Research on Comparison and Development Trend of Supply Chain Models: Taking JD.com and SHEIN as an Example

Sirui Fu[1][a], Zhihan Qian[2,*][b] and Xin Yan[3][c]
¹Chongqing Jiaotong University, Wanjiang, Chongqing, China
²Zhejiang Ocean University, Zhoushan Zhejiang, China
³Anhui Jianzhu University, Pudong New Area, Shanghai, China
*

Keywords: SHEIN, Supply Chain Management, JD.com, Cost Management.

Abstract: In the context of an unstable international economic environment, the problem of supply chain of contemporary cross-border e-commerce has been re-emphasized by all parties. At the same time, in the context of the national emphasis on green supply chain and sustainable development, how domestic enterprises can reduce costs and increase efficiency of supply chain to balance the cost of building a green logistics system has become a difficult problem. This essay analyzes the problems that exist in the supply chain of SHEIN and JD.com by comparing and contrasting their supply chain structure, operation methods and concepts. This paper finds that the supply chain of SHEIN, which is dominated by the overseas market, is greatly affected by changes in the international economic environment, and its cross-border e-commerce nature has led to the fragmentation of the supplier structure, which ultimately leads to management difficulties. JD.com, on the other hand, is mainly limited by the high costs associated with its own self-built logistics. The findings of the study aim to provide theoretical knowledge and practical reference value for all parties to improve the supply chain structure as well as to solve the existing problems.

1 INTRODUCTION

With the continuous deepening of globalization, problems brought about by the complexity and dynamics of cross-border supply chains have become increasingly prominent. Meanwhile, the costs and stability of supply chains are also facing systemic risks caused by fluctuations in economic policies, geopolitical conflicts and unexpected events. In this context, global fast-fashion e-commerce and integrated retail enterprises face unprecedented challenges in differentiation. How to strike a balance among efficiency, flexibility and sustainability has become a focus of attention for both the academic community and the business sector. Take SHEIN, a representative fast fashion e-commerce enterprise, as an example. It has built a decentralized supplier network based on the "small order and quick response" model. This model can respond quickly to fluctuations in market demand. However, against the backdrop of a sharp increase in global economic uncertainty, problems such as prolonged customs inspection cycles and delayed logistics have led to a decline in the response efficiency of the supply chain. Meanwhile, the quality control flaws and ESG compliance risks arising from the decentralized supply network have further highlighted the contradiction between flexibility and sustainability.

In contrast, the self-operated logistics system adopted by the comprehensive retail giant JD.com can ensure delivery efficiency and service quality. However, its heavy asset operation model leads to a relatively high unit warehousing cost, and the rigid characteristics of its supply chain show vulnerability in black swan events such as the epidemic. Studies show that enterprises that overly rely on centralized logistics nodes are more vulnerable to external shocks and need to enhance supply chain resilience through

---

[a] https://orcid.org/0009-0008-8176-8164
[b] https://orcid.org/0009-0002-4912-0700
[c] https://orcid.org/0009-0008-6263-139X
* Corresponding author

digital collaboration and networked layout (Tang and Veelenturf, 2024）

The differences in supply chain paradigms between the two types of enterprises reflect the core predicament of the current global retail industry. Fast fashion enterprises achieve low-cost and agile responses through the strategy of externalizing environmental costs (Niinimäki, 2020). Comprehensive retail platforms, on the other hand, rely on a high-investment and heavy-asset model to ensure stability. Both are difficult to balance efficiency, resilience and sustainability. Therefore, how to restructure the supply chain paradigm through technological innovation has become a key issue both in theory and practice.

This article will start from the current economic development background and the current development status of enterprise supply chain models. Meanwhile, the article conducts a comparison of the supply chain models of SHEIN and JD Logistics enterprises and studies their development trends, analyzing the challenges of cost, resilience and sustainability they face. And we propose a technology-driven optimization path to provide theoretical references and practical inspirations for related research.

2 SHEIN'S SUPPLY CHAIN MANAGEMENT

2.1 Vulnerability of Supply Chain under Fluctuations in Global Trade Environment

Against the backdrop of globalization facing headwinds and intensified geopolitical conflicts, SHEIN's supply chain system, which highly relies on cross-border trade, is the first to be affected. Tariff barriers triggered by unilateral trade protectionism have caused a surge in overseas market access costs. Coupled with stricter customs supervision policies in various countries, the cargo clearance time has been prolonged, leading to a significant increase in the company's logistics costs and difficulty in guaranteeing delivery cycles (Li, 2025). More severely, SHEIN's centralized supply chain layout overly depends on production bases in China, lacking the capacity for regionalized production allocation. When facing structural changes such as Sino-US trade frictions and the rise of Southeast Asian manufacturing, it is difficult to quickly disperse risks. This model of "putting all eggs in one basket" makes

it highly prone to supply chain disruption crises under the impact of black swan events such as sudden changes in international trade policies and port congestion.

2.2 Structural Contradiction Between Fast Response Model and Quality Control

The surging global consumer demand for personalization and timeliness has pushed SHEIN to accelerate the operation of its "small order and quick response" model, but it has also triggered serious imbalances in quality control. (Zhang, 2024). To achieve the rapid iteration of thousands of new products daily, the enterprise needs to coordinate with thousands of decentralized suppliers. This fragmented supply network makes it difficult to uniformly implement quality standards. In order to reduce costs and meet tight deadlines, the production end often cuts corners or simplifies processes, leading to inconsistent product quality and a high consumer complaint rate (Liu, 2024). Meanwhile, as the ESG concept deepens in the global fashion industry, SHEIN's shortcomings in the use of eco-friendly materials and labor rights protection have gradually been exposed. Regulatory authorities' doubts about the transparency of its supply chain not only threaten the brand's reputation but also may trigger compliance review risks in European and American markets (Wang, 2024).

2.3 Collaboration Dilemmas of Ultra-Large-Scale Supplier Network

The dynamic complexity of cross-border supply chains is further amplified in SHEIN's huge supplier system. Facing the rapid fluctuations in global market demand, the enterprise needs to achieve efficient collaboration in raw material procurement, production scheduling, logistics distribution and other links, but the multi-level and multi-regional supplier structure leads to serious information transmission distortion. For example, when orders are urgently adjusted, there is a delay in information transmission from the headquarters to tertiary suppliers, and the responses of each link are not synchronized, resulting in delivery delays. In addition, the lack of a unified digital management platform makes it difficult to share inventory data and production progress in real time, and it is impossible to form a global optimization of the supply chain. This bottleneck in management efficiency is

particularly prominent when economic policy fluctuations lead to drastic changes in demand, directly weakening the enterprise's market competitiveness.

3 ANALYSIS OF JD.COM'S SUPPLY CHAIN MANAGEMENT ISSUES

3.1 Cost Pressure and Insufficient Flexibility Caused by Heavy Asset Operation Model

Against the backdrop of slowing global economic growth and changing consumer market demands, the drawbacks of JD.com's heavy asset operation model have become increasingly prominent. Facing the cost increase pressure brought by economic policy fluctuations, JD.com's huge fixed asset investment in logistics infrastructure has formed a heavy cost burden(Lin and Pan,2025).As of December 31, 2024, the management area of its 32 million square meters of warehousing network, although with high utilization rate, the unit warehousing cost is still higher than the industry average(He and Qiao, 2024). This vertical integration model of "full-link self-operation" can guarantee the quality of distribution services in normal market conditions, but it makes JD.com lack the ability to flexibly adjust when dealing with supply chain fluctuations caused by geopolitical conflicts, natural disasters and other emergencies. Once encountering special circumstances, JD.com, which is highly dependent on its self-built logistics network and fixed information system, is prone to problems such as order delays and out-of-stock of popular products, and the inventory turnover rate also decreases, making it difficult to achieve efficient operation in the complex and changeable market environment (Wang, Ren and Tang, 2025).

3.2 Synergy Contradiction Between System Rigidity and Strategic Vertical Integration

The dynamic complexity of cross-border supply chains is reflected in JD.com's supply chain system as a deep contradiction between system rigidity and vertical integration strategy. JD.com's relatively fixed inventory management and distribution plan design struggle to keep up with the rapid changes in global market demand. When economic policy adjustments

trigger sudden shifts in consumer demand, the adaptability flaws of its supply chain system are fully exposed (Qi and Wang, 2025). Although the vertical integration strategy of "full-link self-operation" strengthens service controllability, it also causes poor internal data flow, with procurement and sales data failing to match precisely, thereby resulting in low inventory turnover efficiency. Additionally, the closed nature of the self-built system restricts JD.com from collaboratively utilizing external high-quality resources. Under the trend of accelerated global supply chain restructuring, it is difficult to quickly integrate external forces to address risks, putting JD.com in a dilemma between pursuing cost efficiency and ensuring supply chain flexibility, which severely restricts the improvement of overall supply chain effectiveness.

4 SUGGESTION

4.1 Intelligent Development

SHEIN is now able to monitor each order and inventory in real time through the MES system and has basically completed the digital management of the production side. However, there is still a lack of effective measures for the management of suppliers. SHEIN can use blockchain technology to build a Decentralized Supply Chain Management Platform. It can utilize the transparency and non-tamperability of blockchain to carry out unified management for the whole industry. However, it is also necessary to avoid wasting resources by blindly introducing new technologies (such as AI, blockchain, meta-universe) without clear business objectives. If blockchain tracking is deployed only for the sake of showing off, but the actual supply chain nodes are not connected, the technology will become a burden.

JD.com has formed a more complete automated and intelligent supply chain but still needs to carry out relevant intelligent development. For example, following SHEIN's example of using AI to accurately profile users, it can accurately push related logistics services, as well as optimize its own supply chain structure. However, it should be noted that excessive automation may reduce user satisfaction, lose the original JD.com customer first service concept, JD.com if only algorithms to deal with returns, ignoring the special scene of manual intervention, may trigger customer loss. Can follow the example of SHEIN and other enterprises, humanization at key nodes.

4.2 C2M Model Application and Digital Model Optimization

SHEIN can optimize digital models with the help of big data analysis and AI algorithms to deeply explore consumer behavior data. By analyzing multi-dimensional data such as consumers' browsing history, time spent on the platform, frequency of purchase, and reasons for return and exchange, SHEIN accurately builds a picture of consumer demand. The machine learning model is used to predict fashion trends and product demand, and the prediction results are transformed into specific product design parameters and production instructions, realizing a seamless connection from demand insight to production. For example, if the model analysis shows that consumers in a certain region are paying more attention to dresses with specific patterns and the conversion rate of purchasing after browsing is high, SHEIN can immediately transfer the relevant design elements and general style requirements to the supplier, arrange for small batch production, and then quickly adjust the subsequent production plan based on the feedback from the market, so as to realize an accurate response to consumer demand under the C2M model, enhance product marketability and reduces inventory risk.

JD.com can integrate the platform's massive transaction data, user evaluation data and search keyword data, and use deep learning algorithms to optimize the demand forecasting model. By analyzing consumers' search words, product evaluations, purchase time distribution and other data on the JD.com platform, we can accurately grasp consumers' potential demand for products in terms of functionality, appearance, performance, etc. Based on these data, we establish a C2M customization demand library and cooperate with suppliers to develop customized products that meet market demand. At the same time, we use digital twin technology to simulate the production process and supply chain flow of customized products, identify potential problems in advance and optimize the supply chain configuration, so as to ensure that customized products can be efficiently produced and quickly delivered, and to meet consumers' personalized needs while improving the overall efficiency of the supply chain.

5 CONCLUSION

This paper compares the supply chains of SHEIN and JD.com, and analyzes the main problems of the two supply chains as follows: SHEIN's problems mainly come from the rising cost of goods sold due to the recent instability of the international economic environment, as well as the high cost of managing complex suppliers, and the complicated distribution of suppliers in various places, which makes it more difficult to unify the standards, ensure the quality, and control the progress. High standards of supply chain management have also increased the supply chain costs. JD.com's problems mainly come from the high cost of self-constructed supply chain and the additional cost of focusing on employee welfare. JD.com's supply chain does not have sufficient flexibility. Due to the special characteristics of self-built logistics destined to the supply chain will not be particularly flexible. Although JD.com in this year and other domestic companies to actively cooperate with their own supply chain, the loss of part of the quality assurance. This paper focuses on the problems existing in the industry's characteristic supply chain at this stage and analyses and proposes solutions. The research aims to improve the efficiency of domestic and foreign logistics, help enterprises reduce costs and increase efficiency, further optimize the existing management structure and avoid the related risk issues. The future development of supply chain tends to be transparent, intelligent and digital. The two companies mentioned in this article have made achievements in the fields of intelligence and digitization. The two companies should avoid blindly introducing new technologies without clear business objectives in the future digitalization and intelligence process, resulting in a waste of resources. They should start with business pain points, such as optimizing inventory turnover through AI, shortening SHEIN's supply chain response time.

AUTHORS CONTRIBUTION

All the authors contributed equally and their names were listed in alphabetical order.

REFERENCES

He, Q., & Qiao, X. Y. (2024, March 7). Profit reversal of Jingdong Logistics still need to carry the "cost war" [N]. Beijing Business News, 006.

Li, S. (2025, February 11). EU to regulate e-commerce imports should not be blocked. Science and Technology Daily, 004.

Lin, C. L., & Pan, X. F. (2025). Analysis of intelligent technology application and development trend of Jingdong warehouse. China Storage and Transportation, (04), 97-98.

Liu, S. H. (2024). Research on digital marketing and its strategy optimization of cross-border e-commerce enterprises in China [Unpublished master's thesis]. Xi'an International Studies University.

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. Nature Reviews Earth & Environment, 1(4), 189-200.

Qi, J. Y., & Wang, L. Q. (2025). The impact of blockchain on supply chain collaboration performance—Taking Jingdong as an example. Mall Modernization, (12), 61-63.

Tang, C. S., & Veelenturf, L. P. (2024). The strategic role of logistics in the Industry 4.0 era. Transportation Research Part E: Logistics and Transportation Review, 129, 1-11.

Wang, L. L., Ren, Y., & Tang, X. M. (2025). Research on the innovation path of B2C cross-border e-commerce business model—Taking SHEIN as an example. Business and Economic Research, (06), 139-142.

Wang, S. S. (2024, June 18). SHEIN: Stuck in IPO [N]. China Industry News, 003.

Zhang, X. F. (2024). Problems and countermeasures of enterprise cost management—Taking JD.com Logistics as an example. Modern Marketing (Lower Decade), (11), 107-109.