Abstract

Fashion industry is an international and highly globalized industry, with clothing often designed in one country, manufactured in another, and sold in a third. In recent decades, fashion retailers revolutionized the fashion industry by following what has become known as the “fast fashion” strategy. Fast fashion is a business strategy which aims to reduce the processes involved in the buying cycle and lead times for getting new fashion product into stores, in order to satisfy consumer demand at its peak. Fashion markets are synonymous with rapid change and, as a result, commercial success or failure in those markets is largely determined by the organization’s flexibility and responsiveness. The purpose of this paper is to disclose strategic implications and benefits of agile and responsive fashion supply chain.

1. Introduction

The fashion industry is an international and highly globalized industry, with clothing often designed in one country, manufactured in another, and sold in a third.

Fashion is a way for an individual to affirm him or herself. Fashion is a broad term which typically encompasses any product or market where there is an element of style which is likely to be short-lived. Christopher et al. (2004) defines fashion markets as typically exhibiting the following characteristics: short life-cycles; high volatility; low predictability; and high impulse purchasing. Fashion products are often ephemeral, designed to capture the mood of the moment: consequently, the period in which they will be saleable is likely to be very short and seasonal, measured in months or even weeks. Demand for these products is rarely stable or linear. It may be influenced by the vagaries of weather, films, or even by pop stars and footballers. Because of the volatility of demand it is extremely difficult to forecast with any accuracy even total demand within a period, let alone week-by-week or item-by-item demand. Many...
buying decisions by consumers for these products are made at the point of purchase. In other words, the shopper when confronted with the product is stimulated to buy it; hence the critical need for ‘availability’.

The volatility of demand and the short life-cycles found in many fashion markets make it highly unlikely that forecasting methods will ever be developed that can consistently and accurately predict sales at the item level. In all fast moving industries, demand is now more fragmented and the consumer more discerning about quality and choice. There is also an increasing fashion influence; no single style or fashion has dominated for any length of time.

Fashion markets are complex open systems that frequently demonstrate high levels of ‘chaos’. In such conditions managerial effort may be better expended on devising strategies and structures that enable products to be created, manufactured and delivered on the basis of ‘real-time’ demand. This is the context that has spawned the emerging domain of fast fashion, the agile supply chain and the philosophy of Quick response.

Fashion markets are synonymous with rapid change and, as a result, commercial success or failure in those markets is largely determined by the organization’s flexibility and responsiveness (Christopher et al. (2004). The importance of time as a competitive weapon has been recognised for some time. The ability to meet the demands of customers for ever-shorter delivery times and to ensure that supply can be synchronised to meet the peaks and troughs of demand was analyzed by Harrison et al. (1999); Christopher et al. (2004); Barnes and Lea-Greenwood (2006); Doeringer and Crean (2006); Stone (2008), Sull, and Turconi (2008); Nagurney and Yu (2011); Burns et al. (2011); Runfola and Guercini (2013).

The paper focuses on agility and responsiveness managing fashion supply chain. The study begins by introduction of fast fashion concept, and then moves to improve responsiveness of supply chains in the fashion industry are analyzed. Research methodology is presented at the next section. Results of conducted analysis and recommendations are provided at the final section.

2. Literature Review

2.1. The essence of Fast Fashion

In recent decades, fashion retailers, such as Benetton, H&M, Topshop, and Zara have revolutionized the fashion industry by following what has become known as the “fast fashion” strategy, in which retailers respond to shifts in the market within just a few weeks, versus an industry average of six months (Nagurney and Yu, 2011; Sull and Turconi, 2008). Barnes and Lea-Greenwood (2006) define Fast fashion as a business strategy which aims to reduce the processes involved in the buying cycle and lead times for getting new fashion product into stores, in order to satisfy consumer demand at its peak. Specifically, fast fashion is a concept developed in Europe to serve markets for teenage and young adult women who desire trendy, short-cycle, and relatively inexpensive clothing, and who are willing to buy from small retail shops and boutiques (Doeringer and Crean, 2006).

According to Runfola and Guercini (2013) the term “fast fashion” may refer to quite diverse formulas, such as:

- those developed by manufacturing companies to position themselves to provide quick proactive “services” to customers in the retail clothing business;
- those developed by retailing companies managing the textile-clothing supply chain to reduce time to market; these regard manufacturing companies that are more reactive than proactive;
- those aimed at containing the time lag between the creative/design stage of a product and its availability in stores;
- those aimed at containing the creative stage and product design times, as well as the time needed to make the product available in stores.

Fast fashion chains have grown quicker than the industry as a whole and have seized market share from traditional rivals since they aim to obtain fabrics, to manufacture samples, and to start shipping products with far shorter lead times than those of the traditional production calendar (Doeringer and Crean, 2006; Sull and Turconi, 2008).
2.2. Fast Fashion and Agile Supply Chains

In the fashion industry, apparel pipelines have been notoriously long, complex and inflexible (Jones, 2002; Hines, 2004). Their structure resulted in long buying cycles, which became inappropriate for the demands of the modern fashion industry and the increasingly demanding fashion consumers. Moves to improve responsiveness of supply chains in the fashion industry have been made with introduction of concepts such as just-in-time (Bruce et al., 2004), agile supply chains (Christopher et al., 2004; Bruce et al., 2004) and quick response systems (Giunipero et al., 2001; Fernie and Azuma, 2004).

According to Christopher et al. (2004), the evolution of supply chain management and agile supply chains has provided the background for the “quick response” movement. Quick response (QR) is a concept that has become synonymous with the textile and apparel supply chain. Quick response was a concept first developed by Kurt Salmon Associates (KSA) in the US, who studied the US apparel industry in a 1986 study, where they found that on average it took 66 weeks for apparel product to get from manufacturing into store, despite a total production time of only 11 weeks (Barnes and Lea-Greenwood, 2006). The major delay in the supply chain was due to inventory delays (Hines, 2004), although fabric is also recognized as being a key factor in causing delays. McMichael et al. (2000) define QR as a consumer driven business strategy of cooperative planning by supply chain partners, to ensure the right goods, are in the right place, at the right time, using IT and flexible manufacturing to eliminate inefficiencies from the entire supply chain.

The primary objective of QR is reduction of all time spans that happen in the whole supply chain. Forza and Vinelli (2000) focused on the methods, techniques and approaches that could be adopted throughout the entire chain in order to obtain a set of coherent improvements to achieve quick response. The fundamental improvement stages are considered to be: reduction of lead times in supplying fabric; reduction of lead times in producing a garment; and innovative relationships with the distributors.

In recent years there has been a growing interest in the design and implementation of agile supply chain strategies (Christopher, 2000). Supply chain performance improvement initiatives strive to match supply to demand thereby driving down costs simultaneously with improving customer satisfaction. Conventional supply chains have been lengthy with long lead-times and hence, of necessity, have been forecast-driven. By contrast, agile supply chains are shorter and seek to be demand-driven. A further distinction is that because conventional supply chains are forecast-driven that implies that they are inventory-based. Agile supply chains are more likely to be information-based (Christopher et al., 2004).

3. Methodology

3.1. Research Goal

The purpose of this paper is to disclose strategic implications and benefits of agile and responsive fashion supply chain. The paper is based on theory survey that included general interdisciplinary research methods: systematic, comparative and logical – critical scientific literature analysis through findings’ summarization and logical conclusions’ generalization and analysis of best practice. The conducted analysis of scientific literature disclosed the essence and tendencies concerning fast fashion. Synthesis of research works allowed finding out the core characteristics of agile supply chain and strategic implications of Quick response implementation. Based on scientific literature analysis, authors of this paper present conceptual model illustrating agile and responsive fashion supply chain management. The results of this research can be useful for scientists analyzing this topic from theoretical and empirical perspective, and for practitioners working in fashion business.

3.2. Results

Agility is a business-wide capability that embraces organizational structures, information systems, logistics processes and in particular, mindsets. A key characteristic of an agile organization is flexibility (Christopher and Towill, 2001). The idea of agility in the context of supply chain management focuses around ‘responsiveness’. A number of researchers have addressed the notion of “agile supply chains” (Christopher et al., 2004; Bruce et al., 2004),
which like quick response, describe shorter, more flexible, demand driven supply chains, compared with traditional supply chain concepts which are characterized by high levels of inventory and are forecast driven. The key difference in agile supply chains, according to Christopher et al. (2004) is that they are driven by information such as market data and information-sharing between businesses in the supply chain. In agile supply chains, the visibility of information allows the supply chain to become more responsive to changes in demand in the market place.

Summarizing Harrison et al. (1999); Christopher (2000); Christopher and Towill (2001); Bruce et al. (2004) the agile supply chain can be described as market sensitive; virtual; and based on process integration and networking. Short explanation of these main characteristics as the ingredients of agility is presented in Table 1.

Table 1. The Main Characteristics of Agile Supply Chain

| Characteristic         | Explanation                                                                 |
|------------------------|-----------------------------------------------------------------------------|
| Market sensitive       | By market sensitive is meant that the supply chain is capable of reading and responding to real demand. |
| Virtual                | The use of information technology to share data between buyers and suppliers is, in effect, creating a virtual supply chain. Virtual supply chains are information based rather than inventory based. |
| Process integration    | Shared information between supply chain partners can only be fully leveraged through process integration. By process integration is meant collaborative working between buyers and suppliers, joint product development, common systems and shared information. |
| Network-based          | The idea of the supply chain as a confederation of partners linked together as a network provides the fourth ingredient of agility. There is a growing recognition that individual businesses no longer compete as stand-alone entities but rather as supply chains. |

Fast fashion as a business strategy aiming to reduce the processes involved in the buying cycle and lead times for getting new fashion product into stores at consumer demand peak. Based on scientific literature analysis and the empirical research of Barnes and Lea-Greenwood (2006) following characteristics and tendencies concerning fast fashion are presented in figure 1.

Fig.1. The Main Characteristics and Tendencies of Fast Fashion

Firstly, Fast fashion is a consumer-driven process. These changes in consumers, demand and the emergence of trends means that those retailers considered to have been successful recently, are those who have the ability to respond to the fast changes in consumer demand through lead time reduction. Fast fashion has a definite impact on the supply
Retailers no longer carry stock and therefore work with manufacturers who can supply them with new product quickly. There is a shift in Fast fashion actually placing pressure on supply chains to increase the number of suppliers used by retailers simply because consumer demand is for a bigger variety of styles that are changing more frequently. Suppliers are under increased pressure to be more flexible and responsive to changing demand. Elimination of stages in the supply chain means that product development and quality control are being eliminated from the supply chain process in an effort to be more responsive to consumer demand.

Emergence of fast fashion sourcing regions is another tendency in Fast fashion. According to empirical research of Barnes and Lea-Greenwood (2006), Turkey has emerged as a strong region for delivering fast fashion product, because of its geographical and cultural proximity. Retailers mix their orders between the Far East and Turkey, by using Turkish suppliers to supply fast selling lines in season, or test marketing short-runs sourced from Turkey before ordering volume from the Far East. Because fashion trends are changing at a faster pace, there is less demand from retailers for long high volume production runs. This is causing some shift in the supply chain as sourcing moves away from China who favour long production runs, towards more flexible and small production units, such as those in Europe and the Middle East. Pressure on speed to market, advances in technology and changing economics have enabled innovation in shipping, resulting in shorter shipping times and where necessary air freighting has become more of a norm in fast fashion supply chains, although this is sometimes only for partial orders.

Today, QR is recognized as an operations strategy (Lowson, 2002) and as such, it attracts considerable interest for two additional, yet closely related reasons. First, the ability of this strategy to cope with the complexity of fashion logistics; and, second, as a method to combat the relentless shift toward offshore sourcing from low wage economies. QR has a number of strategic implications for the organization. Research works of Lowson (2002) and Christopher et al. (2004) have shown that mere implementation of technology or particular procedures without the strategic underpinning leads to sub-optimal performance. A fundamental principle of QR is the alignment of organizational activity to demand. All activities within an enterprise should be paced to demand and customer behavior. Products and services are produced and delivered in the variety and volume that match demand. Strategic understanding of the drivers of demand and its synchronized connection with supply is imperative for QR. QR recognizes that both consumers and products are dynamic and place unique demands on the organization. Identical products will have unique product flows depending upon consumer buying behavior and QR needs. Strategy and strategic thinking are at a network level, encompassing many external interconnections. In addition, within this configuration must fit the mapping of customer values and perceived benefits onto operations, in order to underpin the link between demand and activity.

Perhaps one of the most significant developments in recent management and business thinking has been externalization; the recognition that performance relies increasingly upon a series of alliances and relationships with other enterprises in the environment as the most effective way to deal with constantly changing market conditions. Time as a strategic weapon is vital to QR operation, but like any weapon its effectiveness depends upon the circumstances of its use. As with demand, time-based competition requires careful assessment as to where best it can serve customers. Fast and accurate adaptation to market change is perhaps the most important element of the QR strategy. Data and information are the foundation of QR – every business is an information business. Timely and accurate flows will enable fast and accurate responses without waste and unnecessary cost.

Lean production is a prominent manufacturing philosophy that is based on customer-focused process improvements. The key idea is to increase value to customers while reducing the number of resources consumed and cycle times via waste elimination (Čiarnienė and Vienažindienė, 2012). To meet competitive requirements and reduce costs, many manufacturers are turning to lean manufacturing techniques to drastically cut cycle time and increase their competitive edge.

According to Christopher et al. (2004) there are three critical lead-times that must be managed by organizations that seek to compete successfully in fashion markets:
1. Time-to-Market - how long does it take the business to recognize a market opportunity and to translate this into a product or service and to bring it to the market? In short life-cycle markets, being able to spot trends quickly and to translate them into products in the shop in the shortest possible time have become a pre-requisite for success. Companies that are slow to market can suffer in two ways. Firstly, they miss a significant sales opportunity that probably will not be repeated. Secondly, the supplier is likely to find that when the product finally arrives in the market place, demand is starting to fall away leading to the likelihood of markdowns.

2. Time-to-Serve - how long does it take to capture a customer’s order and to deliver the product to the retail customer’s satisfaction?

3. Time-to-React - how long does it take to adjust the output of the business in response to volatile demand? Can the ‘tap’ be turned on or off quickly? Ideally, an organization would want to be able to meet any customer requirement for the product on offer at the time and place the customer needs them.

Summarizing research works of Birtwistle et al. (2003); Forza and Vinelli (2000); Giunipero et al. (2001); Christopher et al. (2004); Christopher and Towill (2001); Bruce et al. (2004); Perry and Sohal (2000); Sparks and Wagner (2004); Varley (2001); Sheridan et al. (2006); Čiarnienė and Vienažindienė (2012) authors of this paper present conceptual model illustrating agile and responsive fashion supply chain management (see figure 2).

Fig. 2. Conceptual Model Illustrating Agile and Responsive Fashion Supply Chain Management
When all the partners, like primary and secondary producers, manufacturers and retailers throughout the supply chain adopt the QR concept, Lean manufacturing, flexible response, and agile supply it is advantageous for all of these. In order for all parties to reap the benefits they must be committed to sharing critical information and creating a delivery infrastructure that works to benefit. Fashion consumers are satisfied and benefit because the right goods are in the right place, at the right time.

4. Conclusion

In the fashion industry, apparel pipelines have been notoriously long, complex and inflexible. Their structure resulted in long buying cycles, which became inappropriate for the demands of the modern fashion industry and the increasingly demanding fashion consumers.

Fast fashion as a business strategy aims to reduce the processes involved in the buying cycle and lead times for getting new fashion product into stores, in order to satisfy consumer demand at its peak. Agility is a business-wide capability that embraces organizational structures, information systems, logistics processes and in particular, mindsets. Agile supply chains like quick response, describe shorter, more flexible, demand driven supply chains that can be described as market sensitive, virtual and based on process integration and networking. Fast fashion, the agile supply chain and the philosophy of Quick response are strategies that enable fashion products to be created, manufactured and delivered on the basis of ‘real-time’ demand.

Based on the literature-based exploratory overview research methodology and empirical research works analysis, authors of this paper present the conceptual model of the agile and responsive fashion supply chain. This model illustrates the importance and benefits of agility, lean processes and responsiveness in fashion supply chain management. When all the partners throughout the supply chain adopt lean manufacturing, agile supply, the QR concept and flexible response, all parties benefit: manufacturers, suppliers, retailers and finally, fashion consumers. Fashion product comes into stores, in order to meet any customer requirement for the product on offer at the time and place the customer needs.

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