Int. J. Production Economics 133 (2011) 622–633

Contents lists available at ScienceDirect

Int. J. Production Economics

journal homepage: www.elsevier.com/locate/ijpe

Supply chain management in the luxury industry: A first classification of companies and their strategies

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ARTICLE INFO

Article history:
Received 1 October 2009
Accepted 28 April 2011
Available online 19 May 2011

Keywords:
Supply chain configuration
Supply chain management
Luxury industry

ABSTRACT

This paper aims at analysing the supply management strategies in the luxury industry in order to find out (1) whether different clusters of companies could be identified within the luxury industry, on the base of a set of contingent variables derived from previous research, and (2) which supply chain strategy is currently applied within each cluster. Case study methodology is used. A sample of 15 Italian luxury companies, belonging to different industrial sectors, was taken into account.

On the basis of five classification variables (company size, selling volume, product complexity, product fashionableness and brand reputation) four clusters are identified; these clusters present differences in terms of Supply Chain strategy, as well as in terms of practices for managing manufacturing, sourcing and distribution processes.

1. Introduction

The worldwide luxury market has experienced a period of exceptional growth in recent years, reaching 175€ billion in 2008 (Altagamma, 2008). Furthermore, despite the financial crisis, spending by high net-worth individuals is forecasted to increase for the next 5 years (Bain & Company, 2008), particularly in emerging countries. But not only extremely wealthy people demand luxury products; marketing gurus state that "consumers everywhere at every income level want more luxury" (Danziger, 2005). Thus, more and more companies show a growing interest in competing in the luxury market and as long as more competitors enter the market, strategies based on marketing campaigns alone are no longer enough to ensure success.

Although a strong commitment to brand repositioning and consolidation is essential to achieve success (Moore and Birtwistle, 2004), marketing efforts alone cannot guarantee long-term stability. Christopher (2007) states that the concept of "value" is more and more related to the services that the supply chain (SC) is able to offer to the customer. Nueno and Quelch (1998) observe that many factors contribute to success in the luxury industry, from design and communication management to customer service and channel management (Castelli and Brun, 2009). In conclusion, the entire SC appears to be relevant to success in the luxury industry, although research into this area has been very limited so far (Brun et al., 2008).

For this reason, it is necessary to understand the role of operations and SC management in the success of luxury companies. This paper presents the results of a broad research project that studied the high-end segment of several industrial sectors so as to understand whether and to what extent some specific features of each industrial sector affect managerial choices in terms of SC strategy.

At this point, it is worth noticing that the concept of "luxury" cuts across the traditional industrial sectors by comprising the top segment within various industries. Therefore, companies from different industrial sectors must be considered when addressing this topic. Indeed, companies operating in niche markets are not as concerned with intra-industry competition as with cross-industry (that is, indirect) competition within their market segment (Porter, 1980). The high-end segment of traditional industrial sectors is hereinafter referred to as the "luxury industry"; companies operating in the luxury industry are referred to as "luxury companies".

The first step of the project was an exploration into operations and SC aspects of the luxury market (Brun et al., 2008). Several Italian luxury companies were studied; the output of this study was the definition of suitable SC choices according to the competitive priorities of the supply chain. In the second step of the project, a literature review of SC strategy models was carried

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doi:10.1016/j.ijpe.2011.04.030

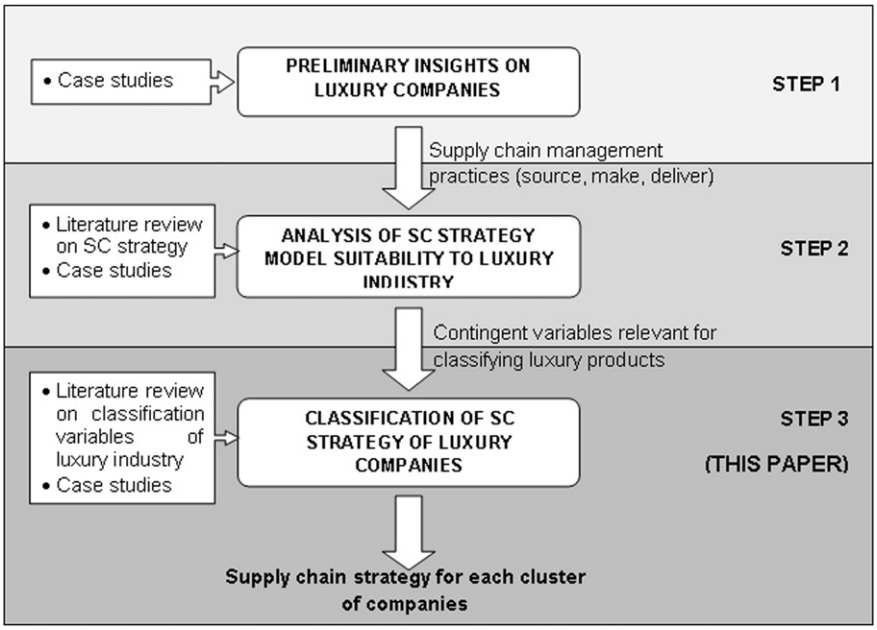

Fig. 1. The different steps of the research project.

out. Several models were analysed to assess their suitability for the luxury industry and their capability in distinguishing between luxury and mass market segments (Caniato et al., 2009). According to Caniato et al. (2009), not all contingent variables extracted from the SC strategy models proved to be applicable to companies operating in the luxury market. Although some of the models we considered offer useful contingent variables for identifying and classifying luxury products, they are not adequate for providing a complete description of luxury segments or their requirements in terms of SC strategy, since many of the luxury-specific critical success factors have not been addressed by SC strategy research. The study presented in this paper aims at bridging the gap between research and practice by making a first step towards a definition of a luxury SC strategy. Fig. 1 shows the different research steps and clarifies the input and output at each step.

This paper provides case-based evidence with regards to the most appropriate managerial choices currently applied in specific instances of luxury business. In particular, the 15 case studies are clustered on the basis of five classification variables derived from the literature (i.e., product complexity, selling volume, product fashionableness, brand reputation and company size). Two of these variables (namely, product complexity and selling volume) emerged as the most discriminatory variables in terms of SC management strategies and they allowed us to identify three homogeneous clusters. For each cluster, the related set of SC configuration and management practices is analysed to investigate differences within the luxury segment.

The paper is organised as follows. First, we present an overview of the literature that addresses both the characteristics of luxury business and SC strategies in order to outline the context of this study. Second, our research framework and goals are formulated and our methodology is explained. Finally, we describe the findings of the study and discuss the implications.

2. Literature review

We carried out an in-depth literature review to define the research framework. The review is twofold. First, we review academic publications dealing with SC strategy in general and then we analyse contributions specifically addressing the luxury industry in terms of critical success factors and SC strategy and are reported in Sections 2.1 and 2.2, respectively.

2.1. Choosing the right supply chain based on products and markets

These days, SC management is critical to remain competitive on the market. Companies must ensure the delivery of products to customers and match product characteristics with customer requirements (Stevens, 1989; Li and O'Brien, 2001; Aitken et al., 2003; Holweg, 2005; Demeter et al., 2006). In particular, the right supply chain strategy should be aligned with a product's critical success factors (CSF) in the target market (Rockart and Van Bullen, 1986). As a result, the same SC strategy is not always suitable in all situations and a strong market orientation is increasingly necessary in order to generate the right CSFs. This causes many differences among supply chains due to different CSFs (Fisher, 1997; Frohlich and Dixon, 2001; Schnetzler et al., 2007).

Given the complexity of the topic, many authors have tried to formulate a framework that could drive firms towards the right SC strategy with respect to the following factors:

- SC configurations, that is, the number, role and locations of the various SC actors who perform the different processes (namely, sourcing, manufacturing and distributing) (Nassimbeni, 1998; Harland et al., 1999). This dimension relates, for example, to the number of tiers in the SC, the number of players in each tier, their geographical dispersion (global vs. local), etc.
- SC management practices related to different configurations (Lamming et al., 2000; Giannakis and Croom, 2004; Bruce et al., 2004; Harland et al., 2004; Christopher et al., 2004). This dimension relates to the use of information-sharing tools, quality management practices, co-design approaches, etc.

Several authors have demonstrated such dependence on product and/or market characteristics, starting with Fisher (1997), who identified two classes of products, namely, functional and innovative products that in turn require different supply

chains. Functional products match with a physically efficient SC strategy, while innovative products match with a market-responsive one.

Subsequently, other authors have expanded Fisher's model; Lamming et al. (2000) considered product uniqueness and product complexity, while Lee (2002) highlighted the relevance of both supply and demand uncertainty.

Moreover, other authors have created parallel models by considering dominant CSFs (Christopher and Towill, 2002) or combinations of variables such as duration of life cycle, lead time, volume, variety and variability (Childerhouse et al., 2002; Vitasek et al., 2003; Cigolini et al., 2004). Lee (2004) defined the so-called triple "A" supply chain (namely, Agility, Alignment and Adaptability), which is needed in order to build a competitive and sustainable SC.

Although all of the above authors have highlighted the fact that a one-size-fits-all approach cannot work and documented this observation through case studies from several industries, but none of these studies explicitly took luxury goods into account. As such, it cannot be taken for granted that the SC configurations and practices that are applied to mass markets also fit the luxury segment (Abecassis-Moedas, 2006). Caniato et al. (2009) provided a detailed analysis of the aforementioned SC models, demonstrating they can only be applied to the luxury industry to a very limited extent.

In order to overcome the lack of specific contributions in this area, the present study focuses on those companies operating in the luxury industry.

2.2. Specific requirements for operating in the luxury industry

The luxury market encompasses many industries ranging from automotive to apparel, yachts and leather bags and so CSFs related to technology or industry-specific characteristics are often very different. However, it is possible to identify CSFs that are particular to the luxury market that are constant even for companies in different industrial sectors (Nueno and Quelch, 1998), which can lead to similarities in supply chain management.

Caniato et al. (2009) provided an extensive review of the literature dealing with the luxury market. Based on these scientific contributions and on a multiple-case study analysis that involved major Italian luxury companies, Caniato et al. (2009) identified a set of CSFs for competing in the luxury market, which they list as premium quality, craftsmanship, exclusivity, brand building, style and design, emotional appeal, country of origin, uniqueness, performance and innovation and lifestyle creation. Case studies showed that a luxury product does not necessarily include the whole list of CSFs, but typically only four or five CSFs.

In fact, we can distinguish between "fashion sensitive" (or "fashionable") products, which basically includes apparel, shoes, bags and accessories, that are typically subject to seasonal fashion trends and less fashion-sensitive products (like furniture, cars, watches and yachts), which have aesthetic requirements that do not vary as much over time as in the "fashionable" industries (Caniato et al., 2009). For fashionable goods, brand, emotional appeal, style and design aspects are more relevant than quality or technical performance, while the reverse applies for less fashion-sensitive products, such as sports cars. Consequently, depending on the fashion sensitiveness and related CSFs, a luxury product or brand can be considered a symbolic luxury or a technical luxury (Brun et al., 2008).

With respect to a company's choice of the appropriate SC strategy, Caniato et al. (2009) considered the SC strategy models summarised in Section 2.1 and tried to apply them to luxury firms belonging to various industrial sectors. Not all variables extracted from the models proved to be applicable to companies operating in the luxury industry. Moreover, despite the applicability of some classification variables, the SC strategies suggested by those models did not fit well with the luxury segment. This suggests the need to propose a specific SC strategy model suitable for the luxury market. In addition, the analysed models suggest only high level strategies, which, due to the large scale of model formulation, do not fully detail all operational issues and practices. As a result, seven variables emerged as significant for and applicable to the luxury industry, including uniqueness, quality, product variety, product complexity, supply profile, selling volume, volume variability and market requirements. Uniqueness (Lamming et al., 2000) and quality (Christopher and Towill, 2002) are common to the entire industry, since all luxury firms aim to establish the uniqueness and superior quality of their product. These two variables distinguish luxury from mass products, but they do not help in making distinctions within the luxury segment. The same goes for product variety, as the majority of luxury companies offer a high number of variants of its products, implying low volumes for each variant. The fourth variable is product complexity (Lamming et al., 2000), which is measured as a function of the number of components and their technological intensity. This variable has a high classification power for different products, since there are both low-complexity (e.g., shoes) and high-complexity (e.g., cars) luxury products. In addition, authors identified different supply profiles (Lee, 2002) (that is, stable or evolving) in the luxury industry. Another two significant classification variables are the total selling volume of the firm (Waddington et al., 2002; Childerhouse et al., 2002) and their variability (Vitasek et al., 2003). Finally, luxury firms can face different market requirements (Lee, 2004) depending on their CSFs.

According to Caniato et al. (2009), these characteristics lead to different SC strategy implications. Uniqueness demands the protection of unique resources along the supply chain (Lamming et al., 2000). Product complexity affects the way in which the supply network must be managed (Lamming et al., 2000). Different supply profiles must be managed either through efficiency-oriented or risk-hedging strategies, depending on whether one has a stable supply or an evolving supply, respectively (Lee, 2002). A high-variety, low-selling volume creates a situation of unpredictability that pushes luxury companies toward make-to-order approaches or (where applicable) to collaborate and exchange information with retailers. Furthermore, to ensure premium quality, companies have to properly control and manage their supply chain (Christopher and Towill, 2002). Some companies can manage products with different volume-variability profiles, thus requiring different SC management styles within the same firm (Vitasek et al., 2003). Finally, companies have specific CSFs with which SC strategy must be aligned (Lee, 2004).

3. Research framework and objectives

In our previous work (Caniato et al., 2009), we showed that some of the models for choosing the right SC strategy offer useful contingent variables for identifying and classifying luxury products. However, this is not yet enough to provide a complete description of the luxury industry and its requirements in terms of SC strategy, because many luxury-specific CSFs have not yet been addressed by SC strategy research. The particularity of the luxury market demands an alignment of the entire SC not just towards cost and speed performance but primarily towards the specific objectives of the CSFs (Lee, 2004). Furthermore, despite the applicability of some classification variables, not much evidence can be found in the literature regarding matching SC strategy. So far, only a few implications for SC strategies have been identified, but we do not yet know how companies in the luxury industry implement these strategies in terms of SC

Table 1
Relevant variables, supporting literature and measures in this paper.

Variables	Supporting literature	Measure in this paper	Notes
Uniqueness	Caniato et al. (2009) and Lamming et al. (2000)	Not considered	Not used as classification variable since it is common to all luxury firms
Quality	Caniato et al. (2009) and Christopher and Towill (2002)	Not considered	Not used as classification variable since it is common to all luxury firms
Variety	Caniato et al. (2009) and Christopher and Towill (2002)	Not considered	Not used as classification variable since it is common to all luxury firms
Supply profile	Caniato et al. (2009) and Lee (2002)	Not considered	Not used because different supply profiles for different materials/components can be found within the same firm.
Volume variability	Caniato et al. (2009) and Vitasek et al. (2003)	Product fashionableness	Fashionable products face high seasonal variability
Market requirements	Caniato et al. (2009)	Brand reputation (symbolic or technical)	According to the brand reputation market requirements change
Selling volumes	Caniato et al. (2009), Waddington et al. (2002) and Childerhouse et al. (2002)	Selling volumes (units per year)	Same as in previous contributions; despite volumes are lower compared to the mass market, differences within the luxury market exist
Product complexity	Caniato et al. (2009) and Lamming et al. (2000)	Number of components and technological intensity	Same as in previous contributions
Company size	Bruce et al. (2004) and Christopher (2000)	Turnover	Large firms can play an influential role in the supply chain

configuration and management practices, nor do we know whether there are commonalities among companies. This suggests the necessity of proposing a specific SC strategy model to fit the luxury industry.

Therefore, the goal of this research is to provide both an exploratory and explanatory study of SC management strategies and practices in the Italian luxury segment. In particular, we aim not only to describe the SC of Italian luxury firms but also to understand the significant links between contingent variables and SC strategy and practices in those companies.

In order to pursue these objectives, we start from the seven relevant variables that we identified in our previous work (Caniato et al., 2009). We introduced some adjustments and proxies to better fit the luxury industry and achieve comparability among very different product types and cases. First of all, we do not consider uniqueness (Lamming et al., 2000), quality (Christopher and Towill, 2002) or variety in this framework, since they do not vary among luxury product or market cases, even if they remain fundamental to correctly understanding luxury supply chain practices. Next, to evaluate demand characteristics, including volume variability (Vitasek et al., 2003) and market requirements (Lee, 2004), we use two proxy variables, namely, product fashionableness (Cappetta et al., 2006) and brand reputation—technical vs. symbolic (Brun and Castelli, 2008; Brun et al., 2008). We prefer to use these variables because they are more appropriate in the luxury context. This substitution is appropriate since, as reported by Christopher and Peck (1997), fashion products are intrinsically related to higher variability and seasonal demand. Moreover, product fashionableness and brand reputation are the main determinants of the market requirements. Supply profile is also a relevant variable; however, several different profiles can be found within the same company for different materials, components or operations. Therefore, we cannot use this variable to classify companies, since in many cases, a combination of stable and evolving supply profiles can be found. In addition, in line with Caniato et al. (2009), we consider selling volume and product complexity, which are also fully applicable to luxury products. Although selling volume in the luxury market is definitely lower than that of the mass market, relevant differences also exist within the luxury market, thereby supporting the use of this variable. Finally, we add company size, which is a relevant explanatory factor (Bruce et al., 2004; Christopher, 2000) because larger companies have the financial resources and bargaining power to shape their supply chain, while we expect smaller companies to be more reactive to supply chain pressures. The relevant variables, the supporting literature and the measures adopted in this paper are shown in Table 1.

On the basis of the literature review and the results of our previous research (Brun et al., 2008; Caniato et al., 2009), the following research questions have been formulated:

1. *How can luxury companies be clustered according to the classification variables that emerged as relevant based on our review of the previous literature?*
   That is, we aim to understand whether it is possible to group luxury companies according to the variables that emerged from the SC-related literature (namely, company size, selling volume, product complexity, product fashionableness and brand reputation).
2. *What are the SC strategies, in terms of both configuration and management practices, for each cluster of firms?*
   Since different product and market characteristics are expected to require different SC strategies (Caniato et al., 2009), we aim to investigate whether and how the different clusters of luxury firms, as identified based on the previous research question, actually pursue different strategies. SC strategies are defined in terms of company configuration and the management of manufacturing, sourcing and distribution practices. Their coherence with the rest of the cluster's CSFs is also analysed.

The research framework is shown in Fig. 2.

4. Methodology

In this section, we present the methodology adopted in this study, the sample selection (Section 4.1), the classification variables (Section 4.2) and data analysis method (Section 4.3).

4.1. Sample selection

To investigate our research questions, we analysed a sample of 15 luxury goods manufacturers in Italy (Table 2) by adopting a multiple case study as our research methodology. According to

Fig. 2. Research framework.

Table 2
The sample.

Main products	Case ID	Employees	Turnover (M€)	Production location
Yachts	A	1841[b]	796[b]	Italy
Watches	B	400[a]	260[a]	Switzerland
Furniture	C	230[a]	64[a]	Italy
Furniture	D	94[a]	46[a]	Italy
Furniture	E	475[b]	110[b]	Italy
Cars	F	2438[a]	1513[a]	Italy
Bags	G	73[b]	21[b]	Italy/Far East
Bags	H	84[a]	129[a]	Italy
Bags	I	35[b]	11[b]	Italy/East Europe
Fabrics	J	450[b]	652[a]	Italy
Shoes	K	24[b]	4[b]	Italy
Shoes	L	43[b]	4[b]	Italy
Shoes	M	305[b]	59[b]	Italy/East Europe
Apparel	N	216[b]	50[b]	Italy
Apparel	O	154[b]	29[b]	Italy/Far East

[a] Referred to 2006.
[b] Referred to 2007.

Yin (1984) and Eisenhardt (1989), this number can be considered sufficient to provide an accurate account for an exploratory study.

In particular, we selected globally recognised Italian traditional-luxury companies with internationally recognised brands that have paid sufficient attention to developing SC strategies that can allow them to compete globally. We intentionally considered a broad variety of industries and products, including cars, yachts, furniture, shoes, apparel and accessories. Therefore, our sample is made of both large and small firms; the former are global players focused on the luxury segment, while the latter are traditional Italian firms that now face great challenges in building global SCs. This gave us the ability to analyse different contexts and contingent factors and to interpret convergent and contrasting results among cases according to the principles of both literal replication (where some cases are expected to provide similar results) and theoretical replication (where some cases are expected to provide contrasting results for predictable reasons) (Yin, 1984).

By comparing the selected companies' features to the literature and other secondary sources (e.g., luxury industry reports and financial databases), we can assume that this set of cases is representative of the Italian companies competing in the luxury market. We cannot claim that all of these companies represent the best practice in the luxury domain; however, our cases are recognised as high-performing players and they all devote attention and concern to SC management. In addition, all companies in the sample have shown a significant growth trend in the last decade, with a significant slowdown in 2008/2009 due to the world financial crisis, which occurred across the entire industry. A further element that indicates a positive performance for these companies is the growth in retail networks, which is expected to support the financial recovery.

Information was collected from the 15 firms included in this study by means of semi-structured interviews and document analysis. Interviews were based on an interview protocol structured in the following way. First of all, general information about the company was solicited (e.g., turnover, number of employees and general product description). Next, we identified and focused on the dominant products and channels in terms of revenues. After that, a detailed product description (e.g., number of components, technological intensity, degree of customisation and elements of uniqueness) was requested and the main CSFs were identified. Both luxury-specific CSFs (e.g., brand reputation) and traditional CSFs (e.g., service level) were investigated. The latter reflect an operations management point of view, in contrast to luxury-specific CSFs, which clearly reflect a more market-perspective-oriented point of view. As for traditional CSFs, we focused on those suggested by Christopher and Towill (2002), namely, quality, delivery lead time, cost, flexibility and service level. Next, data about distribution channels and demand were collected (e.g., seasonality, localisation and order winners). Finally, the interview focused on the supply chain (e.g., number of levels, inventories and decoupling points) and supply chain management (e.g., strategies, tools and relationships with suppliers and customers). When possible, multiple interviews with owners and general managers (in the case of smaller firms) or operations managers (in the case of larger firms) were conducted to achieve a broader perspective and triangulate data. Interviews were recorded and summary reports for each firm were prepared. A cross-case synthesis technique was used to analyse and compare data from the research. Moreover, pattern-matching and explanation-building techniques were helpful for understanding how different critical success factors impact SC strategy and management choices (Yin, 1984). Table 2 summarises the main features of the sample under analysis.

4.2. Classification variables

For each variable, we defined possible values by setting a threshold to allow the classification of our cases:

- *Product fashionableness*—fashion-sensitive vs. a fashion-insensitive market.
- *Brand reputation*—a technical, symbolic or technical-symbolic brand.
- *Selling volume*—high or low volume (we considered a threshold of 100,000 units sold per year to represent high volume).
- *Product complexity*—low or high complexity (we considered a threshold of 100 components in the bill of materials to represent high complexity).
- *Company size*—small or large company (based on whether their turnover was below or above 50 M€).

It is important to note that such variables are strongly tied to the literature, but the thresholds (e.g., high vs. low volume) we use are defined according to the specific characteristics of Italian luxury firms.

These variables were expected to allow the classification of targeted companies into different clusters based on factors that are considered exogenous to the SC process. In this way, we can

Table 3
Cases classification – product fashionableness (fashion sensitive=S; fashion non-sensitive=NS) – product complexity (simple=S; complex=C) – selling volumes (high=H; low=L) – company size (large=L; small=S) – brand reputation (technical=T; symbolic=S).

Case ID	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Product fashionableness	NS	S	NS	NS	NS	NS	S	S	S	S	S	S	S	S	S
Product complexity	C	S	C	C	C	C	S	S	S	S	S	S	S	S	S
Selling volumes	L	H	L	L	L	L	L	H	L	H	L	L	H	H	H
Company size	L	L	L	S	L	L	S	L	S	L	S	S	L	L	S
Brand reputation	T/S	S	T/S	T/S	T/S	T/S	T	S	T	S	T	T	S	S	S

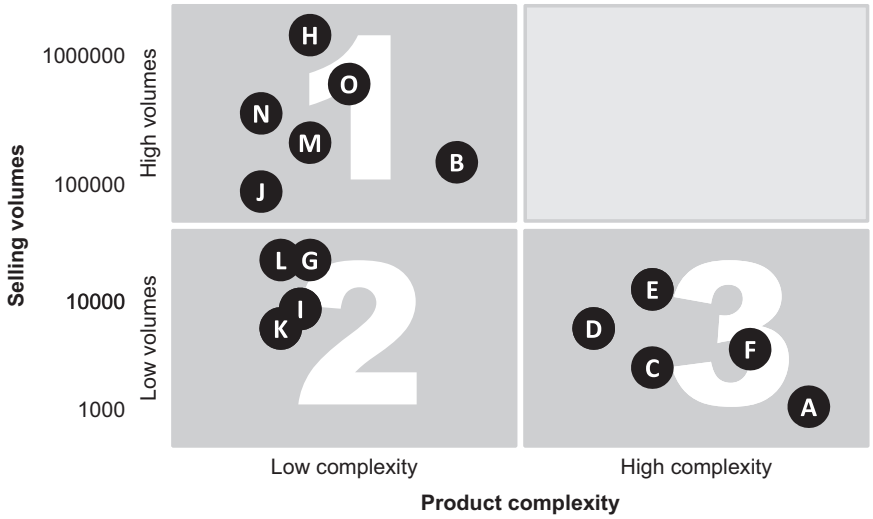

Fig. 3. Values of selling volumes and product complexity observed in the case studies.

investigate whether SC configuration and management practices concerning sourcing, manufacturing and distribution actually differ across the various clusters.

4.3. Data analysis method

The information collected through the case studies was analysed and interpreted to answer our research questions.

The five classification variables were examined pairwise and the sample companies were positioned according to these variables. Selling volume and product complexity appeared to be the most discriminating variables and thus were chosen as a basis for classification, thereby defining four possible clusters represented on a two by two matrix. The remaining classification variables, namely, company size, product fashionableness and brand reputation, were analysed with respect to the selling volume vs. product complexity matrix, in order to better characterise the clusters.

This classification allowed us to identify homogeneous clusters of firms, leading us to expect homogeneous SC strategy implications in each cluster (following Caniato et al., 2009). In light of these implications, we analysed configuration and management practices by looking for commonalities within each cluster and differences among them. In this way, it was possible to suggest possible matches between classification variables and the applied SC strategies.

5. Data analysis

In this section, the case studies are analysed. In particular, some general considerations about common features observed during the case studies are reported and then the classification model is presented in detail.

It is possible to recognise some common environmental and strategic elements that apply to all of the companies involved in the research. All these firms operate in a hard-to-manage context, namely, a global market, sometimes with very tight time-to-market, in which firms always face new and varying trends, where it is necessary to support one's brand image and prevent counterfeiting. To face the challenges of this context, firms can reduce competitive pressure to some extent by leveraging the power of their brands; for example, they can voluntarily limit the production volume or impose longer delivery lead times to increase product exclusivity or rarity.

Another common factor is that every firm is mostly focused on a single product type, such as shoes, cars or yachts. This focuses the efforts of resource-intensive processes (e.g., design, quality management and branding) on the core product; consequently, the production of accessories and licensed products is usually outsourced to external suppliers.

Furthermore, these firms pay great attention to their distribution channels because they have a critical role in supporting the product image. There are several kinds of channels, including directly operated stores (DOS), mono-brand franchising stores or multi-brand independent stores. All of the above channels should support the brand's image and convey its lifestyle features, which are included in the list of CSFs for the luxury industry; see Brun et al. (2008). It is worth noting that each channel has to be properly managed according to the company's specific target customers. In particular, firms have a direct responsibility for DOS stores, whereas they normally use monitoring and rating procedures for non-DOS stores.

As far as the classification model is concerned, the observed values of the five variables used for describing luxury companies (namely product fashionableness, product complexity, selling volume, company size and brand reputation) are shown in Table 3.

Two of these variables, namely, selling volume and product complexity, are best suited to classify the sample, as is shown in Fig. 3, where volume is measured on a logarithmic scale. Fig. 3 identifies four different areas. The analysed sample showed no evidence of high volume or high complexity; this may be due to the fact that it is difficult to find luxury manufacturers of complex luxury products that sell at very high volume. However, a larger sample should be used to generalise this result. Therefore, three non-empty areas are presented.

As far as the other three variables are concerned, their values are correlated to selling volume and product complexity:

- *Company size*—this variable is measured through turnover, and it is therefore related to volume and prices, which themselves turn out to be related to product complexity. As a consequence, the largest firms are located in Area 1 (with high volumes of simple products) or in Area 3 (with low volumes of complex, expensive products). In contrast, Area 2 (with low volumes of simple products) includes small firms.
- *Fashionableness—fashionable products* turn out not to be complex in nature. As a result, all "fashionable firms" are located in Areas 1 and 2.
- *Brand reputation*—The case studies show that Area 1 contains those brands that mainly rely on symbolic aspects, whereas Area 2 includes technical brands. Hybrid (that is, technical-symbolic) brands are located in Area 3. This happens because large firms (i.e., Areas 1 and 3) have the necessary resources to build and support the symbolic reputation of their brand through intense marketing campaigns. In addition, firms in Area 3, which produce items such as sports cars or motor yachts, also rely on technical appeal thanks to the complex nature of their product; however, they are increasingly pursuing a branding strategy that adds symbolic value to their brands. Finally, firms in Area 2 focus their brand strategy on technical details that give products a higher intrinsic value, e.g., the use of exotic leather for shoes and bags.

Apart from the classification variables, each cluster shows some specific supply chain strategy implications (Caniato et al., 2009). In fact, some of these variables (i.e., the protection of unique resources, the assurance of superior quality along the entire SC and make-to-order products) are shared by every cluster, as they refer to quality, uniqueness and variety characteristics that are common across the entire luxury industry. Nevertheless, we note some cluster-specific SC strategy implications that are related to the different CSFs.

To summarise this analysis, Fig. 4 presents the values assumed by product fashionableness, company size and brand reputation for each area.

6. Results and discussion

Finally it was possible to organise the case studies into three clusters depending on their positioning relative to selling volume and product complexity. This clustering is a major result of the research, because each cluster appears to be internally homogeneous with respect to many SC practices.

In the following sections, each cluster is presented in terms of SC configuration and practices by describing the main features of the observed manufacturing, sourcing and distribution processes and their consistency with demand features and CSFs. The main features of each cluster are shown in Fig. 5.

6.1. Cluster 1: fashion Goliaths

This cluster includes large international players in the fashion world that sell high volumes of products; their famous brands have a dominant symbolic reputation.

In terms of luxury CSF, they are focused more so than other clusters on building an emotional appeal for the brand as well as emphasising premium quality, style and design, country of origin and craftsmanship. Aside from quality, they are seldom preoccupied with other traditional CSFs (i.e., costs, delivery lead time, flexibility and service level), even if they increasingly must take service level and delivery lead time into consideration, at least as market qualifiers.

Manufacturing process: In line with Christopher et al. (2004), the fashion world in which these companies compete is driven by seasonal events. There are three main phases per season, namely, collection design, where the deadline is presentation to the market, production phase, which is based on orders and the replenishment phase. This structure implies a swinging demand profile with a very short maturity period in the product lifecycle. Furthermore, the demand for a single product is hardly predictable, as it is subject to fashion trends.

The SC has to be efficient in the production phase and flexible during the replenishment phase in order to follow a demand pattern that is unpredictable both in terms of volume and content.

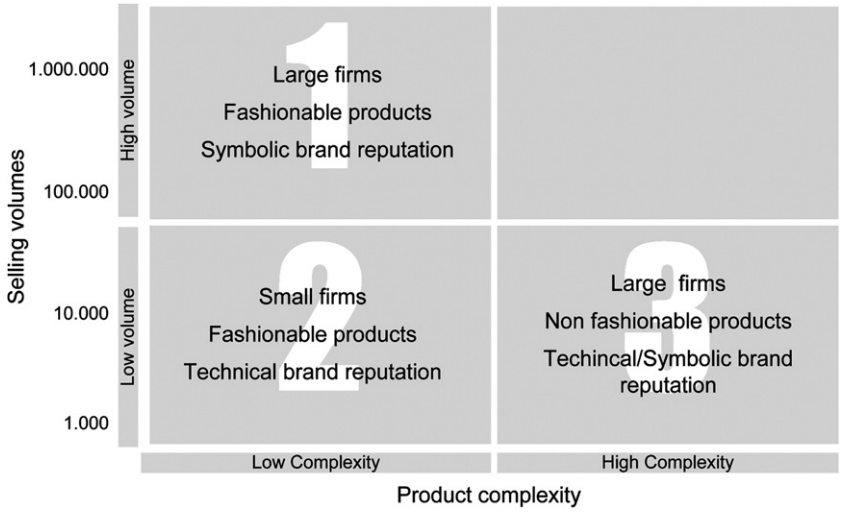

Fig. 4. Cluster characteristics in terms of descriptive variables.

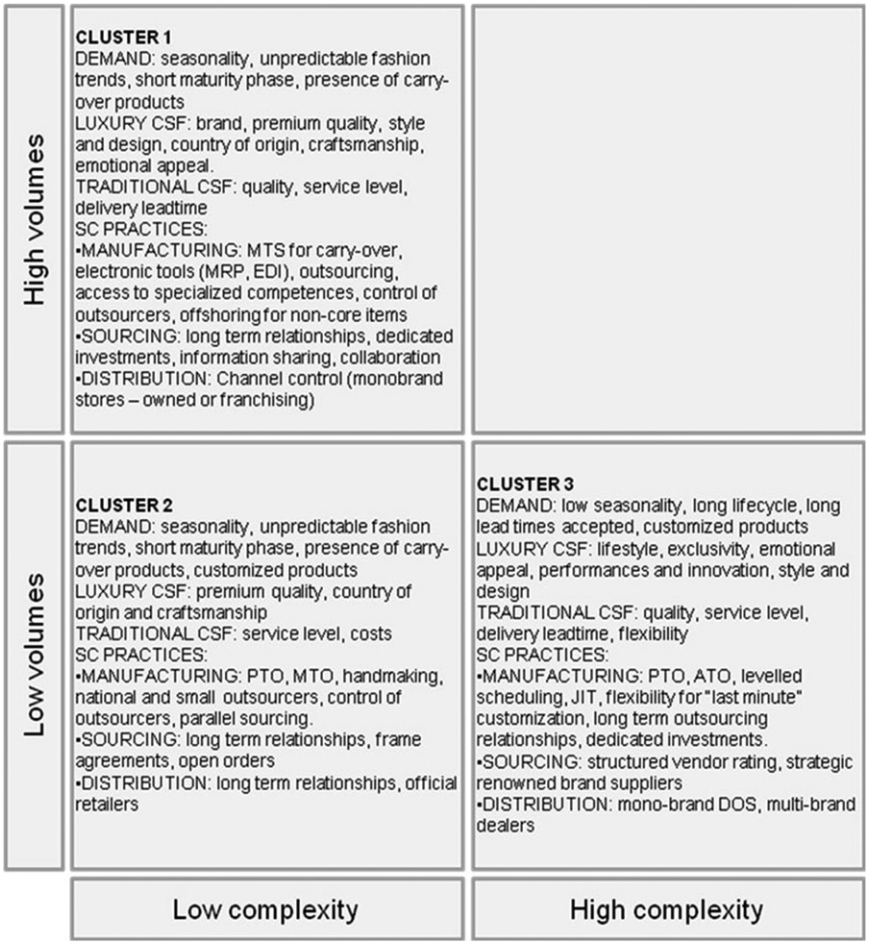

Fig. 5. Demand features, CSF and supply chain practices observed in the case studies.

Firms often aim at improving reactivity by means of a make-to-stock strategy for part of production, thereby implementing a hybrid approach in line with Bruce et al. (2004). Indeed, a pure make-to-stock approach is not the solution for luxury companies, as they normally deal with a risk of obsolescence that is higher than non-luxury firms due to higher unit costs. Moreover, to better follow demand, electronic ordering and sales monitoring technologies are often used.

The manufacturing of continuative (or carry-over) products is planned on the basis of economic batches due to the lower risk of obsolescence. Cigolini et al. (2004) suggest an "efficient" SC for products characterised by a long lifecycle; however, even though these companies are interested in keeping costs under control, efficiency is not the main focus for the companies included in this cluster. This is even clearer when discussing localisation choices.

Regarding the localisation of manufacturing plants, low complexity and high volumes of products allow for possible offshoring strategies. Still, these are very seldom used for the core products if the CSFs of premium quality, country of origin and brand building might be negatively affected; in other words, offshoring could possibly undermine company alignment with CSFs (Lee, 2004). Moreover, offshoring would only improve cost performance, which is not a major objective for these companies, while it could negatively affect service level and delivery lead times. As a consequence, in our sample, only entry-level products and some accessories are produced offshore. This is a major difference as compared to the mass market, where production is heavily offshored.

Outsourcing is a common practice. This generally happens in the mass market for commodity products and/or processes and/or for the most labour-intensive production phases. In contrast, luxury companies often outsource in order to access specialised competencies, or even craftsman skills, since craftsmanship is a relevant CSF. Of course, when a significant portion of activities is outsourced, the focal firm's performance strongly depends on its partners. This demands strong coordination and a high level of level. For instance, company H outsources manufacturing of leather goods to a wide network of very small and specialised local companies; this is typical in the Italian luxury fashion context (Djelic and Ainamo, 1999). The relationship with these ateliers is managed as if they were part of the focal company. In fact, strict control is applied over component and raw material utilisation, order scheduling and delivery planning both to ensure compliance with production plans and to prevent the risk of counterfeiting via parallel markets. These practices aim at protecting unique resources (Barney, 1991; Lamming et al., 2000).

Sourcing process: In the luxury segment, high quality is a *must*. Therefore, sourcing must ensure high quality in raw materials and components; every phase of the manufacturing process must comply with the desired quality level to deliver a genuine, premium-quality product. As a consequence, materials often must be sourced from particular countries (e.g., tanned leather from Italy, cashmere wool from India, or crocodile from Australia) and reliable suppliers.

Moreover, large company size and renowned brands produce strong bargaining power. From the SC point of view, this allows firms to control and develop their suppliers and to obtain specific investments from suppliers such as dedicated machinery for special material processing, for instance, for cashmere yarn

production for company N. This kind of interaction offers an example of Kralijc's (1983) suggestions; long-term relationships between companies and suppliers are observed and they are often enhanced by information-sharing and collaboration in production planning phases.

Vendor selection criteria vary according to the supplier type. Superior quality is the main criterion when supplying critical materials (e.g., leather or special fabrics for companies H and M, respectively), while suppliers of standard materials (e.g., small metal components for bags and shoes) are selected on the basis of their cost/service level ratio. Companies often prefer to buy the most critical materials in advance and keep them in stock (e.g., raw cashmere wool) in order to obtain the finest quality batches and/or to reduce dependence on supplier delivery performance. For instance, company M applies an order point system to calfskin leather in traditional colours, while company B keeps stocks of watch movements.

Distribution process: Companies dealing with symbolic brands have to carefully manage their distribution pipeline to align it with the appropriate CSFs (Lee, 2004; Brun et al., 2008). Product display, availability and variety at the point of sale are essential for supporting the symbolic brand aura created by consumer marketing and, by extension, the related CSFs. For luxury firms in particular, a complete shopping experience conveys the appropriate emotional appeal, which is another relevant CSF, and contributes to customer satisfaction and to the feeling of direct contact with the manufacturing company. Control over the distribution network is pursued mainly through two approaches. The first consists of directly operating a network of points of sale, which are often designed by famous architects as concept stores; this approach is often limited by financial constraints and by the lack of space in the most attractive and prestigious areas (e.g., historical city centres). This has happened, for instance, for company J, which in order to reach visibility in the most prestigious locations has set up a retail partnership with another luxury fashion brand that already owns a directly operated retail network.

The alternative approach consists of opening non-directly operated, mono-brand points of sale (i.e., franchising stores) and training the shop's personnel regarding product features and customer relationships. Both of these approaches provide the opportunity to implement electronic ordering systems, monitor sales and obtain customer information to be used for loyalty programs. In the most advanced cases, there is the possibility of transhipment among shops. Of course, many of these firms also use independent shops as a retail channel, with a preference for luxury department stores. In this case, they often opt for the shop-in-shop model.

Conclusions: The relatively high volumes and the presence of longer lifecycle products allow these companies to adopt some supply chain practices that partly resemble mass-production, such as make-to-stock, production offshoring, or the use of MRP or ERP systems as adapted to the luxury context. However, these cases are compliant with the expected strategy implications for a luxury SC (Caniato et al., 2009). For highly seasonal and unpredictable products, the SC is organised to be reactive and hedged in the case of possible supply disruptions with strategic inventories. The imperatives to protect unique resources and to ensure top quality create the need for tight control over the sourcing network and supplier selection criteria, while the enhancement of brand reputation necessitates control and ownership of the distribution channels.

6.2. Cluster 2: quality Davids

Cluster 2 includes small players of the fashion world, including companies with low product volumes of brands that mainly have a technical reputation. It is not inappropriate to use the term "technical performance" when dealing with shoes and bags; indeed, a perfectly fitting shoe or a bag that survives the stress of everyday life without sustaining damage will perform significantly better than substitute products that quickly become uncomfortable or fall apart. This superior quality is due to advanced technical features.

The main luxury CSFs for Cluster 2 are premium quality, country of origin and craftsmanship. As far as traditional CSFs, the reputation of these companies is also based on high service levels. Attention to costs is higher than in other clusters, whereas flexibility does not seem to be so critical to this group, probably because they are already sufficiently flexible.

The main difference as compared to larger firms is that, due to their small size, these players have less freedom in formulating their strategies; for instance, they can hardly own a network of directly operated points of sale (as happened with company K, which regrets the decision not to invest in mono-brand stores10 years ago) and their ability to influence supplier investments is limited, which is a second major problem for company K.

Manufacturing process: Due to their size, these companies often prefer a purchase-to-order or make-to-order strategy, partially reflecting the "design and build" approach of Childerhouse et al. (2002). Indeed, the market, especially after the presentation of new collections, allows for quite long delivery lead times, just as in Cluster 1; furthermore, due to small production volume and significant demand variability, these companies prefer not to carry the stockholding risk that would come with a make-to-stock policy. Moreover, they differ from the larger players in Cluster 1 by offering the possibility of exclusive customised products to large independent retailers; this is indeed the case of companies G and I.

These firms deal with highly valuable products that often require hand-made quality details and specialised craftsman companies can easily guarantee such manufacturing accuracy. Furthermore, hand-making contributes to making each item a unique piece, thereby increasing its exclusiveness.

As in Cluster 1, outsourcing is a common practice, but it occurs within national boundaries. This is a choice intended to align the SC towards customer preferences (Lee, 2004). It is worth noticing that for these cases in which the critical success factor of "country of origin" is salient, all production phases (even when outsourced) actually take place in Italy. In fact, the label "made in Italy" is still regarded worldwide as synonymous with high quality and original design and this strongly contributes to justify the premium price asked of consumers. Moreover, offshoring may require a significant investment as well as negatively impact service level. In conclusion, even if there is greater attention to costs than in Cluster 1, offshoring strategies are very rarely adopted by companies in this cluster.

For production phases that do not take place in-house, suppliers are carefully selected and the company usually exercises some kind of control or monitoring of their operations. In some cases (e.g., case L), luxury firms outsource all phases of manufacturing to several neighbouring craftsmen or small companies often belonging to the same industrial district, which are virtually considered as their own production department. In this situation, a particular form of parallel sourcing is executed. In fact, it is common practice to give each product line to a different outsourcer. This ensures consistency in the product's workmanship, which is strongly affected by the hand of the craftsman.

Particularly in the case of small, even family-run, outsourcers, the focal company performs all planning and procurement activities and assigns work to the various suppliers, who are often completely dedicated to that company and therefore cannot be left idle. These relationships are often trust-based, confirming the observations of Djelic and Ainamo (1999).

In contrast with our observations of Cluster 1, the focal company often cannot rely on a bargaining power advantage over its outsourcers due to its small size. Therefore, the focal company is quite vulnerable to delivery delays or shortages and at times, larger outsourcers can even dictate contract conditions. According to company L, the only way to emerge against big luxury players is by focusing on exceptional quality, unusual design and small niche markets.

Sourcing process: For these firms, it is essential to maintain long-term relationships with suppliers. In fact, this allows companies to reduce competitive pressure through frame agreements or open orders as well as to keep in touch with extremely specialised suppliers. The criteria for the selection of a supplier are similar to Cluster 1; critical and standard material suppliers are rated, respectively, on the basis of quality and the cost/service level ratio. Other relevant criteria when selecting a supplier are past experiences working for other luxury players and exclusive specialisation or unique expertise with a certain material or manufacturing process; this accounts for company alignment towards the CSF of "reputation" along the SC (Lee, 2004; Caniato et al., 2009). In fact, it is important that all actors along the SC (including raw material and component suppliers) remain aware that their activity belongs to a luxury context and therefore, superior design, materials, expertise and craftsmanship are essential.

Distribution process: As we have already stated, Cluster 2 is focused on the product, while brand building and emotional aspects have only a secondary role. For this reason, distribution and marketing investments are very limited. For instance, company L does not own mono-brand stores but instead prefers to rely on the reputation of experienced luxury retailers. However, the lack of directly operated points of sale makes it harder to control the distribution network and to access sales data and customer information. According to the managers of company I, a possible solution is to tighten their relationships with retailers and create a base of trusted shops to be included in official catalogues. This could be the way to create a product culture based on the product's style and characteristics.

Conclusions: The players in Cluster 2 are strongly influenced by their small size, but they are able anyway to meet their expected SC needs (Caniato et al., 2009). Uniqueness, quality and supply risk are managed through strict supplier selection and by maintaining long-term relationships. To cope with demand uncertainty, these companies adopt make-to-order policies and look for partnerships with retailers in which they can guarantee craftsmanship while still engaging in traditional and hand-made manufacturing processes.

6.3. Cluster 3: Techstige

Cluster 3 is comprised of large firms that sell low volumes of complex products. Their brand reputation is both technical and symbolic; the technical performance of the product is the presumed origin of the brand's prestige, which has now become a symbol. Hence, the name "techstige" merges "technology" and "prestige". This cluster differs from the other two mainly in terms of product complexity and in only representing companies outside the fashion industry. Product complexity and brand reputation necessitate an articulated CSF structure for Cluster 3; these players have to look to both soft CSFs (i.e., lifestyle, exclusivity, emotional appeal) and hard CSFs (i.e., performance and innovations, style and design). However, compared to Clusters 1 and 2, these companies are less concerned about country of origin (although the "Made in Italy" label is still important) and craftsmanship. However, they must keep tight control over lead times, service level, quality and especially flexibility.

Manufacturing process: Since this cluster lies outside of the fashion world, the lifecycle of its products is quite long (usually years) and the frequency of introduction of new products is not imposed by the market. Predictable demand, along with long delivery lead times, contributes to market stability. All of these elements make it possible to execute long-term levelled production planning based on actual orders and to implement lean techniques (e.g., company F successfully uses just-in-tie production with producers of car interiors). In some cases, an assemble-to-order strategy is applied as competitive leverage to offer customised products. In this cluster, customisation is a major issue; consequently, manufacturing processes are flexible enough to accept even last-minute order changes.

Regarding the make-or-buy choices, companies tend to outsource only a few phases of production, since in general they show a higher level of vertical integration as compared to players in the mass segment of the same industries. This is generally driven by the desire to directly control most of the production process in order to ensure quality and uniqueness. For example, case A has a modern and advanced production facility that produces finished yachts from the raw materials. Company F not only assembles the car but also internally manufactures engines, leather interiors and body shell, while the car structure is outsourced to a world-leading supplier that has opened a dedicated facility close to the assembly plant. This company generally chooses national outsourcers, but this choice is more driven by the need for flexibility, short lead times and service level than by country-of-origin reasons. Outsourcers are usually small and medium firms; each year, the luxury company defines a shared production plan and on this basis, signs an agreement with the outsourcers, by booking a certain amount of their production capacity. Long-term relationships strengthened by dedicated investments allow luxury firms to have a higher quality supplier base.

Sourcing process: Due to product complexity, the upstream network is very articulated and coordination tools and vendor-rating processes are needed. Company size and long-term relationships allow companies to strictly control their first-tier suppliers and to help them in their technical development. For instance, company F offers its partners training, information, advising or even the opportunity to use its brand as a major reference in exchange for extra services or discounts.

Three main categories of suppliers emerge from our analysis. The first category is that of renowned brand suppliers, e.g., suppliers of electronic appliances for kitchen manufacturers or engines and furniture for motor yachts. For instance, company A explicitly relies on luxury kitchen or sofa manufacturers for the interiors. The supplier names have a direct impact on perceived quality, innovation and performance of the final product and so they are selected primarily for their brands; their supply performance is usually good. The second category is that of standard products suppliers, which are evaluated by according to the cost/performance ratio. Finally, there are suppliers of customised products for which innovation and flexibility are critical to their performance. It is interesting to note that these suppliers sometimes belong to other industries, but their unique expertise may well fit some luxury requirements. Company D is very interesting from this point of view; the company works with various suppliers both inside its industry (i.e., furniture) and from other industries (e.g., automotive) to jointly develop innovations in materials and functionalities.

Distribution process: Two main distribution channels are used, i.e., mono-brand, direct-operated stores and multi-brand independent dealers. The latter are more common in the furniture, automotive and yacht industries than in fashion. As already stated for Cluster 1, mono-brand stores are particularly relevant for

conveying lifestyle, exclusivity and emotional appeal. Moreover, Cluster 3 companies use a direct marketing channel in order to directly reach the final customer. Indeed, the selling process is accomplished through an intense dialogue among the customer, dealer, firm and sometimes other actors such as architects before the product takes its final shape. These firms pay great attention to service level, which is achieved through initial advising, on-time delivery, before- and after-sales assistance and other benefits needed by luxury customers. As a consequence, these companies strictly monitor the service level of their dealers.

Conclusions: Even for this cluster, expected SC demands (Caniato et al., 2009) are met by means of quite homogeneous practices. Uniqueness, quality and supply variability are managed through careful supplier selection and a partnership system. The complexity of the supply base creates the need for structured supply management. This make-to-order approach is almost mandatory, given the level of unpredictability of demand due to high customisation.

7. Conclusions and future research paths

In this paper, a case study methodology has been used to identify different clusters of luxury companies and their current SC configuration and management practices.

Four potential clusters have been identified; we found empirical evidence for three of the four in this sample. Each cluster has been described in terms of five classification variables (namely, product fashionableness, product complexity, selling volume, company size and brand reputation) as well as in terms of critical success factors, current SC configurations and management practices.

This paper confirms Bernard Arnault's (CEO of the LVMH group) suggestion for success in the luxury industry: "high standards can and must be maintained throughout the supply chain, from production, to distribution to retail stores" (Wall Street Journal, October 4, 2007). Indeed, the companies involved in this study recognise the need to pay attention to SC processes, with a general focus on their effectiveness with respect to customer expectations. However, their approaches to managing the SC are not greatly structured; this is partly due to the lack of specific contributions that link the specific requirements of the luxury industry to knowledge about SC management.

The clustering that results from data analysis provides three major insights:

- It confirms the possibility of applying at least a few drivers from traditional SC strategy literature to luxury segments. This discovery can be a starting point for introducing structured SC management approaches and organising current practices.
- It shows that the luxury industry is not internally homogeneous as far as such drivers are concerned: actually, different clusters exist.
- Different clusters have specific SC implications and CSFs that are matched by a set of similar SC configurations and practices.

Of course, this final consideration is generally also valid for non-luxury companies (Brun and Castelli, 2008); indeed, the clustering dimensions (namely, selling volume and product complexity) also apply to commodity goods. However, the corresponding set of SC practices appears to be luxury-specific. This result must be confirmed by further research, i.e., by further comparing the sample to non-luxury companies in similar businesses. In any case, an initial intuitive difference can be addressed as an example; it is clear that luxury fashion companies that proclaim themselves as "trend setters" cannot apply the same SC strategy as the Spanish company Zara (Ferdows et al., 2004), which relies on being a "fast follower" by speeding up its operations in order to quickly adapt to market trends.

The results presented in this paper are relevant for both practitioners and researchers. In fact, the findings provide some useful insights regarding the choice of appropriate SC strategy according to the critical success factors of a luxury company. It should be noted that the managerial practices suggested by the proposed model are valuable not only for existing luxury companies aiming to improve their SC strategy but also to companies willing to enter the luxury market. Besides, given the breadth of the luxury segment, which cuts across several industries, we also showed relevant differences within this domain, confirming that SC strategies depend on both the luxury segment's general characteristics and on a firm's specific cluster positioning within that segment.

Our findings make the first step towards the definition of a luxury SC strategy; to this end, some future research paths can be identified. In particular, given the limited sample size, the findings presented in this paper do not yet have a normative value. Therefore, the sample should be extended to other luxury companies to enhance our cluster analysis and identification of SC strategy. In particular, it would be interesting to find examples of luxury firms in the fourth cluster (that is, high volume and high complexity). Moreover, the involvement of non-luxury companies in the case studies could enable a comparison between luxury- and mass-segment SC strategies.

Once a complete overview of the entire luxury industry is accomplished, the next step would be to study each cluster deeply in order to provide a normative model that could support the choice of a suitable SC configuration and management approach.

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