrial processing are based in Italy, Sicily, from shelling to the finished product, from farm to fork. Their logistics and commercial branches are based in France and the USA (www.damianorganic.it). In 2016 Damiano became a Certified B Corporation, joining the small number of Italian B Corps. In 2021 Damiano obtained the Best for the World in Environment 2021 award assigned by BLab. The prize is awarded to the best B Corp on the basis of the scores achieved with the 'B Impact Assessment' system in each of the five categories.

In order to collect the data, we decided to use the semi-structured interviews.

At the time we are writing this extended abstract (February 2022) we sent the email to the firm to make a meeting with the founder and the chief of sustainability. Targeting the founders enhances reliability, because they are equipped with in-depth knowledge and are able to provide in depth insights into the underlying motives, goals and processes.

To structure the interviews, we taken in account: (1) the literature about trust; (2) the three macro-areas of business model proposed by Richardson (2008), value proposition, value creation and delivery system and value capture and (3) the areas of the business model proposed by Alex Osterwalder in the business model canvas (Osterwalder and Pigneur, 2010), value proposition, markets, internal infrastructure in terms of key resources, key activities and key partners and cost and revenues.

From the intersection of these criteria we obtained following interview's structure (Tab 1)

Tab. 1: Interview's structure

DIMENSIONS TO INVESTIGATE		THEORETICAL ASSUMPTIONS UNDERLYING THE QUESTIONS
VALUE PROPOSITION	DOUBLE MISSION	Firm garners reputation because stakeholders trust in the present and future firm's vision (Casid and Yan, 2022).
		A clear sustainable positioning fosters trust in the reliability and integrity of the firms (i.e. Esty & Winston, 2009).
		Trust supports the building of the organization's reputation (Jablonski and Jablonski, 2019).
VALUE CREATION AND VALUE DELIVERY	MARKET	Consumers' confidence in the firm's ability to carry out their task is associate to sustainability positioning (i.e. Lee & Lam, 2012)
		Trust plays an important role in influencing consumers' opinions about motives behind a firm's sustainability efforts (Neumann et al., 2020)
		The trust is positively related to information-sharing (Casid and Yan, 2022).
		The sustainable positioning would enhance the competency trust (Casid and Yan, 2022).
	KEY ACTIVITIES	Trust positively affects the activities of members of the organization (Jablonski and Jablonski, 2019).
		A manager aspiring to reinforce the corporate trust culture is expected to express this emphasis as trust words in corporate communications (Xu et al., 2019).
		Sustainable disclosure and the best management practices enhanced stakeholder trust (Qureshi et al., 2020)
		Trust is positively related to collaborative planning (Casid and Yan, 2022).
		Trust induce stakeholders to contribute voluntary to joint value-creation (Pies et al, 2020).
		The trust is positively related to information-sharing (Casid and Yan, 2022).
		The accreditation or certification from reputable agencies reinforce the sustainable image and in turn would lead to stronger trust (Casid and Yan, 2022).
		Trust contributes positively to knowledge sharing and innovation within groups (Xu et al., 2019).
		Trust fosters cooperation (Jablonski and Jablonski, 2019).
		Trust manifests in enhanced resources exchange (Chaudhary et al., 2021)
	KEY RESOURCES	Trust supports the development of the organization's social capital (Jablonski and Jablonski, 2019)
		The trust manifests in enhanced stronger relationship (Jablonski and Jablonski, 2019).
		Trust absorbs uncertainty and complexity in relationship (Bachmann, 2001).
		Trust is a factor that creates positive interaction especially between different groups of the community (Jablonski and Jablonski, 2019).
KEY PARTNERSHIP	Trust strengthen satisfaction in exchange and increase partner involvement (Morgan, Hunt, 1994).	
	Trust is an "informal normal" that reduces transactional costs in terms of conclusion of contracts and the enforcement of formal agreements (Jablonski and Jablonski, 2019)	
	Trust alleviates agency costs. For example, trust negates costly monitoring mechanisms) (Xu et al., 2019).	
	Increased trust spurs two parties into more venture. Trusting parties are more concerned about increasing the size of the pie than extracting a greater slice of the pie for themselves (Xu et al., 2019).	
VALUE CAPTURE	COSTS	Studies positively relate trust to non-financial performance (Zaheer et al., 1998)
	REVENUES	

To ensure reliability and validity of data collection through the triangulation data approach (Yin, 2014) we also collected firm's information through secondary sources, both internal and external, such as the firm's sustainable reports (impact report 2020), the corporate web site (www.corporateregister.com), corporate documents (economic and financial report) and external communication and newspaper articles. These evidence is considered objective because it is generated outside the influence of researcher.

The first step in data analysis will be to develop a case narrative that includes the firm's story. Then we will manually code the information following the elements of the business model. At the end of our analysis, we will focus on how conceptual topic we had identified in the literature review could be linked with the new evidences to develop the literature and to create new knowledge.

Results. The use of the business model as analytical lens allows us to obtain a holistic view of the role of trust in firms that embrace triple sustainability. Through this study carried out on a benefit corporation with B-Corp certification we expect to explain how trust affect the management decisions relating to the various areas of the business model and the consequences in terms of advantages or disadvantages deriving from the adoption of the qualification as a benefit corporation and obtaining the certification

We expect the analysis to confirm that when firms act virtuously, the positive effect generated by trust is a reduction in uncertainty. We also assume that the BCorp certification helps to create a positive image among investors and creditors and consequently an easier access to capital. The improvement of the corporate image as a responsible employer and partner is another possible results.

Trust could also come from the high level of transparency required of benefit companies. This transparency on the activities carried out and on the information, further increased by the certification, could be perceived as a competitive weakening and therefore not be fully complied with the risk of penalty that will affect the future confidence of stakeholders.

The results could highlight how the company's focus on maintaining the trust not only of customers but of all stakeholders may require greater efforts on the key resources that the benefit corporation must necessarily own. For example, in terms of consultants specialized in the disclosure or in creation and delivery of corporate culture.

Research limitations. Given the well-known limits on the generalizability of the results obtained from a single case study, further analyzes based on the comparison of different benefit corporations using the qualitative approach of multiple case studies are necessary. However, a further limitation is inherent in the qualitative methodology of the case

study. This approach has often been criticized due to its extreme subjectivity in the interpretation of the collected data and in the evaluation of the conclusions. Future research could use the entire sample of Italian B Corp, which today are about 200, and apply quantitative methodologies to measure the impact of trust on single elements of business model. For this aim, trust's impact indicators can be developed.

Moreover, the research focused on an Italian firm, given that Italy is the first country in Europe to adopt legislation for benefit corporation. It would be interesting to analyze the effects of trust and the experience in other nations.

Managerial implications. Few firms, today, consider in a structured way the importance of trust as the new essential element of their growth path, but this is exactly the priority to focus on. Without trust, potential development and market opportunities are reduced: the openness to the outside, the ability to climb the market, the speed of evolution and attractiveness to talents.

This study about the role of trust on the single element of the business model and so on business modelling process can lead B Corp managers to prioritize some actions over others. Trust also leads to a series of advantages that can represent a valid reason for transforming the business model into a sustainable business model and, in particular, motivate firms to acquire the qualification of benefit corporation and the B Corp certification even if there are no tax benefits.

The need for trust to create a sustainable business model also could create weaknesses that managers of benefit corporation need to consider when make decisions about the business model.

Originality of the paper. Given the growing evidence that trust is critically important to firms, it is no accident that this represents a critically important area of study, particularly within the scientific research.

To our knowledge this study is among the first one to deeply analyze the role of trust in the hybrid business model of benefit corporation and its positive or negative implications. The phenomenon of benefit companies is very recent and for this reason it has not yet been scientifically explored.

Keywords: trust; benefit corporation; hybrid organization; hybrid business model; BCorp.

References

- ALTMAN I., TAYLOR D.A. (1973), *Social penetration: The development of interpersonal relationships*, Holt, Rinehart & Winston, New York.
- BACHMANN R. (2001), "Trust, power and control in trans-organizational relations", *Organization studies*, vol. 22, n. 2, pp. 337-365.
- BLAU P.M. (1964), "Justice in social exchange", *Sociological Inquiry*, vol. 34, n. 2, pp. 193-206.
- CASIDY R., YAN L. (2022), "The effects of supplier B2B sustainability positioning on buyer performance: The role of trust", *Industrial Marketing Management*, vol. 102, pp. 311-323.
- CHAUDHARY S., DHIR A., FERRARIS A., BERTOLDI B. (2021), "Trust and reputation in family businesses: A systematic literature review of past achievements and future promises", *Journal of Business Research*, vol. 137, pp. 143-161.
- COLQUITT J.A., LEPINE J.A., PICCOLO R.F., ZAPATA C.P., RICH B.L. (2012), "Explaining the justice-performance relationship: Trust as exchange deepener or trust as uncertainty reducer?", *Journal of Applied Psychology*, vol. 97, n. 1-15, pp. 1.
- DEL BALDO M. (2019), "Acting as a benefit corporation and a B Corp to responsibly pursue private and public benefits. The case of Paradisi Srl (Italy)", *International Journal of Corporate Social Responsibility*, vol. 4, n. 1, pp. 1-18.
- DONEY P. M., CANNON J.P. (1997), "An examination of the nature of trust in buyer-seller relationships", *Journal of Marketing*, vol. 61, n. 2, pp. 35-51.
- DOWELL D., MORRISON M., HEFFERNAN T. (2015), "The changing importance of affective trust and cognitive trust across the relationship lifecycle: A study of business-to-business relationships", *Industrial Marketing Management*, vol. 44, pp. 119-130.
- EISENHARDT K.M. (1989), "Building theories from case study research", *Academy of management review*, vol. 14, n. 4, pp. 532-550.
- ESTY D.C., WINSTON A. (2009), *Green to gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage*, John Wiley & Sons. New Jersey.
- FOMBRUN C., SHANLEY M. (1990), "What's in a name? Reputation building and corporate strategy", *Academy of Management Journal*, vol. 33, n. 2, pp. 233-258.
- HESTAD D., TÀBARA J.D., THORNTON T.F. (2021), "The three logics of sustainability-oriented hybrid organisations: a multi-disciplinary review", *Sustainability Science*, vol. 16, n. 2, pp. 647-661.
- JABŁOŃSKI A., JABŁOŃSKI M. (2019), "Trust as a key factor in shaping the social business model of water supply companies", *Sustainability*, vol. 11, n. 20, pp. 5805.
- JØSANG A., ISMAIL R., BOYD C. (2007), "A survey of trust and reputation systems for online service provision", *Decision Support Systems*, vol. 43, n. 2, pp. 618-644.

- LA TORRE M., SABELFELD S., BLOMKVIST M., DUMAY J. (2020), "Rebuilding trust: Sustainability and non-financial reporting and the European Union regulation", *Meditari Accountancy Research*, vol. 28, n. 5, pp. 701-725
- LEE C.K.M., LAM J.S.L. (2012), "Managing reverse logistics to enhance sustainability of industrial marketing", *Industrial Marketing Management*, vol. 41, n. 4, pp. 589-598.
- LUCAS L. M. (2005), "The impact of trust and reputation on the transfer of best practices", *Journal of Knowledge Management*, vol. 9, n. 4, pp. 87-101.
- LUHMANN N. (1979), *Trust and Power*. John Wiley & Sons, , 1e103
- MEZGER A., CABANELAS P., L'ÓPEZ-MIGUENS M.J., CABIDDU F., RÜDIGER K. (2020), "Sustainable development and consumption: The role of trust for switching towards green energy", *Business Strategy and the Environment*, vol. 29, n. 8, pp. 3598-3610.
- MORGAN R. M., HUNT S.D. (1994), "The commitment-trust theory of relationship marketing", *Journal of Marketing*, vol. 58, n. 3, pp. 20-38.
- MOROZ P.W., GAMBLE E N. (2021), "Business model innovation as a window into adaptive tensions: Five paths on the B Corp journey", *Journal of Business Research*, vol. 125, pp. 672-683.
- NIGRI G., DEL BALDO M. (2018), "Sustainability reporting and performance measurement systems: How do small- and medium-sized benefit corporations manage integration?", *Sustainability*, vol. 10, n. 12, pp. 4499.
- NIGRI G., DEL BALDO M., AGULINI A. (2020), "Governance and accountability models in Italian certified benefit corporations", *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 5, pp. 2368-2380.
- NEUMANN H.L., MARTINEZ L.M., MARTINEZ L.F. (2020), "Sustainability efforts in the fast fashion industry: consumer perception, trust and purchase intention", *Sustainability Accounting, Management and Policy Journal*.
- OSTERWALDER A., PIGNEUR Y. (2010), *Business model generation: a handbook for visionaries, game changers, and challengers*, John Wiley & Sons, Hoboken, New Jersey, USA.
- PIES I., HIELSCHER S., EVERDING S. (2020), "Do hybrids impede sustainability? How semantic reorientations and governance reforms can produce and preserve sustainability in sharing business models", *Journal of Business Research*, vol. 115, pp. 174-185.
- QURESHI M.A., KIRKERUD S., THERESA K., AHSAN T. (2020), "The impact of sustainability (environmental, social, and governance) disclosure and board diversity on firm value: The moderating role of industry sensitivity", *Business Strategy and the Environment*, vol. 29, n. 3, pp. 1199-1214.
- RICHARDSON J. (2008), "The business model: an integrative framework for strategy execution", *Strategic change*, vol. 17, n. 5-6, pp. 133-144.
- STUBBS W. (2017), "Sustainable entrepreneurship and B Corps", *Business Strategy and the Environment*, vol. 26, n. 3, pp. 331-344.
- TABARES S. (2021), "Certified B corporations: An approach to tensions of sustainable-driven hybrid business models in an emerging economy", *Journal of Cleaner Production*, vol. 317, pp. 128380.
- TER HUURNE M., RONTELTAP A., CORTEN R., BUSKENS V. (2017), "Antecedents of trust in the sharing economy: A systematic review", *Journal of Consumer Behaviour*, vol. 16, n. 6, pp. 485-498.
- WALLENBURG C.M., SCHÄFFLER T. (2014), "The interplay of relational governance and formal control in horizontal alliances: a social contract perspective", *Journal of Supply Chain Management*, vol. 50, n. 2, pp. 41-58.
- XU Q., FERNANDO G.D., TAM K. (2019), "Trust and firm performance: A bi-directional study", *Advances in Accounting*, vol. 47, pp. 100433.
- YIN R. (1994), *Case Study Research 2nd Ed.*, Sage, Thousand Oaks, CA.
- ZAHEER A., MCEVILY B., PERRONE V. (1998), "Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance", *Organization Science*, vol. 9 , n. 2, pp. 141-159.

Websites

[http:// www.corporateregister.com](http://www.corporateregister.com)

[http:// www.damianorganic.it](http://www.damianorganic.it)

Le leve strategiche del big data procurement: la prospettiva dei providers di big data analytics

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Inquadramento della ricerca. *Il presente studio ricostruisce, attraverso il punto di vista delle aziende provider di big data analytics (BDA), i fattori che influenzano il processo di fornitura di tali risorse, esplorando le dinamiche organizzative e culturali che possono incidere in tale scambio e sulle capacità di assorbimento delle risorse da parte delle aziende clienti.*

La letteratura manageriale ha ampiamente indagato le proprietà dei big data, riconducibili al modello delle note 7V (Saggi and Jain, 2018; Seddon and Currie, 2017; Sivarajah et al., 2017), nonché le variabili culturali e tecnologiche che ne abilitano l'integrazione nei processi aziendali (Tabesh et al., 2019) e la potenziale capacità di contribuire all'aumento della redditività, della produttività e alla costruzione di posizioni durature di vantaggio competitivo (Brinch et al., 2021; Raguseo and Vitari, 2018; Wamba et al., 2017), sebbene la discussione scientifica risulta ancora incompleta e in fase di sviluppo (El-Haddadeh et al., 2021; Gupta and George, 2016; Urbinati et al., 2019). In ambito accademico sono parzialmente indagate le difficoltà che le aziende affrontano per sfruttare le potenzialità derivanti dai big data a livello decisionale-strategico (Farrokhi et al., 2020) e allo stesso modo risultano scarsamente esplorate le dinamiche nella supply chain dei dati (Mariani and Fosso Wamba, 2020). Il disallineamento che emerge tra le ampie conoscenze su aspetti tecnologico-operativi sui BDA e le implicazioni manageriali trova conferma nella disomogenea implementazione dei casi di successo (Capgemini, 2020). Questa inefficienza è possibile ricondurla, in parte, alla scarsa consapevolezza dei meccanismi manageriali che interessano l'attuazione e lo sfruttamento ottimale di queste iniziative (Mazzei and Noble, 2017; Tabesh et al., 2019). Un ulteriore fattore che influisce sulla efficace implementazione dei BDA nei processi aziendali è attribuibile alla carenza di risorse e competenze individuali ed organizzative nelle aziende, le quali per soddisfare tali necessità strutturano collaborazioni e accordi stabili con aziende fornitrici di beni ed expertise tecnico-manageriali (Mazzei and Noble, 2017), per ridurre la dipendenza da tali expertise ritenute strategiche e vitali per un duraturo vantaggio competitivo.

La rilevanza ricoperta dalle organizzazioni provider di BDA risulta supportata dall'incremento stimato che avrà il mercato dei servizi provider di dati entro il 2026, arrivando a 92,2 miliardi di dollari a livello globale (Finos, 2016). La letteratura scientifica ha dedicato scarsa attenzione al ruolo delle aziende provider di servizi collegati ai dati (Urbinati et al., 2019) presentando inoltre una limitata ricerca sull'incorporazione e sfruttamento delle capacità legate ai big data e alla big data analytics nel tessuto organizzativo aziendale (Mikalef et al., 2018, 2020) finalizzato all'implementazione del processo decisionale strategico. Alla base del presente studio, vi è l'ipotesi che un efficace processo decisionale fondato sui dati possa essere influenzato dall'efficacia stessa del procurement dei BDA, nonché dal grado di cooperazione che si viene ad instaurare nella supply chain dei dati. Date tali premesse teoriche, le domande di ricerca si declinano nel seguente modo:

RQ1: "Quali sono i fattori inibitori e abilitanti che caratterizzano il rapporto tra provider e azienda cliente nel processo di procurement dei dati?"

RQ2: "Qual è il ruolo delle aziende provider nella creazione di dati utili a fini decisionali?"

RQ3: "Come si relazionano nel tempo le aziende clienti al provider dati?"

Per rispondere a queste domande di ricerca, nel presente studio utilizza la prospettiva teorica della resource-dependency theory (RDT) di Pfeffer e Slancick (1978), per comprendere come le aziende clienti strutturano le proprie relazioni nel tempo con i provider che detengono risorse critiche, al fine di ridurre la loro dipendenza da esse e attenuarne i costi ne derivano. In aggiunta, utilizzeremo la prospettiva delle capacità dinamiche (Teece et al., 1997), la quale sarà indispensabile per catturare le nuove combinazioni di risorse e capacità che le organizzazioni clienti devono utilizzare per integrare efficacemente tali risorse nei propri assetti operativi (Mikalef et al., 2019).

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Obiettivo del paper. *L'obiettivo del presente studio è quello di comprendere attraverso il punto di vista delle aziende provider di big data analytics (BDA), i fattori che influenzano il processo di fornitura di tali risorse, esplorando le dinamiche organizzative e culturali che caratterizzano tale scambio e che possono incidere sulle capacità di assorbimento di tali risorse da parte delle aziende clienti*

Metodologia. *Per investigare il fenomeno oggetto di studio abbiamo utilizzato il metodo dei casi studio multipli intervistando le aziende provider (Paiola and Gebauer, 2020; Urbinati et al., 2019; Warner and Wäger, 2019). Il lavoro segue la "metodologia Gioia", che si presta all'indagine di quei fenomeni la cui comprensione passa dall'individuazione di un'esperienza e non dalla misurabilità di una frequenza (Gioia et al., 2013). Questa metodologia universalmente condivisa in ambito accademico, fornisce agli studi induttivi un "rigore qualitativo", fornendo agli studiosi un approccio sistematico in grado di sviluppare nuove teorie e concetti (Gioia et al., 2013).*

In linea con la metodologia adottata si è strutturato il protocollo d'indagine, il quale è stato fonte di una plurima revisione da parte degli autori dello studio, al fine di assicurare la sua coerenza con le domande di ricerca precedentemente individuate (Gioia et al., 2013). Il protocollo realizzato è stato aperto a modifiche e all'aggiunta di domande (Paiola and Gebauer, 2020) durante lo svolgimento delle interviste in modo da poter seguire l'informatore chiave nella fornitura di nuovi concetti e dinamiche emergenti (Gioia et al., 2013).

Le aziende appartenenti al campione finale dello studio sono rappresentate da tre grandi realtà di fornitura presenti a livello globale, che offrono servizi informatici, di consulenza e di digitalizzazione del business attraverso i quali servono sia grandi gruppi internazionali che piccole aziende altamente innovative.

Le interviste semi-strutturate, della durata di 90 minuti, sono in fase di esecuzione e coinvolgono due stakeholder chiave appartenenti all'azienda provider. Il primo stakeholder riguarda una figura manageriale, il responsabile del progetto di fornitura di big data, al fine di ricostruire nel dettaglio le dinamiche organizzative e culturali del processo di scambio, le problematiche che si riscontrano nel rapporto con i clienti e nel complessivo mercato di sbocco. La seconda figura chiave è riconducibile a quella di un data analyst impegnato nei processi operativi di fornitura e implementazione di servizi inerenti ai big data (Birkinshaw, 1997). Le interviste sono condotte tra novembre 2021 e marzo 2022, queste verranno registrate e successivamente trascritte integralmente. Il protocollo utilizzato per la codifica si articolerà in tre fasi funzionali (Bocken and Geradts, 2020).

La prima fase si caratterizzerà da un approccio di codifica aperto, restando vicino agli elementi categoriali emersi dagli informatori chiave (1st order category). La seconda fase prevederà il passaggio da un approccio di codifica aperto a una codifica assiale, riportando in categorie più astratte e teoriche (2st order themes) i temi emersi dalla prima fase. La terza fase arriverà ad un'ulteriore distillazione delle dimensioni assiali arrivando ad individuare delle dimensioni aggregate. A seguito di queste tre fasi seguirà un processo di triangolazione e convalida, si effettuerà l'abbinamento dati-codice, si procederà alla identificazione di nuovi concetti emergenti in linea con i dati e la letteratura pertinente (Bellisario et al., 2021).

Risultati. *Lo studio che vede al centro la nostra attività di ricerca è attualmente in fase di esecuzione.*

Secondo la nostra prospettiva le dinamiche che si sviluppano nella supply chain dati sono fondamentali per l'efficace implementazione dei BDA nei processi aziendali, in particolare, nei processi decisionali. Inoltre, ci si aspetta che le organizzazioni clienti strutturino collaborazioni stabili di cooperazione con le aziende che detengono risorse ed expertise per loro indispensabili, in questo caso i provider dati, adeguando le proprie competenze per ridurre nel tempo la dipendenza da tali expertise strategiche. A tal proposito, ci aspettiamo che i risultati confermino che la efficace collaborazione tra provider e clienti possa influenzare lo stesso processo decisionale dei clienti, condizionando l'efficacia stessa dell'implementazione dei BDA a fini strategici (Urbinati et al., 2019).

Limiti della ricerca. *Nel presente lavoro possiamo identificare alcune limitazioni collegate alla scelta metodologica dei multipli case study. La prima limitazione è riconducibile al numero di aziende fornitrici coinvolte in questa ricerca, l'utilizzo di più casi consentirebbe una maggiore generalizzabilità dei risultati e consentirebbe una migliore comprensione delle dinamiche di dipendenza che si strutturano tra azienda fornitrice ed i propri clienti.*

Un secondo limite potrebbe riguardare il campione di aziende considerato, sarebbe interessante analizzare la prospettiva delle principali società di consulenza nella analisi dei big data (Marriage and Ford, 2018) essendo anch'esse strategicamente rilevanti nel processo di fornitura di conoscenze utili per l'assunzione di decisioni

Implicazioni manageriali. *Lo studio condotto mira a fornire diverse implicazioni manageriali. Innanzitutto, offre una comprensione più dettagliata del mercato di fornitura, evidenziando il contesto e le difficoltà, a tal proposito cristallizziamo in questo lavoro una serie di azioni che queste aziende possono attuare per fornire valore ai propri clienti. Inoltre, lo studio cattura il rapporto di dipendenza che si viene a creare attraverso il punto di vista dei fornitori e le capacità che le aziende clienti sviluppano nell'assorbimento tecnologico riguardante i processi di implementazione e sfruttamento dei big data (Mazzei and Noble, 2017; Tabesh et al., 2019).*

Originalità del paper. *Il presente studio arricchisce la letteratura manageriale sui big data, cercando di fornire, attraverso l'inesplorato punto di vista delle aziende provider dati, una comprensione più profonda dei meccanismi che caratterizzano l'impiego di tali risorse. Inoltre, l'applicazione della metodologia dei multipli case study contribuisce ad arricchire la comprensione del fenomeno oggetto di indagine, il quale risulta poco esplorato dal punto di vista empirico (Mikalef et al., 2019). Infine, un ulteriore elemento di originalità riguarda l'adozione di una prospettiva teorica che vede nelle dinamiche di dipendenza, che caratterizzano il rapporto tra aziende provider di servizi incentrati sui big data e i propri clienti, una variabile mediatrice dell'efficacia o meno dell'impiego dei big data nelle imprese.*

Parole chiave: *big data; provider company; resources dependency theory; dynamic capabilities, supply chain.*

Bibliografia

- BELLISARIO A., PAVLOV A., VAN DER STEEN M.P. (2021), "The role of performance measurement in aligning operations with strategy: sustaining cognitive processes of internal alignment", *International Journal of Operations & Production Management*, vol. 41, n. 12, pp. 1879-1907.
- BIRKINSHAW J. (1997), "Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives", *Strategic Management Journal*, vol. 18, n. 3, pp. 207-229.
- BOCKEN N.M.P., GERADTS T.H.J. (2020), "Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities", *Long Range Planning*, vol. 53, n.4, pp. 101950.
- BRINCH M., GUNASEKARAN A., FOSSO WAMBA S. (2021), "Firm-level capabilities towards big data value creation", *Journal of Business Research*, vol. 131, pp. 539-548.
- EL-HADDADEH R., OSMANI M., HINDI N., FADLALLA A. (2021), "Value creation for realising the sustainable development goals: Fostering organisational adoption of big data analytics", *Journal of Business Research*, vol. 131, pp. 402-410.
- FARROKHI A., SHIRAZI F., HAJLI N., TAJVIDI M. (2020), "Using artificial intelligence to detect crisis related to events: Decision making in B2B by artificial intelligence", *Industrial Marketing Management*, vol. 91, pp. 257-273.
- FOSSO WAMBA S.F., GUNASEKARAN A., AKTER S., REN S.J. FAN DUBEY R., CHILDE S.J. (2017), "Big data analytics and firm performance: Effects of dynamic capabilities", *Journal of Business Research*, vol. 70, pp. 356-365.
- GIOIA D.A., CORLEY K.G., HAMILTON A.L. (2013), "Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology", *Organizational Research Methods*, vol. 16, n.1, pp. 15-31.
- GUPTA M., GEORGE J.F. (2016), "Toward the development of a big data analytics capability", *Information and Management*, vol. 53, n. 8, pp. 1049-1064.
- MARIANI M.M., FOSSO WAMBA S. (2020), "Exploring how consumer goods companies innovate in the digital age: The role of big data analytics companies", *Journal of Business Research*, vol. 121, pp. 338-352.
- MAZZEI M.J., NOBLE D. (2017), "Big data dreams: A framework for corporate strategy", *Business Horizons*, vol. 60, n.3, pp. 405-414.
- MIKALEF P., BOURA M., LEKAKOS G., KROGSTIE J. (2019), "Big Data Analytics Capabilities and Innovation: The Mediating Role of Dynamic Capabilities and Moderating Effect of the Environment", *British Journal of Management*, vol. 30, n. 2, pp. 272-298.
- MIKALEF P., KROGSTIE J., PAPPAS I.O., PAVLOU P. (2020), "Exploring the relationship between big data analytics capability and competitive performance: The mediating roles of dynamic and operational capabilities", *Information and Management*, vol. 57, n. 2, pp. 103169.
- MIKALEF P., PAPPAS I.O., KROGSTIE J., GIANNAKOS M. (2018), "Big data analytics capabilities: a systematic literature review and research agenda", *Information Systems and E-Business Management*, vol. 16, n. 3, pp. 547-578.
- PAIOLA M., GEBAUER H. (2020), "Internet of things technologies, digital servitization and business model innovation in BtoB manufacturing firms", *Industrial Marketing Management*, vol. 89, pp. 245-264.
- RAGUSEO E., VITARI C. (2018), "Investments in big data analytics and firm performance: an empirical investigation of direct and mediating effects", *International Journal of Production Research*, vol. 56, n. 15, pp. 5206-5221.
- SAGGI M.K., JAIN S. (2018), "A survey towards an integration of big data analytics to big insights for value-creation", *Information Processing and Management*, vol. 54, n. 5, pp. 758-790.
- SEDDON J.J.J.M., CURRIE W.L. (2017), "A model for unpacking big data analytics in high-frequency trading", *Journal of Business Research*, vol. 70, pp. 300-307.
- SIVARAJAH U., KAMAL M.M., IRANI Z., WEERAKKODY V. (2017), "Critical analysis of Big Data challenges and analytical methods", *Journal of Business Research*, vol. 70, pp. 263-286.
- TABESH P., MOUSAVIDIN E., HASANI S. (2019), "Implementing big data strategies: A managerial perspective", *Business Horizons*, vol. 62, n. 3, pp. 347-358.
- TEECE D.J., PISANO G., SHUEN A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, vol. 18, n. 7, pp. 509-533.
- URBINATI A., BOGERS M., CHIESA V., FRATTINI F. (2019), "Creating and capturing value from Big Data: A multiple-case study analysis of provider companies", *Technovation*, vol. 84, pp. 21-36.
- WARNER K.S.R., WÄGER M. (2019), "Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal", *Long Range Planning*, vol. 52, n. 3, pp. 326-349

Siti internet

<https://www.capgemini.com/it-it/news/report-the-data-powered-enterprise/>

<https://wikibon.com/2016-2026-worldwide-big-data-market-forecast/>

https://www.ilsole24ore.com/art/revisione-contabile-quasi-l-intero-mercato-e-mani-big-four-e-qualcosa-non-funziona-AESXQwZF?refresh_ce=1

The role of religious accommodations business model during COVID-19

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Abstract

How virtuous business model innovation (BMI) of tourism firms can happen during COVID-19 is yet to be fully addressed. Prior research on tourism business models (BMs), whilst highlighting influencing factors and positive consequences on the sustainability of tourism firms and destinations, has neglected the theoretical perspectives. Also, the topic is overlooked regarding religious accommodations originating from the creative use of historic and cultural heritage, in spite of their link with innovation and sustainability. Interestingly, research and practice in hospitality argue that BMI might be a solution to successfully overcome COVID-19, calling for more research. In response, we explore how religious accommodations innovate their BM during COVID-19 maintaining themselves sustainable, and therefore competitive. We focus on the relationship of these firms with their destination jointly considering internal and external influencing factors and temporal dynamics by analyzing 10 Italian religious accommodations. We interpret the results through a co-evolution lens. We find that religious accommodations BMI can take place through diffused multi-level interactions and the feedback within destinations resulting in new organizational practices, and also policies, that innovate their BM, reinforcing sustainability. In this dynamic, an integrated view of time and knowledge can contribute to favour (or not), appropriate BMI in relation to environmental evolution. We offer a conceptual framework that conceptualizes BMI of religious accommodations as virtuous co-evolutionary processes. This approach may help business practitioners and policymakers to manage current problems through BMI.

Framing of the research. *How can virtuous business model innovation (BMI) of tourism firms happen during COVID-19? This study aims at addressing this question which appears lively in tourism management research and practice given the growing complexity of the interplay between environmental changes and the intertwined performance of tourism firms and destinations (Hjalager, 2010; World Tourism Organization, 2019; Zenker and Kock, 2020). Relatedly, as a starting point, we can acknowledge that new business models (BMs) of tourism firms are widely influenced by, and in turn, contribute to influence, socioeconomic and natural dynamics within destinations (Sahebalzamani and Bertella, 2018; Breier et al., 2021). In line with this, tourism research and practice have shown increasing interest in the BM issue and, more recently, its innovation. To date, the meaning of the BM of tourism firms as a comprehensive configuration of what the firm offers that is of value to tourists (i.e. value proposition), how it organizes to do so (i.e. value creation), and how it captures a portion of this value (i.e. value capture), has seemingly reached scholarly consensus (Reinhold et al., 2017, 2019). Moreover, various types of tourism BMs and the positive consequences related to their innovation have been highlighted. Attention has been also devoted to some influencing internal (firm-specific) and external (environmental) factors of tourism BMI such as the growing demand for co-created experiences and the need for new monetary flows (Hjalager and Madsen, 2018). Recently, some factors capable of positively influencing tourism BMI during COVID-19 have been highlighted (Breier et al., 2021; Harms et al., 2021), namely: repetitive customers' psychological support, available time during the lockdowns, financial pressure, and control orientation. However, these factors have been considered separately, thus neglecting the possibility of reciprocal causation among them and with the BMI (Andrianto et al., 2021). Thus, the process of BMI remains elusive. This research gap confirms the lack of appropriate theoretical perspectives in BM and BMI research for holistically understanding the phenomenon (Filser et al., 2021).*

Over the last decades, new types of accommodation firms originating from the creative use of historic and cultural real estate heritage have notably increased worldwide. These entrepreneurial initiatives concern, among the others, religious accommodations (also RAs, henceforward) and are widely recognized as valuable for achieving sustainability innovation with positive effects for firms, but also for destinations (e.g., Ryan and McKenzie, 2003; Shackley, 2004; Paniccia et al., 2017; Paniccia and Baiocco, 2018). It is significant that the 2030 Agenda for Sustainable Development explicitly recommends revitalizing the historic and cultural heritage of cities and human settlements through such tourism entrepreneurial initiatives (i.e. sustainable development goal 11 "Make cities and human settlements inclusive, safe, resilient and sustainable"). Surprisingly, despite the highlighted link of these firms with innovation and

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sustainability, research on BM and BMI has neglected religious accommodations. Thus, the value elements of the BM of RAs and the process driving the innovation of their BM remain underrepresented.

Interestingly, research and practice in the hospitality sector indicate that BMI might help to recover from the COVID-19 crisis in that it can create new opportunities in terms of revenues streams (Breier et al., 2021), but also of practices capable of stimulating solidarity and trust (Sigala, 2020). Moreover, there are calls in the management literature to investigate the adaptation process of firms through BM change in the face of severe external shocks (Amankwah-Amoah et al., 2021). Thus, employing appropriate perspectives for analyzing the complex socioeconomic and natural dynamics underlying BMI of tourism firms has currently become even more important (Bramwell et al., 2017; Zenker and Kock, 2020).

That said, to understand how virtuous BMI of tourism firms can happen during COVID-19, the main problem to address is how to holistically capture the reciprocal influences and variation over time between interdependent internal and external influencing factors surrounding BMI as well as the possible reciprocal influence between the BMI and these factors themselves.

This issue can be properly addressed through a co-evolutionary perspective. Owing to its intrinsic nature, co-evolution conceives the relationship between firms and their environments as circular, with reciprocal influence, stressing the dialectic and dynamic character of the interdependences between them (Volberda et al., 2014; Abatecola et al., 2020; Cafferata, 2022) coherently with a holistic and dynamic view of innovation and sustainability (Norgaard, 1994; Pikkemaat et al., 2019). Thus, the co-evolution concept can provide a valuable contribution to explaining the variations in BM value elements during the innovation process, rather than viewing BMI statically. Over the last decade, co-evolution has been increasingly recognized in tourism research as a theoretical perspective particularly useful to better understand organizational evolution and related phenomena, such as innovation and sustainability (e.g., Brouder and Eriksson, 2013; Ma and Hassink, 2013; Mellon and Bramwell, 2018; Paniccia et al., 2017).

Purpose of the paper. To increase our understanding of how virtuous BMI of tourism firms can happen during COVID-19, more theoretical and empirical research is required. In response, this study adopts a co-evolution lens to explore how religious accommodations originated in Italy from the creative use of historic and cultural real estate heritage innovate their BM during COVID-19 thus maintaining themselves sustainable, and competitive. The analysis is focused on the relationship of these firms with their destination jointly considering influencing internal (RAs-specific) and external (environmental) factors and temporal dynamics.

Methodology. In line with the study's aim, longitudinal qualitative multiple case studies (Yin, 2017) are conducted. This methodology is particularly suitable for exploring complex phenomena in evolution within their real-life context still scarcely investigated in prior literature.

Results are interpreted through a co-evolution lens which allows to holistically understand the complex intertwined dynamics surrounding the tourism firms-destination relationship driving the innovation of tourism firms' BMs.

The unit of analysis is the single RA originated from the creative use of historic and cultural real estate heritage. The latest available data provided by the Italian Association for religious accommodations (2021), identified 3,313 RAs located in Italy in 2020 (-5.3% from 2019) accounting for 13,2% (14,2% in 2019) of the total Italian accommodation offering (excluding hotels) (Istat, 2021). Then, 10 RAs rooted in the historic centre of Rome were selected (Table 1). Rome, the Pope's city and Vatican See, shows the highest concentration of RAs' bed-places in Italy due to the fact of being one of the main destinations of Christian pilgrimage since the Middle Ages (Paniccia et al., 2017). The following criteria were adopted to select the case studies: i) revitalization of historic and cultural real estate heritage; ii) relevance to and consistency with the study's purposes, iii) information relevance and completeness; iv) temporal phases homogeneity (all the cases have experienced the national lockdown from 9 March to 18 May 2020 and the subsequent re-opening from 19 May onwards); v) sustainability goals; vi) services offered; f) authenticity of context.

Tab. 1: Selected case studies

#	Case	Foundation year	Type of real estate heritage used	Rooms	Bed-places	Experiences
#1	Casa Bonus Pastor	2000	Historic building from the beginning of the 20 th century	89	200	Open, peaceful garden; local food takeaway; holy mass celebration for groups with their own spiritual guide; spiritual walks; discounted entrance to the Vatican Museums and Sistine Chapel; benefits for the relatives of patients admitted to local hospitals.
#2	Casa per Ferie San Giuseppe	2003	Building from the 17 th century	21	55	Daily prayer in the private chapel; inner garden; roof terrace with fine views over the city.
#3	Casa Santa Brigida	2000	Convent from the beginning of the 15 th century	20	40	Daily holy mass in the private chapel; inner garden; roof terrace with fine views over the city.
#4	Casa Santa Francesca Romana	2008	Medieval palace from the 15 th century	37	84	Renaissance garden; cloister; discounts for cyclists; spiritual support and accommodation for families with relatives admitted to local hospitals; support to attend Papal events.
#5	Casa Santo Spirito	1998	Convent from the 19 th century	13	38	Possibility of participating to daily communal prayers; spiritual support and accommodation to the families of the children admitted to the nearby paediatric hospital; charity and help to the poor.
#6	Domus Australia	2011	Historic building built on the remains of a 1st century BC house.	32	68	Support to attend Papal events; daily holy mass in English, chapel with some marvellous artworks
#7	Foresteria Monastero di San Gregorio al Celio	2000	Monastery from the 18 th century	30	40	Possibility to make experience of the monastic life, sharing prayers and various religious events (e.g. lectio divina; sermons) with the monks; availability of natural products of the ancient pharmacy of Camaldoli.
#8	Il Rosario	1998	Historic convent	35	58	Private chapel; inner garden; roof terrace with fine views over the city; chapel available for all the guests for prayers and religious service attendance.
#9	Istituto Immacolata Concezione nostra Signora di Lourdes	1988	Historic building from the 19 th century	-	24	Daily holy masses; confessions; support to attend Papal events.
#10	Santa Maria alle Fornaci	1996	Historic building from the 17 th century.	54	102	Support to attend Papal events; private chapel.
Average		2000		38	71	

Source: Websites of the selected case studies

Data collection has been mostly obtained through retrospective interviews (Mayer, 2008) related to the October 2020-May 2021 period with entrepreneurs of the selected cases. The interview protocol was semi-structured and designed to obtain information over the two phases of observation on: a) changes in ways of doing business due to the pandemic; b) challenges faced and opportunities seized; c) relationships with other actors; d) future vision.

Due to the research questions, data has been analysed in accordance with the theoretical and empirical researches about tourism BM and BMI searching for:

1. the value elements of the BM of religious accommodations.
2. the main internal (RAs-specific) and external (environmental) factors capable of influencing the innovation of religious accommodations BM during COVID-19.

Findings. The results from the analysis allowed the authors to identify the value elements of the BM of religious accommodations (Table 2) and the main internal (RAs-specific) and external (environmental) factors capable of influencing the innovation of religious accommodations BM during COVID-19 (Table 3 and Table 4). In particular, 11 influencing factors emerged from the analysis in a deductive way according to prior literature about tourism BM and BMI and three in an inductive way (by which new influencing factors were free to emerge).

Tab. 2: Value elements of the BM of the investigated cases

Value proposition	Value creation	Value capture
Accommodation in carefully restored rooms furnished consistently with the religious style; various authentic religious experiences; direct contact with religious orders and local communities	Mainly informal and flat organizational structure	Revenue streams from the sale of accommodation; subsidies

Source: Own elaboration

Tab. 3: Main internal (RAs-specific) influencing factors

Internal (RAs-specific) factors	Description
Size	- Small size (Clauss et al., 2022).
Historic and cultural heritage	- Historic and cultural heritage as a resource of knowledge incorporated into the production processes of the religious accommodations and, consequently, into their products being offered (own elaboration)
Entrepreneurs' mental models	- New perceptions on ways in which resources and capabilities might be used, combined, and exploited (Souto, 2015)
Resources and capabilities	- Capabilities and willingness to understand and react to the pandemic (Sigala, 2020) - Availability of human resources with appropriate skills for innovation (Souto, 2015) - Re-skilling of employees (Hjalager & Madsen, 2018)
Time	- Chronological succession of events during the pandemic (Paniccia et al., 2010) - Succession of experiences linked to the pandemic lived by the entrepreneur and the employees (Paniccia et al., 2010)
Knowledge	- Knowledge for BMI resulting from experience (Souto, 2015) - Knowledge about the pandemic (Amankwah-Amoah et al., 2021)
Sustainable tourism culture	- Firms' values and behaviours for addressing sustainability issues (own elaboration)

Source: Own elaboration

Tab. 4. Main external (environmental) influencing influencing

External (environmental) factors	Description
Policies	- Incentives for the revitalization of real estate heritage through entrepreneurial initiatives (Hjalager & Madsen, 2018) - Directives, guidelines, recovery measures (Sigala, 2020)
Time	- Chronological succession of events during the pandemic (Paniccia et al., 2010) - Succession of experiences linked to the pandemic lived by policymakers (Paniccia et al., 2010)
Knowledge	- Knowledge for designing new policies and allocating measures during the pandemic (own elaboration) - Knowledge about the pandemic (own elaboration)
Digital technologies	- Digital technologies to design new solutions (Pencarelli, 2020; Pereylygina et al., 2022)
Tourism demand	- Tourism demand collapse (Sigala, 2020) - New tourists' behaviors, concerns, needs (Sigala, 2020)
Historic and cultural heritage	- Collective construction (Council of Europe, 2005; UNESCO, 2003)
COVID-19	- Novel crisis which transcend past experience and knowledge of both decision makers and policymakers (Amankwah-Amoah et al., 2021; Breier et al., 2021)

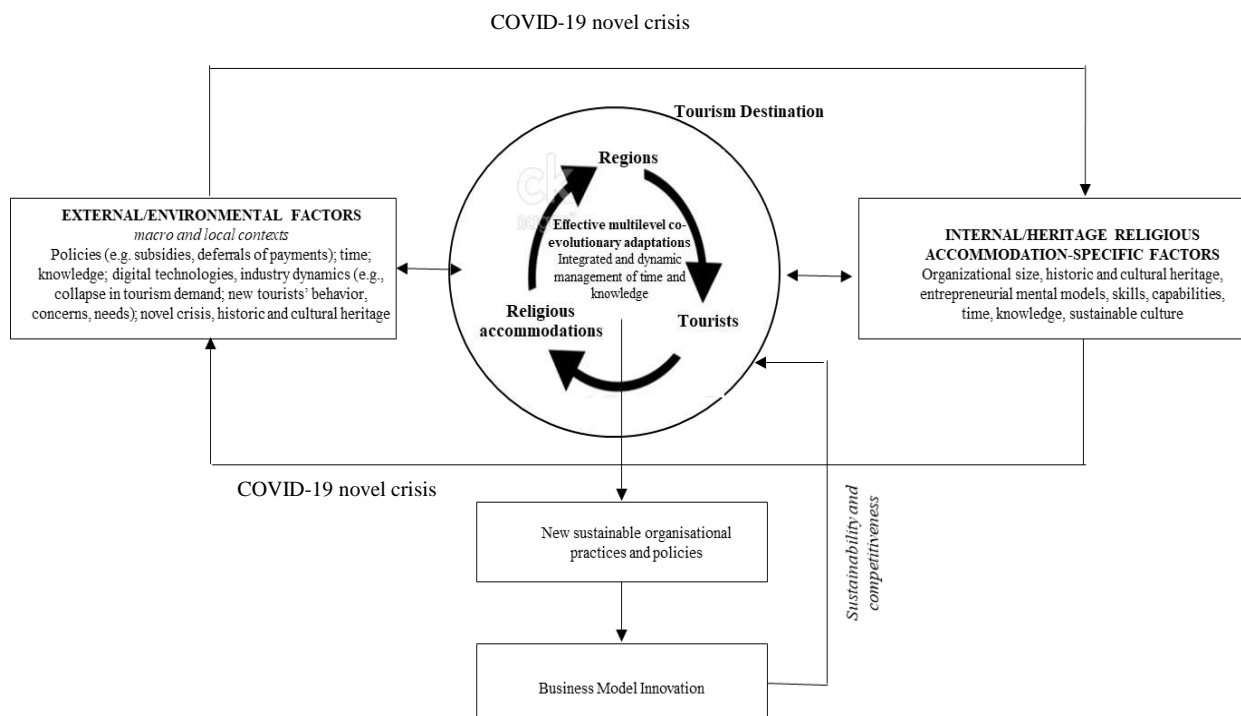
Source: Own elaboration

What emerges is that the value proposition of the BM of RAs is formed by, and contribute to forming, local historic and cultural heritage through ongoing socioeconomic and ecological interactions and reciprocal feedback that take place at multiple levels within destinations, exerting influences on the other value elements. Together, the three

elements of the BM of RAs create and capture value by interacting each other over time according to a circular evolutionary dynamic of shared value creation. In this dynamic, the COVID-19 crisis makes it even more evident the challenges to progress toward sustainability, thus influencing the main interdependences and their variations over time between influencing internal and external factors, and the BM of the investigated firms. On the one hand, the survival of RAs, and thus BM change, is largely conditioned by the selective pressures exerted by the environmental turbulence caused by COVID-19 (Amankwah-Amoah et al., 2021; Breier et al., 2021). On the other hand, these firms tend toward relative autonomy by improving entrepreneurs' mental models and related firms' behaviors (Souto, 2015) aimed at creating and capturing value through historic and cultural heritage during the pandemic. In fact, while facing the unexpected as well as unprecedented COVID-19 crisis, the investigated religious accommodations tend to use the capabilities accumulated in their knowledge base, but also modify it through learning from the current context. These modifications regard also the adoption of new digital technologies that support their strategies oriented toward sustainable tourism (Pencarelli, 2020; Perelygina et al., 2022). In this dynamic, the time factor can play an important role in favoring co-adaptation between religious accommodations and their destination (Paniccia et al., 2010). In fact, results show that these firms are characterized by a temporal perspective oriented to the future that helps them not only to reduce the learning times from the COVID-19 context but also to increase the synchronization (mainly cultural), of their activities in relation to the new needs and expectations of tourists as well as of employees and local communities (Sigala, 2020). Their strategic choices are aimed at the long-term need for sustainability without neglecting the necessary economic sustainability, including short-term financial returns for survival (Breier et al., 2021). In this regard, results show that by effectively combining local contexts identities with new technologies, sustainable tourism culture and responsible behaviors, religious accommodations can create and captures economic value through novel services (e.g., long stay offerings for remote working; digital check-ins). This allows these firms to contribute to social, natural and institutional sustainability through new appropriate organizational practices with benefits for various stakeholders of the investigated destination, also attracting responsible tourists (Hjalager and Madsen, 2018). In other words, what emerges is that an integrated management of time and knowledge allows the investigated firms and their destination to co-adapt neither too lately nor too quickly in relation to environmental evolution. Effective co-adaptation within the investigated destination also favours an effective implementation of policies.

Based on these results, we develop a co-evolutionary framework to explain the religious accommodation-destination co-evolutionary dynamics underlying BM innovation during COVID-19 (Figure 1). This framework allows to conceptualize BMI of religious accommodations as virtuous co-evolutionary processes.

Fig. 1: Framework for BMI of religious accommodations



Source: Own elaboration

Virtuous BMI of RAs happens during COVID-19 according to a circular evolutionary dynamic of dialectic nature and with mutual influence between the various stakeholders involved at multiple levels within the destination, affecting its evolution. The dynamic of the interdependences between internal and external factors surrounding the BMI process is influenced by the COVID-19 crisis. What emerges are new or modified perceptions, behaviors, and choices that

determine variations in value elements of the BM of RAs over time, which in turn influence the factors themselves. In this dynamic, jointly considering and managing time and knowledge allow RAs to adapt in a way that results fitting in both contents and methods to their internal and external environments in evolution. This reinforces what these firms are able to do in the present (i.e., through their existing capabilities), orienting them towards what they could do in the future (i.e., through capabilities to be created). It implies selection and consolidation of incremental variations in BM value elements resulting in new sustainable organizational practices that innovate BM generating value for all the stakeholders involved, improving the firms' and the destination's competitiveness.

Research limits. The main limits of this study are highlighted below.

Firstly, the analysis concerns the BM of religious accommodations rooted in Italy. Further investigations may be concerned with this topic in different contexts at an international level, assessing possible evolutions and effects during and after COVID-19. Secondly, this study relies on a qualitative exploratory analysis given the limited prior literature. Future research can be supported by statistical and quantitative analysis aimed at investigating the usefulness of the proposed conceptual framework. Thirdly, this study sheds light on the BM features of religious accommodations by considering historic and cultural heritage as the main element of their value proposition. Future investigations are required to identify heritage accommodations' BM configurations. And finally, the integrated view of time and knowledge deserves the further consideration of scholars in order to expand the understanding of its importance for BMI on the part of tourism entrepreneurs, but also of policymakers.

Theoretical and practical implications. Regarding the theoretical implications, this study shows the importance of considering the reciprocal causation between internal and external factors and temporal dynamics to understand the process surrounding the dynamic of religious accommodations-destination relationship driving BMI. In this regard, we argue that a co-evolution lens for BMI is particularly useful to advance COVID-19 research and practice in tourism. In fact, by its intrinsic nature, the co-evolution concept allows to consider religious accommodations and their destination as joint and dynamic units of analysis. In fact, it stresses the dialectic nature of the interdependences between them and the associated temporal dynamics. Moreover, it shifts the attention on the need of an integrated management of time and knowledge in which time adds value to the organizations' knowledge, making it competitive. Regarding the main managerial implications, results offer a valuable approach that may help tourism entrepreneurs and policymakers to proactively manage environmental determinism through BMI, reinforcing sustainability of firms and destinations, thus competitiveness. These implications are: i) to manage in a holistic and dynamic way the interdependences among various actors at different levels of tourism destinations (micro/firms, meso/local contexts, macro/destinations and the wider social, economic and natural system); ii) to recognize tourism firms and destinations as communities and consider the interplay between BMI and the aforesaid wider system in which also the natural setting is reactive; iii) to manage the organizational knowledge base, including the absorptive capacity, appropriately in/with time for reinforcing sustainability through BMI in the face of severe crises.

Originality of the study. By combining tourism research on BM, BMI and co-evolution, this study: i) empirically analyses the elements and process driving successful BMI of heritage accommodations; ii) develops a framework that conceptualizes religious accommodations BMI as virtuous co-evolutionary processes, and iii) sheds light on the role that an integrated view of time and knowledge can play in the religious accommodation-destination co-evolutionary relationship, favoring (or not) appropriate innovations of the BM in relation to environmental evolution.

Key words: Business model innovation; Sustainability; COVID-19; Co-evolution; Time-knowledge; Case studies.

References

- ABATECOLA G., BRESLIN D., KASK J. (2020), "Do organizations really co-evolve? Problematizing co-evolutionary change in management and organization studies", *Technological Forecasting and Social Change*, vol. 155, 119964.
- AMANKWAH-AMOAH J., KHAN Z., WOOD G. (2021), "COVID-19 and business failures: The paradoxes of experience, scale, and scope for theory and practice", *European Management Journal*, vol. 39, n. 2, pp. 179-184.
- ANDRIANTO T., KOSEOGLU M.A., KING B. (2021). A business model innovation process for tourism: findings from a literature review. *Tourism Recreation Research*, 1-8.
- BRAMWELL B., HIGHAM J., LANE B., MILLER G. (2017), "Twenty-five years of sustainable tourism and the Journal of Sustainable Tourism: Looking back and moving forward", *Journal of Sustainable Tourism*, vol. 25, n. 1, pp. 1-9.
- BREIER M., KALLMUENZER A., CLAUSS T., GAST J., KRAUS S., TIBERIUS, V. (2021), "The role of business model innovation in the hospitality industry during the COVID-19 crisis", *International Journal of Hospitality Management*, vol. 92. 102723.
- BROUDER P., ERIKSSON R.H. (2013), "Tourism evolution: On the synergies of tourism studies and evolutionary economic geography", *Annals of Tourism Research*, vol. 43, pp. 370-389.
- CAFFERATA R. (2022), *Management in adattamento. Tra razionalità economica, evoluzione e imperfezione dei sistemi*, il Mulino, Bologna.
- CLAUSS T., BREIER M., KRAUS S., DURST S., MAHTO R.V. (2022), "Temporary business model innovation-SMEs' innovation response to the Covid-19 crisis", *R&D Management*, vol. 52, n. 2, pp. 294-312.

- COUNCIL OF EUROPE (2005), *Framework Convention on the Value of Cultural Heritage for Society (Faro Convention)*, Council of Europe Treaty Series, Strasbourg.
- FILSER M., KRAUS S., BREIER M., NENOVA I., PUUMALAINEN K. (2021), “Business model innovation: Identifying foundations and trajectories”, *Business strategy and the environment*, vol. 30, n. 2, pp. 891-907.
- HARMS R., ALFERT C., CHENG C.F., KRAUS S. (2021), “Effectuation and causation configurations for business model innovation: Addressing COVID-19 in the gastronomy industry”, *International Journal of Hospitality Management*, vol. 95, 102896
- HJALAGER A.M. (2010), “A review of innovation research in tourism”, *Tourism Management*, vol. 31, n. 1, pp. 1-12.
- HJALAGER A.M., MADSEN E.L. (2018), “Business Model Innovation in Tourism: Opportunities and Challenges”, in Cooper C., Volo S., Gartner W.C., Scott N. (Eds), *The SAGE Handbook of Tourism Management*, SAGE, Thousand Oaks, pp. 373-390.
- ISTAT (2021), *Movimento dei clienti negli esercizi ricettivi per tipo di esercizio*, Istat, Roma.
- ITALIAN ASSOCIATION FOR RELIGIOUS ACCOMMODATIONS (2021), *Rapporto 2021 sullo stato dell'ospitalità religiosa in Italia*, Associazione Ospitalità Religiosa Italiana, Varese.
- MA M., HASSINK R. (2013), “An evolutionary perspective on tourism area development”, *Annals of Tourism Research*, vol. 41, pp. 89-109.
- MAYER K.U. (2008), “Retrospective longitudinal research: the German life history study”, in Menard S. *Handbook of longitudinal research: Design, measurement, and analysis*, Elsevier, pp. 85-106.
- MELLON V., BRAMWELL B. (2018), “The temporal evolution of tourism institutions”, *Annals of Tourism Research*, vol. 69, pp. 42-52.
- NORGAARD R.B. (1994). *Development betrayed: The end of progress and a co-evolutionary revisioning of the future*, Routledge, London.
- PANICCIA P.M.A., BAIOTTO S. (2018), “Turismo religioso e competitività: una prospettiva co-evolutiva dei servizi di ospitalità”, in Poggesi S., Paniccia P.M.A. (Eds.), *Evoluzione nei servizi. Modelli ed esperienze. Evolution in services. Models and experiences*, Wolters Kluwer, Milano, pp. 3-39.
- PANICCIA P.M.A., LEONI L., BAIOTTO S. (2017), “Interpreting sustainability through co-evolution: Evidence from religious accommodations in Rome”, *Sustainability*, vol. 9, n. 12, 2301.
- PANICCIA P.M.A., PECHLANER H., VALERI M. (2010), “The importance of the time of experience in the innovation of tourism business. The Sextantio Albergo Diffuso”, in Weiermair K., Go F., Keller P., Pechlaner H. (Eds.), *Entrepreneurship and innovation in tourism* Erich Schmidt VerlaG, Berlin, pp. 97-116.
- PENCARELLI T. (2020), “The digital revolution in the travel and tourism industry”, *Information Technology & Tourism*, vol. 22, n. 3, pp. 455-476.
- PERELYGINA M., KUCUKUSTA D., LAW R. (2022), “Digital business model configurations in the travel industry”, *Tourism Management*, vol. 88, 104408.
- PIKKEMAAT B., PETERS M., BICHLER B.F. (2019), “Innovation research in tourism: Research streams and actions for the future”, *Journal of Hospitality and Tourism Management*, vol. 41, pp. 184-196.
- REINHOLD S., ZACH F.J., KRIZAJ D. (2017), “Business models in tourism: a review and research agenda”, *Tourism Review*, vol. 72, n. 4, pp. 1-36.
- REINHOLD S., ZACH F.J., KRIZAJ D. (2019), “Business models in tourism-state of the art”, *Tourism Review*, vol. 74, n. 6, pp. 1120-1134
- RYAN M.M., MCKENZIE F.H. (2003), “A monastic tourist experience: The packaging of a place”, *Tourism Geographies*, vol. 5, n. 1, pp. 54-70.
- SAHEBALZAMANI S., BERTELLA G. (2018), “Business models and sustainability in nature tourism: A systematic review of the literature”, *Sustainability*, vol. 10, n. 9.
- SHACKLEY M. (2004), “Accommodating the spiritual tourist; the case of the religious retreat house”, in Thomas R. (Eds.), *Small Firms in Tourism: International Perspectives*, Elsevier, London, pp. 225-239.
- SIGALA M. (2020), “Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research”, *Journal of business research*, vol. 117, pp. 312-321.
- SOUTO J.E. (2015), “Business model innovation and business concept innovation as the context of incremental innovation and radical innovation”, *Tourism management*, vol. 51, pp. 142-155.
- UNESCO (2003), *Convention for the safeguarding of the intangible cultural heritage*, Unesco, London.
- VOLBERDA H.W., VAN DEN BOSCH F.A., MIHALACHE O.R. (2014), “Advancing management innovation: Synthesizing processes, levels of analysis, and change agents”, *Organisation Studies*, vol. 35, n. 9, pp. 1245-1264
- WORLD TOURISM ORGANIZATION (2019), *New Business Models in the Accommodation Industry - Benchmarking of Rules and Regulations in the Short-term Rental Market, Executive Summary*, UNWTO, Madrid.
- YIN R.K. (2017), *Case study research and applications: Design and methods*, Sage Publications, Thousand Oaks.
- ZENKER S., KOCK F. (2020), “The coronavirus pandemic-A critical discussion of a tourism research agenda”, *Tourism management*, vol. 81.

Websites

www.istat.it

www.ospitalitareligiosa.it/

<http://portal.unesco.org>

<https://www.coe.int/en/web/culture-and-heritage/faro-convention>

New technologies and marketing approaches in the healthcare context: Some preliminary results on a bibliometric-based literature analysis

JOHANA HAJDINI* LEA IAIA•

Framing of the research. *Technology is rapidly changing every aspect of doing business and offering services. In long with the great advancements and the changes in business models, customer expectations and legal frameworks, as well as national and international standards, bring challenges and opportunities which should be explored, addressed, and solved for the benefit of all the parties included in these transforming processes (Anderson et al., 2013; Aceto, Persico and Pescapé, 2018). The intersection between technology and health has proved to be a great stream of research along with the opportunities and challenges it consequently creates (Bolton, Cipriano and Gassert, 2013). The continuous introduction of new technologies available, the potential improvements to populations health and the new possibilities of marketing approach implementation have attracted increased attention of researchers, as well as providers and patients, leaving not less impact on the policymaker perspective (Garrido et al., 2008). Healthcare organizations and providers worldwide are now offering a broad variety of technologies for the professional staff and the patient itself, starting from information technology to support decision-making in health, to electronic health records, online health communities, advanced medical imaging technology, telemedicine, wearable intelligent devices, robotics and much more (Green, Hartley and Gillespie, 2016; Wittkowski et al., 2020; Chakraborty, Ilavarasan and Edirippulige, 2021). From a marketing point of view, the availability of technologies to empower patients, as well as possibilities to engage in interactive marketing platforms and collect health-related data to support the development of strategies, is opening the way to the value-centered marketing in healthcare (Agarwal et al., 2020). While a lot of research has been done in a number of issues starting from the adoption of technologies, to privacy concerns, to customers behavior, performance and satisfaction, as well as the misuse of health technologies, compliance to medication and expert advice, etc. (Seiders et al., 2015; Wang et al., 2019; Wienroth, Lund Holm Thomsen and Høstgaard, 2020; Chakraborty, Ilavarasan and Edirippulige, 2021), there is still room for future research in the emerging technologies and their application in healthcare. In particular, the academic literature still lacks a more comprehensive approach to homogenize the entire body of knowledge and to offer perspectives on moving research forward than focusing on the same old and highly explored issues (Aceto, Persico and Pescapé, 2018; Shapiro, 2020; Ostern et al., 2021). Given these points, this bibliometric-based literature analysis will enrich the debate on marketing in healthcare, providing important insights for the state of research and the developmental trends, while being of a starting point for future research.*

Purpose of the paper. *This paper is an investigation of the existing literature on marketing technologies for healthcare which aims to synthesize and homogenize the different perspectives of the body of knowledge on the topic in a more comprehensive multidisciplinary approach. It is part of a research-in-progress trying to cover a broader sample of articles than the one presented in this paper, to fulfill its main aim, proving not only useful to literature in bringing research forward, but also providing important implications to managerial and social considerations. Accordingly, we performed a bibliometric analysis aimed at answering the following research questions:*

RQ1: How are the healthcare technologies and the marketing approaches evolving over time the research in the healthcare sector?

RQ2: What are the emerging topics among the most cited works discussing new technologies in healthcare research?

RQ3: What will be the future avenues to be considered in the healthcare technologies research to create value with and for patient and other stakeholders?

Methodology. *We performed a bibliometric analysis to analyze our data responding to the aim of answering our main research questions. This analysis is part of a scientometric approach which offers an opportunity to empirically measure the body of literature in the domain. Bibliometric analysis is a common and useful method which applies quantitative measures and indicators for science and technology based on bibliographic information (Van Leeuwen, 2004) and has attracted increased attention with the emergence of easily accessible computerized data (Ellegaard and Wallin, 2015).*

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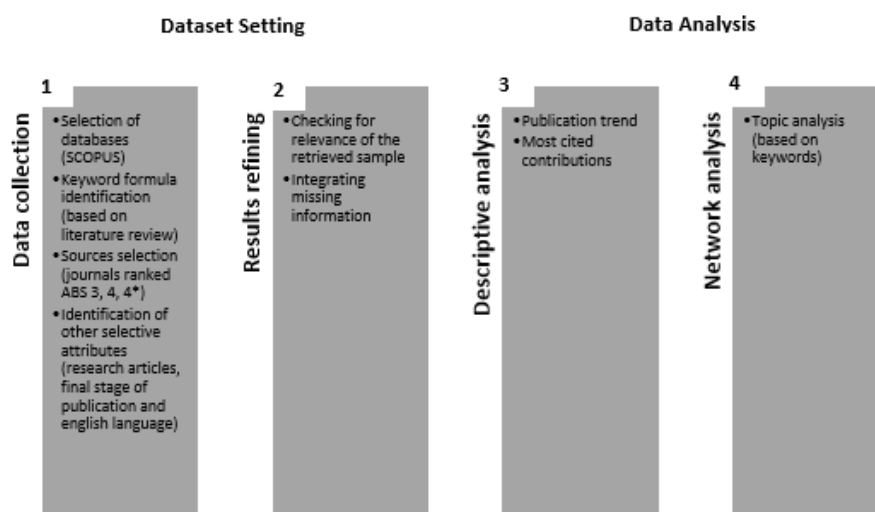
In our research we followed a specific protocol which led us to the sample of relevant articles, reported in figure 1. As suggested by other authors (Za and Braccini, 2017), we started with the creation of a relevant dataset on which to perform the required analysis. The research protocol consists of two main phases. The first phase accounts to the dataset setting and is performed in two steps: 1-data collection and 2-results refining, while the second phase accounts to data analysis and is again performed in two following steps: 3-descriptive analysis and 4-network analysis.

Firstly, in the data collection step, the literature search was conducted on Scopus, which is the largest abstract and citation database, including relevant contributions of the literature in multiple areas of research. It is a core data source that supports research in academic field, but not only, covering more than 25,100 titles from more than 5,000 international publishers (Elsevier, 2020). To conduct the search on Scopus a search query was executed to search on titles, keywords, and abstracts of the articles. The search query was developed through a careful review of literature on marketing technologies and healthcare (Seiders et al., 2015; Agarwal et al., 2020; Chakraborty, Ilavarasan and Edirippulige, 2021; Cherif, Bezaz and Mzoughi, 2021; De Togni et al., 2021; Gunn et al., 2021) integrating it with our knowledge on the domain to craft relevant comprehensive terms. This procedure developed the following keyword formula:

(“marketing” OR “market” OR “marketplace” OR “e-marketplace” OR “e-marketing” OR “social media” OR “satisfaction” OR “complaints” OR “e-satisfaction” OR “e-complaints” OR “customer” OR “consumer”) AND (“medicine” OR “medical” OR “health” OR “healthcare” OR “disease” OR “infectious” OR “virus” OR “vaccine” OR “elderly” OR “hospital” OR “illness”) AND (“smart” OR “intelligent” OR “autonomous” OR “multifunctional” OR “connected” OR “digital” OR “online” OR “monitoring” OR “computer assisted technology” OR “innovation” OR “health device” OR “technology” OR “technological” OR “telehealth” OR “electronic” OR “mobile” OR “web 2.0” OR “industry 4.0”).

We run the keyword formula to search for relevant articles. Then we applied a set of eligibility criteria, as a common practice of setting the boundaries for research (Petticrew and Roberts, 2008), also done in other literature analyses (Menichetti et al., 2016; Kim, Kang and Lee, 2021; Sounderajah et al., 2021). We selected only journals ranked 3, 4 and 4* according to the journal ranking of the Chartered Association of Business Schools, because it implies that articles published in these journals meet high standards for rigor and quality (Hiebl, 2021), and we selected only research articles in the final stage of publication, written in English language. Moreover, we included a time restriction corresponding of 20 years’ timespan (2000-2020). We selected the time period 2000-2020, because we account the rapid advancement of marketing technologies and innovations for healthcare to this time frame, which led to the introduction of digital healthcare and nowadays what is considered as healthcare 4.0 (Aceto, Persico and Pescapé, 2020). The integration of our selection criteria led us to a total of 2312 articles retrieved, which were further reduced in the next step. In the results refining step, as the protocol suggests, we checked the retrieved sample for topic relevance and included missing information. When checking for topic relevance, several articles proved to be not relevant to our research, even though they included the usage of the provided keywords jointly. This is the case in the paper of Corney, D., (2002), which discusses the application of intelligent systems in the food industry, implying a connection to marketing and the usage of such technologies for medical diagnosis, even though its central aim is strictly related to the food production and marketing. Several papers were excluded following the same logic, to keep in our sample only the articles that appeal mostly to our topic of research (Za and Braccini, 2017). Our final set of data, applying all the inclusion and exclusion criteria, consists of 114 articles, on which we performed a descriptive analysis and a network analysis (see Figure 1).

Fig. 1: Research protocol

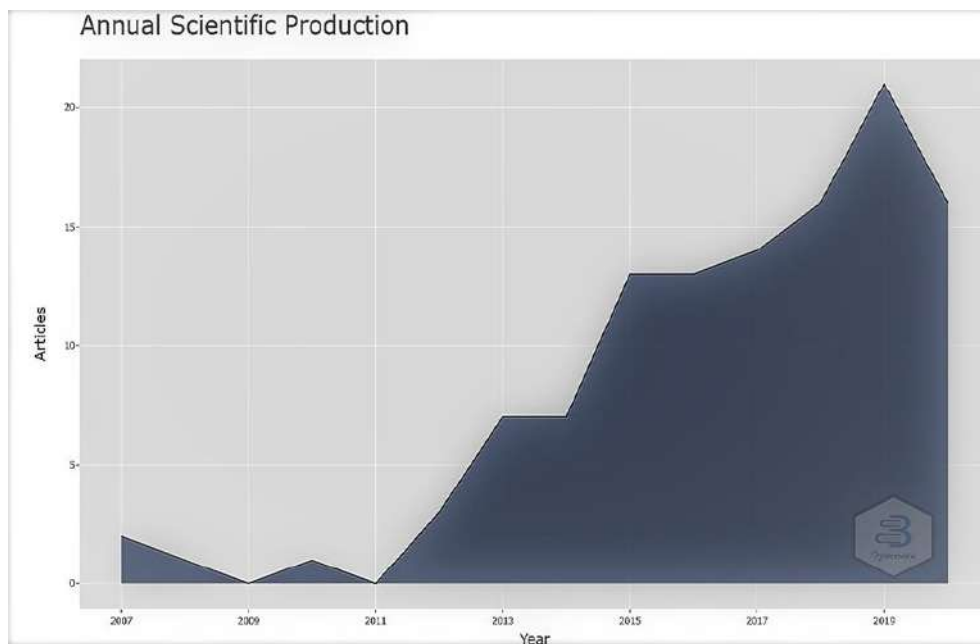


Source: Adopted from Za and Braccini, (2017)

Results. We performed a bibliometric-based literature analysis on a sample of 114 articles extracted from Scopus through a rigorous selection process. Further, we carried descriptive and network analysis on the data, thus exploring the publication trend of the domain over years, and the most influential contributions in the domain, which can be considered important pillars of healthcare technologies research, as well as the keywords co-occurrence, providing interesting insights on the knowledge structure. The analysis helps us achieve the purpose of this study and answer our main research questions, even though are not exhaustive of the topic. Again, considering that the literature has developed rapidly with the advancements of technologies, this synthesis is required to identify new directions for future research.

We reported the publication trend of our sample (see Figure 2) starting from year 2007 to year 2020. Even though the timeframe for our sample is January 2000 to December 2020, we could not find relevant articles published before 2007 to be included in our sample. This can be partially explained with what we consider disruptive technological innovations in healthcare, that attracted further increased attention of scholars and researchers from all around the world (Sounderajah et al., 2021). The disruptive technological innovations in healthcare are a relatively recent topic. One of these disruptive innovations was the introduction of IoT, which was introduced in 2005 and we can partly connect it to the increased interest in the topic from the year 2007. The publication trend has had several up and downs during the years, but we can clearly notice that starting from the year 2011, the interest has been increasing till reaching a peak in the year 2019, with a total of 21 articles published in the topic. So, we can say that concerning our first research question, we identified a growing trend of publication on healthcare technologies, with a peak on year 2019. The increased attention in the recent years means that the field of healthcare technologies research is in rise and offers important opportunities for scholars and academic communities to be further explored in future research.

Fig. 2: The publication trend over the years



Source: Authors elaboration

Concerning our second research question, we identified three emerging topics from the most cited works in the domain. Table 1 shows the most relevant sources, cited more than 100 times, which represent by themselves important contributions in the field and building blocks of the extant literature on healthcare technologies. We can see that some articles in our table account for a relevant number of citations. In the first article, which has been cited 437 times (data retrieved on 19 October 2021) as the authors explain, “conceptualizes and presents a research agenda for the emerging area of transformative service research, which lies at the intersection of service research and transformative consumer research and focuses on well-being outcomes related to service” (Anderson et al., 2013, p. 1203), and moreover, it addresses sector specific research questions related to financial services, health care services and social services, offering a good starting point for future research on transformative health care and accounting to an important contribution for conceptualizing the evolution of health care services and recognizing “the importance of studying health disparities among collective consumer entities” (Anderson et al., 2013, p. 1203). The second most cited paper, cited 434 times (data retrieved on 19 October 2021), introduces “the 3-D virtual worlds and their educational potential to medical/health librarians and educators” (Boulos, Hetherington and Wheeler, 2007, p. 233). Even though the study addresses basically the 3-D virtual worlds as an educational tool, it investigates several examples from Second Life such as a ‘Nutrition Game’, the Heart Murmur Sim, Gene Pool, Health info Island and VNEC, all designed to learn important health information, or to facilitate training and outreach to virtual medical communities in order to

establish proper networks, etc. (Boulos, Hetherington and Wheeler, 2007). The third article in the table, cited 205 times (data retrieved on 19 October 2021), presents the “Service Encounter 2.0” and “provides a synthesis of the changing interdependent roles of technology, employees, and customers” (Larivière et al., 2017, p. 238). The authors develop a conceptual framework, which highlights the changing business models and the changing roles in the new service encounter environment of delivering services to the customer, providing important insights for the evolution of research within the field and the transformation of services with the adoption of disruptive technologies.

Tab. 1: Most cited publications in the sample

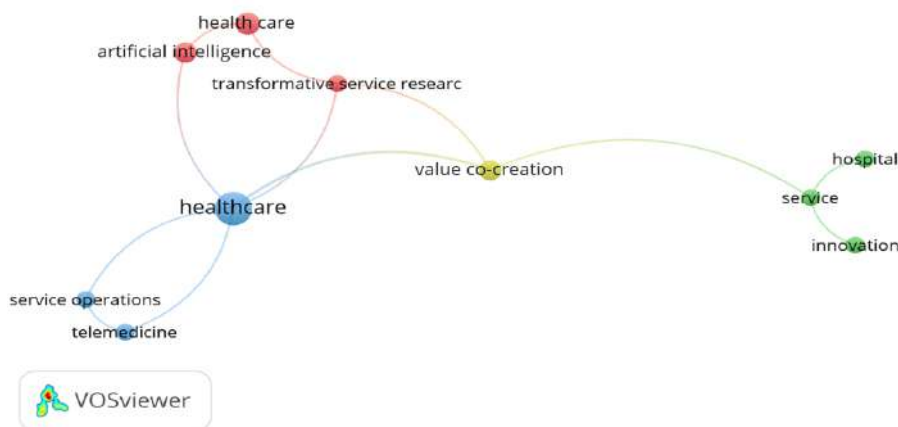
Article	Total Citations
ANDERSON L, 2013, J BUS RES	437
BOULOS MNK, 2007, HEALTH INF LIBR J	434
LARIVIÈRE B, 2017, J BUS RES	205
SWEENEY JC, 2015, J SERV RES	195
FLAVIÁN C, 2019, J BUS RES	158
WANG Y, 2017, J BUS RES	152
VERLEYE K, 2014, J SERV RES	152
AKTER S, 2013, INF MANAGE	146
VAN VALKENHOEF G, 2013, DECIS SUPPORT SYST	123
MILLER AR, 2013, INF SYST RES	122
LONGONI C, 2019, J CONSUM RES	117

Source: Authors elaboration

Summarizing what above explained, the topics can be defined as: a) transformative service research; b) 3-D virtual worlds in healthcare; c) Service encounter 2.0. These topics seem to have attracted increased interest and prove to be relevant also in shaping future research efforts within the domain. These three publications account to three different years, each representing a different period of research in the domain. The third most cited contribution (Larivière et al., 2017) is the most recent according to the publication year (among the three most cited articles) and focuses on the service encounter while investigates the roles of technology, employee, and encounter, offering an understanding from different perspectives on the service. This topic has future potential for further investigation. As the authors suggest, there is a need for future research to develop new metrics for tracking employee performance, customer performance and how they experience the service.

Next, we performed the keywords co-occurrence analysis. The keyword co-occurrence analysis is a common way to map the knowledge structure of the domain, uncovering interesting knowledge components starting from the reported patterns and link strengths of this analysis (Radhakrishnan et al., 2017). We created a keyword co-occurrence visualization using the VOSviewer, a useful tool for visualizing bibliometric networks. It is focused on a distance-based approach to visualize bibliometric networks and to assign the nodes in the network to a cluster (van Eck and Waltman, 2014). From a total of 519 author-supplied keywords, 15 meet the threshold (with a minimum number of occurrences of 3 for a keyword). In this analysis, the number of times that a pair of words co-occurs in multiple articles represents the weight of the link connecting this pair. The selected keywords and their occurrences are presented in Table 3. The results also presented some unconnected items which were removed from our visualization, but not from the table. This leaves us with the largest set of connected items consisting of 10 items (see Figure 3).

Fig. 3: Keywords co-occurrence visualization



Source: Authors elaboration

These items were organized in 4 clusters as below:

Cluster 1 - Consists of 3 items, where the central item is healthcare, and it is associated with artificial intelligence and transformative service research.

Cluster 2 - Consists of 3 items, where the main item is service, and is related to hospital and innovation.

Cluster 3 - Consists of 3 items, where the central item is healthcare and is related to service operations and telemedicine.

Cluster 4 - Is the last cluster consisting of only one item which is value co-creation.

One of the main insights that can come from the identification of clusters, refers to the fact that keywords which are grouped into the same cluster are more likely to reflect similar topics (Chen et al., 2016). The fact that the number of keywords included in three of our four clusters are the same (Cluster 1, 2 and 3 consist of 3 items each), means that they can attract the same attention from researchers, while Cluster 4, consisting of only one item attracts fewer attention compared to the three others. This is an important finding, because it reflects the structure and the interest within the domain, explaining that transformative service research, healthcare innovations, service operations and value co-creation are important research directions of the domain, with the first three attracting more interest than value co-creation. Finally, concerning our third research question, we identified 4 main clusters of research, which we consequently named as: 1) Transformative service research, 2) Healthcare innovations, 3) Service operations, and 4) Value co-creation. Any research effort focused on these topics is appreciated.

Research limitations. This study is not without limitations. The sample of articles on which we performed the analysis is a small sample of articles, as we focused mainly on articles published in ABS ranked 3, 4 and 4*. Future research should consider a broader sample. Moreover, we performed the search on Scopus, using a specific keyword formula to capture the different perspectives on this domain. An investigation with other search terms or in another database can yield different results on the topic. Future research should consider overcoming these limitations.

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Originality of the paper. Drawing on the main motivation for this article, we shape this research to respond to the identified gap and contribute to provide a multidisciplinary framework under which marketing technologies in healthcare can be researched in future works. Bibliometric-based literature analysis are not common in the domain of healthcare research. Yet, we find a great potential in taking a bibliometric approach for the benefits of providing a rigorous assessment of literature, and avoiding the many pitfalls of other types of reviews, that lack replicability and can be highly biased by authors preferences (Linnenluecke, Marrone and Singh, 2020). Moreover, answering our three research questions our work contributes to the interdisciplinary debate on health technologies, addressing the needs of more than just one actor in healthcare technologies context and providing implications on the advancement of the debate. Given that research advancement will occur at the intersection of two interdisciplinary fields: advancement in technology and advancement in healthcare, the suggested directions for future research should focus on the integration of both fields and try to address important questions that still need to be answered, that will emerge from the final findings of this work-in-progress.

Keywords: Marketing technologies, Healthcare, Bibliometric analysis, Literature analysis

References

- ACETO G., PERSICO V., PESCAPÉ A. (2018), "The role of Information and Communication Technologies in healthcare: taxonomies, perspectives, and challenges", *Journal of Network and Computer Applications*, vol. 107 No January, pp. 125-154.
- ACETO G., PERSICO V., PESCAPÉ A. (2020), "Industry 4.0 and health: Internet of things, big data, and cloud computing for healthcare 4.0", *Journal of Industrial Information Integration*, vol. 18, n. June, pp. 100129.
- AGARWAL R., DUGAS M., GAO G. G., KANNAN P. K. (2020), "Emerging technologies and analytics for a new era of value-centered marketing in healthcare", *Journal of the Academy of Marketing Science*, vol. 48, n. October, pp. 9-23.

- ANDERSON L., OSTROM A.L., CORUS C., FISK R.P., GALLAN A.S., GIRALDO M., MENDE M., MULDER M., RAYBURN S.W., ROSENBAUM M.S., SHIRAHADA K., WILLIAMS J.D. (2013), "Transformative service research: An agenda for the future", *Journal of Business Research*, vol. 66, n. October, pp. 1203-1210.
- BOLTON L.B., CIPRIANO P.F., GASSERT C. (2013), *The Intersection of Technology and Health Care: Policy and Practice Implications, Policy and Politics in Nursing and Healthcare-Revised Reprint-E-Book*, Elsevier Health Sciences, pp. 444.
- BOULOS M.N.K., HETHERINGTON L., WHEELER S. (2007), "Second Life: An overview of the potential of 3-D virtual worlds in medical and health education", *Health Information and Libraries Journal*, vol. 24, n. December, pp. 233-245.
- CHAKRABORTY I., ILAVARASAN P.V., EDIRIPPULIGE S. (2021), "Health-tech startups in healthcare service delivery: A scoping review", *Social Science and Medicine*, vol. 278, n. June, p. 113949.
- CHEN X., CHEN J., WU D., XIE Y., LI J. (2016), "Mapping the Research Trends by Co-word Analysis Based on Keywords from Funded Project", *Procedia Computer Science*, vol. 91, pp. 547-555.
- CHERIF E., BEZAZ N., MZOUGH M. (2021), "Do personal health concerns and trust in healthcare providers mitigate privacy concerns? Effects on patients' intention to share personal health data on electronic health records", *Social Science and Medicine*, vol. 283, n. June 2020, p. 114146.
- VAN ECK N.J., WALTMAN L. (2014), *Visualizing Bibliometric Networks, Measuring Scholarly Impact*, Springer, Cham.
- ELLEGAARD O., WALLIN J.A. (2015), "The bibliometric analysis of scholarly production: How great is the impact?", *Scientometrics*, vol. 105, n. 3, pp. 1809-1831.
- ELSEVIER (2020), *Content Coverage Guide*, pp. 1-24. Available at: https://www.elsevier.com/_data/assets/pdf_file/0007/69451/Scopus_ContentCoverage_Guide_WEB.pdf (Accessed on 22 July 2021).
- GARRIDO M.V. ET AL. (2008), "Health technology assessment and health policy-making in Europe: current status, challenges and potential", *Observatory Studies Series*, No.14WHO Regional Office Europe.
- GREEN T., HARTLEY N., GILLESPIE N. (2016), Service Provider's Experiences of Service Separation : The Case of Telehealth, vol. 19, n. 4, pp. 477-494.
- GUNN C.J., BERTELSEN N., REGEER B.J., SCHUITMAKER-WARNAAR T.J. (2021), "Valuing patient engagement: Reflexive learning in evidence generation practices for health technology assessment", *Social Science and Medicine*, vol. 280, n. May, pp. 114048.
- HIEBL M.R.W. (2021), "Sample Selection in Systematic Literature Reviews of Management Research", *Organizational Research Methods*, vol. 0, n. January, pp. 1-33.
- KIM J., KANG S., LEE K.H. (2021), "Evolution of digital marketing communication: Bibliometric analysis and network visualization from key articles", *Journal of Business Research*, vol. 130, n. September , pp. 552-563.
- LARIVIÈRE B., BOWEN D., ANDREASSEN T.W., KUNZ W., SIRIANNI N.J., VOSS C., WÜNDERLICH N.V., DE KEYSER A. (2017), "Service Encounter 2.0": An investigation into the roles of technology, employees and customers", *Journal of Business Research*, vol. 79, n. October, pp. 238-246.
- VAN LEEUWEN T. (2004), *Descriptive versus evaluative bibliometrics, in Handbook of quantitative science and technology research* Springer, pp. 373-388.
- LINNENLUECKE M.K., MARRONE M., SINGH A.K. (2020), "Conducting systematic literature reviews and bibliometric analyses", *Australian Journal of Management*, vol. 45, n. 2, pp. 175-194.
- MENICHETTI J., LIBRERI C., LOZZA E., GRAFFIGNA G. (2016), "Giving patients a starring role in their own care: A bibliometric analysis of the on-going literature debate", *Health Expectations*, vol. 19, n. 3, pp. 516-526.
- OSTERN N., PERSCHIED G., REELITZ C., MOORMANN J. (2021), "Keeping pace with the healthcare transformation: a literature review and research agenda for a new decade of health information systems research", *Electronic Markets*, vol. 31, n. July, pp. 901-921.
- PETTICREW M., ROBERTS H. (2008), *Systematic Reviews in the Social Sciences: A Practical Guide*, John Wiley & Sons.
- RADHAKRISHNAN S., ERBIS S., ISAACS J.A., KAMARTHI S. (2017), "Correction: Novel keyword co-occurrence network-based methods to foster systematic reviews of scientific literature", *PLoS ONE*, vol. 12, n. 9, pp. 1-16.
- SEIDERS K., FLYNN A.G., BERRY L.L., HAWS K.L. (2015), "Motivating Customers to Adhere to Expert Advice in Professional Services : A Medical Service Context", *Journal of Service Research*, vol. 18, n. July, pp. 39-58.
- SHAPIRO B.T. (2020), "Advertising in health insurance markets", *Marketing Science*, vol. 39, n. 3, pp. 587-611.
- SOUNDERAJAH V., PATEL V., VARATHARAJAN L., HARLING L., NORMAHANI P., SYMONS J., BARLOW J., DARZI A., ASHRAFIAN H. (2021) (2021), "Are disruptive innovations recognised in the healthcare literature? A systematic review", *BMJ Innovations*, vol. 7, n.1, pp. 208-216.
- DE TOGNI G., ERIKAINEN S., CHAN S., CUNNINGHAM-BURLEY S. (2021), "What makes AI "intelligent" and "caring"? Exploring affect and relationality across three sites of intelligence and care", *Social Science and Medicine*, vol. 277, n. March, pp. 113874.
- WANG Y., MCKEE M., TORBICA A., STUCKLER D. (2019), "Systematic Literature Review on the Spread of Health-related Misinformation on Social Media", *Social Science and Medicine*, vol. 240, n. November, pp. 112552.

- WIENROTH M., LUND HOLM THOMSEN L., HØSTGAARD A.M. (2020), “Health technology identities and self. Patients’ appropriation of an assistive device for self-management of chronic illness”, *Sociology of Health and Illness*, vol. 42, n. 5, pp. 1077-1094.
- WITTKOWSKI K., KLEIN J.F., FALK T., SCHEPERS J.J., ASPARA J., BERGNER K.N. (2020), “What Gets Measured Gets Done : Can Self-Tracking Technologies Enhance Advice Compliance?”, *Journal of Service Research*, vol. 23, n. 3, pp. 281-298.
- ZA S., BRACCINI A.M. (2017), *Tracing the roots of the organizational benefits of IT services*, in *International Conference on Exploring Services Science*, Springer, pp. 3-11.

New technologies and marketing approaches in the healthcare context: Some preliminary results on a bibliometric-based literature analysis

JOHANA HAJDINI* LEA IAIA•

Framing of the research. *Technology is rapidly changing every aspect of doing business and offering services. In long with the great advancements and the changes in business models, customer expectations and legal frameworks, as well as national and international standards, bring challenges and opportunities which should be explored, addressed, and solved for the benefit of all the parties included in these transforming processes (Anderson et al., 2013; Aceto, Persico and Pescapé, 2018). The intersection between technology and health has proved to be a great stream of research along with the opportunities and challenges it consequently creates (Bolton, Cipriano and Gassert, 2013). The continuous introduction of new technologies available, the potential improvements to populations health and the new possibilities of marketing approach implementation have attracted increased attention of researchers, as well as providers and patients, leaving not less impact on the policymaker perspective (Garrido et al., 2008). Healthcare organizations and providers worldwide are now offering a broad variety of technologies for the professional staff and the patient itself, starting from information technology to support decision-making in health, to electronic health records, online health communities, advanced medical imaging technology, telemedicine, wearable intelligent devices, robotics and much more (Green, Hartley and Gillespie, 2016; Wittkowski et al., 2020; Chakraborty, Ilavarasan and Edirippulige, 2021). From a marketing point of view, the availability of technologies to empower patients, as well as possibilities to engage in interactive marketing platforms and collect health-related data to support the development of strategies, is opening the way to the value-centered marketing in healthcare (Agarwal et al., 2020). While a lot of research has been done in a number of issues starting from the adoption of technologies, to privacy concerns, to customers behavior, performance and satisfaction, as well as the misuse of health technologies, compliance to medication and expert advice, etc. (Seiders et al., 2015; Wang et al., 2019; Wienroth, Lund Holm Thomsen and Høstgaard, 2020; Chakraborty, Ilavarasan and Edirippulige, 2021), there is still room for future research in the emerging technologies and their application in healthcare. In particular, the academic literature still lacks a more comprehensive approach to homogenize the entire body of knowledge and to offer perspectives on moving research forward than focusing on the same old and highly explored issues (Aceto, Persico and Pescapé, 2018; Shapiro, 2020; Ostern et al., 2021). Given these points, this bibliometric-based literature analysis will enrich the debate on marketing in healthcare, providing important insights for the state of research and the developmental trends, while being of a starting point for future research.*

Purpose of the paper. *This paper is an investigation of the existing literature on marketing technologies for healthcare which aims to synthesize and homogenize the different perspectives of the body of knowledge on the topic in a more comprehensive multidisciplinary approach. It is part of a research-in-progress trying to cover a broader sample of articles than the one presented in this paper, to fulfill its main aim, proving not only useful to literature in bringing research forward, but also providing important implications to managerial and social considerations. Accordingly, we performed a bibliometric analysis aimed at answering the following research questions:*

RQ1: How are the healthcare technologies and the marketing approaches evolving over time the research in the healthcare sector?

RQ2: What are the emerging topics among the most cited works discussing new technologies in healthcare research?

RQ3: What will be the future avenues to be considered in the healthcare technologies research to create value with and for patient and other stakeholders?

Methodology. *We performed a bibliometric analysis to analyze our data responding to the aim of answering our main research questions. This analysis is part of a scientometric approach which offers an opportunity to empirically measure the body of literature in the domain. Bibliometric analysis is a common and useful method which applies quantitative measures and indicators for science and technology based on bibliographic information (Van Leeuwen, 2004) and has attracted increased attention with the emergence of easily accessible computerized data (Ellegaard and Wallin, 2015).*

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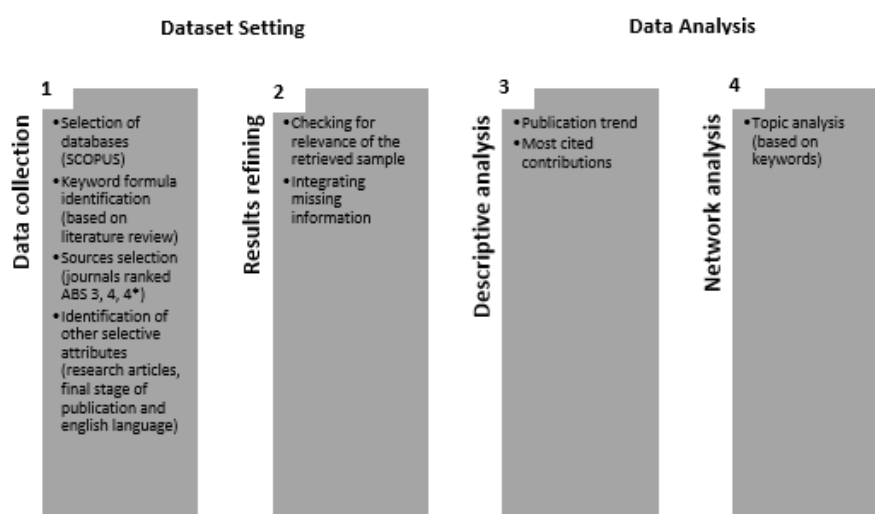
In our research we followed a specific protocol which led us to the sample of relevant articles, reported in figure 1. As suggested by other authors (Za and Braccini, 2017), we started with the creation of a relevant dataset on which to perform the required analysis. The research protocol consists of two main phases. The first phase accounts to the dataset setting and is performed in two steps: 1-data collection and 2-results refining, while the second phase accounts to data analysis and is again performed in two following steps: 3-descriptive analysis and 4-network analysis.

Firstly, in the data collection step, the literature search was conducted on Scopus, which is the largest abstract and citation database, including relevant contributions of the literature in multiple areas of research. It is a core data source that supports research in academic field, but not only, covering more than 25,100 titles from more than 5,000 international publishers (Elsevier, 2020). To conduct the search on Scopus a search query was executed to search on titles, keywords, and abstracts of the articles. The search query was developed through a careful review of literature on marketing technologies and healthcare (Seiders et al., 2015; Agarwal et al., 2020; Chakraborty, Ilavarasan and Edirippulige, 2021; Cherif, Bezaz and Mzoughi, 2021; De Togni et al., 2021; Gunn et al., 2021) integrating it with our knowledge on the domain to craft relevant comprehensive terms. This procedure developed the following keyword formula:

("marketing" OR "market" OR "marketplace" OR "e-marketplace" OR "e-marketing" OR "social media" OR "satisfaction" OR "complaints" OR "e-satisfaction" OR "e-complaints" OR "customer" OR "consumer") AND ("medicine" OR "medical" OR "health" OR "healthcare" OR "disease" OR "infectious" OR "virus" OR "vaccine" OR "elderly" OR "hospital" OR "illness") AND ("smart" OR "intelligent" OR "autonomous" OR "multifunctional" OR "connected" OR "digital" OR "online" OR "monitoring" OR "computer assisted technology" OR "innovation" OR "health device" OR "technology" OR "technological" OR "telehealth" OR "electronic" OR "mobile" OR "web 2.0" OR "industry 4.0").

We run the keyword formula to search for relevant articles. Then we applied a set of eligibility criteria, as a common practice of setting the boundaries for research (Petticrew and Roberts, 2008), also done in other literature analyses (Menichetti et al., 2016; Kim, Kang and Lee, 2021; Sounderajah et al., 2021). We selected only journals ranked 3, 4 and 4* according to the journal ranking of the Chartered Association of Business Schools, because it implies that articles published in these journals meet high standards for rigor and quality (Hiebl, 2021), and we selected only research articles in the final stage of publication, written in English language. Moreover, we included a time restriction corresponding of 20 years' timespan (2000-2020). We selected the time period 2000-2020, because we account the rapid advancement of marketing technologies and innovations for healthcare to this time frame, which led to the introduction of digital healthcare and nowadays what is considered as healthcare 4.0 (Aceto, Persico and Pescapé, 2020). The integration of our selection criteria led us to a total of 2312 articles retrieved, which were further reduced in the next step. In the results refining step, as the protocol suggests, we checked the retrieved sample for topic relevance and included missing information. When checking for topic relevance, several articles proved to be not relevant to our research, even though they included the usage of the provided keywords jointly. This is the case in the paper of Corney, D., (2002), which discusses the application of intelligent systems in the food industry, implying a connection to marketing and the usage of such technologies for medical diagnosis, even though its central aim is strictly related to the food production and marketing. Several papers were excluded following the same logic, to keep in our sample only the articles that appeal mostly to our topic of research (Za and Braccini, 2017). Our final set of data, applying all the inclusion and exclusion criteria, consists of 114 articles, on which we performed a descriptive analysis and a network analysis (see Figure 1).

Fig. 1: Research protocol

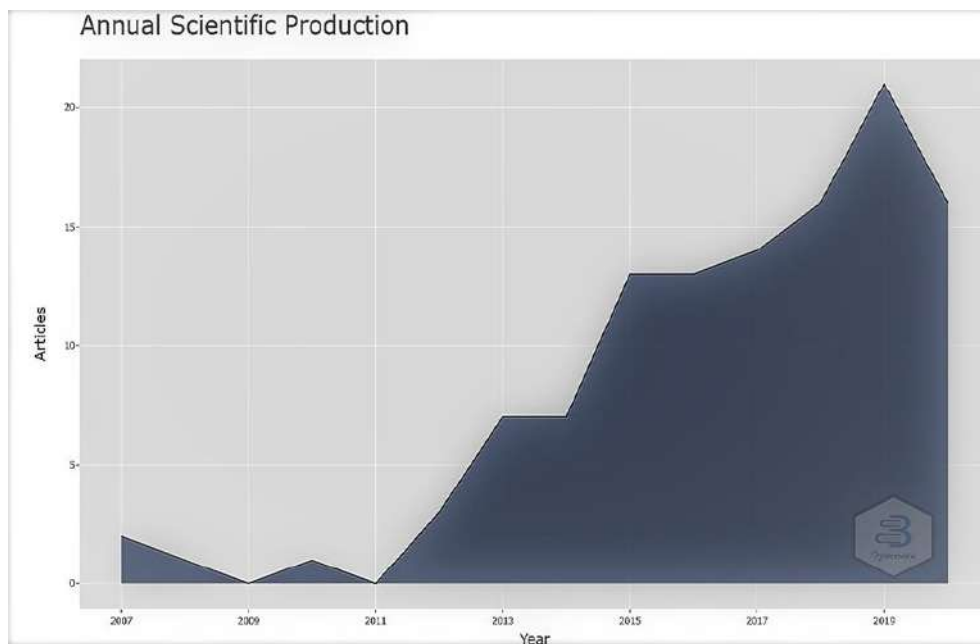


Source: Adopted from Za and Braccini, (2017)

Results. We performed a bibliometric-based literature analysis on a sample of 114 articles extracted from Scopus through a rigorous selection process. Further, we carried descriptive and network analysis on the data, thus exploring the publication trend of the domain over years, and the most influential contributions in the domain, which can be considered important pillars of healthcare technologies research, as well as the keywords co-occurrence, providing interesting insights on the knowledge structure. The analysis helps us achieve the purpose of this study and answer our main research questions, even though are not exhaustive of the topic. Again, considering that the literature has developed rapidly with the advancements of technologies, this synthesis is required to identify new directions for future research.

We reported the publication trend of our sample (see Figure 2) starting from year 2007 to year 2020. Even though the timeframe for our sample is January 2000 to December 2020, we could not find relevant articles published before 2007 to be included in our sample. This can be partially explained with what we consider disruptive technological innovations in healthcare, that attracted further increased attention of scholars and researchers from all around the world (Sounderajah et al., 2021). The disruptive technological innovations in healthcare are a relatively recent topic. One of these disruptive innovations was the introduction of IoT, which was introduced in 2005 and we can partly connect it to the increased interest in the topic from the year 2007. The publication trend has had several up and downs during the years, but we can clearly notice that starting from the year 2011, the interest has been increasing till reaching a peak in the year 2019, with a total of 21 articles published in the topic. So, we can say that concerning our first research question, we identified a growing trend of publication on healthcare technologies, with a peak on year 2019. The increased attention in the recent years means that the field of healthcare technologies research is in rise and offers important opportunities for scholars and academic communities to be further explored in future research.

Fig. 2: The publication trend over the years



Source: Authors elaboration

Concerning our second research question, we identified three emerging topics from the most cited works in the domain. Table 1 shows the most relevant sources, cited more than 100 times, which represent by themselves important contributions in the field and building blocks of the extant literature on healthcare technologies. We can see that some articles in our table account for a relevant number of citations. In the first article, which has been cited 437 times (data retrieved on 19 October 2021) as the authors explain, “conceptualizes and presents a research agenda for the emerging area of transformative service research, which lies at the intersection of service research and transformative consumer research and focuses on well-being outcomes related to service” (Anderson et al., 2013, p. 1203), and moreover, it addresses sector specific research questions related to financial services, health care services and social services, offering a good starting point for future research on transformative health care and accounting to an important contribution for conceptualizing the evolution of health care services and recognizing “the importance of studying health disparities among collective consumer entities” (Anderson et al., 2013, p. 1203). The second most cited paper, cited 434 times (data retrieved on 19 October 2021), introduces “the 3-D virtual worlds and their educational potential to medical/health librarians and educators” (Boulos, Hetherington and Wheeler, 2007, p. 233). Even though the study addresses basically the 3-D virtual worlds as an educational tool, it investigates several examples from Second Life such as a ‘Nutrition Game’, the Heart Murmur Sim, Gene Pool, Health info Island and VNEC, all designed to learn important health information, or to facilitate training and outreach to virtual medical communities in order to

establish proper networks, etc. (Boulos, Hetherington and Wheeler, 2007). The third article in the table, cited 205 times (data retrieved on 19 October 2021), presents the “Service Encounter 2.0” and “provides a synthesis of the changing interdependent roles of technology, employees, and customers” (Larivière et al., 2017, p. 238). The authors develop a conceptual framework, which highlights the changing business models and the changing roles in the new service encounter environment of delivering services to the customer, providing important insights for the evolution of research within the field and the transformation of services with the adoption of disruptive technologies.

Tab. 1: Most cited publications in the sample

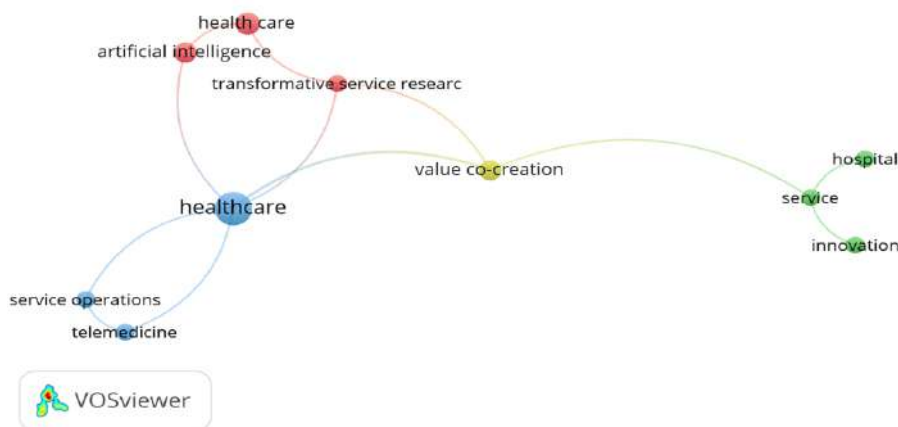
Article	Total Citations
ANDERSON L, 2013, J BUS RES	437
BOULOS MNK, 2007, HEALTH INF LIBR J	434
LARIVIÈRE B, 2017, J BUS RES	205
SWEENEY JC, 2015, J SERV RES	195
FLAVIÁN C, 2019, J BUS RES	158
WANG Y, 2017, J BUS RES	152
VERLEYE K, 2014, J SERV RES	152
AKTER S, 2013, INF MANAGE	146
VAN VALKENHOEF G, 2013, DECIS SUPPORT SYST	123
MILLER AR, 2013, INF SYST RES	122
LONGONI C, 2019, J CONSUM RES	117

Source: Authors elaboration

Summarizing what above explained, the topics can be defined as: a) transformative service research; b) 3-D virtual worlds in healthcare; c) Service encounter 2.0. These topics seem to have attracted increased interest and prove to be relevant also in shaping future research efforts within the domain. These three publications account to three different years, each representing a different period of research in the domain. The third most cited contribution (Larivière et al., 2017) is the most recent according to the publication year (among the three most cited articles) and focuses on the service encounter while investigates the roles of technology, employee, and encounter, offering an understanding from different perspectives on the service. This topic has future potential for further investigation. As the authors suggest, there is a need for future research to develop new metrics for tracking employee performance, customer performance and how they experience the service.

Next, we performed the keywords co-occurrence analysis. The keyword co-occurrence analysis is a common way to map the knowledge structure of the domain, uncovering interesting knowledge components starting from the reported patterns and link strengths of this analysis (Radhakrishnan et al., 2017). We created a keyword co-occurrence visualization using the VOSviewer, a useful tool for visualizing bibliometric networks. It is focused on a distance-based approach to visualize bibliometric networks and to assign the nodes in the network to a cluster (van Eck and Waltman, 2014). From a total of 519 author-supplied keywords, 15 meet the threshold (with a minimum number of occurrences of 3 for a keyword). In this analysis, the number of times that a pair of words co-occurs in multiple articles represents the weight of the link connecting this pair. The selected keywords and their occurrences are presented in Table 3. The results also presented some unconnected items which were removed from our visualization, but not from the table. This leaves us with the largest set of connected items consisting of 10 items (see Figure 3).

Fig. 3: Keywords co-occurrence visualization



Source: Authors elaboration

These items were organized in 4 clusters as below:

Cluster 1 - Consists of 3 items, where the central item is healthcare, and it is associated with artificial intelligence and transformative service research.

Cluster 2 - Consists of 3 items, where the main item is service, and is related to hospital and innovation.

Cluster 3 - Consists of 3 items, where the central item is healthcare and is related to service operations and telemedicine.

Cluster 4 - Is the last cluster consisting of only one item which is value co-creation.

One of the main insights that can come from the identification of clusters, refers to the fact that keywords which are grouped into the same cluster are more likely to reflect similar topics (Chen et al., 2016). The fact that the number of keywords included in three of our four clusters are the same (Cluster 1, 2 and 3 consist of 3 items each), means that they can attract the same attention from researchers, while Cluster 4, consisting of only one item attracts fewer attention compared to the three others. This is an important finding, because it reflects the structure and the interest within the domain, explaining that transformative service research, healthcare innovations, service operations and value co-creation are important research directions of the domain, with the first three attracting more interest than value co-creation. Finally, concerning our third research question, we identified 4 main clusters of research, which we consequently named as: 1) Transformative service research, 2) Healthcare innovations, 3) Service operations, and 4) Value co-creation. Any research effort focused on these topics is appreciated.

Research limitations. This study is not without limitations. The sample of articles on which we performed the analysis is a small sample of articles, as we focused mainly on articles published in ABS ranked 3, 4 and 4*. Future research should consider a broader sample. Moreover, we performed the search on Scopus, using a specific keyword formula to capture the different perspectives on this domain. An investigation with other search terms or in another database can yield different results on the topic. Future research should consider overcoming these limitations.

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Originality of the paper. Drawing on the main motivation for this article, we shape this research to respond to the identified gap and contribute to provide a multidisciplinary framework under which marketing technologies in healthcare can be researched in future works. Bibliometric-based literature analysis are not common in the domain of healthcare research. Yet, we find a great potential in taking a bibliometric approach for the benefits of providing a rigorous assessment of literature, and avoiding the many pitfalls of other types of reviews, that lack replicability and can be highly biased by authors preferences (Linnenluecke, Marrone and Singh, 2020). Moreover, answering our three research questions our work contributes to the interdisciplinary debate on health technologies, addressing the needs of more than just one actor in healthcare technologies context and providing implications on the advancement of the debate. Given that research advancement will occur at the intersection of two interdisciplinary fields: advancement in technology and advancement in healthcare, the suggested directions for future research should focus on the integration of both fields and try to address important questions that still need to be answered, that will emerge from the final findings of this work-in-progress.

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References

- ACETO G., PERSICO V., PESCAPÉ A. (2018), "The role of Information and Communication Technologies in healthcare: taxonomies, perspectives, and challenges", *Journal of Network and Computer Applications*, vol. 107 No January, pp. 125-154.
- ACETO G., PERSICO V., PESCAPÉ A. (2020), "Industry 4.0 and health: Internet of things, big data, and cloud computing for healthcare 4.0", *Journal of Industrial Information Integration*, vol. 18, n. June, pp. 100129.
- AGARWAL R., DUGAS M., GAO G. G., KANNAN P. K. (2020), "Emerging technologies and analytics for a new era of value-centered marketing in healthcare", *Journal of the Academy of Marketing Science*, vol. 48, n. October, pp. 9-23.

- ANDERSON L., OSTROM A.L., CORUS C., FISK R.P., GALLAN A.S., GIRALDO M., MENDE M., MULDER M., RAYBURN S.W., ROSENBAUM M.S., SHIRAHADA K., WILLIAMS J.D. (2013), "Transformative service research: An agenda for the future", *Journal of Business Research*, vol. 66, n. October, pp. 1203-1210.
- BOLTON L.B., CIPRIANO P.F., GASSERT C. (2013), *The Intersection of Technology and Health Care: Policy and Practice Implications, Policy and Politics in Nursing and Healthcare-Revised Reprint-E-Book*, Elsevier Health Sciences, pp. 444.
- BOULOS M.N.K., HETHERINGTON L., WHEELER S. (2007), "Second Life: An overview of the potential of 3-D virtual worlds in medical and health education", *Health Information and Libraries Journal*, vol. 24, n. December, pp. 233-245.
- CHAKRABORTY I., ILAVARASAN P.V., EDIRIPPULIGE S. (2021), "Health-tech startups in healthcare service delivery: A scoping review", *Social Science and Medicine*, vol. 278, n. June, p. 113949.
- CHEN X., CHEN J., WU D., XIE Y., LI J. (2016), "Mapping the Research Trends by Co-word Analysis Based on Keywords from Funded Project", *Procedia Computer Science*, vol. 91, pp. 547-555.
- CHERIF E., BEZAZ N., MZOUGH M. (2021), "Do personal health concerns and trust in healthcare providers mitigate privacy concerns? Effects on patients' intention to share personal health data on electronic health records", *Social Science and Medicine*, vol. 283, n. June 2020, p. 114146.
- VAN ECK N.J., WALTMAN L. (2014), *Visualizing Bibliometric Networks, Measuring Scholarly Impact*, Springer, Cham.
- ELLEGAARD O., WALLIN J.A. (2015), "The bibliometric analysis of scholarly production: How great is the impact?", *Scientometrics*, vol. 105, n. 3, pp. 1809-1831.
- ELSEVIER (2020), *Content Coverage Guide*, pp. 1-24. Available at: https://www.elsevier.com/_data/assets/pdf_file/0007/69451/Scopus_ContentCoverage_Guide_WEB.pdf (Accessed on 22 July 2021).
- GARRIDO M.V. ET AL. (2008), "Health technology assessment and health policy-making in Europe: current status, challenges and potential", *Observatory Studies Series*, No.14WHO Regional Office Europe.
- GREEN T., HARTLEY N., GILLESPIE N. (2016), Service Provider's Experiences of Service Separation : The Case of Telehealth, vol. 19, n. 4, pp. 477-494.
- GUNN C.J., BERTELSEN N., REGEER B.J., SCHUITMAKER-WARNAAR T.J. (2021), "Valuing patient engagement: Reflexive learning in evidence generation practices for health technology assessment", *Social Science and Medicine*, vol. 280, n. May, pp. 114048.
- HIEBL M.R.W. (2021), "Sample Selection in Systematic Literature Reviews of Management Research", *Organizational Research Methods*, vol. 0, n. January, pp. 1-33.
- KIM J., KANG S., LEE K.H. (2021), "Evolution of digital marketing communication: Bibliometric analysis and network visualization from key articles", *Journal of Business Research*, vol. 130, n. September , pp. 552-563.
- LARIVIÈRE B., BOWEN D., ANDREASSEN T.W., KUNZ W., SIRIANNI N.J., VOSS C., WÜNDERLICH N.V., DE KEYSER A. (2017), "Service Encounter 2.0": An investigation into the roles of technology, employees and customers", *Journal of Business Research*, vol. 79, n. October, pp. 238-246.
- VAN LEEUWEN T. (2004), *Descriptive versus evaluative bibliometrics, in Handbook of quantitative science and technology research* Springer, pp. 373-388.
- LINNENLUECKE M.K., MARRONE M., SINGH A.K. (2020), "Conducting systematic literature reviews and bibliometric analyses", *Australian Journal of Management*, vol. 45, n. 2, pp. 175-194.
- MENICHETTI J., LIBRERI C., LOZZA E., GRAFFIGNA G. (2016), "Giving patients a starring role in their own care: A bibliometric analysis of the on-going literature debate", *Health Expectations*, vol. 19, n. 3, pp. 516-526.
- OSTERN N., PERSCHIED G., REELITZ C., MOORMANN J. (2021), "Keeping pace with the healthcare transformation: a literature review and research agenda for a new decade of health information systems research", *Electronic Markets*, vol. 31, n. July, pp. 901-921.
- PETTICREW M., ROBERTS H. (2008), *Systematic Reviews in the Social Sciences: A Practical Guide*, John Wiley & Sons.
- RADHAKRISHNAN S., ERBIS S., ISAACS J.A., KAMARTHI S. (2017), "Correction: Novel keyword co-occurrence network-based methods to foster systematic reviews of scientific literature", *PLoS ONE*, vol. 12, n. 9, pp. 1-16.
- SEIDERS K., FLYNN A.G., BERRY L.L., HAWS K.L. (2015), "Motivating Customers to Adhere to Expert Advice in Professional Services : A Medical Service Context", *Journal of Service Research*, vol. 18, n. July, pp. 39-58.
- SHAPIRO B.T. (2020), "Advertising in health insurance markets", *Marketing Science*, vol. 39, n. 3, pp. 587-611.
- SOUNDERAJAH V., PATEL V., VARATHARAJAN L., HARLING L., NORMAHANI P., SYMONS J., BARLOW J., DARZI A., ASHRAFIAN H. (2021) (2021), "Are disruptive innovations recognised in the healthcare literature? A systematic review", *BMJ Innovations*, vol. 7, n.1, pp. 208-216.
- DE TOGNI G., ERIKAINEN S., CHAN S., CUNNINGHAM-BURLEY S. (2021), "What makes AI "intelligent" and "caring"? Exploring affect and relationality across three sites of intelligence and care", *Social Science and Medicine*, vol. 277, n. March, pp. 113874.
- WANG Y., MCKEE M., TORBICA A., STUCKLER D. (2019), "Systematic Literature Review on the Spread of Health-related Misinformation on Social Media", *Social Science and Medicine*, vol. 240, n. November, pp. 112552.

- WIENROTH M., LUND HOLM THOMSEN L., HØSTGAARD A.M. (2020), “Health technology identities and self. Patients’ appropriation of an assistive device for self-management of chronic illness”, *Sociology of Health and Illness*, vol. 42, n. 5, pp. 1077-1094.
- WITTKOWSKI K., KLEIN J.F., FALK T., SCHEPERS J.J., ASPARA J., BERGNER K.N. (2020), “What Gets Measured Gets Done : Can Self-Tracking Technologies Enhance Advice Compliance?”, *Journal of Service Research*, vol. 23, n. 3, pp. 281-298.
- ZA S., BRACCINI A.M. (2017), *Tracing the roots of the organizational benefits of IT services*, in *International Conference on Exploring Services Science*, Springer, pp. 3-11.

Artificial Intelligence development in China: Triple Helix approach in Chongqing municipality

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Framing of the research. *Research on digital transformation is gaining strong importance within the innovation management field. This transformation involves different agents at multiple levels and it is drafted by scholars using diverse frameworks (Appio et al., 2021). Artificial Intelligence (AI) is one of the key enabling technologies needed for fostering this transformation (Agrawal, Gans and Goldfarb, 2019) since it can help firms to respond better to changing business environments and it may also reduce the cost of the innovation process (Haefner et al., 2021). The interest in this technology can be seen also by the increasing number of patents application and journal publications, which according to the World Intellectual Property Organization in 2019 amounted to 340,000 and 1.6 million respectively. An important caveat is that within the terminology of “Artificial intelligence” we may find different technical approaches (such as machine learning and deep learning), but more interestingly for our research field, we may also find some classifications based on business use as well, depending on the actor involved being it a University, a firm or a governmental institution (Kaplan and Haenlein, 2019).*

Given its vast potential and versatility, there is the need to change the targets, mechanisms, and instruments of innovation policies targeted at AI (OECD, 2018). AI-related policies have been developed by several governments worldwide and in 2020 more than 30 countries had their own national AI strategy (Zhang et al., 2021). China formulated its first official AI strategy in 2017 setting up clear and ambitious goals such as becoming the best AI innovator by 2030 (State Council of China, 2017). According to different reports (Ding, 2018; Castro and McLaughlin, 2021) China is also narrowing down the gap with the US and the EU in the field of AI, also thanks to big data, of which China is a powerhouse (Li, 2018; Yu, Liang and Wu, 2021). The efforts driving this success do not come solely by the prominent role of the government with its many AI-related policies (Yang and Huang, 2022), but also from the interplay of government institutions, universities and industry both at the national and regional levels (Lundvall and Rikap, 2022).

Regarding China, studies on the importance of regional innovation policies are not missing (Heilmann, Shih and Hofem, 2013; Chen and Naughton, 2016; Fu, Woo and Hou, 2016; Sun, Lei and Yin, 2018), together with research on clusters, science parks and the role of universities (Zhu and Tann, 2005; Chen and Kenney, 2007; Cheng et al., 2014). The interest in AI in China is also increasing recently (Arenal et al., 2020; Liu et al., 2020). However, little attention has been given to the role of Chinese AI policies at the local level and the role of local actors in developing this technology. Among all the areas addressed by AI policy interventions, the municipality of Chongqing is one of the most interesting places to analyse. Chongqing is located in the Southern-Western part of the country along the Yangtze River, it is one of the most populated areas in the world with more than 30 million inhabitants and the largest city in the South-West part of the country, with an area of 82,400 km². In 2020, Chongqing was also selected as one of the New Generation AI Development Experimental Zone (MIIT, 2020). This is why Chongqing is selected for our research setting.

Purpose of the paper. *This project aims to explore the dynamics of inter-organizational collaboration in Chongqing, focusing on the field of AI development as a research setting. The general research question driving our work goes as follow: what are the specific features in which the universities or public research institutes (PRI), local governments, and firms cooperate with each-others in Chongqing regarding the development of AI?*

The literature on the importance of collaboration is vast. The focus changes regarding the goals of the collaboration, the level of interactions (macro, meso or micro), and the centrality of the actors involved.

The concept of industrial districts was first explored by (Marshall, 1923). It predominantly reemerged in the 1980s to interpret the spatial agglomeration of industries, especially in Italy, where specialized networks were emerging. The emphasis was on the strong ties among SMEs, which boosted the economic activities, while science-industry relations were weaker (De Silva et al., 2021).

The geographical concentration of firms is at the centre of the cluster theory. However, the firms within clusters are

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also interconnected with local institutions and universities, even though they are considered to be suppliers of support devices and services (Porter, 1998).

The importance of network activities was stressed by the notion of “Innovation System”, which was initially developed on a national level (National Innovation System - NIS) during the nineties (Lundvall, 1992; Freeman, 1995). The NIS can be defined as an open, evolving, and complex system that encompasses relationships within and between organizations, institutions, and socio-economic structures which determine the rate and direction of innovation and competence building emanating from processes of science-based and experience-based learning (Lundvall, 1992). The institutional setup is the main important thing to help the diffusion of innovation. This approach found particularly fertile ground within the OECD, where many country review reports are still produced based on the NIS concept. The report on China, for instance, is from 2008 (OECD, 2008).

The NIS later took a more regional perspective (Regional Innovation System - RIS). The national or even the international spheres are still important but understanding the role of the regional institutions and how the local actors interact can be more relevant (Cooke, Heidenreich and Braczyk, 1998; Cooke, 2001). Regions have different industrial specialization patterns, and different studies have shown how knowledge spillovers are often spatially bounded and facilitated by geographical proximity (Frenken and Boschma, 2007).

Tödtling and Trippel (2005), starting from Autio (1998) have theorized a model of RIS that is made up of two subsystems embedded in a common regional socio-economic and cultural setting. On the one hand, you have the knowledge application and exploitation subsystem, which is essentially the industrial network. On the other hand, you have the knowledge generation and diffusion subsystem, which mainly includes technology mediating organizations as well as educational institutions. The two subsystems are both influenced by the regional policy dimensions, that is to say, the local institutions that draft and implement regional innovation policies. This network of interconnected organizations, in an innovation ecosystem perspective, may be connected to a focal firm or a platform, that incorporates both production and use side participants and creates an appropriate new value through innovation (Autio and Thomas, 2014).

The Triple Helix model (Leydesdorff and Etzkowitz, 1998) stresses even more than RIS how the interaction among institutions can generate new settings for the production and diffusion of knowledge. The model underlines how the dynamic interactions between government-industry and university, which has a prominent role compared to the other two, can strongly contribute to innovation and economic development.

The pivotal role of universities is at the core of the knowledge/technology transfer paradigm (Mowery et al., 2020). The university-industry interactions are a means to reduce the gap between science and the market thanks to the use of multiple activities such as co-patenting, licensing, and universities’ spin-off formation.

De Silva et al., (2021) recently focused on the concept of science-based co-creation, which is obtained when collaboration can create both business and social value. Their conceptual framework wants to explore the mechanisms that make individuals more involved in the co-creation activities, which can later strengthen the relationships also among different organizations. The importance of developing some policy mix to boost co-creation activities is of great importance.

Each of these approaches can be useful in its way to understanding the dynamics of collaboration activities. Given our research setting, the triple helix approach is the one that can better take all the peculiarities of the Chongqing innovation ecosystem into account and therefore it is used as a theoretical background.

Methodology. The analysis combines both primary and secondary data. The research adopts a qualitative methodology given the exploratory nature of the study (Eisenhardt, 1989; Yin, 2003). Semi-structured interviews are conducted with the main actors involved in the creation of the AI ecosystem. The data are triangulated with financial and descriptive information of the firms, the policy documents of the government and official statements and documents of universities. Using a snowballing technique starting from our contacts in Chongqing, we constructed a database containing AI-related organizations, intended as firms and other institutions directly or indirectly involved in the field of AI. The database contains the main characteristics of the organizations including their history, contact information, the number of patents, the operating sector, number of employees, and established capital. Regarding the government sphere, AI-related public policy documents published by the municipality are analysed. Similarly, universities’ projects and documents are considered for the university sphere.

Results. Interviews are still undergoing, so the following results are partial and reflect the analysis of the secondary data materials.

AI innovation Policies

As mentioned, Chongqing has been selected for the creation of one of the “National New Generation Artificial Intelligence Innovation Development Experimental Zones” (State Council of the PRC, 2017). The project explicitly requires continuous cooperation among enterprises, universities, research centres, users, and public institutions. The project also requires constant monitoring and coordination with the central government. The 2020 Implementation Plan (Cyberspace Administration of the PRC, 2020) drafted by the Chongqing municipality and approved by the Ministry of Science and Technology (MOST) includes “4+1” key tasks.

1. “The implementation of actions for the development of AI technology” has a very broad reach. This first task refers to the need for basic and applied research efforts for the advancement of theories, methods, and cutting-edge technologies such as knowledge processing, intelligent search, and visual interaction.
2. “The implementation of basic support for AI” refers to the construction of the infrastructures needed for the

development of AI. These include 5G network, the upgrade of the Chongqing-Singapore Internet data channel, and the improvement of the digital Chongqing Cloud platform.

3. “The empowerment of Artificial Intelligence” intended as the strengthening of the AI industrial cluster and
4. “The integration of AI applications to various industries” for the realization of smart factories, smart medical care, smart cultural tourism, smart government affairs, smart transportation, smart education, smart agriculture, and so on.
5. “Optimization of AI political initiatives” is a task that includes, in turn, other 23 sub-tasks.

The results of the most recent set of AI policies introduced by the Chongqing municipality are already visible. In fact, in the first half of 2021, the Municipal Science and Technology Bureau has collected 658 major projects, including the construction of AI infrastructure, AI R&D platforms, public service platforms, incubators, innovation park, and major industrialization projects. After the review, the first batch of 73 projects in the Pilot Zone has been financed with a total investment of about 29.6 billion yuan (Cyberspace Administration of the PRC, 2020).

Industry Sphere

Our database contains a total of 52 organizations directly or indirectly involved in the AI industry, of which 48 are firms. They have been classified according to the industrial sector as can be seen in table number one.

The first evidence emerging from the analysis is that most of them operate in traditional sectors, in particular, in the automotive industry and heavy manufacturing. This is not surprising because these two sectors are indeed the most advanced within the municipality. These firms are leveraging the power of Artificial Intelligence to stay competitive in the market.

Tab. 1: Number of firms divided by sector

Sector	Number of companies
Automotive	12
Smart Manufacturing	9
Manufacturing	5
Consulting services	3
Robotics	2
AI	2
Electromechanical Manufacturing	2
Financial service	2
Education	1
Engineering consulting services	1
Cloud computing	1
Blockchain	1
Real estate	1
Healthcare	1
Semiconductors	1
Hi-tech	1
Software	1
Logistic and services	1
Data services	1
Total	48

Source: made by the authors

Table number 2 shows the total number of patents application of the companies divided by sectors. The interesting result is that three firms classified within the industries of Robotics and Cloud computing own more than the patents registered by 11 automotive firms. A better analysis of the relatedness of these patents to AI is undergoing. Nevertheless, it is an indication of the fact that the traditional sectors, which is the backbone of the Chongqing innovation ecosystem, is not the most innovative when it comes to AI. Which sector should be receiving more future investments and which one foster the best growth potential are questions that open up both managerial and policy implications.

Tab. 2: Number of patents divided by sector

Sector	Patents
Automotive	821
Robotics	569
Cloud computing	404
Smart Manufacturing	210
Logistic and services	97
Software	97
Financial service	85
Data services	79
Manufacturing	51
AI	17
Healthcare	16
Hi-tech	8
Electromechanical Manufacturing	7
Education	2
Consulting services	2
Total	2465

Source: made by the authors

Among the other relevant actors for the development of AI, we find the Chongqing University and The Chongqing Robotics Institute. Chongqing University has a prominent role when it comes to the development of AI in the municipality. They are directly involved in the development of the AI pilot zone launched in 2020 by the government with their “Chongqing Academy of Chinese Engineering S&T Strategy for Development” project that was officially launched last year. In the first meeting of the project, more than 50 participants, as well as representatives from project management departments and units, relevant government departments, and enterprises attended (Yan and Tan, 2021b). This is a further indication of how much importance is given to the cooperation between the different actors. The university itself has a proficient network of collaboration with local enterprises which can lead to stronger innovation outputs. In addition to that, their Industrial Technology Research Institute is very active in AI-related fields like the new generation of information technology, smart cities, smart manufacturing, smart energy and equipment and today it counts a total of 48 patents. The Chongqing Robotics institute was instead founded in 2018 and has ever since cooperated with governmental plans and universities both within and outside the municipality. They mainly research robotics and service platforms, two crucial fields for AI applications. Today they count 66 registered patents.

Hybrid institutions are gradually emerging in Chongqing. A very recent example of the fusion of governmental and academic features in one entity is the birth of the Chongqing Institute of Big Data of Peking University, established by the Administrative Committee of Chongqing Hi-Tech Industry Development Zone and the Peking University under the coordination of the Chongqing municipality. The research institute pursues more than one very ambitious objective, but it does it using the tools and the strategy of academic institutes. In addition, the institute contributes to the establishment of other scientific centres in the region with the support of other universities and institutes of Chongqing. Multi-sphere independent entities may also arise from the fusion of elements from the academic and industrial spheres (Yan and Tan, 2021a).

To summarize, the AI ecosystem in Chongqing is evolving rapidly, but it is still in its early stage. An important point is that all the main actors devoted to the production of basic and applied research do their best to cooperate with the final goal of making the city one of the most advanced AI research zones, both domestically and internationally. One key difficulty is the lack of companies solely specialized in AI, raising the risk of having few technology applications as well.

Research limitations. The key limitation up to this point is the lack of structured primary data. Due to the covid pandemic, it has been difficult to conduct interviews with the main actors of the ecosystem. However, interviews are slowly undergoing, and we are confident that we may enrich our results in a later stage. The second limitation is the database we constructed so far. Although we cover a good number of firms, we might be missing some relevant actors involved in the development of the Chongqing AI zone. We hope to intercept those missing as the interviews go on thanks to a snowball effect.

Managerial implications. The research can shed some light on the importance of networking for boosting innovation performance. It proves that open innovation (Chesbrough, 2003) is a good strategy for moving through the digital transformation that many innovation actors are currently facing. In addition to that, the research can contribute to the RIS and Triple-helix literature by adding some unique insights into the Chinese situation. By analysing the Chinese innovation policies, we also expand on the concept of innovation ecosystem by showing how policies contribute to the co-creation of value within the ecosystem. The analysis can also expand on the understanding of the value creation dynamics within the ecosystem, on the positioning of the various actors that successfully capture that value, and on how these dynamics impact the policies themselves.

Originality of the paper. Our approach aims at exploring the dynamics that drive the development of AI business applications within China and specifically in the municipality of Chongqing, offering unique data. We went through the

AI development policies in their original language and had access to a unique set of actors coming from the industry, the university and the public institution world. In fact, the advantage of our solution is to map the Chinese AI zones and understand how knowledge sharing among different actors works. Practical implications for policymakers and managers emerged, resulting in a list of best practices coming from China. It is a novel approach because, on the one hand, our research contributes to the innovation ecosystem literature by adding some unique insights into the Chinese regional situation. We also expand the knowledge about the real performance and future perspectives of the AI ecosystem in China, which today is increasing, but still limited.

Keywords: China; Chongqing; Artificial Intelligence; Triple Helix; Innovation ecosystem.

References

- AGRAWAL A., GANS J., GOLDFARB A. (2019) 'Economic policy for artificial intelligence', *Innovation Policy and the Economy*, vol. 19, n. 1, pp. 139-159.
- APPIO F.P. ET AL. (2021) 'Digital Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies', *Journal of Product Innovation Management*, vol. 38, n. 1, pp. 4-20.
- ARENAL A. ET AL. (2020) 'Innovation ecosystems theory revisited: The case of artificial intelligence in China', *Telecommunications Policy*, vol. 44, n. 6).
- AUTIO E. (1998) 'Evaluation of RTD in regional systems of innovation', *European Planning Studies*, vol. 6, n. 2, pp. 131-140.
- AUTIO E., THOMAS L.D.W. (2014) 'Innovation Ecosystems: Implications for Innovation Management', *Oxford Handbook of Innovation Management*, pp. 204-228.
- CASTRO D., MCLAUGHLIN M. (2021) 'Who Is Winning the AI Race: China, The EU, or the United States? — 2021 Update'
- CHEN K., KENNEY M. (2007) 'Universities/Research Institutes and Regional Innovation Systems: The Cases of Beijing and Shenzhen', *World Development*, vol. 35, n. 6, pp. 1056-1074.
- CHEN L., NAUGHTON B. (2016) 'An institutionalized policy-making mechanism: China's return to techno-industrial policy', *Research Policy*, vol. 45, n. 10, pp. 2138-2152.
- CHENG F. ET AL. (2014) 'Science Parks and the Co-location of High-tech Small- and Medium-sized Firms in China's Shenzhen', *Urban Studies*, vol. 51, n. 5, pp. 1073-1089.
- CHESBROUGH H.W. (2003) *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Boston, Mass: Harvard Business Review Press.
- COOKE P. (2001) 'Regional Innovation Systems, Clusters, and the Knowledge Economy', *Industrial and Corporate Change*, vol. 10, n. 4, pp. 945-974.
- COOKE P., HEIDENREICH M., BRACZYK H.J. (1998) *Regional innovation systems: the role of governances in a globalized world*. London: UCL.
- CYBERSPACE ADMINISTRATION OF THE PRC (Zhōnghuá rénmin gònghéguó guójiā hùliánwǎng xìnxī bàngōngshì 中华人民共和国国家互联网信息办公室) (2020) *Chóngqìng jiànshè guójiā xīn yīdài réngōng zhìnéng chuàngxīn fāzhǎn shìyàn qū 重庆建设国家新一代人工智能创新发展试验区 [Chongqing to build a national new-generation artificial intelligence innovation and development pilot zone]*. Available at: http://www.cac.gov.cn/2020-06/25/c_1594639181540008.htm (Last accessed: 24 February 2022).
- DE SILVA M. ET AL. (2021) 'Addressing societal challenges through the simultaneous generation of social and business values: A conceptual framework for science-based co-creation', *Technovation*, vol. 104, p. 102268.
- DING J. (2018) 'Deciphering China's AI dream', *Future of Humanity Institute Technical Report*.
- EISENHARDT K.M. (1989) 'Building Theories from Case Study Research', *The Academy of Management Review*, vol. 14, n. 4, pp. 532-550.
- FREEMAN C. (1995) 'The "National System of Innovation" in historical perspective', *Cambridge Journal of Economics; Oxford*, vol. 19, n. 1, pp. 5-24.
- FRENKEN K., BOSCHMA R.A. (2007) 'A theoretical framework for evolutionary economic geography: industrial dynamics and urban growth as a branching process', *Journal of Economic Geography*, 7, n. 5, pp. 635-649.
- FU, X., WOO, W.T., HOU J. (2016) 'Technological innovation policy in China: the lessons, and the necessary changes ahead', *Economic Change and Restructuring*, vol. 49, n. 2, pp. 139-157.
- HAEFNER N. ET AL. (2021) 'Artificial intelligence and innovation management: A review, framework, and research agenda ☆', *Technological Forecasting and Social Change*, vol. 162, p. 120392.
- HEILMANN S., SHIH L., HOFEM A. (2013) 'National Planning and Local Technology Zones: Experimental Governance in China's Torch Programme*', *The China Quarterly*, vol. 216, pp. 896-919.
- KAPLAN A., HAENLEIN M. (2019) 'Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence', *Business Horizons*, vol. 62, n. 1, pp. 15-25.
- LEYDESDORFF L., ETZKOWITZ H. (1998) 'The Triple Helix as a model for innovation studies', *Science and Public Policy*, vol. 25, n. 3, pp. 195-203.
- LI L. (2018) 'China's manufacturing locus in 2025: With a comparison of "Made-in-China 2025" and "Industry 4.0"', *Technological Forecasting and Social Change*, vol. 135, pp. 66-74.

- LIU J. ET AL. (2020) 'Influence of artificial intelligence on technological innovation: Evidence from the panel data of china's manufacturing sectors', *Technological Forecasting and Social Change*, vol. 158, p. 120142.
- LUNDEVALL B.-Å. (1992) *National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning*. London, UNITED KINGDOM: Anthem Press.
- LUNDEVALL B.-Å., RIKAP C. (2022) 'China's catching-up in artificial intelligence seen as a co-evolution of corporate and national innovation systems', *Research Policy*, vol. 51, n. 1, p. 104395.
- MARSHALL A. (1923) *Industry and Trade: A Study of Industrial Technique and Business Organization, and of Their Influences on the Conditions of Various Classes and Nations*. Macmillan.
- MINISTRY OF SCIENCE AND TECHNOLOGY OF THE PRC (Zhōnghuá rénmin gònghéguó gōngyè hé xīnxi huà bù 中华人民共和国工业和信息化部) (2020) *Kējì bù guānyú zhīchí chóngqìng jiànshè guójiā xīn yīdài réngōng zhìnéng chuàngxīn fāzhǎn shìyàn qū de hán* 科技部关于支持重庆建设国家新一代人工智能创新发展试验区的函 [Letter from the Ministry of Science and Technology on Supporting Chongqing to Build a National New Generation Artificial Intelligence Innovation and Development Pilot Zone]. Available at: http://www.most.gov.cn/xxgk/xinxifenlei/fdzdgnr/qtwj/qtwj2020/202003/t20200309_152219.html (Accessed: 16 November 2021).
- MOWERY D.C. ET AL. (2020) *Ivory Tower and Industrial Innovation, Ivory Tower and Industrial Innovation*. Stanford University Press.
- OECD (2008) *OECD Reviews of Innovation Policy: China*. OECD Publishing.
- OECD (2018) 'OECD Science, Technology and Innovation Outlook 2018'. OECD Publishing.
- PORTER M.E. (1998) 'Clusters and the New Economics of Competition', *Harvard Business Review*.
- STATE COUNCIL OF THE PRC (Guówùyuyàn 国务院) (2017) *Guówùyuyàn guānyú yìnfā xīn yīdài réngōng zhìnéng fāzhǎn guīhuà de tōngzhī (guó fā [2017] 35 hào)* 国务院关于印发新一代人工智能发展规划的通知 (国发[2017] 35 号) [Notice of the State Council on Printing and Distributing the notice on New Generation Artificial Intelligence Development Plan (Publication no. 35 [2017]), gov.cn. Available at: http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm (Last accessed: 23 February 2022).
- SUN Z., LEI Z., YIN Z. (2018) 'Innovation policy in China: nationally promulgated but locally implemented', *Applied Economics Letters*, vol. 25, n. 21, pp. 1481-1486.
- TÖDTLING F., TRIPPL M. (2005) 'One size fits all?: Towards a differentiated regional innovation policy approach', *Research Policy*, vol. 34, n. 8, pp. 1203-1219.
- WORLD INTELLECTUAL PROPERTY ORGANIZATION (2019) *WIPO Technology Trends 2019: Artificial Intelligence*. Geneva: World Intellectual Property Organization.
- YAN V., TAN M., KAILONG (2021a) 'Attracting Global Talents, Chongqing to Build a Science City in SW China Next 5 years', *iChongqing*, 21 January. Available at: <https://www.ichongqing.info/2021/01/21/attracting-global-talents-chongqing-to-build-a-science-city-in-western-china-in-5-years/> (Last accessed: 27 February 2022).
- YAN V., TAN M., KAILONG (2021b) 'Chongqing Artificial Intelligence Innovation and Development Pilot Zone Research Launched', *iChongqing*, 12 June. Available at: <https://www.ichongqing.info/2021/06/12/chongqing-artificial-intelligence-innovation-and-development-pilot-zone-research-launched/> (Last accessed: 15 June 2021).
- YANG C., HUANG C. (2022) 'Quantitative mapping of the evolution of AI policy distribution, targets and focuses over three decades in China', *Technological Forecasting and Social Change*, vol. 174, p. 121188.
- YIN R.K. (2003) *Case study research: design and methods*. Thousand Oaks, Calif.: Sage Publications.
- YU Z., LIANG Z., WU P. (2021) 'How data shape actor relations in artificial intelligence innovation systems: an empirical observation from China', *Industrial and Corporate Change* [Preprint], (dtaa063).
- ZHANG D. ET AL. (2021) 'The AI Index 2021 Annual Report'. AI Index Steering Committee, Human-Centered AI Institute, Stanford University, Stanford, CA.
- ZHU D., TANN J. (2005) 'A regional innovation system in a small-sized region: A clustering model in Zhongguancun Science Park', *Technology Analysis & Strategic Management*, vol. 17, n. 3, pp. 375-390

Are sudden changes in buying behaviours destined to last in time? insights from the pandemic

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Framing of the research. *This paper deals with the consequences in consumer behaviour after a stressful event assessing current and expected modifications in the long term. The context we consider for our empirical research is the COVID-19 pandemic due to its topicality and the possibility to avoid recall biases occurring when far-in-time (and not actual) events are considered. Healthcare, economic and social spheres have been hit by the pandemic (Haleem et al., 2020), and new challenges have to be faced by institutions, companies, and individuals.*

Governments worldwide decided to limit the spread of the virus by introducing, among the others, lockdowns during Spring 2020. This form of social distancing imposed radical changes in the production and distribution of goods also in the non-interruptible industries, like the food industry (World Economic Forum, 2020).

Despite not being affected by strong restrictions, the food industry has had to cope with a strongly modified eternal context. In particular, grocery retailers looked for solutions to satisfy the new needs of consumers and their new ways of shopping (Roggeveen and Sethuraman, 2020). As highlighted by the BBC, grocery shopping was particularly hit by phenomena such as home delivery (generally allowed by online buying) and attention to local products and economic activities (Shveda, 2020). A McKinsey report confirms these trends, stating how consumers shifted their purchases towards online and neighbourhood shops (Kholi et al., 2020).

We thus focused on this setting to analyse consumers' voluntary behavioural changes in terms of their determinants and potential for lasting in time. To this end, we adopted values-beliefs-norms and alphabet theoretical perspectives to gain insights into the role that modifications in the context and habits play in shaping buying behaviours.

Purpose of the paper. *The purpose of the paper is to reply to the following research questions: RQ1) what are the drivers of the changes in consumer behaviour during stressful events? RQ2) are these changes permanent in the aftermath of the events?*

To reply to these RQs, we specifically formulated some hypotheses to test in the study and grounded on the extant literature.

The first strand of literature considered is related to the drivers of consumer behaviour. For many years, scholars focused on analysing psychographic variables (such as attitude and beliefs) as predictors of intention to buy and buying behaviour. Value-Beliefs-Norms (VBN) Theory (Stern et al., 1999; Stern, 2000) is here considered the theoretical framework to assess how the psychological sphere affects the analysed buying decision. Considering that a crisis period may affect the psychology of consumers (Kaytaz and Gul, 2014) and that a pandemic can stimulate emotional responses such as protection, fear or hope (Kim et al., 2021), the variables composing VBN Theory are suitable for assessing overall attitudes of consumers also in the COVID-19 context. VBN Theory declines values starting from the values theory of Schwartz (1992) and groups them into three categories, namely altruism, egoism and biospheric (Stern, 2000). Beliefs are composed of three sub-variables that affect each other sequentially: the ecological worldview that derives from the New Ecological Paradigm (NEP) theorised by Dunlap and Van Liere (1978); the awareness of consequences (AC), that is, the belief of the repercussions of certain behaviours or conditions on others; the ascription of responsibility (AR) considered as the perception of themselves in acting to prevent negative consequences. The last macro-variable is personal norms or moral obligation in engaging in a particular behaviour, referring to the Norm Activation Model (NAM) developed by Schwartz (1977).

Considering that values, beliefs and norms are often elicited and evoked by particular situations and contexts (Biel and Thøgersen, 2007; Miles, 2015), we propose the following hypotheses.

H1: The level of activation of values is related to the level of activation of beliefs

H2: The level of activation of beliefs is related to the level of activation of norms

As Guagnano et al. (1995) theorised, buying behaviour depends on both internal and external drivers. In their Attitude-Behaviour-Context (ABC) Theory, they proposed a model that, compared to others, stresses the role of the

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external context. They conceived context as the set of extrinsic facilitators or obstacles that can ease or hinder behaviours. Although previous studies tested the role of external variables in different situations and for different product categories, literature on food products is fertile in confirming how contextual factors affect consumers' decisions (Loebnitz et al., 2015; Sirieix et al., 2013). Extant literature interprets the concept of context in a broad sense and shows how this driver consists of different stimuli (Belk, 1975). Although the sub-variables that compose the context are not univocal, they are always considered as exogenous factors to the psychology of the consumer. For this reason, the COVID-19 pandemic can be considered a contextual factor every person nowadays has to deal with when making decisions and adopting behaviours. Indeed, the COVID-19 pandemic generates many social and economic changes (Ceylan et al., 2020), which also modify buying decisions (Hall et al., 2021). Relating to the way context acts on buying decisions, while some studies highlight its direct link to the behaviour, others pose attention to the interconnections among context, psychographic traits and behaviour. In this latter case, one of the models that explain the interplays among these three variables is the Alphabet Theory developed by Zepeda and Deal (2009). Alphabet Theory combines VBN Theory (to assess one person's attitudes) and ABC Theory. Moreover, it adds some behavioural drivers (demographics, knowledge, information seeking and habits) to outline an overarching explanation of consumer behaviour. This theoretical approach interprets context as having a central role in the model because it influences both a person's attitudes (VBN) and habits (Zepeda and Deal, 2009). We, thus, hypothesise that:

H3: Changes in the perceived context is related to the level of activation of norms

In developing their Alphabet Theory, Zepeda and Deal (2009) carried out empirical research on the consumer behaviour of organic and local food. They found a key role of habits in directly influencing behaviour. Habits, in turn, depend on both context and attitudes. This setting of Alphabet Theory makes it particularly suitable as the conceptual framework of our research design. An increasing number of studies are grounding their conceptualisation on the Alphabet Theory (Stampa et al., 2020). At present, this theoretical approach is mainly adopted to carry out literature reviews aimed at systematically analysing the extant findings on consumer behaviour concerning specific product categories, especially food. Unfortunately, to the best of our knowledge, no studies empirically test the overall model, jointly analysing the different interplays. For this reason, besides testing the role of habits in influencing buying behaviour, we intend to verify the upstream relationships, namely, whether values and context affect habits. Grounding on Alphabet Theory and VBN Theory, we hypothesise that:

H4: The level of activation of norms is related to changes in habits

H5: Changes in the perceived context is related to changes in habits

H6: Changes in habits is related to changes in buying behaviour

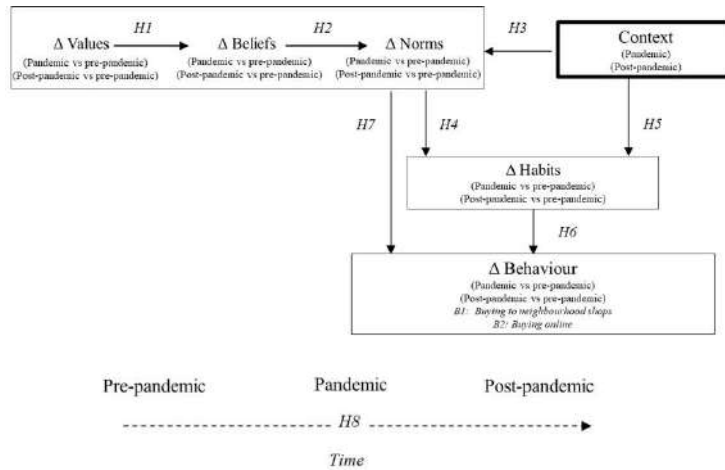
H7: The level of activation of norms is related to changes in buying behaviour

The second strand of literature considered is consumer behaviour as a reply to stressful events. In fact, consumers' behaviours react to changes in external conditions and life events experienced during their lifetime (Koschate-Fischer, 2018). This literature allows hypothesising that the COVID-19 pandemic is causing a profound modification of consumers' behaviours. In the attempt to interpret consumers' buying behaviour during the pandemic, some studies focus on the drivers of panic buying, highlighting the role of feelings such as anxiety (Omar et al., 2021) or external factors such as government and business interventions (Prentice et al., 2021). These empirical findings represent our starting considerations on how the COVID-19 context can subvert consumers' mindsets, attitudes, habits and, as a result, behaviours. Moreover, these first insights encourage us to investigate the extent to which these changes occur and their temporal validity. In fact, Shet (2020) wonders whether changes in consumption during the current pandemic are causing mutations in consumers' habits (or vice versa) and whether they will become permanent in future. The pandemic context may also represent a turning point in the way consumers supply their products or services (Segovia et al., 2021). Some academic studies provide empirical findings on the distribution channel switching behaviour among customers during the pandemic (Youn et al., 2021). Notably, contextual factors have led to growth in online purchases, undertaken as a reaction and adaptation to the crisis period (Guthrie et al., 2021). This trend is confirmed both for food and non-food products (Beckers et al., 2021). At the same time, consumers have preferred neighbourhood stores during the pandemic period, particularly for food products (Güney and Sangün, 2021), but with an increase (compared to the pre-pandemic period) also in the case of non-food products (Beckers et al., 2021). Due to the considerations above, our focus is on these two distribution channels (online and neighbourhood shops), empirically investigating the growth they experienced during the pandemic. Moreover, we aim to identify the drivers of these changes, proposing a model that considers psychographic (internal) factors, contextual (external) factors and habits. Finally, we offer a first attempt to understand whether such changes are destined to persist over time. We, thus, propose the following hypothesis:

H8: The changes in buying behaviour due to the pandemic will persist in the aftermath

Figure 1 shows the graphical representation of all hypotheses.

Fig. 1: Study hypotheses



Methodology. We gathered data via an online survey designed in Qualtrics. We administered a questionnaire to an interlocking quota sample recruited through a commercial sampling company. Overall, the sample’s composition was in line with the socio-demographic characteristics of the Italian population in terms of age, gender, macro-region of residence, household size and education. The questionnaire was administered in November 2020, and a total of 2019 valid and completed replies were gathered. All the respondents were persons in charge of household food shopping, as verified through the first question of the questionnaire.

In implementing the questionnaire design, we referred to measurements suggested by the relevant literature on consumer behaviour. Each dimension and sub-dimension have been adapted from consolidated and validated scales (Table 1). Respondents were asked to express their agreement/disagreement to the sentences related to each item through a 5-point Likert scale (“1” for “strongly disagree” and “5” for “strongly agree”). The sentences have been asked more times after their adaptation to the scenario considered: concerning the period, pre-pandemic vs pandemic and post-pandemic vs pandemic; concerning the channel, neighbourhood shops and online.

Tab. 1: Measurement variables, sub-dimensions, and scales for questionnaire design

Variables	Sub-dimensions	Labels	Scale adapted from:	Original items	Items in this study
Values	Egoism	Ego	Leonidou et al. (2013)	2	2
	Altruism	Alt	Leonidou et al. (2013)	2	2
Beliefs	Awareness of consequences	AwConseq	Schenk (2019)	3	3
	Ascription of responsibility	AscResp	Schenk (2019)	2	2
Norms	Moral obligation	MorOblig	Schenk (2019)	2	2
Context	Perceived risk	PercRisk	Klerck e Sweeney (2007)	9	3
	Importance of security	ImpSec	Roehm e Roehm (2011)	5	3
Habits	Social interaction (shopping)	SocInter	Noble et al. (2006)	3	3
	Use of internet for information	UserInt	Ko et al. (2005)	3	3
Behaviour	Buying behaviour	BuyBeh	Schenk (2019)	1	1

Results. In total, 54.2 per cent of the respondents were females, 46.1 per cent aged 54 years plus, 62.4 per cent with higher education. In total, 24.1 of the respondents had a university education at either undergraduate or postgraduate level. In addition, most of the respondents lived with another (22.8%), two (31.2%) or three (27.6%) family members.

Descriptive statistics (Table 2) provide some initial insights. First, consumers expect socially responsible purchasing behaviours to increase compared to pre-pandemic days, especially in the post-pandemic phase. This fact might reflect the media coverage concerning the socio-economic crisis that originates from the pandemic, which frequently spread calls for individual contributions to increase societal resilience. Interestingly, this search for the common good does not seem to conflict with the orientation towards personal and important ones’ benefit, reflecting a convergence of interests among the individual and societal perspectives. These values mirror the change in beliefs concerning the awareness of the consequences of purchasing decisions and the consumers’ ascription of responsibilities towards retailers’ survival. In both cases, sharper differences emerge between the neighbourhood and online retailers, with the former attracting more sense of protection than the latter. These beliefs generate norms that consist of a clear moral obligation towards making more concrete actions supporting neighbourhood shops both during and after the pandemic compared to the pre-pandemic days. In this regard, the relational dimension of in-store purchasing provides a possible explanation of the weaker perception of the increase in moral obligations towards online shops, which might result in a desired and value-generating, yet quite impersonal, service at the local level.

Tab. 2: Descriptive statistics

Items	Effect significance	Pandemic vs pre-pandemic		Pandemic vs pre-pandemic	
		Neighbourhood shops	Online	Neighbourhood shops	Online
Altruism					
1	$F(3,8072)=13.25^{**}$	3.55 (3.51 to 3.59)	3.55 (3.51 to 3.59)	3.68 (3.64 to 3.73)	3.68 (3.64 to 3.73)
2	$F(3,8072)=7.66^{**}$	3.51 (3.47 to 3.55)	3.51 (3.47 to 3.55)	3.62 (3.57 to 3.66)	3.62 (3.57 to 3.66)
Egoism					
1	$F(3,8072)=1.29$	3.02 (2.97 to 3.06)	3.02 (2.97 to 3.06)	3.06 (3.01 to 3.11)	3.06 (3.01 to 3.11)
2	$F(3,8072)=6.01^{**}$	2.83 (2.78 to 2.88)	2.83 (2.78 to 2.88)	2.94 (2.89 to 2.99)	2.94 (2.89 to 2.99)
Awareness of consequence					
1	$F(3,8072)=357.40^{**}$	3.89 (3.85 to 3.93)	3.17 (3.13 to 3.21)	3.91 (3.87 to 3.95)	3.24 (3.19 to 3.28)
2	$F(3,8072)=387.19^{**}$	3.97 (3.93 to 4.01)	3.24 (3.20 to 3.28)	3.96 (3.92 to 4.00)	3.27 (3.23 to 3.31)
3	$F(3,8072)=363.74^{**}$	4.01 (3.97 to 4.05)	3.30 (3.25 to 3.34)	3.97 (3.93 to 4.01)	3.30 (3.26 to 3.34)
Ascription of responsibility					
1	$F(3,8072)=389.19^{**}$	3.70 (3.66 to 3.75)	2.94 (2.90 to 2.99)	3.76 (3.72 to 3.80)	3.05 (3.01 to 3.09)
2	$F(3,8072)=397.07^{**}$	3.81 (3.77 to 3.85)	3.04 (3.00 to 3.09)	3.82 (3.79 to 3.86)	3.10 (3.05 to 3.14)
Moral obligation					
1	$F(3,8072)=375.87^{**}$	3.81 (3.77 to 3.85)	3.12 (3.08 to 3.17)	3.80 (3.75 to 3.84)	3.04 (3.00 to 3.08)
2	$F(3,8072)=458.17^{**}$	3.72 (3.68 to 3.77)	2.86 (2.82 to 2.90)	3.74 (3.69 to 3.78)	2.91 (2.87 to 2.96)
Perceived risk					
1	$F(3,8072)=82.10^{**}$	3.39 (3.34 to 3.44)	3.39 (3.34 to 3.44)	2.99 (2.94 to 3.04)	2.99 (2.94 to 3.04)
2	$F(3,8072)=69.79^{**}$	3.42 (3.38 to 3.47)	3.42 (3.38 to 3.47)	3.06 (3.01 to 3.11)	3.06 (3.01 to 3.11)
3	$F(3,8072)=47.16^{**}$	3.48 (3.43 to 3.53)	3.48 (3.43 to 3.53)	3.17 (3.13 to 3.23)	3.17 (3.13 to 3.23)
Importance of security					
1	$F(3,8072)=41.71^{**}$	4.20 (4.16 to 4.23)	4.20 (4.16 to 4.23)	3.97 (3.93 to 4.01)	3.97 (3.93 to 4.01)
2	$F(3,8072)=38.16^{**}$	4.20 (4.16 to 4.24)	4.20 (4.16 to 4.24)	3.99 (3.95 to 4.03)	3.99 (3.95 to 4.03)
3	$F(3,8072)=26.59^{**}$	4.08 (4.04 to 4.11)	4.08 (4.04 to 4.11)	3.90 (3.86 to 3.94)	3.90 (3.86 to 3.94)
Social interaction					
1	$F(3,8072)=4.63^{**}$	2.86 (2.81 to 2.91)	2.86 (2.81 to 2.91)	2.96 (2.91 to 3.01)	2.96 (2.91 to 3.01)
2	$F(3,8072)=5.06^{**}$	3.20 (3.14 to 3.25)	3.20 (3.14 to 3.25)	3.09 (3.04 to 3.14)	3.09 (3.04 to 3.14)
3	$F(3,8072)=6.42^{**}$	3.23 (3.18 to 3.29)	3.23 (3.18 to 3.29)	3.12 (3.07 to 3.17)	3.12 (3.07 to 3.17)
Use of internet					
1	$F(3,8072)=5.12^{**}$	3.67 (3.63 to 3.71)	3.67 (3.63 to 3.71)	3.59 (3.55 to 3.63)	3.59 (3.55 to 3.63)
2	$F(3,8072)=8.82^{**}$	3.79 (3.75 to 3.83)	3.79 (3.75 to 3.83)	3.68 (3.64 to 3.72)	3.68 (3.64 to 3.72)
3	$F(3,8072)=6.91^{**}$	3.80 (3.76 to 3.84)	3.80 (3.76 to 3.84)	3.71 (3.67 to 3.75)	3.71 (3.67 to 3.75)
Buying behaviour					
Entire sample	$F(3,8072)=164.5^{**}$	3.69 (3.65 to 3.74)	3.21 (3.16 to 3.25)	3.72 (3.62 to 3.76)	3.22 (3.18 to 3.26)
Age "18-34"	$F(3,1252)=2.9^*$	3.66 (3.55 to 3.77)	3.47 (3.36 to 3.58)	3.65 (3.53 to 3.76)	3.51 (3.40 to 3.62)
Age "35-54"	$F(3,3092)=24.2^{**}$	3.63 (3.56 to 3.70)	3.33 (3.26 to 3.40)	3.65 (3.58 to 3.72)	3.35 (3.28 to 3.42)
Age ">55"	$F(3,3720)=187.5^{**}$	3.76 (3.70 to 3.82)	3.01 (2.95 to 3.08)	3.79 (3.73 to 3.86)	3.02 (2.96 to 3.08)

* $p < 0.05$; ** $p < 0.01$

Interesting insights also emerge from the variables concerning the context. In fact, pandemic days generated a clear increase in the perceived risks associated with in-store physical contacts, which clearly goes hand in hand with the perceived need for personal and important ones' safeguard. But consumers also seem confident to find ways to exit the sanitary crisis and step back to contexts that are more similar to the pre-pandemic ones. In fact, both perceived risks and the importance of security seem destined to decrease in the new normality scenario. This fact is particularly important because it means that all the lessons learnt from the pandemic that will generate changes in purchasing behaviours will not depend on irreversible changes in the context but on the retention of value-generating experiences.

Similar expectations emerge for the possibility to restore satisfactory social interactions, which were not possible during the pandemic, in the new normality scenario. But some changes are destined to last in time. In fact, the increased use of the internet for searching information seems destined to decrease in the new normality scenario compared to the pandemic scenario. However, it will remain higher than the pre-pandemic levels.

Overall, these results offer a powerful interpretative framework for the stated buying behaviours. In fact, during the pandemic, consumers have clearly perceived the importance of neighbourhood shops, which was compatible with a less pronounced increase in the use of online shops. Interestingly, these changes seem also destined to last in the new normality scenario and be relatively homogeneous across respondents' age classes. The crisis stemming from the pandemic has thus persuaded consumers that the access to resilient retail systems depends, both in the shorter and longer run, on the return to closer relations with neighbourhood shops plus the integration of some online activities. Preferences for in-store -physically relational- purchasing experiences still exist, but with an increasing interest towards preserving the complementarity of access to offline and online retail channels. Considering these results, H8 can be confirmed.

Before testing our research hypotheses via a theory-based structural model, we included each construct into a measurement model to conduct a confirmatory factor analysis (CFA) and assess the congeneric properties of the scales. We used the Satorra-Bentler scaled chi-squared test for model goodness of fit versus the saturated model, which is robust to nonnormality (Satorra and Bentler, 1994). Since we measured beliefs and norms concerning different time frames (i.e. pandemic in comparison to pre-pandemic and post-pandemic in comparison to pre-pandemic) and channels (i.e. neighbourhood shops and online), we repeated this procedure for each scenario, which produced consistent results. All the AVE scores indicated a good convergent validity as they reported that the latent construct explained more than fifty per cent of the overall variance in indicator items.

We tested Hypotheses 1, 2, 3, 4 and 5 through a structural equation model (SEM). The model exhibits a good fit: the CFI is 0.976, the TLI is 0.972, and the RMSEA is 0.041. The χ^2/df ratio is 2.43, and the SRMR equals 0.074. Results of the SEM confirm that all the relations included in the theory-based conceptual are statistically significant and oriented in the expected direction (Tab. 3), apart from a few exceptions that deserve careful study.

First, while a higher orientation towards self-interests (ego1) emerges as compatible with increased perceived responsibilities individual towards retailers' resilience both during the lockdown and in the new-normality scenario, selfishness and carelessness (ego2) have an unclear effect on the ascription of responsibilities. In the same way, while being concerned about social welfare (alt2) has positive and statistically significant relations with the ascription of responsibilities in all the scenarios, a more radical view that subordinates the acceptance of buying behaviour to the achievement of others' good does not have clear relations with the perceived responsibilities towards retailers. These findings show that moderate increases in the levels of attention to personal and others' good results in consumers being more responsible towards the resilience of offline and online retailers, who are instead not at focus in case of sharper orientation towards egoist or altruist behaviours. Interestingly, these differences do not emerge with reference to the awareness of the positive consequences that individual purchase decisions might have on retailers, which are always positively related to increases in egoistic or altruistic values. In other words, it seems that any form of diversion from indifference stimulates awareness of the consequences of purchase decisions on retailers.

Interesting findings emerge also concerning the importance of security and the perceived risks. The importance of security is generally relevant in shaping moral obligations and habits but with different directions depending on the scenario. In detail, increased attention to general security has a positive but barely significant association with feeling the moral imperative to buy in neighbourhood shops both during the pandemic and in the new-normality scenario. Instead, a more relevant and statistically significant negative association emerges between the importance of security and the moral imperative to buy online both during the pandemic and in the new-normality scenario. These relations confirm that when consumers feel that their safety is at risk, they refer to retail channels that are more difficult to evaluate and control as a useful alternative to achieve contingent goals, not as a moral imperative.

Furthermore, the commitment to build trusted relationships with neighbourhood shops depends on individual values more than increased attention to security. The resulting habits shed more light on this matter. In fact, an increase in the level of general security alerts mirrors an increased need for retrieving online widely-accessible information and avoiding in-store contact with other people. Consequently, in times of perceived generalised unsafety, consumers are in front of a clear trade-off between the need to reduce unnecessary physical interactions and avoid the depersonalisation of retailing. Moral obligations contrast the importance of security in avoiding in-store physical interactions. Instead, the importance of security outperforms moral obligations in developing new habits consisting of more intensive use of the internet as an information source.

When increases in the perceived safety alerts specifically refer to in-store shopping experiences, changing in-store habits comes at high perceived costs and with a weaker switch towards the search of online information when compared to a general increase in attention to security. In this case, consumers deal with this situational pressure through a significantly stronger commitment to online purchasing.

Tab. 3: SEM statistics

Variable	Pandemic vs pre-pandemic Neighbourhood Shops		Pandemic vs pre-pandemic Online		Pandemic vs pre-pandemic Neighbourhood Shops		Pandemic vs pre-pandemic Online	
	2019		2019		2019		2019	
<i>N. observations</i>								
<i>AscResp</i>								
<i>AwConseq</i>	0.709***	(0.020)	0.678***	(0.023)	0.756***	(0.020)	0.738***	(0.020)
<i>ego1</i>	-0.012	(0.016)	0.019	(0.019)	0.022	(0.016)	0.024	(0.020)
<i>ego2</i>	0.052***	(0.015)	0.091***	(0.018)	0.020	(0.016)	0.067***	(0.019)
<i>alt1</i>	0.062***	(0.018)	-0.000	(0.021)	0.079***	(0.019)	0.028	(0.022)
<i>alt2</i>	0.128***	(0.017)	0.080***	(0.020)	0.084***	(0.018)	0.051*	(0.021)
<i>AwConseq</i>								
<i>ego1</i>	0.068***	(0.019)	0.061**	(0.019)	0.070***	(0.020)	0.081***	(0.022)
<i>ego2</i>	0.055**	(0.018)	0.122***	(0.018)	0.030	(0.019)	0.155***	(0.021)
<i>alt1</i>	0.319***	(0.020)	0.171***	(0.021)	0.332***	(0.023)	0.092***	(0.025)
<i>alt2</i>	0.226***	(0.020)	0.124***	(0.020)	0.208***	(0.022)	0.158***	(0.024)
<i>MorOblig</i>								
<i>AscResp</i>	0.554***	(0.035)	0.428***	(0.026)	0.565***	(0.036)	0.477***	(0.028)
<i>AwConseq</i>	0.408***	(0.039)	0.535***	(0.036)	0.398***	(0.041)	0.479***	(0.036)
<i>PercRisk</i>	-0.009	(0.022)	0.341***	(0.031)	0.027*	(0.014)	0.250***	(0.017)
<i>ImpSec</i>	0.036*	(0.023)	-0.215***	(0.029)	0.012	(0.018)	-0.151***	(0.020)
<i>SocInter</i>								
<i>MorOblig</i>	0.552***	(0.028)	0.798***	(0.041)	0.582***	(0.028)	0.815***	(0.040)
<i>PercRisk</i>	0.233***	(0.046)	-0.180**	(0.052)	0.307***	(0.031)	-0.019	(0.034)
<i>ImpSec</i>	-0.211***	(0.048)	0.148**	(0.047)	-0.114**	(0.039)	0.149***	(0.038)
<i>UserInter</i>								
<i>MorOblig</i>	0.203***	(0.017)	0.296***	(0.024)	0.222***	(0.016)	0.301***	(0.023)
<i>PercRisk</i>	0.173***	(0.032)	-0.034	(0.033)	0.183***	(0.021)	-0.009	(0.021)
<i>ImpSec</i>	0.402**	(0.033)	0.545***	(0.031)	0.367***	(0.027)	0.481***	(0.025)

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: standard errors in parentheses

We tested hypotheses 6 and 7 by means of separate ordered logistic regressions per each scenario. We first tested the assumption concerning the odds constancy of effects across categories by performing a Brant likelihood-ratio test of proportionality of odds across response categories (Scott Long and Freese, 2014).

Tab. 4: Ordered logistic regression statistics

Variable	Pandemic vs pre-pandemic Neighbourhood Shops		Pandemic vs pre-pandemic Online		Pandemic vs pre-pandemic Neighbourhood Shops		Pandemic vs pre-pandemic Online	
	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio
<i>Buying behaviour</i>								
<i>MorOblig</i>	1.578***	4.844***	1.898***	6.667***	2.854***	17.359***	2.126***	8.384***
	(0.073)	(0.354)	(0.076)	(0.501)	(0.099)	(1.717)	(0.084)	(0.704)
<i>SocInter</i>	0.081*	1.085*	-0.090*	0.914*	0.067	1.070	-0.059	0.942
	(0.040)	(0.043)	(0.040)	(0.036)	(0.044)	(0.047)	(0.043)	(0.041)
<i>UserInt</i>	0.308***	1.361***	0.602***	1.824***	0.215**	1.240**	0.928***	2.529***
	(0.062)	(0.085)	(0.064)	(0.118)	(0.069)	(0.085)	(0.074)	(0.186)
<i>N. observations</i>	2019		2019		2019		2019	
<i>Prob>chi2</i>	***		***		***		***	
<i>Pseudo R2</i>	0.141		0.190		0.288		0.278	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: standard errors in parentheses

The coefficients and odds ratios, together with their significance levels (Table 4), confirm that moral obligation is by far the variable that is more associated with increases in buying behaviours, both in neighbourhood shops and online. Interestingly, increases in feeling the moral imperative to buy from these retail channels reflect the highest increases in the odds of performing coherent behaviours, especially in the new normality scenario. The impacts of the pandemic on consumers' behaviours are thus destined to last, especially when they produce modifications at the

individual level throughout the values-beliefs-norms path. From this perspective, the modifications of habits concerning in-store social interactions had only marginal effects during the pandemic, which seem destined to disappear over time. Long-lasting effects of modifications in habits refer only to the increase of the use of the internet as a source of information, which the pandemic has boosted and consolidated into routines that will be not dismantled in the new-normality scenario.

Research limitations. This paper has some limitations. Firstly, the sample is composed only of Italian respondents. This can reduce the generalisation of the results due to cultural differences in dealing with the specific restrictive measures and communication strategies implemented by the governments, which might generate heterogeneity in consumers' attitudes, perceptions and behaviours. Secondly, our conceptualisations and operationalisations of context and habits may have impacted the model results. Due to the possibility of interpreting these two macro-variables broadly, any attempt to choose their most significant sub-dimensions can appear subject to possible integrations. Finally, all the variables in the post-pandemic period (in comparison to the pre-pandemic period) reflect perceptions and intentions. Because of the intention-behaviour gap, future studies can usefully further confirm the validity of our results.

Managerial implications. The empirical research findings have implications for both manufacturers (in terms of decisions about the distribution channels) and retailers (in terms of new competitive dynamics).

Manufacturers should be aware of the growth of online shopping and retail channels also in the grocery sector. In fact, e-grocery was embryonic in countries such as Italy, and the pandemic has boosted its diffusion, which, according to our results, does not seem to hold back even in the future. This fact means that manufacturers should consider these trends when choosing distribution channels and making decisions about channel design. At the same time, they should take into account that modern formats such as supermarkets and hypermarkets experienced degrowth during the pandemic, often in favour of neighbourhood shops, towards which consumers have developed an emotional dimension such as the sense of protection (moral obligation). All that seems to last in the future as well, leading manufacturers to rethink their presence not only in larger and more modern formats.

This paper also provide retailers with useful empirical evidence on consumers' actual and future shopping preferences. Our findings support the need for an ever-increasing online presence, overcoming the barriers to its implementation and avoiding losing growth opportunities or even reducing the company's competitive advantage. Interestingly, this study suggests that consumers have developed an inclination towards neighbourhood shops based on values and ethical considerations. This fact has repercussions both on the choice of shop formats to develop physically (in favour of smaller and closest to consumers store) and on the communication strategies to adopt to increase consumer engagement on retailer brand. In general, this paper can offer some suggestions for retailers to increase their resilience after possible changes in consumer behaviour due to scenarios similar to the current pandemic crisis.

Originality of the paper. The original theoretical contribution of the study is threefold.

To the best of our knowledge, the paper is the first attempt to empirically measure and estimate the long term impact of the changes on consumption that occurred during the most acute phases of the pandemic. We proved that consumers' changes in channel preference seem set to last in the post-pandemic, as well as most of the drivers that triggered them. Even when contextual factors will fade, our study confirms that some shopping behaviours, habits (such as the use of the internet for searching information) and attitudes will persist based on the intentions and perceptions of the consumers.

This study also offers one of the first attempts to quantitatively test the Alphabet Theory. Since its theorisation, Alphabet Theory has served as a suitable framework for conceptual papers aimed at overviewing the drivers of consumer behaviour toward specific product categories, especially food. To the best of our knowledge, our research is the first quantitative research that proves the validity of the Alphabet Theory in retailing.

Although this study confirms that Alphabet Theory is a valid and suitable model in explaining some features of shopping behaviour, our findings reveal that VBN theory is still a valid and ergonomic alternative to explain the distribution channel switching behaviour during the pandemic. Psychographic characteristics and individual attributes (values-beliefs-norms) have a greater influence on buying behaviour than habits, which thus suggests the use of the Alphabet Theory to compare the effects of alternative contexts on the same community of consumers more than investigate the behavioral determinants of different communities of consumers in the same context.

Keywords: attitudes, context, habits, buying behaviour, Alphabet Theory, pandemic

References

- BECKERS J., WEEKX S., BEUTELS P., VERHETSEL A. (2021), "COVID-19 and retail: The catalyst for e-commerce in Belgium?" *Journal of Retailing and Consumer Services*, vol. 62, P. 102645.
- BELK R.W. (1975), "Situational variables and consumer behavior", *Journal of Consumer Research*, vol. 2, n. 3, pp. 157-164.
- BIEL A., THØGERSEN J. (2007), "Activation of social norms in social dilemmas: A review of the evidence and reflections on the implications for environmental behaviour", *Journal of Economic Psychology*, vol. 28, n. 1, pp. 93-112.

- CEYLAN R.F., OZKAN B., MULAZIMOGULLARI E. (2020), "Historical evidence for economic effects of COVID-19", *The European Journal of Health Economics*, vol. 21, n. 6, pp. 817-823.
- DUNLAP R.E., VAN LIERE K.D. (1978), "The new environmental paradigm: A proposed measuring instrument and preliminary results", *Journal of Environmental Education*, vol. 9, n. 4, pp. 10-19.
- GUAGNANO G.A., STERN P.C., DIETZ T. (1995), "Influences on attitude-behavior relationships: A natural experiment with curbside recycling", *Environment and Behavior*, vol. 27, n. 5, pp. 699-718.
- HALEEM A., JAVAID M., VAISHYA R. (2020), "Effects of COVID-19 pandemic in daily life", *Current Medicine Research and Practice*, vol. 10, n. 2, pp. 78-79.
- GÜNEY O.I., SANGÜN L. (2021), "How COVID-19 affects individuals' food consumption behaviour: a consumer survey on attitudes and habits in Turkey", *British Food Journal*, vol. 123, n. 7, pp. 2307-2320.
- GUTHRIE C., FOSSO-WAMBA S., ARNAUD J.B. (2021), "Online consumer resilience during a pandemic: An exploratory study of e-commerce behavior before, during and after a COVID-19 lockdown", *Journal of Retailing and Consumer Services*, vol. 61, 102570.
- HALL M.C., PRAYAG G., FIEGER P., DYASON D. (2021), "Beyond panic buying: consumption displacement and COVID-19", *Journal of Service Management*, vol. 32, n. 1, pp. 113-128.
- KAYTAZ M., GUL M.C. (2014), "Consumer response to economic crisis and lessons for marketers: The Turkish experience", *Journal of Business Research*, vol. 67, n. 1, pp. 2701-2706.
- KOHLI S., TIMELIN B., FABIUS V., VERANEN S.M. (2020), "How COVID-19 is changing consumer behavior now and forever". McKinsey&Company. Available online at: <https://www.mckinsey.com/~media/McKinsey/Industries/Retail/Our%20Insights/How%20COVID%2019%20is%20changing%20consumer%20behavior%20now%20and%20forever/How-COVID-19-is-changing-consumer-behaviornow-and-forever.pdf>
- KOSCHATE-FISCHER N., HOYER W.D., STOKBURGER-SAUER N.E., ENGLING J. (2018), "Do life events always lead to change in purchase? The mediating role of change in consumer innovativeness, the variety seeking tendency, and price consciousness", *Journal of the Academy of Marketing Science*, vol. 46, n. 3, pp. 516-536.
- KIM J., YANG K., MIN J., WHITE B. (2021), "Hope, fear, and consumer behavioral change amid COVID-19: Application of protection motivation theory", *International Journal of Consumer Studies*, vol. 46, pp. 558-574.
- LOEBNITZ N., LOOSE S.M., GRUNERT K.G. (2015), "Impacts of situational factors on process attribute uses for food purchases", *Food Quality and Preference*, vol. 44, pp. 84-91.
- MILES, A. (2015), "The (re) genesis of values: Examining the importance of values for action", *American Sociological Review*, vol. 80, n. 4, pp. 680-704.
- PRENTICE C., NGUYEN M., NANDY P., WINARDI M.A., CHEN Y., LE MONKHOUSE L., DOMINIQUE-FERREIRA S., STANTIC B. (2021), "Relevant, or irrelevant, external factors in panic buying", *Journal of Retailing and Consumer Services*, vol. 61, pp. 102587.
- ROGGEVEEN A.L., SETHURAMAN R. (2020), "How the COVID-19 pandemic may change the world of retailing", *Journal of Retailing*, vol. 96, n. 2, pp. 169-171.
- SATORRA A., BENTLER P.M. (1994), "Corrections to test statistics and standard errors in covariance structure analysis. In *Latent Variables Analysis: Applications for Developmental Research*", ed. A. von Eye and C. C. Clogg, 399-419. Thousand Oaks, CA: Sage.
- SCOTT LONG J., FREESE J. (2014), "Regression Models for Categorical Dependent Variables Using Stata", 3rd Edition. College Station, TX: Stata Press.
- SCHWARTZ S.H. (1977), "Normative influences on altruism", In Berkowitz L. (Ed.), *Advances in experimental social psychology* (Vol. 10). New York: Academic Press
- SCHWARTZ S.H. (1992), "Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries", *Advances in Experimental Social Psychology*, vol. 25, pp. 1-65.
- SHVEDA K. (2020), "How Coronavirus Is Changing Grocery Shopping". Available online at: <https://www.bbc.com/future/ bespoke/ follow-the-food/ how-covid-19-is-changing-food-shopping.html>
- SEGOVIA M., GRASHUIS J., SKEVAS T. (2021). Consumer preferences for grocery purchasing during the COVID-19 pandemic: a quantile regression approach. *British Food Journal*, ahead-of-print.
- SHETH J. (2020), "Impact of Covid-19 on Consumer Behavior: Will the Old Habits Return or Die?", *Journal of Business Research*, vol. 117, pp. 280-283.
- SIRIEIX L., DELANCHY M., REMAUD H., ZEPEDA L., GURVIEZ P. (2013), "Consumers' perceptions of individual and combined sustainable food labels: a UK pilot investigation", *International Journal of Consumer Studies*, vol. 37, n. 2, pp. 143-151.
- STAMPA E., SCHIPMANN-SCHWARZE C., HAMM U. (2020), "Consumer perceptions, preferences, and behavior regarding pasture-raised livestock products: A review", *Food Quality and Preference*, vol. 82, 103872.
- STERN P.C., DIETZ T., ABEL T., GUAGNANO G.A., KALOF L. (1999), "A value-belief-norm theory of support for social movements: The case of environmentalism", *Human Ecology Review*, vol. 6, n. 2, pp. 81-97.
- STERN P.C. (2000), "New environmental theories: toward a coherent theory of environmentally significant behavior", *Journal of Social Issues*, vol. 56, n. 3, pp. 407-424.
- WORLD ECONOMIC FORUM (2020), "5 Things Supermarkets Want You to Know Right Now". Available online at: <https://www.weforum.org/agenda/2020/03/supermarkets-grocery-coronavirus-covid19-supply/>

- ZEPEDA L., DEAL D. (2009), "Organic and local food consumer behaviour: Alphabet theory", *International Journal of Consumer Studies*, vol. 33, n. 6, pp. 697-705.
- YOUN S.Y., LEE J.E., HA-BROOKSHIRE J. (2021), "Fashion consumers' channel switching behavior during the COVID-19: Protection motivation theory in the extended planned behavior framework", *Clothing and Textiles Research Journal*, vol. 39, n. 2, pp. 139-156.

Il ruolo dei social media nei processi di stakeholders engagement: prime evidenze dalle “controversial industries” europee

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Inquadramento della ricerca. La definizione dei contenuti dell’Agenda 2030 e degli Obiettivi di sviluppo sostenibile (SDG) ha aumentato l’attenzione delle organizzazioni sui temi della responsabilità sociale d’impresa (CSR).

Negli ultimi decenni, questa attenzione si è spostata dalla semplice individuazione delle loro responsabilità all’implementazione di processi, al raggiungimento di risultati ed alla comunicazione degli stessi (Wang et al., 2016) nella crescente consapevolezza che puntare sullo sviluppo sostenibile può consentire di perseguire vantaggi competitivi a lungo termine. Le attività finali di CSR includono clienti, partner commerciali, comunità, ambiente e norme e regolamenti governativi (Arrive and Feng, 2018; Skudiene and Auruskeviciene, 2012) per cui divengono sempre più rilevanti le relazioni con gli stakeholder ed l’ascolto delle loro attese (Arena et al., 2018) per comprenderne le priorità (Vrontis et al., 2020).

Tramite il coinvolgimento, infatti, è possibile generare benefici che possono andare dalla crescita della reputazione alla riduzione del rischio (Lii and Lee, 2012), non trascurando il miglioramento delle relazioni con i dipendenti e con gli stakeholder in generale (Carroll and Shabana, 2010).

La necessità di coinvolgere gli stakeholder nelle attività di CSR è ancora più forte per le imprese che operano in settori industriali controversi. Quando si discute di industrie controverse si fa riferimento a “prodotti, servizi o concetti che per motivi di delicatezza, decenza, moralità suscitano reazioni di disgusto, offesa o indignazione quando menzionati o presentati apertamente” (Wilson and West, 1981). In altre parole organizzazioni il cui comportamento sociale e ambientale è considerato dubbio e non etico (Kilian and Hennigs, 2014) e, quindi, tale per cui la comunicazione CSR presta il fianco allo scetticismo e al cinismo delle parti interessate (Godfrey et al., 2009; Woolfson and Beck, 2019).

Lo studio della comunicazione CSR nelle industrie controverse è particolarmente intrigante, a causa della natura conflittuale della CSR e delle caratteristiche di tali tipologie di industrie (Dobele et al., 2014). Recenti studi hanno dimostrato che le industrie controverse e non controverse adottano differenti strategie di comunicazione CSR (Du et al., 2010). In merito ai contenuti, Vollero et al. (2019) osservano che le industrie controverse non cercano un coinvolgimento intenso con le parti interessate, mentre Song and Wen (2020) hanno osservato che le industrie controverse applicano una strategia di contenuto più coinvolgente rispetto alle industrie non controverse, ma limitano il livello di interazione degli utenti intervenendo nelle sezioni dei commenti. In letteratura, però, sono poche le ricerche che hanno analizzato congiuntamente i diversi settori controversi ed esaminato le strategie e i risultati del processo di comunicazione della CSR in maniera olistica (Aqueveque et al., 2018; Vollero et al., 2019).

Obiettivo del paper. Il paper si propone di analizzare il ruolo dei social media, e nello specifico di Twitter, nel coinvolgimento degli stakeholder delle imprese che operano in settori controversi, con particolare attenzione al contributo dei differenti contenuti della comunicazione rispetto alla divulgazione degli obiettivi di sviluppo sostenibile (SDGs). Lo scopo del lavoro è quindi fornire un contributo agli studi sui processi di stakeholder engagement nelle strategie di CSR, osservandone il diverso approccio in considerazione delle connotazioni settoriali.

Inoltre, lo studio suggerisce un punto di osservazione che non è quello istituzionale dei tradizionali rapporti di CSR ma quello della divulgazione di informazioni attraverso la comunicazione sui social media che sta diventando uno dei canali più importanti per la diffusione delle questioni di CSR (Bartosik-Purgat and Bednarz, 2021; Surucu-Balci et al., 2020). I social media hanno un potenziale comunicativo che consente al pubblico di non essere uno spettatore passivo, ma di impegnarsi direttamente nel dialogo (Colleoni, 2013; Schultz et al., 2011). Sebbene i contributi teorici osservino i potenziali benefici dei social media per la generazione di legittimità sociale aziendale (Gond et al., 2011; Matten and Moon, 2008; Moon e Vogel, 2008), pochi studi analizzano come la comunicazione sui social media potrebbe consentire la consapevolezza dei risultati, influenza sociale e autoefficacia per superare il divario atteggiamento-comportamento (Fieseler et al., 2010, Lee e Carroll, 2011; Siltaoja e Vehkaperä, 2010).

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Nello specific Twitter è una delle piattaforme di social media più utilizzate per rivolgersi a un vasto pubblico e comunità (Wright and Hinson, 2014; Xiong et al., 2018), influenza la relazione follower-imprese diffondendo le informazioni di queste ultime con un alto grado di affidabilità (Neu et al., 2019). Di conseguenza, i tweet dovrebbero contenere messaggi pertinenti e contenuti accattivanti per attirare e coinvolgere i follower in conversazioni interattive (Troise and Camilleri, 2021).

Al fine di individuare il ruolo dei social media nella crescita dello stakeholder engagement (Viglia et al., 2018) si sono osservate le caratteristiche del contenuto della comunicazione CSR con l'obiettivo di individuare gli elementi della stessa e il sentiment che possono accelerare il coinvolgimento degli stakeholder.

Metodologia. Il campione di riferimento dell'indagine è quello individuato da The Alliance for Corporate Transparency (2020), interessato alla direttiva europea sulla rendicontazione non finanziaria. Inoltre, sono state considerate le aziende che hanno riportato almeno un SDG, rappresentando un segnale di orientamento verso il paradigma dell'Agenda 2030 (Pizzi et al., 2020). Seguendo l'approccio di Vollero et al. (2019), le società osservate sono state distinte tra quelle appartenenti ai settori controversi e quelle appartenenti ai settori non controversi. I dati raccolti riguardano l'anno 2020.

Il campione complessivo delle imprese considerate è pari a 62, di cui 43 appartenenti al settore "controversial". Dagli account ufficiali Twitter delle imprese considerate, sono stati estratti in totale 1326 tweet CSR-related.

Si è quindi proceduto con una content analysis (Krippendorff, 2018) per identificare le determinanti che influenzano il coinvolgimento dei tweet CSR. La content analysis rappresenta un metodo ampiamente adottato negli studi di management per raccogliere informazioni qualitative su un fenomeno specifico (Parsons, 2013; Shen and Bissell, 2013). L'analisi dei contenuti è strutturata in tre fasi: a) identificazione delle unità; b) codificazione delle unità; c) analisi dei risultati.

L'estrazione delle unità dagli account ufficiali Twitter è stata sviluppata utilizzando il tool NCapture incluso nel software Nvivo 12 (Hai-Jew, 2014). A causa dell'eterogeneità linguistica dei tweet pubblicati, i messaggi raccolti sono stati tradotti utilizzando lo strumento di traduzione di Fogli Google (Wu et al., 2016). Il processo di codificazione è stato operato seguendo Viglia et al. (2018). In particolare, il numero di preferiti, retweet e commenti è stato codificato per identificare il livello di coinvolgimento degli stakeholder. Inoltre, anche i contenuti visivi (foto e video) sono stati codificati per il ruolo esercitato come componente emotiva. Si è altresì codificata la presenza della divulgazione degli SDGs (Rosati and Faria, 2019).

Successivamente, si è proceduto con tre tipologie di analisi: i principali argomenti comunicati; i temi di riferimento; il sentiment, utile per comprendere il tono della comunicazione.

L'analisi quantitativa è stata svolta con il modello della Regressione di Poisson per comprendere le determinanti che influenzano il numero di preferiti, retweet e commenti nei tweet relativi alla CSR (Mariani et al., 2018).

Primi risultati. Il coinvolgimento degli stakeholders attraverso la comunicazione e la divulgazione delle attività di CSR può trovare nei social media un valido strumento di interazione. I risultati dimostrano che il successo del coinvolgimento degli stakeholder tramite Twitter è influenzato sia dal sentiment che dalle varie caratteristiche dei post. In merito al sentiment, le aziende europee osservate adottano un tono neutro (moderatamente positivo), indipendentemente dal settore di appartenenza. L'analisi ha evidenziato come i contenuti media come foto e video rappresentino uno strumento efficace per il coinvolgimento delle parti interessate in Europa.

Relativamente al contenuto dei messaggi veicolati, si è osservato come il 57,3% delle imprese che operano in settori controversi impieghi Twitter per comunicare la propria performance in termini di sostenibilità ambientale (emissioni, energia, gestione dei rifiuti). Tale dato è pari al 37,6% nelle imprese non controverse, le quali comunicano attraverso Twitter focalizzandosi maggiormente su argomenti legati agli aspetti produttivi.

L'appartenenza al settore "controversial" genera un effetto negativo nella percezione degli stakeholders, i quali valutano gli sforzi in termini di divulgazione degli SDG sono percepiti come tentativi di greenwashing (Leopizzi et al., 2020).

La divulgazione degli SDG sui messaggi di Twitter sembra essere un fattore positivo di coinvolgimento. La strategia dell'informazione è un mezzo ricorrente per le industrie, in particolare per quelle che operano in settori controversi (Vollero et al. 2019), per garantire l'interesse degli stakeholder a impegnarsi con l'azienda e fare leva sulle loro paure, interessi personali e morali / preoccupazioni etiche (Lane and Devin, 2018).

Il risultato è in linea con la letteratura precedente e pone in evidenza l'attenzione degli stakeholders presenti su Twitter al contributo che le imprese possono fornire per il raggiungimento degli obiettivi dell'Agenda 2030 (Grover et al., 2019; Reyes-Menendez et al., 2018). La ridotta numerosità di imprese che fanno ricorso al coinvolgimento degli stakeholders nei processi decisionali inerenti le strategie di sostenibilità aziendale evidenzia la bassa rilevanza che il management riconosce a tale processo, poiché evidentemente non identifica in esso una strategia di differenziazione e crescita (Vollero et al., 2019).

Limiti della ricerca. Un limite della ricerca concerne l'utilizzo di un solo social media; inoltre, un approfondimento futuro potrebbe riguardare territori diversi da quello europeo. Infine, occorrerebbe ampliare l'analisi con il monitoraggio dei commenti, utili per incrementare la conoscenza delle dinamiche delle discussioni attivabili sui profili social delle imprese.

Implicazioni manageriali. Questo studio può essere utile non solo per gli accademici, ma anche per i manager delle imprese che operano nelle tipologie di settori interessati poiché può fornire indicazioni sulle modalità più appropriate di comunicare attraverso i social, raggiungendo così in modo più efficace gli stakeholders.

Originalità del paper. *L'originalità dello studio risiede nel fatto che si focalizza in particolare sulle imprese controverse, ovvero quelle organizzazioni il cui comportamento sociale e ambientale è considerato dubbio e non etico, generando lo scetticismo delle parti interessate. In tali tipologie di imprese, la necessità di coinvolgere gli stakeholder nelle attività di CSR appare ancora più forte rispetto alle imprese.*

Parole chiave: *stakeholder engagement, CSR communication, Twitter, SDGs*

Bibliografia

- AQUEVEQUE C., RODRIGO P., DURAN I.J. (2018), "Be bad but (still) look good: Can controversial industries enhance corporate reputation through CSR initiatives?", *Business Ethics: A European Review*, vol. 27, n. 3, pp. 222-237.
- ARENA M., AZZONE G., MAPELLI F. (2018), "What drives the evolution of Corporate Social Responsibility strategies? An institutional logics perspective", *Journal of Cleaner Production*, vol. 171, pp. 345-355.
- CARROLL A.B., SHABANA K.M. (2010), "The business case for corporate social responsibility: A review of concepts, research and practice", *International Journal of Management Reviews*, vol. 12, n. 1, pp. 85-105.
- DOBELE A.R., WESTBERG K., STEEL M., FLOWERS K. (2014), "An Examination of Corporate Social Responsibility Implementation and Stakeholder Engagement: A Case Study in the Australian Mining Industry", *Business Strategy and the Environment*, vol. 23, n. 3, pp. 145-159.
- DU S., BHATTACHARYA C.B., SEN S. (2010), "Maximizing Business Returns to Corporate Social Responsibility (CSR): The Role of CSR Communication", *International Journal of Management Reviews*, vol. 12, n. 1, pp. 8-19.
- GODFREY P.C., MERRILL C. B., HANSEN J.M. (2009), "The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis", *Strategic Management Journal*, vol. 30, n. 4, pp. 425-445.
- GROVER P., KAR A.K., ILAVARASAN P.V. (2019), "Impact of corporate social responsibility on reputation-Insights from tweets on sustainable development goals by CEOs", *International Journal of Information Management*, vol. 48, n. February, pp. 39-52.
- HAI-JEW S. (2014), "Tweet portraiture: Understanding the gist of electronic identities through microblogged messaging in social media using NCapture and NVivo 10", *Enhancing Qualitative and Mixed Methods Research with Technology*, pp. 308-330. <https://doi.org/10.4018/978-1-4666-6493-7.ch013>
- IAZZI A., PIZZI S., IAIA L., TURCO M. (2020), "Communicating the stakeholder engagement process: A cross-country analysis in the tourism sector. Corporate Social Responsibility and Environmental Management, n/a(n/a), csr.1913. <https://doi.org/10.1002/csr.1913>
- KILIAN T., HENNIGS N. (2014), "Corporate social responsibility and environmental reporting in controversial industries", *European Business Review*, vol. 26, n. 1, pp. 79-101.
- KRIPPENDORFF K. (2018), *Content Analysis* (SAGE (ed.); 4th ed.
- LANE A.B., DEVIN B. (2018), "Operationalizing Stakeholder Engagement in CSR: A Process Approach", *Corporate Social Responsibility and Environmental Management*, vol. 25, n. 3, pp. 267-280.
- LEOPIZZI R., IAZZI A., VENTURELLI A., PRINCIPALE S. (2020), "Nonfinancial risk disclosure: The "state of the art" of Italian companies. *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 1, pp. 358-368.
- MARIANI M.M., MURA M., DI FELICE M. (2018), "The determinants of Facebook social engagement for national tourism organizations' Facebook pages: A quantitative approach", *Journal of Destination Marketing and Management*, vol. 8, n. August 2017, pp. 312-325.
- PARSONS A. (2013), "Using social media to reach consumers: A content analysis of official facebook pages", *Academy of Marketing Studies Journal*, vol. 17, n. 2, pp. 27-36.
- PIZZI S., ROSATI F., VENTURELLI A. (2020), "The determinants of business contribution to the 2030 Agenda: Introducing the SDG Reporting Score", *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.2628>
- REYES-MENENDEZ A., SAURA J.R., ALVAREZ-ALONSO C. (2018), "Understanding #worldenvironmentday user opinions in twitter: A topic-based sentiment analysis approach", *International Journal of Environmental Research and Public Health*, vol. 15, n. 11.
- ROSATI F., FARIA L. (2019), "Addressing the SDGs in sustainability reports: The relationship with institutional factors", *Journal of Cleaner Production*, vol. 215, pp. 1312-1326.
- SHEN B., BISSELL K. (2013), "Social Media, Social Me: A Content Analysis of Beauty Companies' Use of Facebook in Marketing and Branding", *Journal of Promotion Management*, vol. 19, n. 5, pp. 629-651.
- SONG B., WEN J. (Taylor), "(2020), "Online corporate social responsibility communication strategies and stakeholder engagements: A comparison of controversial versus noncontroversial industries", *Corporate Social Responsibility and Environmental Management*, vol. 27, n. 2, pp. 881-896.
- TROISE C., CAMILLERI M.A. (2021), "The use of digital media for marketing, CSR communication and stakeholder engagement", In *Strategic corporate communication in the digital age* (pp. 161-174), Emerald
- VIGLIA G., PERA R., BIGNÉ E. (2018), "The determinants of stakeholder engagement in digital platforms. *Journal of Business Research*, vol. 89, n. June 2017, pp. 404-410.

- VOLLERO A., CONTE F., SIANO A., COVUCCI C. (2019), "Corporate social responsibility information and involvement strategies in controversial industries", *Corporate Social Responsibility and Environmental Management*, vol. 26, n. 1, pp. 141-151.
- VRONTIS D., IAZZI A., MAIZZA A., CAVALLO F. (2020), "Stakeholder Engagement IN The Hospitality Industry: An Analysis Of Communication In Smes And Large Hotels", *Journal of Hospitality and Tourism Research*, pp. 1-23. <https://doi.org/10.1177/1096348020936351>
- WILSON A., WEST C. (1981), "The marketing of unmentionables", *Harvard Business Review*, vol. 59, n. 1, pp. 91.
- WOOLFSON C., BECK M. (2019), *Corporate social responsibility failures in the oil industry*. Routledge.
- WU Y., SCHUSTER M., CHEN Z., LE Q.V., NOROUZI M., MACHEREY W., KRIKUN M., CAO Y., GAO Q., MACHEREY K., KLINGNER J., SHAH A., JOHNSON M., LIU, X., KAISER L., GOUWS S., KATO Y., KUDO T., KAZAWA H., DEAN J. (2016), *Google's Neural Machine Translation System: Bridging the Gap between Human and Machine Translation*. 1-23. <http://arxiv.org/abs/1609.08144>

Italian agritourism as a traditional innovative answer to COVID-19 pandemic

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Framing of the research. *Tourism and travel are among the most affected sectors by the pandemic: the crash in international tourism due to COVID-19 pandemic could cause a loss of more than \$4 trillion to the global GDP for 2020 and 2021 and international tourism and its closely linked sectors suffered an estimated loss of \$2.4 trillion in 2020. A rebound in international tourism is expected in the second half of this year, but data still shows a loss of between \$1.7 trillion and \$2.4 trillion in 2021, compared with 2019 levels. (UNCTAD - UNWTO, 2021). However, before the resumption of the international travel, domestic tourism could enhance the revival of the industry and exploiting also other factors, such as local belongingness, technological resilience, it could shape industry resilience (Sharma et al., 2021). Nearby destinations may be considered on one side less risky by many tourists, on the other side less expensive and more consistent with their purchasing power that may have been affected by the economic crisis (Lebrun et al., 2021).*

According to some scholars (Lebrun et al., 2021; Romagosa, 2020), the boosting of proximity tourism is one of the consequences of the pandemic that is affecting also trip duration with a restriction to one day or few days.

Pandemic has also adversely impacted tourists' behaviors (Abbas et al., 2021; Bauer et al., 2021): tourists have dropped their planned tours to try to avoid virus transmission during travel (Abbas et al., 2021; Mamirkulova et al., 2020; Meadows et al., 2019). Countryside has seen a new-found appreciation as a place to escape from densely populated areas able to provide a sense of safety to consumers who have become more nervous about travelling due to the risks associated with the virus (Abbas et al., 2021; Ioannides & Gyimóthy, 2020) and Sustainable Rural Tourism could, therefore, give tourists the opportunity to safely experience a pleasant holiday able to satisfy all their environmental, escapist, educational and entertainment needs at the same time.

Sustainable rural tourism has always described as a mean to renew socio-economic development, to revitalize economic productivity and to provide tourists authentic experiences (Rosalina et al., 2021); it has developed in last years very rapidly because people are looking for space and activities in harmony with nature, culture of rural area and lifestyle of local people (Schmidt et al., 2016).

The term sustainable rural tourism is a broader concept that encompass agritourism, farm tourism ecotourism and nature tourism (Montefrio and Sin, 2019).

During last year attention towards agritourism and agritourism sustainability has increased, due to the growing global environmental fragility and the scarcity of critical resources, and scholars agree on the meaning of agritourism as a sustainable rural hospitality model (Paniccia and Baiocco, 2020; Montefrio and Sin, 2019).

Moreover, Italian agritourisms have demonstrated a remarkable ability to respond, activating alternative supply routes in parallel with organized distribution, adopting new booking systems, focusing on local supply chains, and managing to renew its range of products and services very quickly.

In 2020 the Italian agritourism sector has consolidated its fundamental role in the maintenance and development of rural areas, under different aspects - social, economic, and productive, landscape and environmental, territorial and cultural - contributing to connote the multifunctional profile of Italian agriculture, of which it has now become a structured and structural component, especially in a strategic key of diversification and innovation, accelerating the modernization process. (Report Agri, 2020).

COVID-19 pandemic could provide new insights and opportunities for sustainable rural tourism but also expose these realities to new challenges such as health risks (Rosalina et al., 2021; Carr, 2020) and tourists' process of travel decision-making that is positively related to health, psychological and social risk perception towards a destination (Matiza, 2020). The pandemic has thus proved to government that a tourism-specialised economy might be highly vulnerable to crisis like this one and need revaluation as a means for economic development (Brouder et al., 2020).

The escape of tourists to rural destinations might represent an effective response to the pandemic as it is able to provide an exceptionally valuable experience with many benefits to those new-found conscious tourists. Moreover, as

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mentioned above, the countryside has seen a new-found appreciation as a place to escape from densely populated areas able to provide a sense of safety to consumers who have become more nervous about travelling due to the risks associated with the virus (Ioannides & Gyimóthy, 2020). Moreover, this type of tourism focuses on protection of residents' quality of life, preservation of traditional culture and environment, wellness of hosts and tourists (An and Alarcón, 2020; Kallmuenzer et al., 2018) and the management of it is complex and requires the control of several variables and a service ecosystem perspective in which social, economic, and environmental goals sometimes overlap and interfere with each other (Anzivino et al., 2021; An and Alarcón, 2020).

Sustainable rural tourism industry encompasses a complex, dynamic and multi-actor system influenced by various social forces and characterized by resource integration activities (Anzivino et al., 2021; Giannopoulos et al., 2020; Akaka and Vargo, 2015). Service ecosystem is, according to S-D logic, the unit of analysis for activities of value co-creation between the different actors (Vargo and Lusch, 2017); it is self-adjusting, defining and redefining actors' roles based on the common drive of value co-creation and on the management of resource integration (Trischler et al., 2020) in a specific context (Akaka and Chandler, 2011).

Service ecosystem perspective provides a multi-level approach useful to represent the actors', the interdependence between them and resource integration; in this ecosystem value co-creation is a cooperative, collaborative, and complex process that arises between different and heterogeneous actors (Vargo and Lusch, 2017). Service ecosystem also offers a structural analysis that considers the different actors' activities at micro level which are surrounded and embedded by the meso and macro levels (Trischler et al., 2020; Trischler and Charles, 2019). Moreover, in this field the service ecosystem tensions may arise at the different level of the ecosystem and involve the different dimensions of sustainability, economic, social, and environmental (Hahn et al., 2015).

The evolution of sustainable rural tourism highlights the importance of sustainability throughout the whole service ecosystem because of its strict links to environmental conditions and the physical setting in which it operates.

Purpose of the paper. COVID-19 has provided an opportunity to reset and reconsider sustainability as a mean to grow and develop considering the economic, environmental, and social/cultural implications that come with that (Sharma et al., 2021). Furthermore, tourism in the context of COVID-19 reveals how the local is a locus of change (Brouder et al., 2020).

Given the dynamicity of service ecosystem it should adapt over time to changes in resource integration, shared worldviews and outcomes; but in this evolution sometimes tensions amongst the different actors (McColl-Kennedy et al., 2020; Frow et al., 2019; Banoun et al., 2016). Ecosystems have to manage tensions and possible forthcoming conflicts in particular after some shock event, as in this period COVID-19 pandemic: transformation, innovation and change could emerge from conflicting value creation strategies (Laamanen and Skalèn, 2015).

Given these premises the aim of our study is to understand how have rural tourism realities been stimulated to evolve following the pandemic?

Methodology.

Research setting: In this study we have examined 10 different Italian agritourisms located in Lazio region and specifically in the Roman countryside: agritourism represents an authentic form of rural tourism as it allows tourists to live a real rural experience on a working farm, participating in agricultural activities while connecting with animals and nature and enjoying the food produced and cooked in the farm (Ammirato et al., 2020). Agritourisms are complex and differentiated and they are strongly dependent on the socio-economic characteristics of each territory, landscape, and regulations (Broccardo et al., 2017). Moreover, according to a survey conducted by Fondazione Univerde (2020), agritourisms are the preferred accommodation for Italian tourists (Fondazione Univerde, 2020).

Agritourism can be seen as an innovative and sustainable diversification strategy for farms: by including recreation and leisure activities for tourists - with many economic and non-economic benefits for farmers, visitors, and communities - agricultural entrepreneurs can increase their income and create additional employment (Broccardo et al., 2017). In Italy agritourisms are strictly defined by the current regulation (Law n. 96/2006) as "the hospitality activities practiced by agricultural entrepreneurs through the use of their farms, in connection with the farming activities, the forestry-related activities, and livestock activities", with the limitation that "agricultural activities prevail over the agritourism activities" (Broccardo et al., 2017). Italian legislation regulates agritourism in a different manner with respect to other forms of rural tourism and constitutes a unicum on the international scene, as it considers tourism services as secondary to agricultural activities (Mastronardi et al., 2015).

Furthermore, they promote the conservation of the rural environment through its socioeconomic development (Sonnino, 2004).

The key factors for sustainable value creation in agritourism - following the three sustainability dimensions - can be, therefore, summed up as follows:

- **Economic:** agritourism is considered a stable and profitable source of alternative income for farms which usually must face many challenges related to the agricultural context and consequently contributes to the increase of rural families' well-being (Broccardo et al., 2017; Ammirato et al., 2020). Increased revenues for agritourism farms can also boost local economies through increased sales taxes, generation of local employment and stimulation of local businesses (Broccardo et al., 2017).
- **Sociocultural:** Agritourism leverages on the stimulation and valorisation of existing intangible assets, such as the destination's cultural heritage, traditional and history - and thus, enhancing and revitalizing the community pride (Ammirato et al., 2020). The small scale of local businesses has been proven to strengthen the link with the territory, thus preserving its cultural and product heritage (Broccardo et al., 2017).

- *Environmental: The presence of agritourism farms in forests and protected areas has positive impacts on biodiversity and natural resources, as well as on soil protection and hydrogeological disaster prevention (Ammirato et al., 2020). Agritourism companies have been proven to adopt often environmentally-friendly behaviours - such as recycling programs and water reduction procedures (Ammirato et al., 2020). Hence, agritourisms represent a form of sustainable tourism able to conserve its environmental assets.*

Data collection: To pursue the purpose of the study, that focuses on how sustainable rural tourism realities are evolving during and after COVID-19 pandemic and how they are managing the emerging tensions, we adopt a qualitative method to give contextual and holistic explanation and understand what is happening in various and different conditions (Ichikawa, 2017; Pettigrew, 2012; Yin, 2009).

For our research we have collected multiple and different forms of qualitative data: in depth interviews, participant observation and secondary data analysis. The use of a multiple method approach with multiple forms of qualitative data sources has been useful to avoid single-method bias and to develop more robust findings (Davis et al., 2011). The explorative data collection occurred from May 2020 to early June 2021.

We conducted 22 face-to-face interviews, via phone or MS-Teams, with managers of the 10 Italian agritourism, policymakers and other key informants, representative of the meso level of the sustainable rural tourism service ecosystem. We ensured the heterogeneity of the sample to gain a multi-sided perspective of observations and generate a context-specific understanding of the phenomena.

***Data analysis:** In the paper we 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 analysed through a coding process and content analysis (Neumann, 1997) performed by the researchers also involved interpretation process.*

***Results.** Findings of our research could be summarized in four macro-themes: innovation throughout sustainable territorial tradition, new digitalized customer journey, platformization of experiences, managing re-targetization adoptions.*

Innovation throughout sustainable territorial tradition: Data have shown that during pandemic period agritourism have put more attention on their sustainability mission to answer to tourists focus on new experiences based on sustainability values and on the territory.

Moreover, data revealed the importance of the connection to nature: its beauty, sounds, fruits and benefits to people's well-being. This connection is strictly linked to the attachment to their territory which results in cooperation and working together with other local operators to provide the best experiences to visitors.

Interviews have also underlined the transition from a mostly individualistic mechanism to a more synergistic system in which unity is a source of strength for tourism sector.

New digitalized customer journey: agritourisms have improved their digital communication and their e-commerce.

Facebook and Instagram are equally important in their digital communication, but on Facebook they show also all the collaboration they take part in and the articles in which they have been mentioned.

Platformization of experiences: In their websites agritourisms have created a specific tool to give their guests the possibility to get meals made by historical local restaurants delivered directly to their rooms during the first phase of the COVID-19 Pandemic.

Findings show that collaboration and synergies could lead to greater strength in the sector, so with other territorial operators they decided to create an association as a response to the crisis caused by the virus.

During the pandemic many initiatives born with the specific intent to set in motion the Italian artisans and to raise funds to purchase protective devices for local health organizations, to distribute more and more necessities to the growing number of families, to purchase additional ventilators and to support vaccine research. They have also collaborated with other local businesses in order to produce protective caps for the intensive care and covid-19 healthcare staff of some Italian hospitals.

After the lockdown, some agritourisms decided to focus their value proposition on sustainability and on the value of the territory.

Managing re-targetization adaptations: in some agritourisms the historical target were young couples and young families with children, mostly from Northern Europe. During the lockdown customers were exclusively workers of the area, who had to stay here for a long period of time. Interviewers have observed also a new trend: many people who work in Rome and used to stay in the capital before the pandemic, as it was more convenient, now prefer to stay in our agritourism in order to enjoy the beauty and peace of nature. This also happened after the first phase of the pandemic, when a lot of accommodation facilities were open in Rome, making clear that staying in an agritourism is a more conscious choice.

***Research limitations.** Concerning the limitations of the study, it was based on a single case Italian region, thereby limiting the generalizability of its results. Future research has the potential to go into greater depth in other cases and investigate the potentialities of agritourisms by comparing different service ecosystems at national and international level. Moreover, it could be very interesting to extend data collection and to conduct a longitudinal and quantitative analysis.*

Managerial implications. *On practical level our study informs local policymakers and rural tourism organizations in strategy development and reformulation: implications could be helpful for local authorities, policymakers, and managers to make informed decisions and generate innovative ideas.*

Originality of the paper. *At the theoretical level, this work contributes to the development of the research stream that applies service ecosystem perspective to sustainable rural tourism. It fits into the debate on how resilience strategies based on internal and external factors mediate the revival of the tourism industry from the COVID-19 shock by transforming it to the new global economic order which comprises also sustainable rural tourism.*

Keywords: *sustainability, rural tourism, service ecosystem, COVID-19 pandemic, agritourisms*

References

- ABBAS J., MUBEEN R., IOREMBER P.T., RAZA S., MAMIRKULOVA G. (2021), “Exploring the impact of COVID-19 on tourism: transformational potential and implications for a sustainable recovery of the travel and leisure industry”, *Current Research in Behavioral Sciences*, vol. 2, p. 100033.
- AKAKA M., CHANDLER J.D. (2011), “Roles as resources: A social roles perspective of change in value networks”, *Marketing Theory*, vol. 11, n. 3, pp. 243-260.
- AKAKA M.A., VARGO S.L. (2015), “Extending the context of service: from encounters to ecosystems”, *Journal of Services Marketing*.
- AN W., ALARCÓN S. (2020), “How Can Rural Tourism Be Sustainable? A Systematic Review”, *Sustainability*, vol. 12, n. 18, pp. 7758.
- ANZIVINO A., GALLI M., SEBASTIANI R. (2021), “Addressing Tensions and Paradoxes in Sustainable Wine Industry: The Case of the Association “Le Donne Del Vino”, *Sustainability*, vol. 13, n. 8, pp. 4157.
- BAUER A., GARMAN E., MCDAID D., AVENDANO M., HESSEL P., DÍAZ Y., EVANS-LACKO S. (2021), “Integrating youth mental health into cash transfer programmes in response to the COVID-19 crisis in low-income and middle-income countries”, *The Lancet Psychiatry*, vol. 8, n. 4, pp. 340-346.
- BROCCARDO L., CULASSO F., TRUANT E. (2017), “Unlocking value creation using an agritourism business model”, *Sustainability*, vol. 9, n. 9, pp. 1618.
- BROUDER P., TEOH S., SALAZAR N.B., MOSTAFANEZHAD M., PUNG J.M., LAPOINTE D., CLAUSEN H.B. (2020), “Reflections and discussions: tourism matters in the new normal post COVID-19”, *Tourism Geographies*, vol. 22, n. 3, pp. 735-746.
- DUBOIS A., GADDE L.E. (2002), “Systematic combining: an abductive approach to case research”, *Journal of Business Research* vol. 55, pp. 553-560.
- FROW P., MCCOLL-KENNEDY J.R., PAYNE A., GOVIND R. (2019), “Service ecosystem well-being: conceptualization and implications for theory and practice”, *European Journal of Marketing*.
- GIANNOPOULOS A., PIHA L., SKOURTIS G. (2020), “Destination branding and co-creation: a service ecosystem perspective”, *Journal of Product & Brand Management*.
- HAHN T., PINKSE J., PREUSS L., FIGGE F. (2015), “Tensions in corporate sustainability: Towards an integrative framework”, *Journal of Business Ethics*, vol. 127, n. 2, pp. 297-316.
- ICHIKAWA J.J. (2017), *Contextualising knowledge: Epistemology and semantics*. Oxford University.
- IOANNIDES D., GYIMÓTHY S. (2020), “The COVID-19 crisis as an opportunity for escaping the unsustainable global tourism path”, *Tourism Geographies*, vol. 22, n. 3, pp. 624-632.
- KALLMUENZER A., NIKOLAKIS W., PETER, M., ZANON J. (2018), “Trade-offs between dimensions of sustainability: Exploratory evidence from family firms in rural tourism regions”, *Journal of Sustainable Tourism*, vol. 26, n. 7, pp. 1204-1221.
- LAAMANEN M., SKÁLÉN P. (2015), “Collective-conflictual value co-creation: A strategic action field approach”, *Marketing Theory*, vol. 15, n. 3, pp. 381-400
- LEBRUN A M., CORBEL R., BOUCHET P. (2021), “Impacts of Covid-19 on travel intention for summer 2020: a trend in proximity tourism mediated by an attitude towards Covid-19”, *Service Business*, pp. 1-33.
- MAMIRKULOVA G., MI J., ABBAS J., MAHMOOD S., MUBEEN R., ZIAPOUR A. (2020), “New Silk Road infrastructure opportunities in developing tourism environment for residents better quality of life”, *Global Ecology and Conservation*, vol. 24, pp. e01194.
- MATIZA T. (2020), “Post-COVID-19 crisis travel behaviour: towards mitigating the effects of perceived risk”, *Journal of Tourism Futures*.
- MCCOLL-KENNEDY J.R., CHEUNG L., COOTE L.V. (2020), “Tensions and trade-offs in multi-actor service ecosystems”, *Journal of Business Research*, vol. 121, pp. 655-666.
- MEADOWS C.W., MEADOWS C.Z., TANG L., LIU W. (2019), “Unraveling public health crises across stages: Understanding Twitter emotions and message types during the California measles outbreak”, *Communication Studies*, vol. 70, n. 4, pp. 453-469.
- MONTEFRIO M.J.F., SIN H.L. (2019), “Elite governance of agritourism in the Philippines”, *Journal of Sustainable Tourism*, vol. 27, n. 9, pp. 1338-1354.

- NEUMAN W. (1997), *Social research methods: qualitative and quantitative approaches*, Needham Heights, MA: Allyn and Bacon.
- PANICCIA P.M., BAIOTTO S. (2020), “Interpreting sustainable agritourism through co-evolution of social organizations”, *Journal of Sustainable Tourism*, vol. 29, n. 1, pp. 87-105.
- PETTIGREW A.M. (2012), “Context and action in the transformation of the firm: a reprise”, *Journal of Management Studies*, vol. 49, n. 7, pp. 1304-1328
- ROMAGOSA F. (2020). The COVID-19 crisis: Opportunities for sustainable and proximity tourism”, *Tourism Geographies*, vol. 22, n. 3, pp. 690-694.
- ROSALINA P.D., DUPRE K., WANG Y. (2021), “Rural tourism: A systematic literature review on definitions and challenges”, *Journal of Hospitality and Tourism Management*, vol. 47, , pp. 134-149.
- SCHMIDT C.M., CIELO I.D., WENNINGKAMP K.R., TOMIO M. (2016), “Collective actions in sustainable rural tourism: a case study of the western region of Paraná”, *Systems Research and Behavioral Science*, vol. 33, n. 2, pp. 249-258.
- SHARMA G.D., THOMAS A., PAUL J. (2021), “Reviving tourism industry post-COVID-19: A resilience-based framework”, *Tourism management perspectives*, vol. 37, pp. 100786.
- SONNINO R. (2004), “For a ‘piece of bread’? Interpreting sustainable development through agritourism in Southern Tuscany”, *Sociologia Ruralis* vol. 44, n. 3, pp. 285-300.
- SPIGGLE S. (2003), “From text to hypertext”, *Representing Consumers: Voices, Views and Visions*, n. 156.
- TRISCHLER J., JOHNSON M., KRISTENSSON P. (2020), “A service ecosystem perspective on the diffusion of sustainability-oriented user innovations”, *Journal of Business Research*, vol. 116, pp. 552-560.
- TRISCHLER J., CHARLES M. (2019), “The application of a service ecosystems lens to public policy analysis and design: exploring the frontiers”, *Journal of Public Policy & Marketing*, vol. 38, n. 1, pp. 19-35.
- VARGO S.L., LUSCH R.F. (2017), “Service-dominant logic 2025”, *International Journal of Research in Marketing*, vol. 34, n. 1, pp. 46-67.
- YIN R.K. (2009), “How to do better case studies”, In *The SAGE handbook of applied social research methods* Bickman L., Rog D. J, Sage, London, vol. 2, pp. 254-282

Websites

https://unctad.org/system/files/official-document/ditcinf2021d3_en_0.pdf<http://www.sinergiejournal.it>
<https://www.istat.it/it/files/2021/12/agriturismi-italia-2020.pdf>