

Flexible Supply Chain Innovation – Take Shein as an Example

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Abstract: The most obvious feature of a flexible supply chain is the ability to respond quickly to customer needs. As an FMCG online retailer, Shein's success can be attributed to supply chain innovation. Shein uses mobile apps and websites to sell products, relies on big data and algorithms to quickly respond to global markets and accurately serves users around the world. Shein's market front-end system supported by big data and back-end production system with cloud factory platform as the core are closely integrated, and jointly build the competitive advantages of choice variety, price affordability, and high customer retention. Based on Shein's development, this paper first analyzes the positive innovation of relying on big data in attracting consumers and discovering consumers' true hobbies at the front end of the supply chain, then studies the active exploration of digital factory participation and strategic alliance expansion at the back end of the supply chain, then discusses the supply chain integration and learning mode, and finally analyzes the potential risks and uncertainties of brand development.

Keywords: Supply Chain; Shein; Innovation; FMCG Companies

Introduction

Flexible supply chain management addresses the ability to respond quickly to market demands while maintains service quality simultaneously. ^[1] This means that in the new retail environment, the core of flexible supply chain transformation is to be able to adapt to changing customers' needs faster and more flexibly, form a networked production mode, and finally change from traditional assembly line production to flexible manufacturing. As an online retailer, Shein manufactures in China, focuses on the global market, and sells products using mobile apps and websites. ^[2] This supply chain innovation contributes to Shein's commercial success.

Flexible supply chains connect consumers and suppliers. Marketing activities at the front end of the supply chain can accumulate more funds to build a flexible supply chain and attract stable suppliers, while suppliers at the back end of the supply chain can ensure the stability of the entire system and ensure fast and accurate supply. Therefore, the flexible supply chain has established the basic advantages of the brand and formed its own core competitiveness. Shein's flexible supply chain is able to achieve two goals simultaneously. First, it can help traditional garment manufacturers achieve digital transformation. Second, it can meet the rapidly-changing and abundant consumption demands of the market and consumers.

1. The timeline of Shein's development

In 2008, a fast fashion cross-border e-commerce Internet company was established in Nanjing. It purchased wedding dresses in China and sold them to Europe and the United States through third-party e-commerce platforms. This was the predecessor of Shein. ^[3]

In 2012, the company began to design, process and export fashionable women's clothing. These were operated on an independent website. The first independent website, Sheinside, was operated in the United States, and over the next three years, Shein launched more independent websites in Germany, France, Russia, Italy and other countries. ^[3]

In 2014, with the rapid development of the business, Shein began to build a supply chain system and launched its own mobile application (APP). ^[3] The company cooperated with Key Opinion Leaders (KOLs), established a internet celebrity marketing model to promote products on Facebook, Twitter, Instagram and other social media platforms, and reached in-depth collaboration with these platforms. ^[4]

In 2015, Shein moved its supply center to Panyu, Guangzhou. Shein did not have its own manufacturing plant. It relied on the local clothing wholesale market, recruited thousands of suppliers, and built a business to business (B2B) cloud factory supply chain platform. Shein also developed Manufacturing Execution System (MES), an intelligent collaborative management system, to share internal production information with all the members of the system. This cloud factory supply chain platform allowed the suppliers to connect and assess each other online. This supported Shein's strong production capacity and rapid responses to the market. Additionally, Shein entered the market of Middle Eastern countries with the help of Instagram, Twitter and other platforms. It acquired Kushan, a retail company in Shenzhen to complete the layout of mobile Internet channels, and acquired Make Me Chic to greatly increase the market share in North America.^[3]

In the next three years, Shein entered the Indian market through mobile application sales channels, completed Series D and Series E financing, and began to enter the field of full-category clothing. In 2020, it became a large-scale website in the Top Ten Shopping Applications in the United States, with sales exceeding \$10 billion. With a compound growth rate of more than 100% for 9 years consecutively, it has become a global business-to-customer (B2C) fast fashion cross-border e-commerce brand. ^[3] Moreover, Shown by Sensor Tower (2022), Shein has surpassed Amazon, a global integrated e-commerce platform, with more installs in the United States. ^[5] In the Global Unicorn Index (2022), Shein ranked fifth with the valuation of \$ 60 billion.^[6]

By April 2022, Shein had completed six rounds of financing totalling more than RMB 5.11 billion, with investors including famous investment institutions such as JAFCO Asia, IDG Capital, Green-woods Capital, Sequoia Capital, Tiger Global and Shunwei Capital. ^[4]

2. The front-end of the flexible supply chain

Shein conducts diversified marketing strategies through digitization, enhances brand influence through diversified marketing, and forms a complete front-end system of flexible supply chain, which all enhance its appeal to consumers.

2.1 Engaging Consumers

Shein experiments with KOLs to promote their products. At the beginning of its establishment, Shein did not use television networks and other communication platforms to advertise products like most traditional clothing brands, nor did it spend a lot of money to sign celebrity spokespersons, but found many American Internet Celebrities to cooperate with. These influencers wore Shein's clothes and uploaded photos to the Internet, with the brand labeled.

In order to enlarge its market among younger users, such as Generation Z, Shein especially needs diverse and fashionable advertisements to attract young customers. A mobile phone with social media soft wares can increase the fashion influence of brands, and can therefore attract more young fashion consumers' attention to the most popular brands. After forming an Internet Celebrity effect, Shein further launched the Affiliate Marketing Program to attract more customers with a single transaction rebate of 10%-20% for brand promotion, which means if the consumers agree to show their product photos on social media, they will receive more coupons and discounts as rewards than they can from Shein's competitors.^[4] This helps engage more influencers and customers with advising their products on different social media platforms. Besides, these rewards and benefits can also contribute to strong customer stickiness.

In short, Shein attracts consumers through low-cost and multi-channel marketing. In the process of communicating with consumers, Shein constantly tries and iterates diverse products in the mode of small orders and quick returns. It designs products according to the needs of front-end users, and then achieves full coverage of current popular products.

2.2 Discovering consumer preferences

As a B2C fast fashion company, Shein faces abundant individual buyers who have diverse demands. Thus, it may be significant for this corporation to provide enough designed products in a short time. Shein has the ability to acquire, mine and analyze updated data, which stem from its daily transactions with customers. Massive user browsing, clicking, and order data are converted into data from the supply chain management system. With this advanced digital reflection and analyzing system, Shein can quickly test its customers' preferences, optimize its products in the market and accurately satisfy customers' real demand.

This big data system probably also enhances Shein's differentiation because it can adapt to the changes in the clothing market more rapidly than other competitors. Shein calculates its turnover rate by day, and in contrast, traditional clothing companies calculate

the turnover rate by quarter or year. Its higher turnover rate made possible by the big data analysis technology forms Shein's competitive advantages because the customers can enjoy abundant alternatives and the latest fashion trend and a superior level of designing service can therefore be provided.

Moreover, the online shopping platform can demonstrate the extendibility of Shein. As the basic trade channel, this online platform is used to present customers with diverse products. It means that this paradigm innovation can be applied in multiple products and Shein's commercial activities in the future.

3. Back-end of flexible supply chain

Shein improves the production capability of its supply factories by digitization, establishing a low-price and multi-choice back-end system for its sustainable supply. The factories in the system can share market information, which provides Shein with foundational commercial advantages.

3.1 Strategic alliances and cooperation

Shein's strategy can be explained by open innovation, as it has forged strategic alliances with other companies. By establishing high-viscosity and high-trust relationships with suppliers, Shein has gradually formed an intelligent production cluster with itself as the core, and suppliers uniformly use the supply chain management system.

In order to rapidly find fashion trend, Shein needs to predict customers' diverse demands, which can be mined from their daily search data. Shein collaborates with Google to effectively explore fashion trends and hot words in different nations. This collaboration provides Shein with abundant information so that it can complete its further design, production and distribution. This collaboration with Google Trend Finder has obviously contributed to its commercial success. In 2018, Shein successfully predicted the market demands of Indian cotton and American fashion lace. This accurate prediction is likely to have positive effects in both enhancing Shein's existing advantages and conducting further innovation. The design team in this company may gain ideas from annual rising trends to offer innovative products, which may allow Shein to lead the next fashion trend rather than always follow the market trend.

In summary, this strategic alliance such as the cooperation with Google helps Shein predict the coming trend accurately. Moreover, these information such as fashion trends and hot words can be the potential sources for Shein's design team to explore new fashion trend and lead the fashion.

3.2 Efficient production and warehousing

Set up in the digital age, Shein has connected hundreds of garment factories together in Guangzhou's Panyu district with the support of Shein's cloud factory system platform.^[4] This platform and its internal system help the factories react to changing market information efficiently and perhaps push the traditional model of fast fashion a step further. The website offers clothing at extremely low price, such as \$3 t-shirts and \$7 pants, and the price will drop to one dollar or a few cents at clearance deal. This low level of price actually results from the precise and rapid response to the market.

The business model of Shein shows the interaction of knowledge push and needs pull. Firstly, Shein follows the lean startup approach to get customers' preference with low cost. It combines data science with supply-chain management and production. With the support of the Large-Scale Automated Testing and Reordering (LATR) System, this company makes its production process extremely efficient. Only about 100 new items are offered by factory suppliers, and more products are fast produced after the customers' demands are explored by the LATR System. Then, this fashion company combines data science with its product design and customer experience. The LATR System is applied by Shein to track its customer activities with new products and test the popularity of the products. Hence, the designers can probably discover the customers' demand preferences and the fashion trend exactly. Besides, Shein shares the customers' information gathered from its own algorithm technology and the cooperative suppliers such as Google, on the cloud factory system platform, so that the suppliers can receive the current market demands rapidly. This supports them to monitor and guide its supply process effectively.

Shein also depends on the intelligent MES collaborative management system for commodity inventory management. This system can not only visualize inventory dynamics to the back-end production companies in real time, but also make inventory replenishment decisions according to inventory status, and send orders to the cloud factory platform in a timely manner, so that suppliers can quickly receive orders and supply.^[3] Efficiency has been improved because Shein uses big data to track fashion trends and market preferences

to react quickly to the changing fashion market. This has a positive effect on maintaining high sales and low warehousing costs.

4. Regulation and learning of flexible supply chains

4.1 Rapid response between consumers and suppliers

In order to follow the various fashion market rapidly, Shein operates an automatic Stage Gate Model. Its decision-making process mainly includes 3 stages and 2 gates, which are highly dependent on the support of big data technology.

Firstly, in the idea discovery stage, new ideas stem from the target customers' search behaviours, then are assessed by the designer team, the gatekeepers, and sent to the suppliers through the central Enterprise Resource Planning (ERP) system that can help choose the practice that can deliver the best performance.

After that, Shein will get customers' feedback through the LATR system. The system can work as the gatekeeper by using big data analysis technology to calculate and order the popularity of these designs. If these new designs are beneficial, the order volume to the supplier factories will be automatically raised by the ERP system for full production. Shein integrates artificial intelligence with its Stage Gate Model together. The algorithm is implemented to mine commercial opportunities in the fashion clothing market and test the financial performance of the products for Shein's next business plan.

4.2 Broader exploitative and exploratory learning

Shein already has advanced big data analysis technology as its obvious competitive advantage. From a technical perspective, what Shein can do is to improve this digital system through its internal technology department which shows exploitative learning. Additionally, in order to get a diverse fashion design, Shein has to do exploratory learning. This is because although Shein can take the predicted information as the source of product innovation, its over-dependence on big data may have negative effects in Shein's capability of independent innovation.

Therefore, a program called Shein X is developed separately. The program aims to provide independent fashion designers and illustrators with the opportunity to work with Shein and expand their brands to more audiences. Shein X allows designers to create, while Shein is responsible for manufacturing, marketing, and sales. Designers can share part of the profits and retain ownership of their work. Shein X plans to explore fashion design further, which could help Shein to enter an unknown fashion area. Shein X may help Shein effectively improve its design level. Shein's designers may have the opportunity to interact with these collaborating independent artists and learn different design styles.

To sum up, Shein can develop and refine its internal digital system as exploitative learning. Besides, for the purpose of improving its design capability further, Shein has established a fashion platform, Shein X program, which allows young designers to create innovative and fashionable ideas. This program also enables the communication between different designers so that Shein's internal design team can improve their design capability and expand their fashion vision.

5. Potential uncertainty

5.1 Following the market or leading the market

The efficiency has been improved because Shein uses the algorithm to track fashion trend and market preference, leading to a rapid reaction to the changing fashion market. The algorithm has positive effects on keeping high sales and low warehousing costs. However, there are also some risks and uncertainties associated with Shein's over-reliance on its big data systems.

Firstly, Shein absolutely depends more on big data science to follow what customers like rather than designing something to lead the global market. This mindset of tracking instead of leading could diminish this fashion company's potential ability to innovate.

Besides, over-reliance on data means that the new products offered before the test of LATR system may lack enough market considerations. From the product perspective, although Shein can use the hot words to predict the market trend, there can be some errors. The data may not perfectly match the real customer demands. This lack may cause some unsuccessful designs, which may result in some unnecessary resource wastes.

From the employees' perspective, Shein's digital process for selecting ideas may lead to little employee involvement. Much test work is replaced by big data technology. This replacement probably decreases employees' market consideration because they have fewer opportunities to access the market directly, which have negative effects on the improvement of employees' individual ability.

5.2 Lower price or better quality

For a fast-moving consumer goods (FMCG) company, the algorithm can effectively improve Shein's design efficiency and therefore shorten its design time and production time. This improved efficiency perhaps contributes to low price and provides a competitive advantage to Shein. Compared to its competitors, Shein has an obvious price advantage. This Low Cost Strategy has helped Shein attract many customers and survive the shock of the coronavirus. However, in addition to low price level, Shein should improve its product quality, which can be a potential risk and uncertainty. Some customers consider Shein as a 'low-grade Zara' because of its controversial product quality. It has also been shown that despite the attractive low-price level, some customers do not enjoy their shopping experience due to disappointing clothing quality. In order to attract more customers, Shein need to not only focus on cheap clothing but also focus on products for higher quality demand.

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