

# Digital Transformation of Supply Chain Management in the Fast Fashion Industry: A Case Study of Zara

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**Abstract.** With continuous innovation and evolution in the clothing industry, fast fashion brands have gained significant popularity due to their ability to quickly respond to changing fashion trends, offer affordable and stylish clothing, and cater to the preferences of fashion-conscious consumers worldwide. This research analyzes the supply chain of the renowned fast fashion brand Zara, known for its unique supply chain management model. It is one of the most valuable apparel brands globally. The study explores the impact of supply chain management and digitalization on the entire fast fashion supply chain, encompassing upstream suppliers and manufacturers, middle-channel retailers and distributors, and consumers. Through a comprehensive examination of Zara's success story, this study serves as an inspiring example for domestic apparel enterprises, showcasing the potential benefits that can arise from adopting a unique supply chain model, and offers valuable insights for Chinese apparel companies seeking to enhance their supply chain management and adapt to the digital era.

## 1 Introduction

With the improvement of consumers' quality of life and the upgrading of consumer demand, the life cycle of fashion apparel products continues to shorten, the types of clothing continue to increase, the styles continue to innovate, and the accuracy of the fashion apparel industry's prediction of the future trends of the market continues to decrease [1]. The emergence of fast fashion is exactly in line with the development of the times and fits the needs of consumers. In a short period, Zara has rapidly grown into a mainstream brand of fast fashion with an amazing scale of development, and the way to win is to rely on the high-sensitivity, high-efficiency, high-tech digital supply chain function network system to establish a high-speed supply chain innovation management mode. Zara's unique supply chain management model has made Zara the most valuable apparel brand in research, and Zara's "fast fashion" applies the most innovative fashion design concepts to its products, leading the fashion brands with unique and avant-garde styles, high sensitivity to time, and high cost-effectiveness.

China's apparel enterprises and fashion industry development is relatively late, for the brand concept of building far less than many foreign rich historical precipitation of fashion brands, want to catch up with the footsteps of these brands in the international high-end market to occupy a place is more difficult, so is more important for today's Chinese apparel enterprises to find a way to a broader range of ordinary consumers, looking

for a faster way to create interest in the garment. The success of Zara has given domestic garment enterprises a good inspiration. Zara's brand positioning is oriented to the mid-range consumer groups, with the help of digital technology and the depth of the Internet technology combined with the supply chain system, Zara quickly captured the market with great speed and a huge price advantage and became the leader of the fast-fashion industry leader [2]. As a latecomer in the apparel industry, Zara's success through the digital transformation of the supply chain has great significance for Chinese apparel enterprises, which can also put more energy into improving their supply chain management and brand marketing, accurately locating their brand characteristics, and satisfy the needs of more consumers, to create a more internationally competitive Chinese fashion brand and try to build a mature fashion brand [3]. Try to create a mature supply chain, with the supply chain upstream and downstream enterprises to establish a good strategic cooperative relationship, optimize the allocation of enterprise resources, enhance the entire supply chain on the market to respond to the complexity of multiple words of uneasiness; some small apparel enterprises should also pay attention to the use of e-commerce platforms, e-commerce, because of the popular of the enterprise's marketing, publicity costs have decreased, small and medium-sized enterprises have more Access to information and data platform to improve operational efficiency and maximize benefits [4]. Zara's supply chain digital change for the fast fashion industry supply chain management also provides

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a new direction of development, with the help of digital technology to optimize the supply chain of fast fashion enterprises to obtain a greater time as well as price advantage to maximize the advantages of the fast fashion industry.

Based on the study of Zara's supply chain, this thesis will explore the digitization change of supply chain management of fast fashion enterprises from three perspectives of upstream, midstream and downstream of the fast fashion supply chain using the literature research method and case study method. It is intended to explore the following two questions (1) take Zara as a case study to analyze the supply chain management mode of the fast fashion industry in the context of digitization; (2) based on Zara, what are the lessons and inspirations for China's fast fashion industry, to seize the opportunities and control the risks.

## 2 Case description

Zara, a Spanish fast-fashion clothing brand, has experienced remarkable growth since 1996, maintaining an impressive annual sales increase of 10-15% until 2008, propelling it to become the world's largest clothing retailer [5]. With over 2000 stores in 52 countries, Zara has emerged as a dominant player in the fast fashion industry. Its success is undeniably linked to its efficient and responsive supply chain system, allowing it to keep pace with the rapidly changing fashion landscape.

In today's dynamic business environment, Zara recognizes the significance of embracing digital transformation in its supply chain operations. With the integration of network information technology and the digitization of supply chain processes, Zara has adopted digital solutions throughout its supply chain, leading to profound changes and impacts across various operations. Notably, digital technology has revolutionized product organization and design, streamlined purchasing and production processes, enhanced product distribution strategies, facilitated real-time sales feedback, and facilitated prompt consumer response. This paper delves into an in-depth analysis of five crucial links within Zara's supply chain: upstream manufacturers and suppliers, midstream distributors and retailers, and ultimately, the downstream consumers. By exploring these interconnected components, a comprehensive understanding of how Zara leverages digital technology to thrive in the fast fashion industry can be achieved.

## 3 Case study

### 3.1 Impact on manufacturers and suppliers

The current pace of economic, scientific, and technological progress has significantly impacted people's lives. Digitization has been continuously incorporated into the growth of the current market economy and has also introduced new standards with more stringency for businesses.

#### 3.1.1. Accelerating product upgrading

People can now access information more quickly thanks to digitization, which presents an opportunity for industrial chain management to enterprises. In addition, it encourages people to follow the constantly evolving fashion trends for apparel, resulting in a short lifespan of garments.

In response, Zara adopted a new approach to design, utilizing magazine and digital channels to gather data for data analysis, including sales and inventory data, and swiftly identify the aspects being promoted in the marketplace. Additionally, the data integration "imitation" helps designers create the appropriate clothes, shoes, etc. It cuts the time between clothing updates to roughly two weeks and makes them quick to react to fashion trends, encouraging customers to make on-time purchases. This paradigm is to how customer demand has changed because of digitization.

#### 3.1.2. Adopting delay design strategy

Customer demand is varied and unpredictable against a digital backdrop. The delay strategy can increase output, provide larger economic benefits, and adapt to changing product demand [6].

By the most popular elements reflected by the data feedback, Zara will choose and purchase the related fabric, focusing as much as possible on choosing undyed fabric. To react to the changes in market demand and act promptly, Zara will quickly dye the undyed cloth, cut it, and send it to the foundry after the matching manufacturing style has been developed, which gives Zara a better ability to industrial chain risk management.

The strategy of delayed design significantly reduces the cycle of raw material acquisition, and using undyed fabrics significantly lowers the cost of raw material waste.

#### 3.1.3. Using radio frequency identification system

With a focus on rapid fashion, Zara actively integrates digitization into the administration of logistics, inventory, and warehouses. All Zara products must be delivered to the headquarters in Spain. From there, the apparel is dispersed to the proper boxes at the distribution center and delivered to the destination within 36 to 48 hours. Even garments produced in Asia must be returned to the corporate office for sorting. Machines at distribution centers automatically distribute products according to the order specifications provided by retailers worldwide. Deliveries are frequently performed by land or air to shorten travel times. Zara has two air bases. Therefore, all goods from outside Europe are flown there, guaranteeing a three-day delivery window to the store.

Zara use Radio Frequency Identification System (RFID), combining RFID technology with cloud computing and artificial intelligence [7]. Because Zara's

product batches are small and diverse, the production model is flexible, which lowers the guiding index of inventory before clothing shelves to 25%, greatly increasing management difficulty. However, product tracking, data identification and interchange, real-time inventory updates, and even real-time customer feedback on inventory and logistics are all possible with wireless signal identification. Although this technology is pricey, it considerably decreases manual management expenses and the risk of slow inventory, enhancing inventory mobility and customer happiness. It also properly identifies where and how much inventory is situated.

#### **3.1.4. Adopting the old clothes recycling strategy**

Consumers are becoming more ecologically sensitive, and environmental damage is scrutinized more closely globally. Sustainable development is one of the main directions for developing the fast fashion industry chain [8]. Zara works with the China Environmental Protection Foundation to recycle used clothing in-store and online. This gives used clothing a second chance at life, prevents it from being disposed of in the waste system, encourages textile recycling, develops sustainable solutions for used clothing, and improves the company's reputation. In addition, all other items received at the store, including cardboard, plastic, and packaging, are recycled as part of the recycling strategy.

### **3.2 Impact on distributors and retailers**

The fast fashion market requires apparel companies to adapt to fashion trends. Distributors and retailers correspond to product distribution and sales feedback in the highly integrated vertical supply chain model created by Zara.

Zara adopts the product cross-store distribution model so that the product skips the complicated warehousing, transferring and unloading process and distributes directly to each store [9]. This uses a lot of advanced technology and equipment. For example, optical reading tools used for sorting products, underground conveyor belts erected for transporting products, and uniform standard bar code identification systems. The distribution center management system analyzes the order information required by each store and sends instructions to the robotic arm, which reads the barcode through the laser for product identification; the robotic arm sorts and packs the products; the conveyor belt transmits them to the distribution port, and the goods are ready for distribution within 8 hours through three modes of transportation: airplanes, ships, and trucks. High-speed logistics plus a low error rate make it more capable of ensuring the timeliness and cutting-edge of the goods, and to a certain extent, it also increases sales [10].

Different from the sales model of mass clothing brands, Zara adopts a vertical sales model [11]. Zara only set up directly-managed stores worldwide, which

can make the headquarters efficient direct management of each store.

Zara's global logistics information system is developed by the IT department of the headquarter in Spain, which is an indispensable platform for managing logistics and distribution links and merchandising links.

Through the information system developed by Zara's technology, each store is equipped with at least one personal digital assistant terminal (PDA) and multiple office online computers. It realizes the intelligent management of store product information and inventory balance information. The headquarters analyzes the daily feedback sales data from each store to make different countermeasures for the products judged to be best-selling and slow-selling, and at the same time, requires each store to take a small number of orders so that the headquarters can make a quick response to the market dynamics in the first time to meet the market demand fully [12].

Zara's many years of experience in information technology construction has enabled it to fully empower its data with excellent performance in information sharing and utilization [3]. The effective application of Zara's information technology system has greatly shortened the lead time in the interlocking two links, creating a flowing circle of information flow, capital flow, and logistics between each store and the headquarters.

### **3.3 Impact on consumers**

Fast fashion has always been characterized by fast product replacement and affordable products, making competition among enterprises in the industry very fierce. Nowadays, mobile Internet technology and logistics transportation are very developed, and the fast fashion industry more and more favors O2O mode. As one of the representatives of the fast fashion brand, as early as 2015, Zara gradually shifted the focus from offline stores to online sales. Zara's online sales channels are mainly three: first, through the official website of the brand in each country; second, stationed in the e-commerce platform to establish the brand store; third, the brand APP. It is worth noting that Zara's online sales channel stores are brand-owned, and online and offline sources of goods are the same, reducing the consumer's doubts about the authenticity of the goods. Next, we mainly analyze the impact on consumers from product supply and customer experience [13].

In terms of product supply, many consumers will always encounter a shortage of goods when shopping online, which greatly affects the consumer experience, so it is very important for enterprises adopting the O2O model to coordinate the amount of goods online and offline to achieve a balanced distribution. Zara's online and offline stores share a common inventory management system, which is capable of real-time

monitoring of the inventory of the two parties to ensure inventory depth [14].

Regarding customer experience, Zara's combination of online and offline modes is also reflected in consumers' participation in the apparel design process. Zara collects and records consumers' consumption tendencies, suggestions, and opinions on clothing through offline stores and buyers from various countries and uploads them to Zara headquarters for analysis [15]. The design department then designs new season's apparel according to these opinions, which can maximize the satisfaction of consumers' needs. The clothes designed under this model can also maximize the satisfaction of consumer demand. At the same time, with the development of mobile Internet technology and the strengthening of logistics and distribution capabilities, consumers can also place an order directly in the brand APP, through the LBS technology to the online inventory and the nearest offline stores for docking, directly from the nearest offline stores for delivery, to ensure that consumers can receive the goods as soon as possible [16]. In addition, some e-commerce platforms have introduced the 3D fitting room function, enabling consumers to choose clothes that suit them without leaving home and greatly improving their shopping satisfaction.

Regarding offline store design, Zara's store design provides customers with a spacious and comfortable environment to select products, thus improving the customer's shopping experience and desire. Zara also spends a large portion of its annual store renovation and design and believes that the store's style positively impacts customer shopping, as customers may respond to the store's style, which may positively impact their shopping experience. They believe that the store's style can positively impact customer shopping, as customers may come into the store to shop for its beautiful and unique design, which can also help increase brand recognition and awareness. To improve the efficiency of its offline stores, Zara implemented RFID technology in all of its offline stores as early as 2016 to more accurately and quickly locate garments, thereby improving efficiency and reducing customer waiting time [10].

#### 4. Conclusion

China is a big textile and garment country, but there still needs to be a big gap in brand management and marketing. In today's world, where the brand's added value is much greater than the value of the garment itself, if we keep this status quo, it will be easier for China's apparel enterprises to gain a foothold in the international market. Zara's unique supply chain model greatly benefits its brand, an excellent experience for the fast-fashion and apparel industries. This is an excellent experience for the fast fashion and apparel industries to learn from.

The following lessons can be summarized from the digital transformation of Zara's supply chain, China's fashion industry should be committed to building a sustainable supply chain under the increasingly competitive market environment and can utilize the SCM supply chain management system to effectively integrate various links such as purchasing, designing, transporting, and stores. Committed to building a good brand image.

Certainly, the success of each enterprise is still the most important according to the specific circumstances of the enterprise itself, according to local conditions to develop more suitable for their marketing operation mode. According to their characteristics, China's fast fashion enterprises must build on their strengths and avoid shortcomings, then establish their mode of operation with the fast-fashion supply chain system to enhance their international competitiveness.

#### Authors Contribution

All the authors contributed equally, and their names were listed alphabetically.

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