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Is any open innovation pattern emerging in the Italian fashion field? Preliminary evidence from some case studies

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Abstract

Purpose – The aim of this paper is to explore whether open innovation is emerging in the Italian fashion industry.

Design/methodology/approach – Based on available studies on innovation and open innovation, we first identified the main facets of open innovation within the industry investigated, such as the process of searching for new ideas, the involvement of external partners in the new product development process and the use of collaboration mechanisms between supply chain partners. Starting from these findings, the authors designed a semi-structured questionnaire that was used as a guideline for 15 case studies, carried out in the Italian fashion industry.

Findings – The outcomes from the case studies allow drawing some conclusions about the emergency of open innovation in the fashion industry and the related patterns.

Originality/value – Given its exploratory nature, this study is expected to start a debate about open innovation in the fashion industry, as well as to encourage future studies in this field.

Keywords Innovation, Open innovation, Fashion industry, Case study, Italy

Paper type Research paper

1. Introduction

Innovation and its importance have been increasingly debated in literature (Hanaysha *et al.*, 2022). More and more studies were carried out in a number of industry fields, where innovation is considered a key process and a critical success factor for companies. Innovation, if effectively implemented, can become a main driver of competitive advantage (Azeem *et al.*, 2021), a mean for retaining or gaining competitive advantage (Hult *et al.*, 2004; Porter, 1980) and to improve the firm's performance (e.g. Barge-Gil, 2013; Wang *et al.*, 2021a).

The European Commission Green Paper (1995) defines innovation as "*the successful production, assimilation and exploitation of novelty in the economic and social spheres*". This definition covers a wide range of activities, such as the development of new products and processes (i.e. technological innovation), the implementation of the organization as a whole or the discovery of a new market (i.e. non-technological innovation) (Bigliardi and Dormio, 2009). Many studies interpret innovation as the conversion of R&D activity into new products or

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processes (e.g. Valle and Vàsquez-Bustelo, 2009; Ferrigno *et al.*, 2021), while others see it as a continuous process involving various corporate functions and activities (Amaya *et al.*, 2022), embodying the ideation and creation phases at the basis of the innovation process (Bigliardi *et al.*, 2020; Bigliardi and Filippelli, 2022).

Although all industries are aimed at introducing innovations in the market, a main difference exists between the manufacturing and cultural industries (Mora, 2006). According to Raimo *et al.* (2021), cultural industries are concerned with the production and marketing of goods and services that have an aesthetic or semiotic content. For manufacturing companies, innovation helps to develop new products and services or contain production costs; conversely, in cultural industries, innovation is considered as the implementation of ideas and channelling towards users (Brandellero and Kloosterman, 2010).

The fashion industry is an example of a cultural field. It is a system within which social roles, models of the imaginary, figures of the body, narratives, forms of feeling, starting from clothes, accessories, body decorations, make-up are produced. Popular culture, everyday life, the way people act and think, creativity, art, common sense: fashion covers these areas in every part of the world (Polese and Blaszczyk, 2012; Santoro *et al.*, 2020; Calefatto, 2020).

The fashion industry is a traditional industry, which lies upstream of clothing distribution and downstream from the textile sector, for which it is the major outlet. It owns several characteristics that make innovation particularly critical. First, it is a highly competitive industry and the competitive advantage of companies is reached mainly through the company's brand and style (Bigliardi and Bottani, 2012; Lin, 2018). Secondly the product life-cycles are short, the economies gained by product differentiation are built on brand image, then the innovation process is characterised by high frequency and speed and the product style can be quickly imitated (Sen, 2008). It is also known that innovation in fashion design contributes to enhancing visibility and reputation of Italian brands (Pante *et al.*, 2008; Holmqvist *et al.*, 2021).

The above characteristics force companies to innovate at a rapid pace and generate severe price competitions (Sadik-Rozsnyai, 2016; Kang, 2021). Moreover, fashion manufacturers need to propose a wide range of products, including fashion outerwear, fashion wear and textiles, indoor and outdoor sportswear, interior textiles, working wear and so on (Brun *et al.*, 2008). Hence, a further challenge of innovation is the need for introducing several new products per year, at the same time retaining the stylistic elements that had been successful in previous years to meet the customer's expectations (Mora, 2006).

The success or failure thus depends on the agility of the companies in adapting to the market trends (Brun and Castelli, 2008; Boon and Edler, 2018). Fashion manufacturers should balance production and demand; in the fashion industry, achieving this balance is quite difficult, since demand is variable and subject to trends and the selling season is short (Lin, 2018).

Given the above challenges, fashion companies are often oriented toward the search for innovative but predictable solutions to this need for change, which represents their embedded economic and strategic goal (Mora, 2006). For years, the innovation model for this industry was believed to be mainly informal and based on incremental process innovations developed using the tacit knowledge typical of specific geographical areas, rather than developed within R&D labs (Pedersen *et al.*, 2018). The competitive environment where the fashion companies operate, coupled with its rapid evolution, have now forced these companies to externalize all or part of their production process in search of low cost, as well as to introduce collaboration mechanisms with external players (Pedersen *et al.*, 2018) and to outsource manufacturing (Niu *et al.*, 2018) and non-manufacturing (Lin *et al.*, 2013) activities. Consequently, more complex innovation models are emerging to increase productivity and competitiveness of the fashion industry and to enhance customer's satisfaction (Iacobucci and Perugini, 2018).

In this work, we conjecture that these new models somehow reflect the open innovation paradigm (Chesbrough, 2003), i.e. a paradigm that assumes that firms can and should use both external and internal ideas, paths to market and sources of innovation, such as customers, suppliers, competitors and/or academic institutions.

The adoption of open innovation practices by companies is an issue that has attracted the interest of the scientific community over the past decade. In particular, the introduction of such practices has been studied in various industrial sectors, such as food (e.g. Bigliardi and Galati, 2013), manufacturing (e.g. Obradović *et al.*, 2021), automotive (e.g. Wilhelm and Dolfsma, 2018), pharmaceutical (e.g. Olk and West, 2020) and telecommunications (e.g. Bigliardi *et al.*, 2012). However, little attention has been paid to the study of the dynamics of open innovation in the fashion industry. In fact, in literature little scientific evidence exists about the opening of the corporate boundaries of fashion companies for the specific purpose of producing innovation. For this reason, our paper aims to fill this research gap by investigating whether open innovation patterns are really emerging in the Italian fashion industry. To this end, we carried out an explorative multiple case study-based research targeting fashion companies in Italy. Specifically, we investigate some specific elements that could indicate the emergency of open innovation patterns. In line with the exploratory nature of the chosen research methodology, by this study we tried to answer the following research question: *is open innovation emerging in the fashion industry*?

The paper is organised as follows. In Section 2, we propose a review of the literature to motivate the emergency of open innovation in the fashion industry and propose a research framework to investigate this topic. Then, we describe the research methodology and the way the case studies were carried out. The main findings from the case studies are presented in Section 4 and discussed in Section 5. On the basis of the findings and discussion, we finally conclude by deriving some preliminary patterns of open innovation in the fashion industry and research propositions on this topic, discussing the research contributions and limitations and outlining future research directions.

2. Toward open innovation in the fashion industry: a review of the literature

According to Khan *et al.* (2018) and Fisher (1997), a supply chain should be aligned with the critical success factors of its products, which are classified as functional and innovative. Fashion items are innovative products, having low demand predictability, short product life-cycle, high variety and high stock-out risks. Innovative products better fit a market-oriented strategy; consequently, the fashion supply chain should be oriented to the market needs. Zhang and Di Benedetto (2010) pointed out that fashion innovations may be in terms of form or function, or style and can be radical (involving the breaking down of old ideas) or incremental (involving the evolution of new ideas from old ideas). Bianchi and Bortolotti (1996) indicate formal innovation (that is, any changes in the product form, not necessarily associated with changes in product functions and product process) as a decisive element of the fashion field, where "*innovation depends much less on engineering factors, as for technological innovation and much more on intangible factors, as aesthetics, imagination and taste, close relatives of artistic creativity*". As stressed by the same authors, innovation in the fashion industry can be performed in 4 different ways, namely: (1) a structure change of the product; (2) changes in production process; (3) new uses of the same product; or (4) use of new materials. Lamming *et al.* (2000) and Huang *et al.* (2002), revising Fisher's classification, introduced a further product category, the innovative-unique product, arguing that a unique product is distinguished from innovative products but requires the same type of supply chain strategy. In the fashion supply chain, the uniqueness of the product is often determined by the brand, whose relevance, especially in the fashion market, is growing as a source of value for manufacturers (Wang, 2018).

In an industry clock-speed like the fashion one, collaboration in NPD is a critical method with which companies can develop innovative products. Collaboration with partners, both suppliers and retailers, as well as the establishment of long-term contracts can foster the innovative capabilities of companies (Macchion *et al.*, 2017) and in supply chain of fashion industry there is a tendency to target close supply chain collaboration initiatives towards suppliers (Koberg and Longoni, 2019).

As regards the collaboration with different partners, Becheikh *et al.* (2006) introduced the concept of "networking". The interaction with external partners helps firms bridge gaps in their information, scientific knowledge, resources and competencies (Chatzoglou and Chatzoudes, 2017; Greco *et al.*, 2022a), thus suggesting a positive correlation between innovation and networking. The fashion industry involves numerous activities, occupations and roles, thus making innovation a complex task (Lin, 2018). Paraphrasing Becker (1982), we could state that, around a fashion collection, gravitate different "*networks of persons whose cooperative activity, organized on the basis of their common knowledge of the conventional ways to do things, produces the peculiar kind of works of art for which that world is known*". Indeed, the successful design of new fashion items requires the interaction of several players, including: (1) suppliers of chemical fibre materials, suppliers of technology and machinery, services provider; (2) product developers, which should plan the collection; (3) marketing managers; (4) stylists; (5) manufacturers; (6) distribution managers (Chapain and Comunian, 2010; Guercini *et al.*, 2018). A substantial body of literature on innovation has examined the importance of involving external supply chain players in this process (e.g. Pero *et al.*, 2010; Urbinati *et al.*, 2020). Other authors, conversely, are more focused on a market-oriented strategy that involves the final customer in the innovation process. Anderson-Connell *et al.* (2002) identified four levels of involvement of the customer in the new product development process (NPD), such as clothes clones, totally custom, co-design and design options. Moreover, other authors stressed the importance of integrating retail into NPD (Takamitsu and Gobbo Junior, 2017), despite its complexity (Guercini and Milanesi, 2019). This relevance is confirmed by evidence that several retailers are internalising the NPD process and using their customer knowledge as a key advantage.

Distinct sources of ideas result in different ideation types that demand different approaches to manage these ideas throughout the innovation process (Lindic *et al.*, 2011). Dahlander and Gann (2010) and Greco *et al.* (2022b) mentioned intellectual property rights among the tools a company can exploit to find new ideas and to trade them. Indeed, regardless of its industry, a company may acquire the required knowledge and technology by purchasing equipment, licenses, intellectual property rights and sponsorship agreements, or by attending conferences and specialized fairs (Bigliardi *et al.*, 2021). Similarly, Lin *et al.* (2010), investigating the relationships among strategy orientation, innovation and supply chain performance, found a positive effect of market orientation on supply chain performance. Thus, the production and distribution of knowledge is usually channelled through different patterns (Bigliardi *et al.*, 2021).

The previous discussion introduces to the general concept of open innovation (hereafter, OI): OI grounds on the assumption that a single organization cannot really innovate by itself; conversely, it should collaborate with different partners to acquire ideas and resources from the external environment (Corvello *et al.*, 2013; Bigliardi and Galati, 2018; Strazzullo *et al.*, 2022).

Consequently, the company's boundary should be open, to ensure a flow of ideas in and out of the organization (Chesbrough, 2003; Barge-Gil, 2010; Corvello *et al.*, 2021). Shi *et al.* (2020) stressed the importance of collaborative networks, showing that there is a direct and positive relationship between structural embeddedness and open innovation practices. In fact, the authors point out that firms that link multiple partners are better able to put their innovation strategies into practice as they can leverage sources of competences and

knowledge possessed by external partners. The key strategy is to obtain diversified knowledge within the collaborative network so that the company can successfully draw on it to develop innovation internally.

Several factors have contributed to the popularity and importance of OI (Dahlander and Gann, 2010; Barge-Gil, 2013; Wang *et al.*, 2021b), among which new technologies are recognized to be useful in easing coordination across geographical distances. Today, the technologies, especially design tools and user toolkits (Charmjuree *et al.*, 2021), are helping go beyond capturing knowledge in raw form, but actually capture knowledge in a readily useable way. Information and communication technology (ICT) offers great promise for the optimal management of ideas and the enablement of new forms of ideation and idea management and to collaborate with partners across geographical distances (Dahlander and Gann, 2010). For example, E-business plays an important role in facilitating innovation by fostering greater networking in the economy and making possible faster diffusion of codified knowledge and ideas (Luppicini, 2020; Bigliardi *et al.*, 2022). The use of ICT tools is quite diffused in the fashion industry (Bertolini *et al.*, 2007; Noris *et al.*, 2021). Wang *et al.* (2021b) bring the example of a non-profit R&D organisation that designed an open innovation system based on digital platforms to bridge the gap between idea generation and commercialisation of the finished innovative product. The platform, based on digital technologies, connects stakeholders outside the organisation who can successfully collaborate in the innovation process.

The use of e-commerce but also of social media has radically changed fashion. Scuotto *et al.* (2017) have demonstrated that the use of social media gives to the fashion companies the opportunity to develop low-cost collaborative interactions with customers for innovation purposes. Social media networks have become an important space in which to seek and share knowledge. Through these digital tools fashion companies can easily connect with their customers to share ideas, co-create innovations, share needs. The pandemic from Covid then prompted consumers to change their behaviour and increasingly use digital channels. This greatly contributes towards open innovation with regards to the marketing strategies.

Also, the use of design teams (i.e. small structural formations, whose members exhibit different behaviours, dynamics and needs, and, at the same time, reach satisfaction of the collective objectives) is recognized as a useful source of ideas for the development of innovations, in different industries (Nazzaro and Strazzabosco, 2009).

The above considerations suggest that the innovation process in the fashion industry is no more a process developed within a company's boundaries; rather, it is getting more and more open, allowing stakeholders and the crowd to be involved in various phases of the creation of new ideas (Lindic *et al.*, 2011). Innovation in the fashion industry seems to have become an interactive process between the firm's R&D departments, the firm as a whole and the environment where companies operate. Moreover, to be competitive, innovation in the fashion industry should include the internal/external environment, a significant network of internal/external people and internal/external knowledge and technology.

As Fliaster and Sperber (2019) demonstrated, fashion companies are using it to acquire the critical innovation resource, that is new and useful knowledge, from various sources and through various types of network ties.

OI, therefore, seems to be the appropriate paradigm for addressing the innovation patterns of the fashion industry. Open innovation practices such as customer co-creation and collaborative processes were also adopted in luxury fashion brands (Hughes *et al.*, 2016). Finally Lin (2018) demonstrated that in contexts of aesthetic innovation, such as fashion, there are different patterns of interaction between the creator of an innovation and the one who seeks it.

The aim of this study is a comprehensive understanding of OI in the fashion industry. The studies reviewed above suggest the framework depicted in Figure 1 as the OI process for the fashion industry. In particular, it was found that ICT tools serve as a link between the fashion company and the external environment, which can provide skills, knowledge and technologies complementary to those already possessed by the company. That framework will be tested in the following.

3. Research design

3.1 Context overview

The choice of the fashion industry is motivated by the relevance of innovation for this field, previously discussed, as well as by the fact that textile and clothing is a main industrial sector of Europe. According to data from 2019, there are 160,000 companies in the industry employing 1.5 million people and generating a turnover of €162 billion. The sector in the EU is based on small businesses. Companies with less than 50 employees account for more than 90% of the workforce and produce almost 60% of the value-added (Euroactiv, 2019). Italy is the first country in the European Union for employment in the textile, clothing and leather sectors and Italian fashion is well known all over the world. In the Italian fashion industry there are 55.000 micro and small businesses with 309.000 employees, 66.6% of the sector's employment and 36 thousand artisan businesses that employ 157 thousand people, one-third (33.8%) of the sector's employment.

3.2 The research methodology

The research framework adopted in this study consists of three main steps, which approximately took from September to October, from November to December 2021 and from January to April 2022, respectively.

3.2.1 Step 1: identification of innovation and OI facets of the fashion industry. The first step consisted in an analysis of innovation issues within the fashion industry and of the related literature, with the aims to: (1) highlight the main characteristics of the industry investigated, both general and related to the innovation paradigm; (2) identify the main elements that could characterise OI mechanisms, so as to test their existence (or emergency) in the fashion industry; (3) elaborate a questionnaire to be used as a guideline in the following step of the research, to investigate the innovation and OI paradigms in that context. The relevant elements that characterise innovation in the fashion industry and those that suggest the emergency of OI mechanisms in that industry, were therefore derived from the analysis of the literature.

The topics that emerged in this step to be investigated with the qualitative methodology were found to be as follows:

(1) Proneness toward innovation

(2) NPD and sources of new ideas

(3) Collaboration with external partners

(4) ICT tools

3.2.2 Step 2: questionnaire development. On the basis of the findings from the literature (cf. Section 2), the questionnaire used in the second step of the research was designed in the following way (see the scheme in Appendix):

Figure 1.
The research framework proposed

(1) Section 1 ("Company profile") collects general information about the company investigated, such as name and location, industry type and market segment, firm size, as well as information about the interviewed;

(2) Section 2 ("Open innovation") investigates the main facets of innovation and OI. In particular, it focuses on:

- preliminary aspects, namely the implementation of product and process innovations, to assess whether the sample of companies investigated owns a sufficient proneness toward innovation, and is, therefore, appropriate to the purpose of this study;
- the NPD process and sources of new ideas used in the process of manufacturing new collections, with a specific attention to external sources of innovative ideas;
- the establishment of collaboration mechanisms with the external environment, including suppliers and co-makers, to develop new products, as well as suppliers during distribution activities;
- the use of ICT tools to leverage supply chain collaboration and integration, as well as to manage the NPD process in a coordinated way.

All questions were structured as open-ended ones, to stimulate the respondent to provide an explanation on the topic, as well as his/her personal judgement about each question. For some questions, a list of options was provided as a guideline. Before using the questionnaire, its contents were discussed with a panel of 12 senior manufacturing managers, belonging to as many Italian fashion companies, to confirm the validity and relevance of the proposed questions. The panel members were identified among a group of enterprises which actively collaborate to the research activities carried out by the Department of Industrial Engineering of the University of Parma.

3.2.3 Step 3: multiple case study research. The final (and core) step of the research was the development of multiple case studies. Yin (2003) states that case study-based research is to be used where a rare or unique event is explored, to probe the "how and why" questions in detail. According to the same author, "multi-case study" should be regarded as separate analyses (or "replicates") of the same topic at a number of different sites. Case study research can have a descriptive, exploratory or explanatory aim (Dube and Pare, 2003). In our study, we chose this research methodology as an exploratory approach, which better exploits the potential of this method to generate conceptual insights, e.g. motivating research questions or suggesting new theories (Siggelkow, 2007; Bennett and Elman, 2006; Stewart, 2012).

The starting point to develop an effective case study-based research is to identify and access appropriate organizations, which allow developing an interesting analysis (Pan and Tan, 2011). Different types of "interesting" case studies can exist: for instance, either internationally renowned companies, or extreme cases could generate interesting research (Yin, 2003). In this study, interesting case studies were identified by targeting renowned fashion companies, possibly leaders in specific market niches. To this extent, we initially prepared a list of approx. 100 fashion companies, exploiting the Chamber of Commerce, the local Small and Medium-sized Enterprises (SMEs) association business directories, Internet databases, as well as personal contacts and limiting the geographic location to the North of Italy. The names and email contacts of those companies were retrieved from the web or the available databases. The companies' Website was also checked, to gain further information and to assess the suitability of each company to this study. After this screening, the original list was reduced to approx. 50 companies. Those companies were contacted by email, explaining the objective of the research and asking for their availability to participate in the

research. We got positive reply from 15 companies, which compose our final sample; the size of the sample can be considered sufficient to give an accurate account in an empirical research of exploratory nature (Rowley, 2002).

The next step of case study research is the identification of the unit of analysis, i.e. the level at which the phenomenon occurs and is studied, specifying what is included and what is excluded (da Mota Pedrosa *et al.*, 2012). In our study, the unit of analysis consists of individual companies operating in the Italian fashion industry.

For each company we asked for a contact person to get in touch with to plan a visit and a semi-structured direct interview, with administrators, owners or manufacturing managers. The interview was supported by the questionnaire elaborated in the previous step. Each visit and interview lasted on average 2 h.

4. Analysis and results from the case studies

4.1 Sample overview

The companies involved in this research (referred to as *Company A,... Company O* for privacy) operates in different segments of the fashion industry (e.g. men's wear, women's wear, ready-to-wear clothing, knitwear, luxury wear, underwear, accessories, etc.). Most of the companies investigated are small enterprises according to the European Commission (2003) guidelines. Only Company D can be classified as a big enterprise with more than 500 employees, while three companies (i.e. companies B, E and L), exceeding 100 employees, can be classified as medium enterprises. The sample thus consists mainly in SMEs, which is not surprising, since SMEs cover approx. 90% of the overall manufacturing system of Italy and have a primary role in workforce employment (90.7%) and exports (77.6%) of finished products, according to the Italian Institute of Statistics (ISTAT, 2007). Almost all the companies surveyed sell their products worldwide. An overview of the companies' profile, together with the indication of the interviewees, is proposed in Table 1.

4.2 Results

4.2.1 Proneness toward innovation and differentiation respect the firm's dimension. Before examining the specific facets of OI, we provide an overview of the main characteristics of the innovation process of the companies surveyed, as well as of their proneness toward innovation (Table 2).

We start by investigating the innovations introduced recently by the companies in their internal processes or business functions, to assess their attention to innovation. We found that companies B, E, L, H and O have introduced innovations in the manufacturing process, in terms of advanced equipment and machineries, with the purpose of producing new or innovative items. Companies M and G also introduced innovations in the manufacturing process, although those innovations mainly refer to operations management strategies. Specifically, Company M implemented lean manufacturing strategies inside its manufacturing divisions, while Company G implemented specific control systems to monitor the production process and intervene to streamline its manufacturing activities. We also found 7 companies which introduced innovations with the purpose of reducing the environmental impact of manufacturing activities and enhancing sustainability, in line with the increasing attention paid by fashion companies to the environment. Among them, 3 companies (i.e. companies I, K and N) manufacture eco-friendly fashion items, made of natural or recycled fibres.

For fashion companies, NPD mainly refers to the process of developing new collections. We therefore investigated the main goals of the new collection created. In this regard, interviewees agree on two primary aspects, i.e. preserving the company's style and adapting

Table 1.
Profile of the companies investigated

Company ID	Location	Year of establishment	Interviewees	Number of employees	Market sector	Primary markets	Further information
A	Campogalliano (Modena)	1984	Chief executive officer and fashion designer	12 employees and a sales agent	Sweaters and pullovers for men; high-fashion women's wear	Russia, Japan, Belgium, Portugal, Germany and Greece	–
B	Carpi (Modena)	1995	Retail manager and style manager	350	Ready-to-wear clothing for men, women and kids, accessories, shoes and swimsuit	Belgium, Holland, Greece, Saudi Arabia, Morocco, Far East	The company owns 9 registered trademarks
C	Carpi (Modena)		Production manager	12 employees and a specialised designer		Northern and Central Italy, Spain, Germany, Switzerland and France	–
D	Florence	1921	Production manager	7,000 employees worldwide (1,000 in the headquarter)	Leather goods (e.g. handbags, small leather goods and luggage), shoes, fine clothes, watches and jewellery	Italy, Tokyo and Hong Kong	–
E	Sansepolcro (Arezzo)	1945	Production manager and marketing manager	250 employees in Italy, 200 employees in Bulgaria	Knitwear for men, both casual and elegant; seasonal collection for women; suits for men	Italy and Europe	The company currently sponsors two teams of the Italian football league
F	Ponderano (Biella)	1867	Chief executive officer, information technology manager and logistic manager	35	Knitwear, underwear, lingerie and beachwear	n.a	–
G		1965	Production manager and marketing manager	12	Knitwear	Italy and Europe	The annual production accounts for approx. 200,000 fashion items, while the peak daily production can reach 2,000 items

(*continued*)

Table 1.

Company ID	Location	Year of establishment	Interviewees	Number of employees	Market sector	Primary markets	Further information
H	Milan	1948	Company owner (who is also production manager)	5	handmade blouse and shirts	Italy and worldwide (with 7,000 customers around the world)	–
I	Milan	2003	Company owner (who is also stylist manager)	5	Eco-fashion items	Italy	–
J	Bologna, "Centergross" shopping centre	1980	Production and financial manager	24 employees and 2 fashion designers	Fast-fashion, high-fashion and knitwear	n.a	The annual production of company I reaches 400,000 items, with collections composed, on average, of more than 200 items
K	Reggio nell'Emilia	2007 (as an independent brand)	Company owner (who is also stylist manager)	5	Eco-fashion items	Italy	–
L	Verona	1977	One of the company owners (who is also stylist manager)	100	Women's wear	Italy and worldwide	The company owns several main fashion brands and manufactures more than 2,000 new styles per year
M	Bologna, "Centergross" shopping centre	1991	Marketing manager	18	Fast fashion, high-fashion collections for kids	Italy, Russia, Spain, Belgium, Holland, Luxembourg, Greece, Hong Kong and China. The company realizes more than 70% of its sales in Italy and approx. 30% abroad	–
N	Florence	2006 (as an independent company)	Chief executive officer	3 employees and 3 managers, plus several co-makers (e.g. knitters, seamstresses and interim personnel)	Eco-fashion items	Italy	–
O	Spino d'Adda (Cremona)	1952	Marketing manager	56	Swimwear, underwear, sportswear and casual	Italy	The company got important certifications in the field of quality, such as the Oeko Tex certificate and ISO 9001 certification

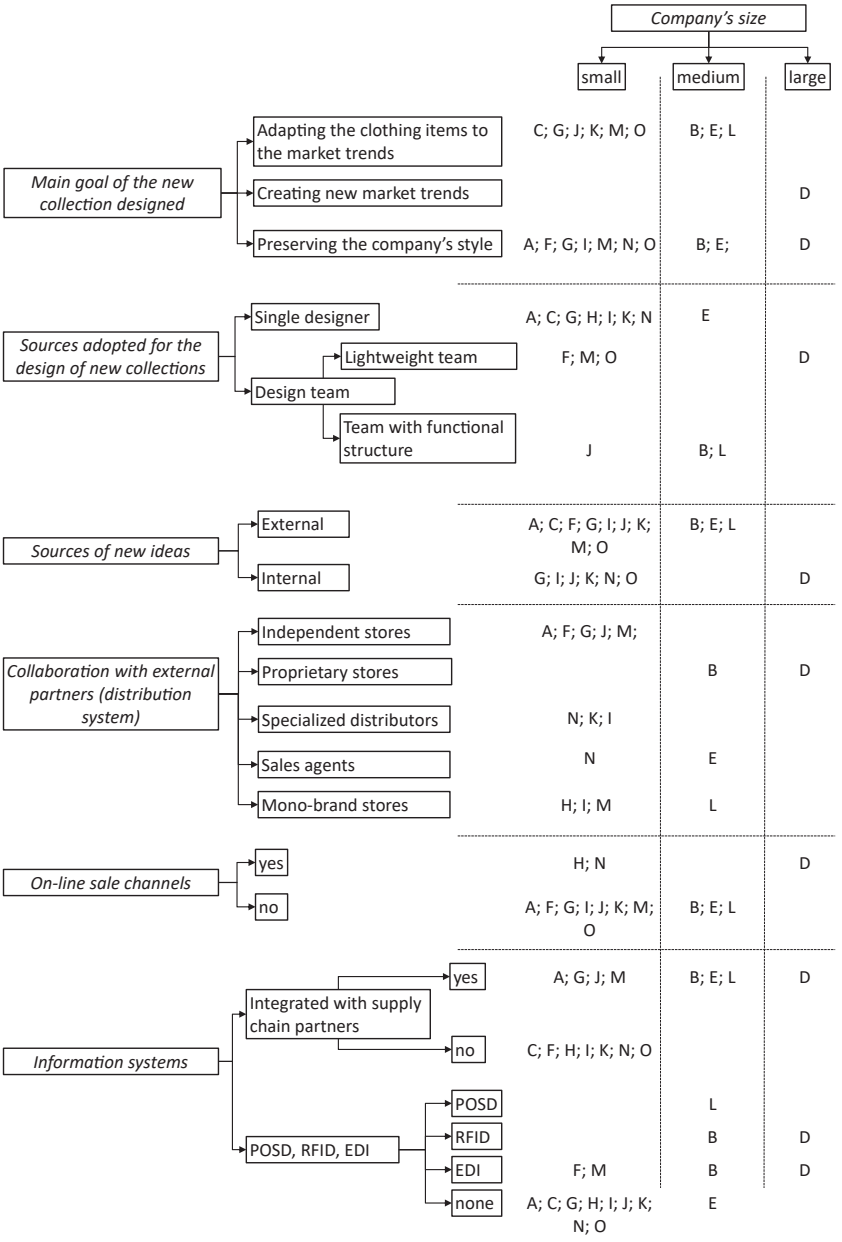
Note(s): "n.a." = not available

Company	Size	Process innovation Business area where innovations are introduced	Product innovation Main goals of the new collection designed	Manufacturing of customised items
A	Small	*Communication*: implementation of a CRM platform	Preserving the company's style	No
B	Medium	*Manufacturing*: Implementation of new manufacturing technologies to reduce manufacturing lead times *Distribution*: creation of 2 divisions to manage distribution activities in different markets *Employees training*: Training of new enrolled people by company employees and by external consultants	Preserving the company's style; adapting the clothing items to the market trends	No
C	Small	n.a	Adapting the clothing items to the market trends	Yes, for private labels
D	Big	*Human resource management*: New strategies for human resource management, to incentivize value creation and social responsibility *Quality and safety*: Development of a new packaging with low environmental impact; reduction of CO2 emissions; use of LED lights; introduction of ISO 14000 certification *Communication*: Use of new communication channels (i.e. Internet)	Preserving the company's style; creating new market trends	Yes, for the final customer
E	Medium	*Manufacturing*: Introduction of state-of-the-art technological equipment *Communication*: Marketing and advertising campaigns with new testimonials	Preserving the company's style; adapting the clothing items to the market trends	Yes, for private labels
F	Small	*Manufacturing*: Introduction of state-of-the-art technological equipment *Quality and safety*: Installation of a photovoltaic plan	Preserving the company's style	No
G	Small	*Manufacturing*: Implementation of lean manufacturing strategies *Quality and safety*: Installation of a photovoltaic plant	Preserving the company's style; adapting the clothing items to the market trends	Yes, for private labels
H	Small	*Manufacturing*: Implementation of lean manufacturing strategies	n.a	Yes, for the final customer
I	Small	*Quality and safety*: Choice of fabrics with low environmental impact	Preserving the company's style	Yes, for the final customer
J	Small	n.a	Adapting the clothing items to the market trends	No
K	Small	*Quality and safety*: Choice of fabrics with low environmental impact	Adapting the clothing items to the market trends	No
L	Medium	*Communication*: New communication channels (i.e. Internet)	Adapting the clothing items to the market trends	Yes, for the final customer
M	Small	*Manufacturing*: Introduction of new monitoring tools for manufacturing activities	Preserving the company's style; adapting the clothing items to the market trends	No
N	Small	*Quality and safety*: Choice of fabrics with low environmental impact	Preserving the company's style	No
O	Small	*Manufacturing*: Introduction of state-of-the-art technological equipment *Quality and safety*: Introduction of eco-friendly items; choice of fabrics with low environmental impact; installation of a photovoltaic plant	Preserving the company's style; adapting the clothing items to the market trends	Yes, for the final customer

Table 2.
General overview of the innovation process of the companies investigated

Note(s): "n.a." = not available

the new items to the market trends of the new season. Company D is the only exception, since, besides preserving the company's style, it also aims at creating future market trends, thus proposing new products that anticipate the market needs (Figure 2).



Note(s): Multiple answers allowed

Figure 2.
Summary of the main outcomes of the study as a function of the company's size

A further topic investigated is the production of *custom items*, which can be regarded as a particular facet of innovation, since it indicates the willingness of a company to meet a specific customer's request. By "custom items" we primarily mean "made to measure" items; nonetheless, we cannot actually exclude that some of the companies investigated manufacture also a sort of "engineering-to-order" items, with the customer giving specifications that affects the design process. Out of the 15 companies investigated, we found 8 companies which manufacture custom items; among them, 3 companies manufacture custom items for third parties (*private labels*), while the remaining companies sell their items directly to their *final customers*.

Overall, the sample of companies surveyed pays a significant attention to product innovation, and, at the same time, it is prone to process innovation; therefore, the companies surveyed appear as appropriate for the purpose of this study.

4.2.2 NPD and sources of new ideas and differentiation respect the firm's dimension. To design new products, fashion companies must have a specialised design department, able to create marketable and saleable new collections. The first purpose of our analysis is to identify the sources adopted by fashion companies to design successful new products; as a second aim, we try to understand which procedure suits best depending on the operating conditions of the company (Table 3).

We found that 8 out of 15 companies use a *single designer* for the creation of new collections, while the remaining companies make use of a specialised *design team*. Firms that use a single designer are usually small companies, where the designer is often the company owner (as per companies A, G, I, K and N). At the same time, however, fashion companies need to establish relationships with the market and the final customers, to ensure that the product manufactured meets the customer's requirement.

There are two main reasons why fashion companies employ a single designer to create their own reference collections. The first one is that the small size of the company does not allow (nor require) involving more people in the process of developing a new collection; alternatively, the specific market segment where the company operates may generate a high customer loyalty towards the stylistic identity created by the company designer.

The use of design teams seems to be a more effective approach to introduce innovations. Indeed, teams promote the exchange of ideas and opinions, thanks to the involvement of more people into a structured group, and have, therefore, potential to generate more innovative products. Among the sample surveyed, 7 companies make use of teams to develop new products (46.67% of the sample). Two main types of team structures were found, namely:

(1) Teams with *functional structure*. Those teams consist of designers, who create the new models and operate without integration with other business functions. Some periodical meetings are organized to share the results achieved by the different business functions;

(2) *Lightweight* teams. In this case, employees continue to work in their respective business areas, but the team is headed by a project manager who ensures cross-functional integration of the team members.

Out of the 7 companies which make use of design teams for the development of new products, 3 companies (i.e. companies B, J and L) exploit teams with functional structure, while the remaining ones (i.e. companies D, F, M and O) make use of lightweight teams. Due to the minimal differences between the two types of team, no correlations emerge between the team structure and the company characteristics (Figure 2). Moreover, some companies make use of more than one team; for instance, companies B and L own 6 and 5 teams, respectively. In this case, each team is dedicated to either a specific clothing line or to the design of a single collection. Whenever more than one team is used, the company owner often acts as a

Company	New product development and sources of new ideas Type of design department and composition	Innovation protection mechanisms adopted	Internal vs external sources of the new ideas	Test used to evaluate the reaction of customers to the new collection
A	Single designer	None	External (magazines; visits; trade fairs)	None
B	6 design teams (one per clothing line) with functional structure, with 32 people per team	Trademark	External (magazines, visits, fashion exhibitions, trade fairs)	None
C	Single designer	None	External (visits, Internet)	None
D	1 lightweight design team with 55 people	Trademark	Internal	Market surveys
E	Single designer	Trademark	External (market surveys, contacts with customers, sales agents or distributors)	None
F	2 lightweight design teams (one for men's collections and one for women's collections) with 3 people per team	Trademark	External (magazines, contacts with customers, sales agents or distributors, trade fairs)	Focus groups involving potential customers
G	Single designer	Trademark	Internal External (contacts with customers, sales agents or distributors)	Meeting with sales representatives
H	Single designer	None	n.a	None
I	Single designer	Trademark	Internal External (fashion exhibitions)	None
J	1 design team with functional structure with 5 people	Trademark	Internal External (magazines, fashion exhibitions, contacts with customers, sales agents or distributors, trade fairs)	None
K	Single designer	None	Internal External	None
L	5 design teams (one per company brand) with functional structure with 2 people per team	Trademark	External (magazines, visits, fashion exhibitions)	Direct interviews with the company's employees
M	1 lightweight design team with 3 people	Trademark	External (magazines, visits)	None
N	Single designer	None	Internal	None
O	1 lightweight design team with 6 people	None	Internal External (magazines)	None

Note(s): "n.a." = not available

Table 3.
Sources of new ideas adopted by the companies investigated

coordinator of the teams and is responsible for their integration and collaboration. The team size seems to depend upon the company size: bigger companies are likely to have more employees to be involved in the design team, leading to larger groups.

Innovation protection mechanisms are often appropriate when new products are introduced. We therefore asked the respondents to provide some information regarding the mechanisms used for protecting innovation. It emerged that 9 out of the 15 companies (60% of the sample) surveyed make use of tools for innovation protection, mainly in the form of registered trademarks. Nonetheless, most of the interviewees expressed some doubts about the real effectiveness of trademarks to protect innovation, due to the high diffusion of counterfeiting in the fashion industry.

As far as the generation of innovative ideas is concerned, interviewees were asked to indicate whether the new ideas have *external* or *internal* sources. By external, we mean that the new ideas results from researches carried out outside the company (e.g. involving end customers, sales network, suppliers, trade fairs or exhibitions, specialized magazines, etc.), while the main internal sources are the creativity of the designers or the review of past collections proposed by the company. Given the involvement of outside skills and competences, the use of external sources suggests more proneness toward OI. We found that 7 companies indicated that the sources of new ideas are exclusively external, while only 2 companies exploit exclusively internal sources. The remaining companies indicated the use of mixed internal/external sources (Table 3).

By comparing the outcomes in Tables 2 and 3, it could be argued that a correlation exists between the use of external sources of new ideas and the fact that new collections are adapted to the market trends. In fact, out of the 12 companies which make use of external sources, 9 also claimed that their collections are frequently adapted to the observed market trends; once again, this confirms that the innovation process is carried out looking outside the company's boundaries. A similar correlation can be suggested between the use of internal sources and the preservation of the company stylistic identity. In this regard, out of the 7 companies that adopt internal sources, 5 indicated that they tend to preserve their style in the new collections (see Figure 3).

We also found that the companies investigated typically make use of more than one external source. Specialized fashion magazines (7 companies) and visits (5 companies) turn out to be the sources most frequently adopted. The use of specialized magazines can be easily justified, given the very limited cost and resources required; conversely, visits are more expensive in terms of time, cost and resources required. As regards the remaining external sources, websites or market surveys turn out to be used by only one company. The participation in fashion exhibitions and trade fairs, on the contrary, is quite frequent among the companies surveyed (4 companies), as well as the involvement of suppliers and customers (4 companies).

The companies surveyed were also asked about the use of tests to investigate the reaction of customers to the new collections. Understanding the customers' reaction is important to the fashion industry, since the new collection should meet the customer's aesthetic requirements and the company should be able to predict the market demand. However, we found only 4 enterprises which make regular use of tests of different types. Company D exploits *market*

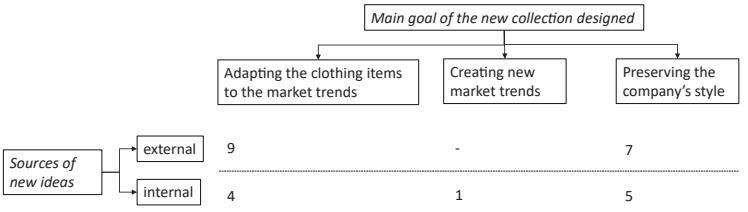


Figure 3.
Sources of new ideas vs goal of the collection designed

Note(s): Multiple answers allowed

surveys as a means for understanding the customer's reaction to the new collection, as well as to anticipate future requirements. Such surveys are usually effective in providing punctual and timely feedback; at the same time, however, they require significant investments, since they are often carried out by external consultants. This is why we found only a big company which exploits such tests. Company F involves the potential customers into *focus groups*, periodically organized with the purpose of examining in detail the new items to be launched on the market. A similar approach is adopted by Company G, which gathers the opinions of distributors and sales agents about the new collections. Moreover, the company organizes regular ad hoc *meetings* with sales representatives. Finally, Company L involves its *internal employees* (mainly women) to gather their opinions about the new collection. This is an easy way to collect indications from potential customers and does not generate costs; thus, it looks like an interesting mechanism to test the market reaction to the new collection. At the same time, however, it is often necessary to confirm the judgments expressed by the employees exploiting other sources of information, since it is likely that internal judgments could be biased by the partiality of the respondents.

4.2.3 Collaboration with external partners. As regards the "networking" variable, we asked companies about the deployment of collaboration mechanisms with customers and suppliers. We found that all the companies interviewed have established specific collaboration mechanisms, of different nature, with some supply chain partners (Table 4 and Figure 2) and that most collaborations are mature *long-term partnerships*. Specifically, 9 companies have established collaborations to support the design of the new collection, involving, primarily, material suppliers, manufacturers, co-makers or customers. In some cases (e.g. companies B and D), we found that fashion companies also established partnerships with distributors and brand owners, with the purpose of creating successful new brands and managing them. Some small companies (i.e. companies A, E, I, J, K, M and O) exploit external collaborations to the same extent.

The establishment of collaborations with co-makers or suppliers, with the purpose of improving the aesthetic requirements of the collection proposed to the market, denotes, once again, proneness to OI mechanisms. We previously discussed the use of tests aimed at understanding the customer's reaction to the new collection and found that only 4 companies adopt tests to this purpose. Nonetheless, by combining that result with those proposed in Table 4, we could argue that direct collaboration with co-makers and suppliers can represent an alternative to the use of market tests, since it allows involving downstream supply chain players in the design and manufacturing of a new collection. Indeed, companies A, B, E, I, J, K, M and O all established collaborations with external partners for the development of the new collection, while none of those companies exploit market tests to understand the customer's reaction to the new collection.

As regards the distribution networks of fashion companies, only companies B and D own a network of *proprietary stores*, directly controlled by the company, while, in many cases, the company owns few mono-brand stores (Figure 2). Obviously, the company size and the availability of financial resources affect the possibility of a company to establish a network of proprietary stores. Besides financial considerations, according to the company's representatives, the main reasons for distributing products through proprietary stores rely either on:

(1) the need of specialized laboratories for manufacturing custom items (as per Company H); or

(2) the manufacturing and distribution of particular items, such as the eco-fashion ones (as per Company I); or

(3) the fact that the distribution network is still at its early stage and will be developed in the near future (as per companies L and M).

Company	Collaboration with external partners: Type of collaboration mechanism	Partners involved	Type of distribution network	Use of on-line sales channels
A	Collaboration in the NPD process	Co-makers (knitwear manufacturers)	Independent multi-brand stores; sales agents	No
B	Collaboration in the NPD process; Collaboration for distribution activities; Collaboration for manufacturing specific products	Suppliers; co-makers; Distributors; brand owners	Proprietary and franchising mono-brand stores (150); independent stores (1800)	No
C	Long-term partnerships	Private labels and customers	n.a	n.a
D	Long-term partnerships; Collaboration for manufacturing specific products	Suppliers and specialized co-makers	Proprietary mono-brand stores (295); independent stores (400); franchising stores; duty free	Yes
E	Collaboration in the NPD process; Long-term partnerships; Collaboration for employee training	Suppliers; Manufacturers; Sales agents	Sales agents	No
F	Long-term partnerships	Selected manufacturers	Independent multi-brand stores	No
G	Long-term partnerships	Selected manufacturers and sales agents	Independent multi-brand stores	No
H	Long-term partnerships	Selected manufacturers	On-line sales; mono-brand stores (1)	Yes
I	Collaboration in the NPD process	Suppliers	Mono-brand stores (1); specialized distributors	No
J	Collaboration in the NPD process	Suppliers	Independent multi-brand stores	No
K	Collaboration in the NPD process	Co-makers	Specialized distributors	No
L	Collaboration in the NPD process	Selected manufacturers	Independent multi-brand stores; mono-brand stores (1)	No
M	Collaboration in the NPD process; Long-term partnerships	Selected manufacturers and suppliers; Sales agents	Independent multi-brand stores (500); mono-brand stores (2)	No
N	Long-term partnerships	Manufacturers, suppliers and distributors	Specialized distributors; sales agents	Yes
O	Collaboration in the NPD process	Manufacturers	Sales agents	No

Note(s): "n.a." = not available

Table 4. Collaboration mechanisms implemented by the companies investigated

Five companies indicate that their distribution network consists of specialized *independent stores*, while two of them make use of *sales agents*. It can be seen from Figure 2 that this is always the case of SMEs, which do not have the financial resources required to open proprietary stores. We also found that sales agents are exploited by those companies, which

established proprietary brands only recently. Indeed, under that circumstance, the company's priority is establishing itself on the market, rather than opening proprietary stores.

The use of *on-line sale* channels of fashion items was indicated by 3 companies (one big company and two small companies) out of the 15 surveyed. From the interviews with such companies, it emerged that on-line sales are quite innovative tools, which have potential to increase the sales volume of the company, at the same time enhancing the customer's fidelity. Moreover, at present ICT tools (and, specifically, the Internet) are available at any company, so that the implementation of on-line sale channels is particularly easy. Among the companies surveyed, we found that Company D owns a personal on-line boutique to sell its items, while Company N exploits this channel to improve the visibility of its niche products. Conversely, 9 out of 15 companies surveyed do not use on-line sale channels, either because of difficulties in managing this channel, or of need for testing the feasibility of its implementation, or of past unsuccessful attempts.

4.2.4 ICT tools. As far as the information exchange is concerned, we asked companies about the implementation of ICT tools and about the link with supply chain partners. Table 5 summarises the answers collected.

It can be seen from Table 5 that 8 out of the 15 companies surveyed make use of ICT tools integrated with supply chain partners, with a limited number of situations (3 companies) where their use is limited to the company's internal processes. Typically, they are integrated with the company's suppliers and distributors, or with sales managers. The basic idea is to improve the information exchange with the company's suppliers and customers, especially with those located in foreign countries. Outcomes suggest that, as expected, larger companies (e.g. companies B, D and E) implemented integrated ICT tools to exchange knowledge with

Company	ICT tools Did the company implement any ICT tools integrated with supply chain partners?	Use of EDI, POSD, or RFID	ICT tools used to monitor the service level delivered to customers
A	Yes, with sales agents	No	Company's website; customer relationship management (crm) platform; social networks
B	Yes, with suppliers, distributors and manufacturers	EDI; RFID	Company's website; social networks
C	No (only internal information system)	No	Company's website
D	Yes, with suppliers, distributors, manufacturers and subsidiaries	EDI; RFID	Company's website
E	Yes, with distributors, manufacturers and sales agents	No	Company's website
F	No (only internal information system)	EDI	Company's website
G	Yes, with distributors	No	Company's website
H	No	No	Company's website; social networks
I	No	No	Company's website; social networks
J	Yes, with suppliers and distributors	No	Company's website
K	No	No	Company's website
L	Yes, with manufacturers and sales agents	POSD	Company's website; social networks
M	Yes, with suppliers, distributors and manufacturers	EDI	Company's website; social networks
N	No (only internal information system)	No	Company's website; social networks
O	No	No	Company's website

Table 5.
ICT tools implemented by the companies investigated

their network of partners. Nonetheless, we found some small-sized companies (e.g. Company M) which established such tools to improve collaboration with suppliers and customers (Figure 2).

Eco-fashion manufacturers (i.e. companies I, K and N) turned out not to use ICT tools. Given this outcome, we discussed in greater detail with the interviewees, and found that, although these companies did not implement specific software tools (because of the high cost), they are nonetheless in regular contact with supply chain partners, by means of videoconferences or other web-based tools. Indeed, since eco-fashion manufacturers produce very particular items, sold on a niche market, the collaboration with suppliers and customers is essential to ensure that the product meets the market requests. Moreover, in a specific market niche, the partnership with suppliers and customers promotes mutual collaboration and enhances the know-how of all partners.

We also found that only few companies make use of ICT tools such as EDI (Electronic Data Interchange), POSD (Point of Sale Data) or RFID (Radio Frequency Identification), with the purpose of reducing the uncertainty of demand and supply. Larger companies, such as companies B and D, implemented all the ICT tools investigated. This can be easily explained considering that EDI and RFID are quite expensive technologies and can be successfully implemented only with relevant financial investments. Companies F and M, instead, exploit only EDI with some of their direct distributors and suppliers. Finally, Company L makes use of POSD to share data related to sales volume to their distributors. The use of POSD is a consolidated and cheap means to share sales data, thus it was surprising to find that only 2 companies make use of such a tool.

We finally asked the respondents about the use of ICT tools for monitoring the service level delivered to the customers and the customers satisfaction achieved. We found that 2 tools are frequently used by the companies surveyed with the purpose of monitoring the customers' satisfaction, namely the *company's website* (15 companies) and *social networks* (7 companies). The company's website is perceived as an appropriate tool to create a link with the external environment, and is used, with this purpose, by the whole sample of companies investigated. Social networks turned out to be an emerging tool that can be used to the same extent, or to reach a specific target of customers, by splitting them up, e.g. by age, sex, education, preferences, etc. Moreover, 2 companies implemented a *CRM platform* with the purpose of collecting the customer's voice and of identifying potential new customers and make use of such tools also to monitor the achieved customer's satisfaction. Finally, 2 companies make use of more traditional channels (i.e. *compliant offices*) to monitor the customer's satisfaction, as well as to find new methods to increase the customer's fidelity.

5. Discussion

In line with the qualitative nature of our study, the findings of this work are explorative, in the form of "theory building" (Bennett and Elman, 2006).

First of all, we found that the majority of companies have introduced process innovation, in terms of advanced equipment and machineries or operation management strategies. This proves that fashion companies feel the need to modernize their production processes in order to respond to new market needs. An additional motivation is to reduce environmental impact and embrace sustainability.

As far as product innovation is concerned, companies innovate mainly in an incremental way in order to adapt new items to market trends and to meet customers' wishes through customized products.

Secondly, two main results are derived from our research, namely:

(1) the derivation of two OI patterns in the fashion industry;

(2) the formulation of research propositions (RPs), related to the OI paradigm in the fashion industry.

Based on the results presented in the previous paragraphs, some aspects related to the emergency of OI patterns in the Italian fashion industry can be delineated. Going back to the initial framework proposed in Figure 1, we found that, for all the companies, the "innovation enablers" are integrated with external partners, which is consistent with the OI paradigm. Big companies, compared to the smaller ones, show more advanced ICT tools (e.g. RFID, EDI and online sales channels). The innovation process seems to be similar in all the companies investigated. Some differences emerge, instead, as regards the goal of the new collection manufactured and the source used for manufacturing the new collection. Similar considerations hold for the external environment. Specifically, the number of collaborations with external partners is higher in the case of big companies and, with regard to the market tests, those companies used more sophisticated techniques. Overall, gathering the results from the case studies, two different OI patterns may be identified according to the size of the company (Figures 4 and 5).

Looking at the NPD process, outcomes from the case studies show that, while the main goals of the new collection are the same for many of the companies interviewed, the process of creating new models can vary depending on the company considered. In particular, small fashion companies used to adopt a single designer as dressmaker. Indeed, small companies often lack the resources required to implement and maintain a specialised design team, and, in most cases, do not require such a team, since the company business is limited to a market segment or to few customers. Conversely, bigger fashion companies are more likely to adopt a structured design team during the NPD process. The use of teams suggests that a company is prone to promote internal collaboration and integration among its business functions. The strength of this approach lies in the fact that team members often have different skills and backgrounds, so that everyone can make a significant contribution to the creation of new models (Nazzaro and Strazzabosco, 2009). As regards the way innovative ideas are generated, annual tradeshows and exhibitions emerged as an

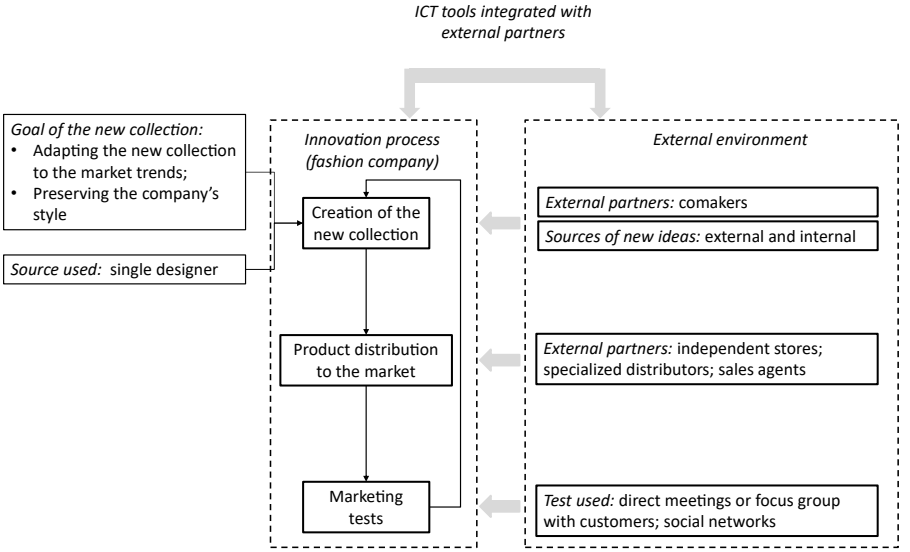


Figure 4.
Result of the study–OI pattern for small/ medium companies

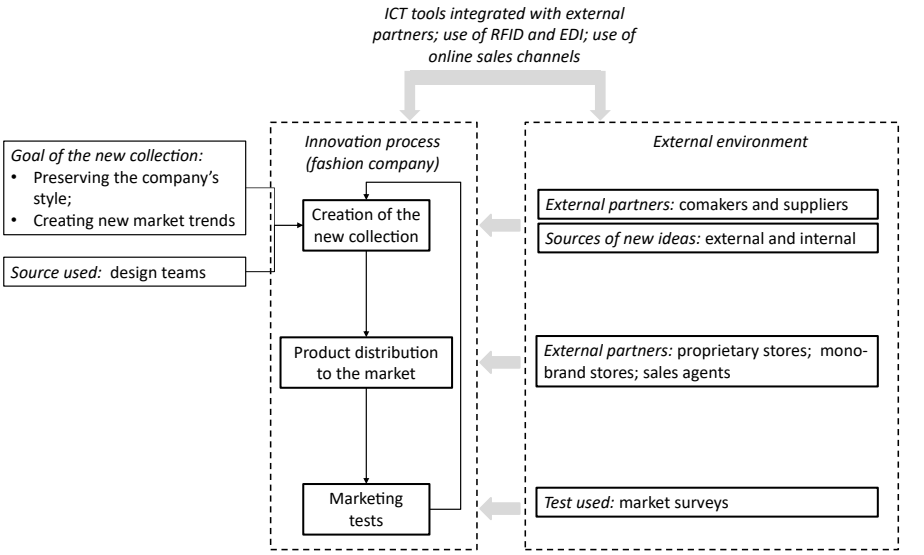


Figure 5.
Result of the study–OI pattern for big companies

important driver for the generation of new ideas, since such events attract international design elites and promote exchange of ideas (Pante *et al.*, 2008). This result also indicates that fashion companies make use of both internal and external sources of new ideas, which confirm the emergency of OI in this field. A correlation seems to exist between the use of external sources of new ideas and the fact that new collections are adapted to the market trends. In fact, many of the companies which make use of external sources also claim that their collections are frequently adapted to the market trends; the attention to the market trends, at the same time, confirms that the innovation process is carried out looking outside the company's boundaries. A similar correlation can be suggested between the use of internal sources and the preservation of the company's stylistic identity. Therefore, we can formulate the following propositions:

(1) RP1-a: fashion companies that exploit external sources of new ideas tend to adapt new collection to the current market trends;

(2) RP1-b: fashion companies that exploit internal sources of new ideas tend to preserve their stylistic identity.

Collaboration mechanisms turned out to be an important leverage for innovation among fashion companies. Indeed, collaboration among supply chain partners can lead to a more reactive channel and allows to quickly reach the final customer, which is relevant for the fashion industry (Fisher, 1997). Several companies interviewed have established mature long-term partnerships with their material suppliers, co-makers or customers. Collaboration mechanisms among fashion companies are often directed toward enhancing the supply chain coordination, as in many other businesses (Mason-Jones *et al.*, 2000). For smaller companies and those with an important share of branded labels, collaboration can be seen as an answer to the claim for more speed, by improving information flow and reducing redundancies in the channel; these are important issues in the fashion industry (Christopher, 2000). Furthermore, it is essential for fashion companies to have continuous contacts with the final customer, to ensure that the product manufactured meets the customer's requirement. In this regard, our

study shows that only few companies use tests to investigate the reaction of their customers to the new collection, but that, at the same time, these tests can be replaced by collaboration mechanisms (i.e. direct collaboration with co-makers, suppliers and external actors). Similar collaborations were found in the distribution channel: sales agents and independent retailers are the most adopted kind of distribution network. From the innovation perspective, the use of sales agents or external retailers generates collaborations and has potential to create innovation sources. Indeed, most of the companies which exploit external retailers or sales agents have also established partnerships with their distributors, with the purpose of incrementing their sales volume. From the above findings, the following proposition is derived:

(1) RP2: fashion companies tend to involve external partners (material suppliers, manufacturers, co-makers, customers, distributors and brand owners) in the process of developing new collections.

The issue of information sharing turned out to be particularly crucial, on the one hand, because companies should react with agility to rapidly changing tastes and needs of customers, and, on the other hand, because punctual and real time data are required to enable company's responsiveness. ICT tools are essential to allow the integration of data across the different business functions, as well as to elaborate data to get value-added information to support strategic and operational decision making (Christopher, 2000). Therefore, the following proposition can be formulated:

(1) RP3: fashion companies tend to use ICT tools to manage the relationship with their customers and suppliers during the development of new collections and to coordinate this process.

From the propositions derived from the multiple case study, it is possible to define some challenges and opportunities that companies in the fashion industry can seize. First, offering a product that meets market demands is the main goal for a company that wants to remain competitive in the market. The analysis of the sample companies showed that few of them used post-sale testing to assess the level of customer appreciation. However, some of them bypass this step by establishing collaborations with the end customer with the aim of conceptualizing the product. Extending this approach to as many companies as possible can lead to a twofold benefit. On the one hand, collaboration with the end customer ensures the company's success in the market, which translates into increased profits and market share. In addition, this approach enables a reduction in unsold items, which represent a cost to the company due to their storage and the resources consumed in their production.

Regarding ICT, the literature shows that companies operating in the fashion industry benefit from its tools during the process of innovation. However, the multiple case study showed that large companies are more likely to adopt advanced ICTs tools than small ones, finding tangible benefits in terms of information and knowledge sharing among network partners. Notably, our study highlights that small-sized companies classified as eco-fashion do not adopt any ICT tools. Such companies serve niche markets, consequently they would largely benefit from increased collaboration with end customers in order to meet their demands more closely. The use of ICT tools, therefore, represents an opportunity for these companies as they enable quick and effective exchange of information between partners.

6. Conclusions

In this paper, we have investigated the emergency of OI patterns in 15 fashion companies operating in Italy. A particular attention was paid to some selected aspects, which emerged from the literature as the main elements suggesting OI mechanisms in the fashion industry.

The findings obtained were summarized in two OI patterns for this industry and in a set of RPs, related to different facets of OI in the fashion industry.

Multiple case study is a qualitative methodology; therefore, our findings are not expected to "demonstrate" any specific result (Stewart, 2012). Indeed, although 15 case studies are sufficient to allow studying each company in depth, qualitatively, as a separate example, they are not enough to permit a statistical analysis of quantitative data across all cases. Hence, both the RPs and the patterns should be regarded as the basis to allow future investigations about OI in the fashion industry. They also need to be validated by means of more quantitative tools, such as statistical techniques or longitudinal studies. This is left for further studies.

Formulating RPs from case studies involves a process of "empirical generalization" (Hammersley, 2012), i.e. it implicitly assumes that a wider (compared to that investigated) population exists, with the same characteristics as that analysed. By empirical generalization of the RPs listed above, we could argue that OI patterns are indeed emerging among fashion companies. Such patterns include:

(1) the establishment of partnership with several fashion supply chain players, such as suppliers, manufacturers, co-makers, customers, distributors and brand owners, in the process of developing new collections;

(2) the use of external sources of new ideas; and

(3) the use of different kinds of ICT tools to enhance the collaboration of supply chain partners in the development of new collections and to manage the NPD process.

The results of this work are expected to encourage scholars to analyse in greater detail the topic of OI within the fashion industry. Moreover, this study could be complemented in several ways. For instance, although we proposed two patterns for OI in the fashion industry, we cannot be sure that we captured all the aspects of OI of that industry. Further relevant aspects may exist. Also, it would be interesting to investigate whether the results of this study could be replicated in industries similar to the fashion one, or whether differences in the innovation pattern can exist depending on the geographic location of the companies examined.

Besides the theoretical contributions, this study also presents some important practical contributions in terms of managerial implications, both on the level of practices and awareness. The recommendations are addressed to every level of managers but they are most relevant to the top management since they influence multiple dimensions of the innovation process management.

A first implication is general in nature and has its roots in the conceptualization of Open Innovation proposed by Chesbrough (2003). In particular, the author stresses the importance of accurately defining the company's needs in terms of lacking information and knowledge, so that it is easier to define which external sources to access. Indeed, an issue that emerged from the case study analysis is that of intellectual property protection. Resorting to a diverse network of partners to make up for technologies, competencies and knowledge that the company does not possess internally is a double-edged sword. On the one hand, it gives the company access to complementary resources; on the other hand, it puts at risk the innovative results achieved, which can be more easily imitated due to the involvement of external stakeholders. Consequently, choosing the most appropriate knowledge procurement method in order to protect innovation results is a matter of topical concern for managers.

A second managerial implication concerns the push toward collaboration by managers for the purpose of producing new ideas. Indeed, the multiple case study shows that nearly half of the companies in the sample resort to internal sources for the development of new

ideas. As pointed out by Chesbrough and Appleyard (2007) new ideas often come from outside, such as from creative individuals, innovation communities, or customers, both existing and potential. Managers must first and foremost foster collaborations with external parties, even at the early stage of product ideation. Second, in order to ensure inspired participation, the company needs to provide the right incentives to stakeholders, which can be financial or otherwise (e.g. by ensuring beneficial discounting if the idea results in a commercialized product).

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Further reading

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Appendix
scheme of the questionnaire used for the case studies

Section 1: Company profile. Please provide the following information as regards your company:

(1) Company name and location.

(2) Market segment where the company operates.

(3) Number of employees.

(4) Role and contact information (e-mail address) of respondent to the questionnaire.

Section 2: open innovation

Proneness toward innovation

(1) Did your company introduce any innovation during the last three years? Please provide some details about the innovations implemented.

(2) What is the main goal of a new collection manufactured by your company (e.g. preserving the company's style; adapting the new clothing items to the market trends; etc.)

(3) Does your company manufacture custom items? Please provide some details about the custom items manufactured.

New product development and sources of new ideas

(1) How is the NPD process organised inside your company? Does your company make use of single designers or of design teams? Please provide some details about the organisation of the team used (e.g. number of teams, structure, number of people involved, etc.).

(2) Does your company use any innovation protection mechanism? Please provide some details about the tools used.

(3) How does your company search for innovative ideas? Please indicate whether your company uses mainly "internal" sources of new ideas or "external" ones and provide some details about the sources used.

(4) Does your company perform any test to investigate the reaction of the customers to the new collection? Please provide some details about the tests used.

Collaboration with external partners

(1) Did your company establish collaboration mechanisms with supply chain partners? Please provide some details about the collaborations established (e.g. type of collaboration, aim of the collaboration, partners involved, etc.).

(2) Please describe the distribution strategy and network of your company.

(3) ICT tools

(4) Does your company exploit any ICT tool (e.g. such as EDI, POSD or RFID technology) system to improve collaboration mechanisms with supply chain partners? Are these tools integrated with supply chain partners? Please provide some details about the tools used and the partners involved.

(5) Does your company exploit any ICT tool to monitor the service level delivered to customers? Please provide some details about the tools used.

About the authors

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