Research on Logistics Cost Control Management of X Company from a Supply Chain Perspective

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Abstract. Within the context of global economic integration, and alongside the rapid growth of the internet economy, e-commerce companies are facing fierce market competition and an ever-expanding spectrum of customer demands. This has led to logistics costs accounting for a significant portion of total expenses, making precise control over these expenditures a focal point of business management. As the supply chain is a vital component in forging the core competitive edge of logistics, it exerts a profound impact on operational efficiency and profit potential in terms of logistics cost control. Based on this, this paper from a supply chain perspective, delves into the procurement, warehousing, transportation, and labor cost management aspects of Company X's logistics cost control issues and their causes. It specifically proposes the introduction of advanced procurement systems and the establishment of a rational logistics transportation network among other measures, to enhance the maximization of logistics cost benefits and achieve long-term mutual gains in supply chain cooperative management, promoting the company's long-term stable development.

Keywords: E-commerce Enterprise; Supply Chain; Logistics Cost Control

1 INTRODUCTION

With the rapid development of global information technology, the e-commerce industry has become an explosively growing new engine of the global economy. The report from the 19th National Congress of the Chinese Communist Party emphasized the acceleration of high-quality supply chain development, identifying the construction of modern supply chains as a core area to spur the formation of new growth points and nurture new momentum. Against this backdrop, the integration of logistics with supply chains has become key to driving companies to reduce costs, enhance efficiency, and improve overall development quality.

Logistics costs are a significant component of business operations, where only a small part is visibly apparent, namely the expenses directly paid by the company. However, the larger portion of costs often remains concealed beneath the surface, involving internal logistics activities and related internal consumption. Professor Nishioka Osamu[1] introduced the iceberg theory in 2010, emphasizing the importance of recognizing and managing these hidden costs. He introduced the concept of the "third

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source of profit," indicating that reducing these hidden expenses can significantly enhance a company's profitability.Zhang Gongran[2] pointed out that the current market logistics distribution models can be broadly divided into self-operated logistics, third-party logistics, and inter-enterprise logistics alliances, each of which directly impacts the costs for businesses. Sun Ying et al. [3]emphasized the significance of logistics costs for the entire production activity of enterprises and their future development, advocating for the deployment of professional logistics accounting talent, and the establishment of a comprehensive and standardized logistics accounting system to enable more efficient and accurate logistics cost calculations.As the e-commerce sector expands, Charles and Michael [4]highlight the benefits of using a networked supply chain management approach. By leveraging big data, this method emphasizes the importance of acquiring and sharing information and data among various business nodes. Such collaboration enhances the integration of the supply chain with the e-commerce industry and improves overall cost management efficiency.Martin Christopher[5]has analyzed how cost control within the supply system can strengthen the management of a company's actual costs. He also outlined methods for controlling expenses in the supply system to enhance the economic efficiency of businesses. These strategies focus on optimizing supply chain operations and minimizing waste to maximize profitability.Additionally, the management of suppliers plays a crucial role in controlling logistics costs. Song Dianfeng[6] in 2022 further analyzed how lax management of suppliers during the procurement process can lead to excessive logistics costs, negatively affecting the economic benefits of a company.Therefore, strengthening supply chain management to effectively control logistics costs is key for enterprises to gain an advantage in fierce market competition.

X e-commerce enterprise, leveraging its efficient supply chain and logistics systems, has established a leading position in the market.However, in the context of increasingly fierce market competition and rising operating costs, effective cost control has become a core issue for the enterprise.In view of this, this paper, rooted in the perspective of supply chain management, thoroughly analyzes the existing problems and reasons behind the logistics cost control of X e-commerce enterprise.It also proposes targeted suggestions for improvement, aimed at helping the enterprise reduce costs and increase efficiency, enhance resource utilization, and achieve mutual benefits for all parties involved.

2 COMPANY PROFILE

Company X officially entered the e-commerce domain in 2004, initially focusing on digital products as its main business, and currently offers a comprehensive range of products covering various categories. The company has always adhered to the management philosophy of "building trust as the foundation, creating value with customer-centricity," positioning itself as "a technology and service company based on the supply chain." It is committed to continuously creating value for customers and partners. Starting in 2007, Company X began to build its own logistics system, and utilizing a global

business network along with big data technology and computer algorithms, it has precisely crafted an integrated supply chain service system that maximizes efficiency across procurement, sales, warehousing, and distribution. This approach not only guarantees the stability and reliability of its own supply chain management but also works in collaboration with upstream and downstream partners to reduce costs and increase efficiency, in pursuit of a higher quality management strategy development.

3 ANALYSIS OF THE PROBLEMS AND CAUSES IN X COMPANY'S LOGISTICS COST CONTROL FROM A SUPPLY CHAIN PERSPECTIVE

3.1 External Supply Chain Logistics Cost Control Problems and Causes

From the Perspective of Upstream Suppliers. The main objective of upstream suppliers is to maximize their own value, while for Company X, its business management aims to satisfy customers while bringing in revenue for the enterprise. Fundamentally, these two objectives are synergistic. However, X Company's pursuit of cost optimization, including significantly reducing procurement costs and delaying payment times, has led to the departure of several suppliers due to a lack of relationship maintenance. Furthermore, X Company places a high emphasis on the application of big data and artificial intelligence to optimize inventory management and logistics distribution operations. Such strategic development requires more efficient internal operations and acute insights into customer demand, imposing a high threshold on suppliers to possess the corresponding data processing capabilities. This can incur substantial costs to upgrade their data systems for seamless integration, creating potential cost pressures that may lead suppliers to choose to leave the platform if they are unable to keep pace with X Company's strategic development.

From the Perspective of Downstream Consumers. The main source of "reverse logistics costs" is consumer returns. X Company has established a vast proprietary logistics management system, which has a higher cost when controlling the link costs of reverse logistics. While proprietary logistics certainly have an advantage in service quality compared to third-party logistics, a high volume of returns and exchanges can inevitably lead to management complexity and cost issues. As shown in Figure 1, X Company has a low customer satisfaction and a complaint ratio of 14.5%. With the continuous expansion of product categories and the entry of third-party merchants, monitoring the quality of goods becomes more challenging, which may lead to situations where the quality of goods received by consumers does not meet expectations, therefore causing returns, exchanges, and complaints, and affecting customer satisfaction.

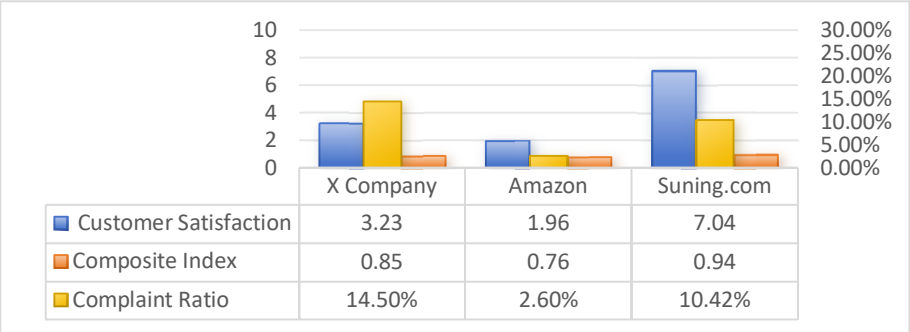

Fig. 1. Survey of Customer Satisfaction in E-Commerce Companies

3.2 Internal Supply Chain Logistics Cost Control Problems and Causes

Problems and Causes of Purchase Cost Control. The procurement process is a vital component of X Company's overall supply chain management. Being the origin of the entire supply chain, controlling purchasing costs means reducing logistics costs from the source. At present, X Company's control over purchasing costs mainly includes three aspects: selecting suppliers to establish long-term strategic cooperation intentions, collaborating with original manufacturers to reduce intermediary costs, and adopting a direct-to-consumer model to reduce the costs along the entire supply chain. As Table 1 illustrates, X Company has managed to maintain revenue while keeping its purchasing costs around 85%, but this percentage is still significantly higher than that of Amazon and Vipshop, and its purchasing costs in 2022 and 2023 are as much as 30% higher than Amazon's. Although X Company's inventory turnover rate, as shown in Table 2, has been gradually increasing, it is still below the industry standard, indicating weak control capabilities.

The main reasons are as follows: when X Company purchases products from suppliers, its internal management strategies, such as warranties on goods and providing competitively low prices, are part of a bargaining process. The company orders in vast quantities, which may lead to problems such as product obsolescence and stock build-up. The market demands change rapidly, and in order to continuously attract consumers, inventory needs to be updated promptly to adapt to the market environment. If the purchasing system control is weak, it will affect procurement efficiency and cost control.

Table 1. Comparative Analysis of X Company's Procurement Expenditure Proportions from 2020 to 2023

Year	2020	2021	2022	2023
X Company Procurement Expenditure Proportion	85.4%	86.4%	86.0%	85.3%
X Company Operating Revenue	7458	9516	10462	10850
X Company Operating Cost	6367	8225	8992	9250

Amazon Procurement Expenditure Proportion	60.42%	57.96%	56.19%	53.03%
Vipshop Procurement Expenditure Proportion	79.10%	80.26%	79.04%	78.45%

Table 2. Comparative Analysis of Inventory Turnover Rates for X Company from 2020 to 2023

Year	2020	2021	2022	2023
X Company	10.90	12.23	11.71	12.76
Amazon	10.53	17.43	16.65	15.53
Vipshop	10.50	12.95	13.17	15.61

The warehouse cost control problems and their causes. X Company's warehousing costs primarily consist of investments in building its own warehouses, equipment depreciation, and management personnel salaries. As business volume grows and coverage expands, future investments in warehousing facilities and the associated depreciation have led to increased management expenses, thus raising the company's supply chain warehousing costs and, inevitably, logistics costs as well. From Table 3, a clear upward trend in warehousing and logistics expenses is evident, reaching 64.6 billion yuan in 2023 – an increase of more than double compared to 2020. At the same time, as indicated by Table 4, the investment in land use rights went from 35.48 billion yuan in 2022 to 42.133 billion yuan in 2023, an annual growth of 18.75%, reflecting X Company's substantial warehousing cost investments and a strong commitment to the construction of warehousing facilities.

However, the continuous increase in costs will inevitably lead to a decrease in the overall profit level to some extent, as well as an increase in management personnel expenses. Therefore, if the investment in warehousing costs cannot achieve reasonable and efficient resource allocation, it will lead to a financial imbalance, posing certain risks to the company's business management.

Table 3. X Company's Warehouse Expense Metrics Analysis from 2020 to 2023 Unit: Billion Yuan

Year	2020	2021	2022	2023
Warehousing and Logistics Expenses	487	590	630	646
Operating Revenue	7458	9516	10462	10850
Percentage of Warehousing Expenses to Revenue	6.53%	6.20%	6.02%	6.05%

Table 4. X Company's Warehousing Equipment Cost Situation from 2020 to 2023 Unit: Billion Yuan

Year	2020	2021	2022	2023
Land Use Rights	117.8	152.5	354.8	421.33
Accumulated Amortization	6.62	9.25	16.33	25.7
Net Book Value	111.18	143.25	338.47	395.63

Transportation Cost Issues. In X Company's logistics management system, the main resources have been focused on warehouse management, resulting in a relatively weak transportation capability. In light of this, the company plans to strengthen its mainline and end-of-line distribution capabilities, which will become the main focus of future capital investment in logistics, but also signifies an increase in spending on distribution links. As shown in Table 5, the reason why the transportation cost distribution percentage decreased to 2.77% in 2020 is due to the company's increased investment in technology, the implementation of an intelligent procurement system, and the use of drones and autonomous vehicles for goods transport, which enhanced the efficiency of logistics and distribution costs. The slight increase to 2.90% in the distribution percentage in 2023 indicates that future transport distribution link construction still needs to be improved and continuously expanded, with a higher rate of capital occupation, in order to capture a larger market share. Therefore, in terms of cost control, more reasonable planning should be established to lay the foundation for the company's continuous development capability.

Table 5. X Company's Transportation Cost Percentage from 2020 to 2023 Unit: Billion Yuan

Year	2020	2021	2022	2023
Transportation Cost	231	278	290	315
Operating Revenue	7458	9516	10462	10850
Distribution Percentage	3.10%	3.02%	2.77%	2.90%

Labor Cost Control Issues and Causes. The issues with labor cost control at X Company primarily stem from the rising salaries and benefits, as well as the increasing number of employees, which accentuates the problem. As can be seen from Table 6 and Table 7, from 2020 to 2023, there has been a substantial upward trend in overall staff compensation at X Company, with the number of employees in various departments growing to a total of 517,124. However, if wage and benefit costs rise without a proportional increase in employee productivity, this means that the cost per unit of labor is increasing, potentially leading to challenges in salary management and creating considerable financial pressure for the company. At the same time, X Company's commitment to creating a one-stop supply chain service for consumers and opening up both domestic and international sales channels also means incurring higher labor costs. Therefore, whether expanding business or introducing talents and corresponding internal training, there will be additional financial burdens. As a result, there is a need for continuous optimization of the labor capital structure and enhancement of cost control.

Table 6. X Company's Proportion of Salaries and Benefits to Operating Revenue from 2020 to 2023

Year	2020	2021	2022	2023
Salaries and Benefits	79.84	83.96	113.03	107.81
Operating Revenue	7458	9516	10462	10850
Percentage	1.07%	0.09%	1.08%	1.00%

Table 7. X Company's Employee Count by Job Category as of the End of 2023

Job Category	Number of Employees	Proportion
Procurement	23687	4.60%
Warehousing	70451	13.62%
Distribution	355018	68.65%
Customer Service	27157	5.25%
Research and Development	14128	2.73%
Sales and Marketing	16561	3.20%
General and Administration	10122	1.95%
Total	517124	100%

4 SUGGESTED MEASURES FOR LOGISTICS COST CONTROL OF COMPANY X FROM A SUPPLY CHAIN PERSPECTIVE

4.1 External Supply Chain Cost Control Strategies

Valuing the Alliance with Upstream and Downstream Suppliers for Mutual Benefit. Company X should establish a robust communication mechanism with its suppliers, such as regular meetings, online communication, etc., to keep abreast of the suppliers' production and supply status, ensuring the smooth operation of the supply chain. At the same time, Company X plays a key role as an information mediator within its supply chain, responsible for building an effective bridge for communication between suppliers and retailers. With retailers having a stable customer base, they can get direct feedback from consumers. Therefore, Company X should collect and convey this information to suppliers, enabling them to understand changes in consumer preferences and thereby conduct reasonable market forecasts and strategy adjustments. Suppliers can then increase their investment in new product development to better meet market demands. Through such information exchange and collaborative processes, mutual benefits can be promoted, achieving a win-win situation for all parties involved.

Enhancing Stickiness with Downstream Consumers. Customers are the key support for enhancing a company's competitiveness and profitability. Company X must meticulously select its partners and strengthen the level of quality inspection during the procurement process to ensure product quality. In the current context of carbon neutrality, resource utilization efficiency is receiving increasedattention. In case of returns, a compensation mechanism should be implemented first, as consumers may not always opt to return items; if they insist on returning, and if the original packaging is undamaged, the company can offer a "green reward" to the customer. If the original packaging is missing, the product can be sold at a discounted price to customers who don't mind the lack of external packaging, depending on the nature of the product and the importance of its packaging. This approach not only saves the cost of repackaging but also minimizes product waste, while offering customers the opportunity to purchase discounted items, increasing customer recognition and loyalty.

4.2 Internal Supply Chain Cost Control Strategies

Introducing a comprehensive advanced logistics procurement system. Based on the procurement issues identified within Company X, such as the inability to effectively forecast market sales leading to inventory backlogs and the need to achieve strategic synergy with suppliers considering the characteristics of its sales model, it is advisable to introduce an advanced intelligent supply chain procurement system. Utilizing big data backend technology can reasonably predict future sales trends of products, including customer acquisition rates and conversion rates. Regular comparisons of the performance across various channels can be made to plan sales investment proportions accordingly. Additionally, it is important to analyze the supply cycles of products and their raw materials from past years and include a safety margin to guide procurement planning. Furthermore, the company needs to establish a comprehensive supplier database, gathering and analyzing supplier information such as productivity, product lines, price ranges, and delivery speeds to form a set of evaluation criteria and thus strengthen supplier management. In the event of stockouts, efforts should be made to balance customer sentiment and minimize the potential negative impact.

Improving Storage Control Capability and Optimizing Resource Allocation. Company X currently has over 1,500 warehouses in its domestic bases, with a substantial amount of capital invested initially and a longer cycle for capital recovery. According to the above analysis, warehousing and logistics spending for 2023 has already reached 64.6 billion, suggesting that further blind expansion is inadvisable. To reduce logistics costs and improve efficiency, idle or underutilized warehouses could be repurposed for leasing to generate additional income; when planning and establishing goods storage facilities, it is essential to consider geographic location, customer base size, and the convenience of the logistics and transportation network to avoid wasting resources; in selecting warehouse locations, logistics systems must be carefully managed and optimized to strengthen the interconnectivity of the logistics network, ensuring that the system operates efficiently and independently, creating a positive effect chain that minimizes expenses related to goods storage activities.

Enhancing Transport Service Capabilities and Augmenting Distribution Efficiency. Analysis reveals that Company X's transportation scale is gradually expanding, and as indicated in Table 7, the proportion of manual distribution has reached 68.65%. Therefore, for Company X, it is crucial to have a well-planned transportation and distribution network. Based on specific customer demands and order volumes, effective route planning algorithms and distribution scheduling technologies should be adopted to optimize delivery routes and precisely schedule deliveries; Company X could also establish a logistics information sharing system, enabling real-time updates and sharing, facilitating the tracking and monitoring of goods in transit. When faced with transportation anomalies, quick communication with cooperative logistics service providers is vital to formulate timely resolution strategies. A strict reward and penalty system for

the assessment of transport personnel can be implemented as well, to enhance the level of delivery services.

Adjusting Staff Structure and Strengthening Supply Chain Talent Development. Company X should streamline and optimize its workforce, adjust the staff structure, strengthen the quality of HR recruitment, fortify internal personnel assessment mechanisms, dissuade repeatedly under-performing employees from staying, and replace them with capable staff. Proactively conduct supply chain training courses or seminars to attract top talent, enhancing the overall knowledge reserves and application levels of the employees, implement multi-skilled staff training programs and flexible job rotations, and cultivate the ability to handle multiple roles in one person. In addition, engage long-term and steady suppliers along with management in internal training to elevate the managers' competencies, achieving an overall reduction in supply chain labor costs.

5 CONCLUSION

As the e-commerce industry develops, competition among enterprises is intensifying, and reducing logistics costs is a crucial strategy for gaining market share. Strengthening supply chain management and refining logistics costs are essential aspects of enterprise cost management. Therefore, enterprises should broaden their perspective and enhance the management of supply chain logistics costs to secure a core competitive advantage. At the same time, e-commerce companies should also tailor their strategies to their specific situations, fully exploit data from all aspects of the supply chain, focus on collaboration with suppliers, enhance customer loyalty, improve warehousing capabilities, and optimize the logistics distribution system to increase transportation efficiency. By achieving supply chain integration and reducing redundant costs, enterprises can support their long-term healthy development.

REFERENCES

1. Professor Nishioka Osamu from Waseda University, Japan. "The Untapped Iceberg: A Review of Third-Party Logistics Development in Our Country" [J]. China Logistics & Procurement, 2010, 13(17): 5.
2. Geng Cuihua, Zhang Gongrang. Study on the logistics distribution cost under an e-commerce environment [J]. Jiangsu Commercial Forum, 2011(05):64-66.
3. Sun Ying, Zhang Lei. Discussion on logistics cost control for e-commerce businesses [J]. Chinese and Foreign Entrepreneurs, 2013(24):171+180.
4. Charles.bolier,Michael.J ball. Electronic Supply Chain Management[J]. Beijing: Machinery Industry Press. 2016(08).
5. Martin Christopher E-commerce:business,society[J].Addison Wesley, 2019(06):143-159.
6. Song Dianfeng. "Problems and Strategies in Supplier Management during Material Procurement" [J]. Commercial Research, 2022(25): 15-18.