



Ambidextrous Innovation Orientation effected by the Digital Transformation. A Quantitative Research on Fashion SMEs

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Abstract

This study introduces a new perspective on ambidextrous innovation orientation, looking at how the current digital transformation is accepted in the fashion industry in Italy. Ambidextrous innovation orientation is thus enriched with the use of new technologies and introduces incremental and radical innovations through the combination of exploitation and exploration processes. These new technologies can be seen in the form of online platforms such as social media networks, which generate self-disruption in all industries, leading to a revival of business process management firms' business process management. Although small to medium-sized enterprises (SMEs) operating in the fashion industry were initially reluctant to accept this change due to their artisanal and handmade characteristics, nowadays this is one of the most avant-garde and technological sectors. Therefore, this form of business is considered as a fruitful context for analysing the effect of four dimensions of social media networks on ambidextrous innovation orientation: the structural dimension; the relational behaviour dimension; the cognitive dimension; and knowledge transfer practices. Empirically, a regression methodology has been applied to a sample of 853 SMEs in the fashion industry. The results demonstrated that social media platforms serve as spaces for seeking out innovation (structural dimension) where interaction with customers can occur (relational dimension) to develop and collect innovation inputs that will obviously depend on the knowledge mind-sets of the customers concerned (cognitive dimension). Subsequently, the external knowledge collected will need to be combined with the internal knowledge in order to search for innovation (knowledge transfer/co-creation).

Purpose: This study introduces a new perspective on ambidextrous innovation orientation looking at how the current digital transformation is accepted in the fashion industry in Italy. Precisely, the objective of the paper is to test whether the use of social media platforms positively influences ambidextrous innovation orientation in fashion companies.

Design/methodology/approach: Empirical quantitative research was carried out on a sample of 853 SMEs operating in the fashion industry in Italy. Using a logistic regression methodology, four hypotheses were tested to verify the correlation of four dimensions of social media platforms with an ambidextrous innovation orientation among fashion firms.

Findings: The four hypotheses were validated: the structural dimension, the relational behaviour dimension, the cognitive dimension, and knowledge transfer practices of social media platforms were proven to positively influence ambidextrous innovation orientation in fashion firms.

Research limitations: Though this is one of the few research studies that offers a quantitative analysis in this field, it could be further developed, for instance by extending the sample of firms to SMEs operating in other countries or by comparing multinationals with SMEs.

Originality/value: This paper provides an original contribution to studies on the use of social media to promote ambidexterity in firms, which has only been studied to a limited extent in the extant literature. From this perspective, the originality of the study is further strengthened by the unique context of analysis, namely the fashion industry in Italy.

KEYWORDS *ambidextrous innovation orientation; SMEs; fashion firms; digital transformation; business process management*

Introduction

How to leverage resources that lie outside a firm's boundaries has been a crucial issue for firms for a long time as well as a key topic for academic management research (Gulati, 2007; Dyer and Singh, 1998, Tanskanen et al., 2017). In many sectors, firms have tried to find the best combination of internal and external resources in order to grasp new business opportunities and efficiently utilise them to increase their competitiveness. Thus, the use of external resources to achieve a competitive advantage represents a strategic goal for firms (Bragge et al., 2019; Santoro, Bresciani, and Papa, 2018). In this scenario, the business management process becomes an organisational approach that combines internal and external resources, rendering firms more flexible and dynamic (Cox and Lamming, 1997, p. 51) and driven by ambidextrous innovation orientation to generate new ideas (Chesbrough, 2003; Chesbrough and Brunswicker 2014; Kortmann, 2015). Indeed, ambidextrous innovation orientation stems from an outside-in or inbound approach (Kortmann, 2015; Chesbrough and Crowther, 2006; Chesbrough, 2003). West and Bogers (2014) have investigated this orientation, exploring how and why firms draw innovation from outside their boundaries by engaging with customers, suppliers, and universities. Ambidexterity has thus proven to be a key element for the long-term success of firms – mainly small- to medium-sized enterprises (SMEs) – generating a virtuous flow of knowledge (Soto-Acosta et al., 2018; Cegarra- Navarro et al., 2018). This results in co-developed innovation along with “collaborative IT-enabled service processes” which spur on the inter-organisational management approach (Lavikka et al., 2015) and stimulate employees to share knowledge (Caniëls, et al., 2017). Hence, the combination of exploitation and exploration activities affects knowledge/innovation generation both in multinational enterprises (MNEs) (Hernández and Pedersen, 2017; Cantwell and Piscitello, 2015) and in SMEs (Chang et al., 2011; Heavey et al., 2015; Soto-Acosta et al., 2018; Sahi et al., 2019). This intertwining of explorative and exploitative activities is therefore recognised as being important in business process management (Kohlborn et al., 2014; Giacosa et al., 2018).

Recently, Rialti et al. (2018) offered a novel perspective on ambidextrous organisation that takes into account the digital revolution era. In particular, they explore the challenges of big data in consumer goods enterprises, emphasising the importance of big data analytics-capable business process management systems (BDA-capable BPMS). Additionally, ambidexterity has also been observed in the context of smart cities (Bresciani et al., 2018) and in relation to three types of innovation processes: production, information technologies, and logistics (Ardito et al., 2018). It has been also studied at the individual level (Berraies and El Abidine, 2019; Alexiev et al., 2010). However, the relationship between ambidexterity and open innovation (Vrontis et al., 2017) in the current digital era has not received sufficient attention. This has resulted in ambidextrous innovation orientation, which is the ability to generate discontinuous innovations with the aim of penetrating new markets or enhancing existing products (He and Wong, 2004; Kortmann et al., 2015). This ability is expressed by exploitation and exploration activities along with digital technologies in the current era. In fact, the exploitation and integration of digital technologies affect products, business processes, and supply chains (Matt, Hess, and Benlian, 2015) where mainly SMEs may benefit from the digital transformation by developing a new form of business process management (Müller and Hopf, 2017; Webb and Schlemmer, 2008). In relation to the use of digital technologies, social media networks play an important role in enhancing the competitiveness of small businesses (He, Wang, and Zha, 2014) particularly when it comes to successfully attracting and engaging customers (Durkin et al., 2013).

Four dimensions that foster the development of exploitation and exploration activities characterise the architecture of social media. The relational dimension makes it possible to gather data and external information from customers' interactions. Moreover, the cognitive dimension supports customers' learning about the communications of SMEs through social media and even encourages them to suggest improvements or changes to products or services. Furthermore, the structural dimension makes it possible to monitor and organise external information flows with internal ones in order to develop new knowledge

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3 that, through the knowledge transfer dimension, is then re-delivered to customers. Thus, a similar social
4 media architecture can be examined in relation to ambidextrous innovation orientation.
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6 Furthermore, because of the nature of social media, it has been demonstrated that they generate strong
7 branding effects for SMEs, especially in the fashion industry (Hsiao et al., 2019). The digital revolution has
8 certainly represented a period of transition among luxury fashion brands toward greater openness by
9 providing them with the opportunity to manage better customer relationships, deliver online brand content,
10 and develop new innovative processes (Kapferer, 2014; Oknowko, 2016; Kretz and de Valck, 2010). In the
11 digital conversion, luxury fashion firms have been able to better satisfy customer demands for transparency
12 and sustainability while encouraging a sort of “self-disruption” of the luxury brand identity (*The State of*
13 *Fashion*, 2019). In fact, the digital transformation is considered as a disruptive change in the industry with
14 various business potentials (Müller and Hopf, 2017) and becomes increasingly significant for firms operating
15 in dynamic and competitive markets.
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19 In the past, luxury fashion firms would rely largely, and sometimes even exclusively, on internal resources
20 centred on their values of tradition, exclusivity, and artisanship (Chandon, Laurent, and Valette-Florence,
21 2016). However, the growing uncertainty and dynamism of the evolution of macro-trends also relating to the
22 digital revolution have pushed luxury fashion firms to rethink their business process management approach
23 (Arrigo, 2018a; Hennings, Wiedmann, and Klarmann, 2012; Okonkwo, 2009). Luxury fashion brands have thus
24 started leveraging increasingly on external resources such as big data, digital technologies, and collaborations
25 with external partners (Hsiao et al., 2019; Koivisto and Mattila, 2018; Scuotto et al., 2017b; Bögel, Stieglitz,
26 and Meske, 2014). The interactivity of social media enables luxury fashion firms to actively collaborate with
27 customers in co-creating new products that respond more closely to customers’ desires (Üçok Hughes,
28 Bondoni, and Pehlivan, 2016; Kang, 2014). Thus, by collecting data and information from online communities,
29 firms become familiar with customers’ tastes and preferences and with their complaints and criticisms
30 (Arrigo, 2018b). Then, once external knowledge has been acquired, luxury fashion firms can combine it with
31 internal knowledge by bringing together inflowing and outflowing knowledge (Ferraris, Santoro, and
32 Bresciani, 2017; Scuotto, Del Giudice, and Carayannis, 2017; Kietzmann et al., 2011). This has overturned the
33 approach to way in which innovation is brought about. For instance, the process of seeking knowledge
34 through social media for the purposes of innovation begins with the recognition that social media represent
35 virtual spaces where firms can share and gather knowledge, and ends with knowledge legitimization (Scuotto
36 et al., 2017b). This process is structured around four dimensions:
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- 41 1) Time and money spent on seeking opportunities (i.e., the structural dimension);
- 42 2) Time and money spent on reaching out to customers and involving them in an innovation process
43 (i.e., the relational behaviour dimension);
- 44 3) Adopting customers’ abilities and skills throughout a journey of innovation (i.e., the cognitive
45 dimension); and
- 46 4) A combination of incoming and outgoing knowledge between customers and firms, mediated by
47 social media platforms (i.e., knowledge transfer practices).
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51 Additionally, the use of social media is also considered as a leverage to obtain a return on investment (ROI)
52 from an innovation (Kaske et al., 2012), to enhance customers’ familiarity, capture emerging customers’
53 preferences, or modernise the process of turning ideas into new products (McKinsey, 2018). Therefore, a
54 clear revolution has taken place in management and marketing approaches and the use of social media
55 opportunities for innovation and co-creation has become crucial for luxury fashion firms (Koivisto and
56 Mattila, 2018; Üçok Hughes et al., 2016; Scuotto et al., 2017b; Arrigo, 2018b).
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59 As far as we know, however, no studies have yet been carried out on the use of social media by luxury fashion
60 firms to develop ambidextrous innovation orientation. The concept of ambidextrous innovation orientation
has been developed in general terms, involving other sectors (Kortmann, 2015; Giacosa et al., 2018; Kohlborn

et al., 2014). Even the fashion industry has been studied from different perspectives, such as intellectual capital performance (Davey et al., 2009), big data, digital technologies, and collaborations with external partners (Hsiao et al., 2019; Koivisto and Mattila, 2018; Scuotto et al., 2017b; Bögel, Stieglitz, and Meske, 2014).

Consequently, this research study seeks to contribute to filling this gap by exploring how the use of social media platforms in a process of co-creation is influencing ambidextrous innovation orientation in luxury fashion brands. This phenomenon is analysed using a sample of 853 firms categorised as SMEs operating in the fashion industry. In particular, by employing a logistic regression analysis, this study evaluates the correlation of the four key dimensions of social media platforms (the structural dimension, the relational behaviour dimension, the cognitive dimension, and knowledge transfer) with ambidextrous innovation orientation.

The remainder of the paper is organised as follows: Section 2 provides the background on ambidextrous innovation orientation and digital transformation in luxury fashion brands and the development of the research hypotheses; Section 3 explains the methodology employed, as well the research setting and data analysis; Section 4 sets out the findings that will be discussed in Section 5; and, finally, Section 6 presents some final remarks with managerial and academic implications.

Theoretical background

Ambidextrous innovation orientation and digital transformation

Being an ambidextrous organisation involves balancing different activities in a trade-off situation (Rothaermel and Alexandre, 2009). O'Reilly and Tushman (2004) emphasise the role of senior managers is establishing such a balance. Their capability is "a key discriminator between those firms that thrive as environments shift versus those that do not" (O'Reilly and Tushman, 2008, p. 188). Furthermore, "ambidexterity-oriented decisions" precede new innovations (Kortmann, 2015). This results in ambidextrous innovation orientation, wherein firms develop new competencies to capture discontinuous innovations and/or generate incremental innovations (He and Wong, 2004). Essentially, this form of orientation stems from the combination of exploitation and exploration activities. For instance, this approach is mostly used in SMEs due to their lack of resources – mainly financial resources (Chang et al., 2011; Heavey et al., 2015; Soto-Acosta et al., 2018; Sahi et al., 2019). They aim to acquire new market domains. This calls for new adjustments and alignments, which are obtained thanks to the ability of senior managers to reconfigure existing activities and challenge traditional approaches (Im and Rai, 2008). Managers therefore stimulate a sense of catching up with innovations that is a part of ambidextrous innovation orientation, which provides a firm with the capacity to devise new solutions (Kortmann, 2015). This orientation induces flexibility and technological competences to challenge the shift in the current market. In fact, firms are experiencing the effects of the era of digital transformation.

Based on the focus of this research, SMEs in the fashion industry are overcoming different challenges. The digital revolution has influenced luxury fashion brands in many areas (Kapferer, 2014). These include products, customer relationships and experiences, value propositions, and sales, among others. In particular, sales have been converted for the online space; so-called 'e-commerce' has raised luxury brands' sales by a figure of around 8 percent. This rate translates into €254 billion of the global luxury market, marking a five-fold growth from 2009; this is expected to triple by 2025 (McKinsey, 2018).

In a nutshell, it is possible to assert that the digital transformation is affecting luxury fashion brands either from a sales growth perspective or in relation to the value chain and business process management as a whole. Thus, the digital domain provides luxury fashion brands with creative, commercial, and knowledge-based opportunities (Arrigo, 2014). In fact, luxury fashion firms have also utilised social media platforms to

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3 increase the exposure of their brand values to a wider audience, stay relevant to millennials, beat
4 competitors (Gautam and Sharma, 2017; Kim and Lee, 2017), and leverage innovation (Choi, Ko, and Kim,
5 2016). In particular, fashion SMEs have been shown to use social media to facilitate communication, enhance
6 firm performance (Zhang, Bhattacharyya, and Ram, 2016), develop brand awareness, and for knowledge-
7 search purposes (Scuotto et al., 2017b). In fact, leveraging social media for marketing activities is particularly
8 relevant for luxury fashion SMEs due to their lower financial resources (Braojos-Gomez, Benitez-Amado, and
9 Llorens-Montes, 2015). The external linkages are crucial for SMES as these firms may be inhibited in their
10 ability to perform internal research and developments (R&D) due to their size constraints (Doran, McCarthy,
11 and O'Connor, 2019).

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15 The use of social media platforms can be considered as a new tool for employing ambidextrous innovation
16 orientation. These platforms appear to be the place where exploitative and explorative activities take place.
17 Employees learn from each other in a digital space. According to Siguaw et al., 2006, organisational
18 ambidexterity needs to encourage employees to be open to new opportunities, search for new solutions and
19 share knowledge among one another (Siguaw et al., 2006).

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21 In 2009, Uché Okonkwo, a famous luxury business strategist, declared that luxury “is neither a product, an
22 object, a service nor is it a concept or a lifestyle. It is an identity, a philosophy and a culture” (Okonkwo, 2009,
23 p. 302). Okonkwo argued that similar features pose significant challenges when it comes to the integration
24 of luxury branding in the internet and digital domain. Historically, the luxury fashion industry has been
25 disconnected from advances in technology as for a long time it remained devoted to manual production and
26 artisanal features. However, growing competitive rivalry combined with the digital shift in customer habits
27 have pushed luxury fashion brands to enter the digital environment (Arribas and Alfaro, 2018; Arrigo, 2018a;
28 Esteban-Santos et al., 2018).

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31 The first exploratory research investigating the relationship between internet and luxury brands and their
32 managers’ leadership dates back to 1997 (Nyeck and Roux, 1997). This research revealed a dual perspective,
33 demonstrating a negative attitude to linking luxury brands and the online environment on the one hand,
34 along with a positive perspective in considering the worldwide web as a powerful space on which to express
35 the brand’s identity and reach international markets on the other. Some years later, in 2003, Dall’Olmo Riley
36 and Lacroix extended the study on the relationship between the attitude of luxury brand managers to the
37 use of the internet to improve their brands’ visibility and consumers’ brand awareness expectations on luxury
38 firms’ websites. As before, the results presented a divergent opinion: managers considered the internet as
39 both an opportunity and a threat for luxury fashion brands. Consequently, further analysis emphasises the
40 perception of the online space within the fashion industry, investigating how to position a luxury brand in
41 the online broad space and how to capitalise on the return on investment (Okonkwo, 2009). The most
42 common resistance lied in preserving the ‘prestige’ and ‘exclusivity’ attributes of luxury fashion brands
43 without damaging their brand equity. In fact, luxury fashion brands are considered as a signal of social status
44 precisely on account of their uniqueness and scarcity (Fionda and Moore, 2009; Heine, 2010; Chevalier and
45 Mazzalovo, 2012; Kapferer and Valette-Florence, 2016). Therefore, the easy accessibility and overexposure
46 of the digital domain appeared to be in contrast with their core features (Hennings et al., 2012). In this vein,
47 Kapferer and Bastien (2012) introduced the concept of the “Internet dilemma” for luxury brands in the digital
48 context. Chevalier and Gutsatz (2012) described digital luxury as a “love/hate relationship”. However,
49 notwithstanding the initial reluctance, the luxury fashion industry has now begun to embrace the digital
50 transformation within its organisational environment, and digitalisation has been identified as one of the key
51 objectives for improving supply chain efficiency (*The Business of Fashion and McKinsey*, 2018; Arribas and
52 Alfaro, 2018).

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Ambidextrous innovation orientation and the dimensions of social media platforms

The open innovation approach emphasises the relevance of capturing knowledge from the external environment and converting it into innovative processes, products, or services (Chesbrough, Vanhaverbeke and West, 2006). Firms need to look outside their boundaries for new paths to innovation, adopting a holistic view of the innovation management process (Gassmann, Enkel and Chesbrough 2010). Cooperation with partners, customers, competitors, and suppliers is thus recognised as an essential driver for improving upon the firm's performance and innovativeness (Von Hippel, 2005; Usai et al., 2018). Customer co-creation allows for an active, creative, and social collaboration process in the context of new product development and enacts the shift from a manufacturer-active paradigm to a customer-active one (Hollebeek et al., 2014; Gummerus et al., 2012; Piller, Vossen and Ihl, 2012).

However, external networking and co-creation require strong relational capabilities in order to access the external resources of many partners (Day and Schoemaker, 2016; Martín de Castro et al., 2004; Messeni Petruzzelli, 2008). By using social media, customers and firms can interact with each other by generating an articulate path composed of several interdependent nodes, the position of which is determined by the interaction within the path itself (Kane et al., 2014; Sharif, 2012). Therefore, social media support and foster the search for and transfer of knowledge by involving customers and other stakeholders from different geographic and organisational boundaries (Soto-Acosta et al., 2018; Scuotto et al., 2017a; Lopez-Nicolas, and Soto-Acosta, 2010; Chen et al. 2006). R&D activities are also increasingly developed through the contribution of external resources (Gassmann and Enkel, 2004).

The influence of social media on the innovation process has been widely discussed in academic research (Candi et al., 2018; Hemsley and Mason, 2013; Kumar et al., 2013). It has also frequently been associated with co-creation models in which customers take part in the creation of new products (Ramaswamy, 2009).

When social media data are integrated into the firm's IT infrastructure, they can complement knowledge exploration and exploitation with the aim of achieving more and better innovations (Benitez et al., 2018). Social media presence and interactivity have been proven to support firms' knowledge management processes (Benitez et al., 2018; Piller et al., 2012; Hemsley and Mason, 2013). Mount and Garcia (2014) have also proposed a four-step framework for social media use in business activities: scan, engage, learn, and internalise. According to this stream of academic literature, it is supposed that luxury fashion firms can select the most appropriate social media platforms as spaces for seeking out innovation (structural dimension) where interaction with customers can take place (relational dimension) in order to develop and collect innovation inputs that will obviously depend on the customers' knowledge mind-sets (cognitive dimension). The external knowledge collected then needs to be combined with the internal knowledge in order to seek out innovation (knowledge transfer/co-creation) (Müller et al., 2005; Hutzschenreuter and Horstkotte, 2010). Therefore, this study aims to investigate whether the four identified dimensions involved in social media for a firm's innovation activities would have a positive influence on digital transformation in luxury fashion in ambidextrous innovation orientation.

Hence, it is supposed that:

H1: The structural dimension has a positive influence on the ambidextrous innovation orientation of luxury fashion firms.

Because of the multitude of social media channels available, luxury fashion firms need to choose and compose an efficient mix of social platforms (Weinberg and Pehlivan, 2011) as suitable spaces for the search for innovation. According to Kietzmann et al. (2011), each social platform performs a specific task that can be related to different blocks: identity, conversations, sharing, presence, relationships, reputation, and groups. This study takes into consideration the development of an efficient social media strategy, and how a firm can optimise the return on its social media presence (Kumar et al., 2013). Social media have empowered customers to publish opinions and disseminate new content (Hemsley and Mason, 2013). They facilitate a knowledge-sharing process, which calls for trust (Kefi and Maar, 2018). In this way, a network of connections

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3 between users and firms (nodes) will be built, characterised by a specific structural dimension (Nahapiet and
4 Ghoshal, 1998). The connections between nodes will generate social collaboration, which makes it easier to
5 gain and exploit the relevant knowledge for luxury fashion brands. To develop successful innovations,
6 information-sharing is then needed, especially in social media settings (Le and Lei, 2019; Weinberg and
7 Pehlivan, 2011). The relational dimension of social media is thus the outcome of online interactions among
8 actors exchanging opinions and knowledge (Choi et al., 2016). In fact, nowadays, digital luxury is
9 characterised by customer-to-customer relationships: luxury fashion customers are highly engaged in social
10 media and are moving from being just observers to vigorous actors (McKinsey, 2018). A recent study has also
11 proven that SMEs centred on connecting customers on social media are likely to obtain both customers'
12 involvement in innovation on social media and new knowledge of value for innovation (Candi et al., 2018).
13 **Social media data deriving from customers' interactions can be used to explore and exploit knowledge
14 digitally (Benitez et al., 2018).**

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17 Therefore, it is proposed that:

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19 **H2:** The relational dimension has a positive influence on the ambidextrous innovation orientation of luxury
20 fashion firms.

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22 A cognitive dimension is also needed since customers will employ specific expertise and abilities in their
23 innovation journeys. Consequently, a different set of external and internal skills will be necessary inasmuch
24 as they constitute a valuable resource for innovation (Chong et al., 2009). In particular, the cognitive
25 dimension provides a lens for examining network relationships by analysing shared values, beliefs, and
26 norms, and makes it possible to understand and appreciate different meanings (Del Giudice et al., 2014;
27 Allameh, 2018). Moreover, luxury fashion products are directed at satisfying both customers' functional
28 needs (such as excellent quality and financial utility) and their psychological ones (for instance, symbolic and
29 experiential value) (Lee et al., 2015; Hennings et al., 2012). It is also proven that a customer who becomes
30 more familiar with a particular brand over time is likely to undergo several cognition-related changes, with
31 this increased familiarity leading to a more elaborate cognitive structure (Soderlund, 2002). During online
32 exchanges with luxury fashion brands, customers follow not only their emotions but also a cognitive
33 approach. **The cognitive dimension of social media can facilitate ambidextrous innovation orientation since
34 ambidexterity-oriented decisions involve the simultaneous management of two strategic directions:
35 adaptability, namely the extent to which a firm adapts to environmental changes, and alignment, that is, the
36 degree to which resources are aligned to support the company objectives (Kortmann, 2015).**

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39 Thus, it is formulated that:

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41 **H3:** The cognitive dimension has a positive influence on the ambidextrous innovation orientation of luxury
42 fashion firms.

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44 Luxury fashion firms' interactions with customers through social media platforms lead to the creation of
45 novel and innovative solutions. The development of innovations by customer experiences is considered as a
46 top priority in many sectors (Leavy, 2012). In fact, the customer's online experience and the consequent
47 knowledge interchange with firms via social media are at the heart of the value chain process. This shows
48 how firms trigger the creation of engagement platforms that allow the knowledge transfer required to co-
49 create new value propositions (Ramaswamy, 2009; Prahalad and Ramaswamy, 2004). Using the information
50 acquired through knowledge transfer, luxury fashion firms can reshape their customer value propositions
51 and transform their business management processes to develop capabilities for flexibility (Liao and Barnes,
52 2015) and responsiveness to fast-changing market trends. In fact, foremost in the open innovation era is the
53 ability to design and deliver new business models: firms need to constantly explore the best ways to capture
54 value, structure their activities, and occupy a relevant competitive position (Berman, 2012). Thus, the
55 transfer of knowledge empowers firms on their journey to develop new processes. However, the external
56 knowledge acquired must be integrated with the internal one (Doran et al., 2019; Ferraris et al., 2017; Soto-
57 Acosta and MeroñO-Cerdan, 2008; Ferraris et al., 2018) in order to allow luxury fashion brands to accelerate
58 innovation processes. The transfer of external knowledge and its integration with the internal one is
59 mediated by the social media environment, which represents both a space of customer engagement and a
60

workable platform for luxury fashion brands to search for and share ideas that will lead to new innovative products or processes. In fact, knowledge transfer and sharing can allow internal members of a firm to propose innovative initiatives (Benitez et al., 2018).

Consequently, it is stated that:

H4: The transfer of knowledge has a positive influence on the ambidextrous innovation orientation of luxury fashion firms.

Methodology

Sample and data collection

Based on the aforementioned hypotheses, empirical research was conducted on a sample of 853 SMEs in the fashion industry in Italy. Italian fashion is one of the fastest-growing industries, having produced several luxury fashion firms such as Gucci, Fendi, Prada, Bottega Veneta, and Kiton, among others. Moreover, as these firms began as SMEs, to remain in line with their historical nature, the present study explores only SMEs. Hence, out of a total number of 3,864,582 SMEs, 1,293 proved suitable for this study but only 853 returned a complete questionnaire. These firms were selected if they had fewer than 250 workers and a turnover of less than 50 million Euro (European Commission, 2006).

Moreover, this industry was also considered as an interesting subject of analysis on account of the recent project named [eBIZ 4.0](#), developed by the Italian research centre the *The Italian National Agency for New Technologies, Energy and Sustainable Economic Development* (ENEA) and the European Apparel and Textile Confederation (Euratex). Another criterion used to select the sample was the adoption of social media platforms within the business.

Each firm was contacted during a six-month period in 2017, first by email and if the email address was lacking then by telephone. The email set out the scope of the research project and provided a description of the principal investigators in order to present the background of the authors and establish a sense of trust with the participants. In addition, the concept of ambidextrous innovation orientation was clarified through examples.

When a positive response was received, an online survey was sent to the participant in question. The survey consisted of twelve questions along with additional questions such as gender, age, nationality, city, and job position. Each question (item) was grouped under a dimension (measure) (Table 1). However, only managers or founders were included in this research in order to provide the feedback of the main decision-makers. Each item was measured using a seven-point Likert. The questionnaire was prepared in Italian and translated by a professional English translator (Brislin, 1970).

Table 1. Measure and Items

Measures	Items
<i>Structural dimension</i>	Knowledge search using social media platforms
	Time spent on opportunity seeking
	Money spending in opportunity seeking
<i>Relational behaviour dimension</i>	Time spending in reaching out consumers
	Money spent on reaching out to consumers
	Customers' involvement in ambidextrous innovation orientation
<i>Cognitive</i>	Customers' ability adopted in ambidextrous innovation orientation
	Knowledge interchange in ambidextrous innovation orientation

<i>dimension</i>	Creation of engaging social media platforms to develop ambidextrous innovation orientation
<i>Knowledge transfer practices</i>	Incoming knowledge flow in ambidextrous innovation orientation
	Ongoing knowledge flow in in an ambidextrous innovation orientation
	A combined incoming and ongoing knowledge flow in in ambidextrous innovation orientation

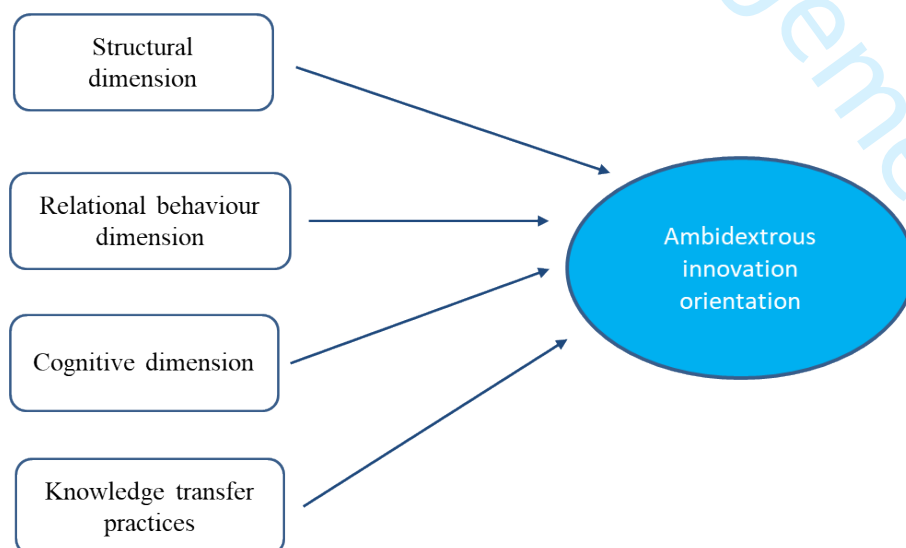
Source: own presentation

The participants were made up predominantly of men (64%) rather than women (36%). The average age was 45 and participants had a high level of education (most held a degree). They all used social media platforms to communicate with their customers, create innovation, and transfer knowledge in and out.

Furthermore, to test the reliability of the questionnaire, a total of 23 managers/founders from fashion SMEs were interviewed. From this, it emerged that the concept of ambidextrous innovation orientation was not very clear and a note was therefore added in the questionnaire as well as in the cover letter to describe the concept.

Finally, the response time was evaluated (Armstrong and Overton, 1977), comparing the late respondents with the quickest ones using a t-test. As resulted, no differences were found (Moore and Tarnai, 2002). By supporting the reliability of the questionnaire and the responses, the regression methodology was employed to verify the significance of the correlation between the four key dimensions of social media platforms (structural dimension, relational behaviour, cognitive dimension, and knowledge transfer) with ambidextrous innovation orientation. By using the logistic regression methodology, it was possible to test the aforementioned hypotheses. This method is considered as suitable because of the possibility of examining the relationship between a dependent variable and one or more independent variables (Dayton, 1992). The four dimensions are recognised as predictors (or independent variables), while ambidextrous innovation orientation is considered as a "response" (or dependent variable) (Figure 1) (Montgomery et al., 2012).

Figure 1. Design Model



Source: own presentation

Findings

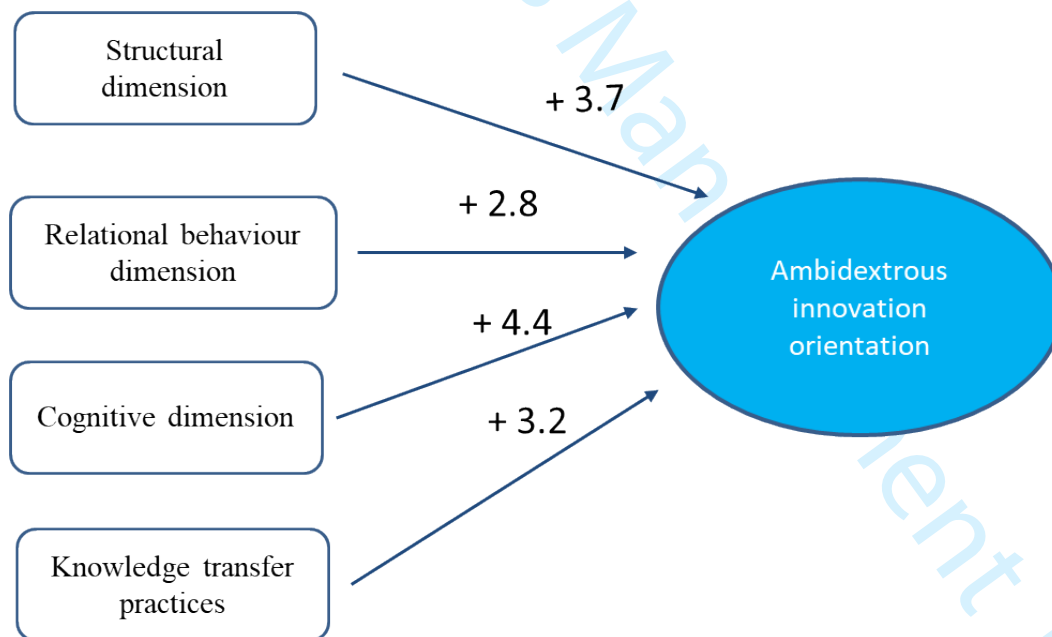
In order to calculate if there was a strong connection between a measure and its respective items, the Cronbach's alpha test was used (Ravesteyn and Batenburg, 2011). The test showed a good level of reliability with a value of 0.78 (Table 2).

Table 2. Reliability test

Reliability Statistics		
Cronbach's Alpha 0.79	Cronbach's Alpha based on standardised items 0.78	No. of items 853

The Cronbach's alpha test was followed by a logistic regression methodology to assess the significance of each correlation showed in Figure 1 as well as to validate the four hypotheses.

Figure 2. Results from the logistic regression method



Source: own presentation

The four hypotheses were therefore validated. Each proved significant, showing a score of >2.0. In particular, the H1 score is 3.7, which supports the hypothesis that "the structural dimension has a positive influence on the ambidextrous innovation orientation of luxury fashion firms". The H2 score is 2.8, which supports the supposition that "the relational behaviour dimension has a positive influence on the ambidextrous innovation orientation of luxury fashion firms". Following the significance of H1 and H2, H3 and H4 also proved significant with a score of 4.4 and 3.2, respectively. These results support the idea that "the cognitive dimension has a positive influence on the ambidextrous innovation orientation of luxury fashion firms" as well as that "knowledge transfer has a positive influence on the ambidextrous innovation orientation of luxury fashion firms".

Discussion

This study deals with the digital transformation affecting luxury fashion firms in order to explore the influence such a transformation may have on ambidextrous innovation orientation. Indeed, in the current competitive context, which is characterised by accelerated technological change, the innovative capacity of firms is considered to be crucial for their current and future competitiveness (Soto-Acosta et al., 2018). Ambidextrous firms are able both to exploit existing competencies to develop incremental innovation and to explore new business opportunities to foster radical innovation (Andriopoulos and Lewis, 2009). Thus, an ambidextrous firm is one that is capable both of exploiting existing competencies to take advantage of existing market opportunities and of exploring new opportunities to meet the challenges of emerging markets. In this context, social media provide SMEs with the opportunity to interact with customers for marketing purposes of brand enhancement and to acquire more information about their needs and create new innovative processes. The social media search process has been structured around four key dimensions: the structural dimension, the relational behaviour dimension, the cognitive dimension, and knowledge transfer practices. These have been investigated in 853 fashion SMEs through an online survey.

In particular, this empirical analysis supports the correlation between the four dimensions of social media platforms in the ambidextrous innovation orientation of luxury fashion firms. As stated by Kortmann (2015), innovations are mainly incremental and are based on the combination of an exploratory and exploitative approach. This suggests the process of open innovation, which originates in incoming and outgoing knowledge flows (Chesbrough, 2003; Chesbrough and Crowther, 2006; Li, 2018). However, this process requires a solid structure, which requires a firm to invest time and money in searching for new opportunities and knowledge (Scuotto et al., 2017a). SMEs engage not only with customers but also with other businesses, which could be suppliers or competitors (West and Bogers, 2014). The relational behaviour dimension is one of the most efficient dimensions. In fact, it allows a firm to be connected with the rest of the world – in the offline and online environment.

The ambidextrous approach has also improved with the use of digital technologies. For instance, big data have changed business process management in firms, speeding up some activities. Therefore, SMEs are more adaptable to dynamic markets (Rialti et al., 2018). This has resulted in a need for more skilled people to create innovations. The cognitive dimension applies to either individuals within the organisation or external stakeholders, which are necessary to develop an ambidextrous attitude in firms. This attitude also relates to knowledge exchange and transfer practices. The latter support previous studies on knowledge transfer practices, which were employed to create value (Ramaswamy, 2009; Prahalad and Ramaswamy, 2004). Knowledge is thus expressed as a virtuous flow of inbound and outbound know-how and enables SMEs to become more responsive, flexible, and adaptable to market changes.

Overall, the scenario analysed offers a new view on SMEs in the fashion industry. It also supports the relevance of embracing social media platforms to achieve ambidextrous innovation orientation. This is a reflection made by firms' decision-makers (Kortmann, 2015). As Matt et al. (2015) have suggested, the exploitation approach and the embeddedness of new technologies have changed the way in which businesses are run. Surely, this has undoubtedly altered the business process management of firms, resulting in new incremental innovations (Guisado-González et al., 2017) and spurred on patent development (Romano et al., 2014).

Theoretical and practical implications

This study offers several theoretical contributions to extant academic management literature. Firstly, as acknowledged in the introduction, research on the use of social media to promote innovative ambidexterity in companies represents an underdeveloped area (Rialti et al., 2018; Cegarra-Navarro et al., 2018; Giacosa et al., 2018; Bresciani et al., 2018; Andriopoulos et al., 2009). This paper offers an original contribution to this area through an empirical examination of ambidexterity in SMEs. Moreover, the contribution to academic literature on innovation management is further enhanced by the particular, unique context of analysis, namely that of luxury fashion in Italy. The Italian luxury fashion industry is mainly based on SMEs operating in mature industries and most of the previous academic research has focused on examining innovation within industrial fashion districts (Maria and Finotto, 2008). Few papers have discussed the role of social media in innovative processes of individual fashion SMEs and thus the present research contributes to this stream of academic research.

The findings have proven that the social media network properties examined have a positive influence on the ability of Italian fashion SMEs to implement ambidextrous innovation orientation. This result complements and goes further than previous research (Benitez et al., 2018), which has examined the impact of IT-enabled knowledge ambidexterity on innovation performance by highlighting the role played by four key dimensions of social media platforms in supporting ambidextrous innovation orientation. The results could thus be beneficial both to fashion SMEs based in other countries and to global fashion corporations based in Italy or elsewhere. In the first case, foreign fashion SMEs could be encouraged to focus more on developing a higher level of customer engagement within the most widely used social media platforms of their countries since this could improve their ability to develop innovations while also pursuing incremental gains. When it comes to global fashion firms, on the other hand, the findings could be valuable for better allocating available marketing investments between offline and digital strategies. In fact, global fashion corporations could consider investing in social media as a form of investment in innovation considering the relationship that exists between the social media search process analysed and a firm's potential for innovation ambidexterity.

Furthermore, another field of academic literature that could benefit from these findings is that of the digital transformation of luxury fashion firms. In fact, past research on luxury fashion brands has examined the benefits deriving from the adoption of social media for business process management (Müller and Hopf, 2017). The focus has mainly been on marketing and branding aspects (Hsiao et al., 2019; Kapferer, 2014; Oknowko, 2016) and less on innovation aspects (Koivisto and Mattila, 2018; Arrigo, 2018b; Scuotto et al., 2017b). Additionally, most of the previous studies have an exploratory aim and adopt qualitative methodologies (Koivisto and Mattila, 2018; Üçok Hughes et al., 2016). Therefore, the present study contributes to filling this gap by providing an empirical quantitative analysis of innovation and digital transformation in fashion firms. Moreover, this paper contributes to the growing stream of research pertaining to customer co-creation and collaborative processes in luxury fashion brands (ÜçokHughes et al., 2016; Kang, 2014) as it highlights the significance of knowledge transfer practices for capturing innovation opportunities thanks to the digital transformation process.

The findings also have important managerial implications for SME practitioners. In fact, in light of the potential of the digital transformation and especially social media to support ambidextrous innovation, luxury fashion managers should pay greater attention to developing or acquiring the digital competencies and skills needed to fully exploit these opportunities for innovation. In managing their brands in the age of open innovation, luxury fashion managers should try to embrace the digital domain in all of their business process management approach without being afraid of the probable "brand identity self-disruption" (The State of

Fashion, 2019). In fact, the notion of the luxury fashion brand is continuously evolving (Chandon et al., 2016) and the digital transformation allows fashion firms to be more connected to customers for business purposes. Thus, through the analysis of social media and the accumulation of customer data, luxury fashion firms can not only understand how customers perceive the values of the brand, and how customer trends are evolving (Kietzmann et al., 2011), but can also capture external sources of innovation. The findings could be helpful to social media managers in the fashion industry for identifying the key dimensions of social media networks on which they need to focus. This is especially relevant for SMEs, which often have limited funds for research and development, investments, or the training of personnel. Social media provide them with the opportunity to develop low-cost collaborative interactions with customers for innovation purposes. Furthermore, innovation ambidexterity has proven to be very valuable for increasing the competitiveness of all firms and, in Italy, other industries are marked by the presence of many SMEs populating the economic system. Thus, managers in these sectors – such as the design and furniture industries – could also use these findings to ascertain how to structure and manage their social media platforms and facilitate the external knowledge search and acquisition process.

Finally, this paper could also offer interesting insights for society in terms of positive public attitude and customer engagement. In fact, fashion is part of the so-called creative industries (Li, 2018; Santoro et al., 2018; Caves, 2000) as it is influenced by popular culture and shapes global culture. Aware of the key role they play in social media in supporting innovative business processes, customers could feel empowered to be part of a change in fashion: fashion is no longer imposed by external parties (designers, firms, stylists, etc.) but is developed in a collaborative way.

Final remarks

This study offers a quantitative analysis which, despite providing a wider perspective than a qualitative methodology, may still require further development. The sample employed for the empirical research could be extended by researching SMEs in other countries or comparing multinationals with SMEs. For instance, in Italy several SMEs have been converted into multinational enterprises. Hence, it may be interesting to investigate whether business size can represent a relevant proxy to scale up in a digital economy. Passing through a factory economy and knowledge economy, firms experience the digital economy, which involves external bodies such as customers, suppliers, and research centres, among others. In this context, scholars can measure the degree of involvement of these bodies in a situation of ambidextrous innovation orientation.

Furthermore, according to Kortmann (2015), ambidextrous decisions induces managers to undertake adaptive and aligned strategic actions. Hence, the potential effect of new technologies on the concept of adaptability and alignment could be another important area to examine. This raises another research question concerning how strategy formulation and the implementation of digital technologies can influence strategic process management. Therefore, the idea of suggesting an increased use of digital technologies in order to develop ambidextrous innovation orientation is a new one and necessitates the introduction of digital business process management.

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