

The Existing Problems and Model Analysis of Supply Chain Management in Traditional Chain Retail Enterprises

— Take Walmart as an Example

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Abstract: As the retailer that has ranked at the top of the Fortune Global 500 consecutively, Walmart is regarded as an enterprise including three store forms, namely Walmart Shopping Center, the Walmart Community Store, and Sam's Warehouse Membership Store. After establishing more than 10,000 businesses in 27 different countries all over the world, Walmart's sales have been characterized by the globalization of its supply network. Walmart's offline retails were no longer restricted to the shopping malls and e-commerce platforms that operated in its birthplace, the United States. Taking advantage of optimization management in the supply chain, it gradually transformed from traditional offline shopping to new retail through digital transformation, possessing an outstanding brand effect. Walmart provides a comprehensive "one-stop" shopping service for differentiated consumer groups, while also fostering the concept of win-win cooperation between upstream and downstream corporations. Ultimately, Walmart will improve the enterprise's long-term market competitiveness and allocate more market share. This paper aims to analyze the cost management mode of traditional retail enterprises, especially the inventory management mode, in order to explain how to reduce unnecessary losses in the whole system of the supply chain, optimizing the allocation and minimizing inventory for maximized profit.

Keywords: Walmart, Supply Chain Management, Traditional Retailer, Operation Strategy

1. Introduction

Walmart, a dominant brand in the retail industry, has a prominent performance in supply chain management. With the advent of the digital and AI eras, Walmart has completed a digital transformation and corrected strategic adjustments through innovative changes. It continuously optimized as well as updated the layout of the supply chain network through the service concept called "customer first." We could witness that the competition among supply chain participants has become mutual cooperation, then Walmart try to coordinate the information interaction between suppliers and retailers, implementing JIT inventory management in order to alleviate cost consumption. At the same time, it refined distribution services for the sake of improving transportation efficiency of the whole network. Throughout the process of adjustment, there are substantial problems that need to be solved as soon as possible, such as how to address the decline in

store customer flow generated by the popularity of online stores, how to accomplish supply chain integration, etc. The essay will analyze the current condition of Walmart retailers, effective improvements, and corresponding drawbacks so as to forecast further development prospects.

2. Walmart Supply Chain management system

2.1. Walmart's market positioning

Up to March 2024, the 2024 financial report illustrates that Walmart's comprehensive revenue was 648.1 billion US dollars, increasing 6.0% year-on-year, and its operating income increased by 6.6 billion US dollars, up 32.2%. After Walmart adjusted, operating income increased by 10.2%, which was faster than sales, while Walmart's net profit fell 12.4% year-on-year.[1] The data proves that there are more large chain retail stores, similar to Walmart, that confront urgent phenomenon like increasing supply chain cost and dropping commodity prices which were lower than expected in the environment of inflation.

Comparing the statistics for the 2023 and 2024 fiscal years, Walmart's branch: Sam's Club took up 13.8% of total Walmart's revenue in 2004, more than the value of 12.84% in the 2023 fiscal year, and its revenue rose from 73.556 billion yuan to 84.345 billion yuan [1]. The relatively clearer performance data show that consumers prefer to purchase fresh food and daily necessities, which are driven by the obvious advantages in the consumable market. Retail distribution services, the adjustment of internal costs, and solutions about how to deliver products to customers more quickly at lower costs have become the general trend.

2.2. Collaboration between various functions and roles in Walmart's supply chain and upstream and downstream

2.2.1.Strategic partnership between suppliers and retailers

Walmart's retail chain system and its upstream suppliers trust each other, possessing the high degree of cooperation. It takes advantages of long-term data to predict product production, and shares information on the Internet, which conduce to make joint decisions on purchase levels. Walmart manages the source of various goods, so suppliers can alter their production plans as well as delivery prices dynamically. Also, retailers can even complete online automatic ordering and independent acceptance of finished products. Manual labor is no longer an indispensable thing for companies, even though they could save flow resources like human and material labor to some extent, accelerating the information flow, physical flow, and capital flow cycles in the supply chain. [2] To strengthen the stable form of supply chain structure between the upstream and downstream forms, retailers must find reliable raw material suppliers as strategic partners. Dynamic information must be fully transparent in the nodes from production to sales, and the supply cycle should be in line with the demand data as well. As we all know, optimal cooperation can reduce logistics costs considerably. [3] The retailers no longer regard suppliers as competitors rather than teammates with tied interests. Suppliers have corresponding rights to know the normal operation of stores and even participate in the construction of a novel shopping environment with in-store display areas. [4] Win-win cooperation means that suppliers and retailers participate in each other's plans correctly and supervise all the processes, including production, distribution, transportation, and sales. Only when we complete basic work can enterprises lay a strong foundation for innovative production and achieve green and sustainable development.

2.2.2. Retailers' concept of "customer first"

Walmart takes "customer experience and their shopping satisfaction" as the developmental core all the time, and it has a specific system managing customers, which will analyze current sale data for the purpose of grasping the business dynamic trend. Walmart will find the potential information about customers' purchasing behavior in ideal time in different sizes of store in distinct geographical regions, so as to allocate resources reasonably. [5] The market plan created by Walmart follows the concept of "creating maximum value for customers" thoroughly. Walmart try to understand consumer's psychology through calculation of Internet data, and it predicts consumers' ideal prices to improves pricing strategies, setting professional shopping guides in the store for guiding them to find necessities shelves efficiently and completing purchases. The sale of products and customer feedback will be provided to suppliers simultaneously, so that they can adjust the production plan or improve the product design. [6] In China, the distribution centers provided by Walmart (including the whole cold chain temperature control guarantee) is connected with a number of logistics organizations (such as the O2O performance service cooperated with Jingdong), and therefore customers could obtain multiple options scientifically, such as end-to-end transportation. Walmart builds its own brand awareness, while simplifies the supply chain links to provide customers with the best quality services.[7]

2.3. Wal-Mart's supply chain shifts from competition to win-win cooperation

2.3.1. Early competition -- weak risk response ability

In the early stage of Walmart's supply chain construction, it faced the whole business from manufacturing to logistics distribution. System nodes of "supplier-retailer-customer" was excessively separated, the information between production and sale was not exchanged, and the adjustment of decision-making would have a long lag period, leading to the risk of weak coping ability. The supply chain situating in the competitive conflict lacks a modular structure and cannot unify the consensus to improve service level for customers. So it caused waste of resources and increase the difficulty and cost management. [8] Secondly, the barrier of data resources means that WMS warehouse services could not achieve purchase, stock, and delivery normally. The advantage of lead time disappeared, and low trust in the transparency of the whole process appeared rapidly. With the wide geographical distribution and strict time requirements, the shortcomings of the supply chain participants who are weakly equipped to cope with risks with joint efforts will be highlighted. IBM and Walmart make use of blockchain technology to move from competitive mode to collaboration. For example, the IBM Food Trust connects Walmart with other players internally, using digital traceability to "track" processes along the direction of supply chain to address food safety issues and achieve strategic alliance effects. (IBM 2018). [9] Decentralized supply chain will cause large differences in decision-making between suppliers and retailers inevitably. When each node of the supply chain pursues to maximize its own performance, the harm of double marginalization will appear, and vicious price competition will occur among retailers as well.[10] Therefore, Walmart needs to adjust the internal structure of the enterprise to provide its customers with high-quality products and services. Only by completing the integration of the supply chain, Walmart can form the business-centered global blockchain network. Only when the upstream and downstream roles of the supply and demand network are in a benefit community with the same goals, can they coordinate the division of labor to improve the efficiency and quality of services.

2.3.2. Benefit sharing -- Secure the long-term operation advantages of the enterprise

Increasing inventory density in the first mile, transferring seamlessly between facilities in the middle mile, and reducing delivery times in the last mile are central to the long-term efficient operation of the supply chain. By speeding up the efficiency of information flow, Chain retailers and their suppliers need to be connected effectively to avoid the price in cost and time difference caused by the interruption of internal nodes in the supply chain. Next, the foundation for the long-term steady operation of enterprises is the coordination of management modes in various departments. For the issue of distribution, retailers in direct contact with end consumers can synchronize customer information, so that suppliers can grasp the operation status of the enterprise at a specific time. Also, the participants can reduce the input for evaluating the next stage of the production plan and then ensure reasonable inventory and avoid stock shortages. By using the retail link system to update information in real time, both suppliers and retailers are no longer limited by poor information, which become dominant together and winning.[11]

For the pricing issue, the preliminary price submitted for Walmart by the supplier needs to clearly mark the cost composition of raw materials, the pricing norms of similar competitive products in the market, and the profit level. Then Walmart compare the expected price under the consumer preference to finish "parity" strategy. [10] For transportation, the existing "blockchain + ERP traceability platform" in the distribution center helps to implement real-time docking between suppliers and retail enterprises. While EDI technology is supported by the network to transmit the supply arrangement of upstream suppliers, in order that they could complete electronic ordering and commodity inspection, further promoting the integration of the supply chain. In the three main links, namely order processing, material distribution and product sales, we cooperate to achieve the optimal processing path in order to accelerate the turnover rate of goods. Make sure the long-term and stable implementation of internal and external coordination of Walmart.[12]

3. Wal-mart's cost management model

3.1. JIT inventory management mode

A key objective within supply chain management is inventory optimization. If corporation choose to reduce inventory-related costs, they will be inability to ensure sufficient goods as the services basic. The quantity of inventory need to be conducive to meeting customer demand. But once the uncertainty risks appear, the inventory will become a huge burden. That's why it is necessary to balance the contradiction between inventory cost and order satisfaction. [5] The timely inventory management model applied by Walmart is zero inventory strategy characterized by just-in-time production. The direct flow of raw materials in the industrial chain avoids the waste of warehousing or inventory costs fundamentally. Instead of the warehouse operation by traditional retailers, Walmart uses the self-built logistics satellite network around the world to monitor product sales, gradually opens the "automatic replenishment" system. Based on shared information along with suppliers, Walmart comprehends customer's demand in time and manages to allocate high-quality resource. Walmart's high business volume does not rely on the suppression of logistics costs, but depend on the service advantages brought by integration of supply chain to increase sales by means of enhancing customer loyalty and steadily. [13] Inventory takes up approximately 80% of the working capital in the retail industry. Walmart needs to turn into a demand-driven enterprise. If it tries to minimize inventory, it will control the time point of production and procurement precisely. A perfect information environment over the process can guarantee the long-term balance of supply at market. [2] The exact lead time of ordering could hinder the "bullwhip effect" effectively, when information flow is passed from the end client to the original supplier. The minimization level of inventory is

proportional to the response ability of suppliers and the feedback ability of retailers. Only by correcting the demand forecast and order volume, can Walmart prevent the enlargement and negative changes of market risks. [4] Inventory control requires to cooperate with the real-time tracking logistics system. Walmart established PI department which is in charge of filling orders in heading stage, the maintenance department that maintain the warehouse system, and the storage department that collect goods in the later stage. These procure make sure that they can balance the supply and demand when supervise warehouse, increasing the turnover rate of working capital, and Walmart may achieve the sense of "zero inventory" management to reject excessive inventory caused by unwarranted procurement .[14]

3.2. Distribution center's optimization construction

Walmart's large distribution centers, which play an important role in the collaboration between suppliers and retailers, need to track the delivery and replenishment of goods in time through the logistics system. Under the "parity every day" strategy, Walmart utilizes advanced information systems such as VMI, EDI and radio frequency identification (RFID). Then, the optimal paths could be designed to shorten the delivery time and improve the efficiency of supply chain in entire process. [12] Profits Walmart obtained were the result of reducing complex procedures and investing sufficient funds into information receiving and sending, which speed up the connection with all stages of the supply chain, reducing unnecessary waste of operating costs.[3] In the specialized construction of the distribution center (WFS), the optimization of transportation acts as one part of the development of the cross-type distribution scheme. It combines diversified transportation modes, from suppliers to stores, according to the change of routes. Walmart signed an O2O service with JingDong in China.[10] Walmart retailers complete end-to-end quality service for consumers in order to stabilize customer sources. Walmart does not hesitate to invest money or enrich human and material resources, so that it can explore entire information in market. In accordance with the policy requirements in different regions, Walmart expands the business results especially for its distribution centers, and therefore it develop personalized distribution strategies in advance for customers who have inconsistent goals, consequently, clients enjoy customized productions or other supply chain services. The necessary number of distribution centers is increased or decreased with the variation in the demarcation scope of the service plate; this is regarded as the way to ensure the principle of "customer first".

4. Walmart's digital transformation strategy

4.1. Popularization of network information technology

In traditional retail industry, innovative technology began to be popularized, and the company layouts the network on a global scale to monitor the sales data of offline stores. According to statistics, the sales data in more than 4, 000 Walmart stores can be checked and transmitted to the superior system within only one hour.[15] The flow information of pos machines in Walmart off-stores will be synchronized to suppliers for intelligence business consumption analysis, that prevent long-term stock shortages caused by information lag. Under VMI mode covered by network, suppliers can adapt to market changes at the fastest speed and reduce inventory management risks. With the support of cloud technology, Walmart's physical logistics continues to innovate. The combination of offline transactions and the Internet activities, the utilization of ERP and EDI systems, both make the information consistent between suppliers and retailers.

By deepening the O2O model, the efficiency of all links in the supply chain is accelerated. Walmart has invested in e-commerce technology to open online shopping to attract more customer flow. Based on the brand influence of Walmart, online e-commerce has address the loss of offline

customers in traditional retail industry, and it can meet the multiple needs of consumers under the scientific and technological environment.[16]

4.2. Modern transport system information satellite system

Walmart is the first retail enterprise to send the global logistics communication satellite. It achieved the non-stopping replenishment named "JIT", and it create a unique information environment, which means that the global network strengthens the joint transportation of trans-regional distribution centers. Walmart products have "UPC code", which can be scanned to obtain the stock quantity in the store. Interactive satellite communication system provides dynamic information of commodity logistics among all Walmart stores. By providing real-time data for suppliers, the administrators could make feedback when they detect unexpected situations. Also, it makes production arrangements and forecasts sales results in the next period of time, that are beneficial to market decision-making, allocating inventory, reducing ineffective procedures. Walmart get closer to a specialized business model which has lower cost and higher service quality .

4.3. Use of big data

Big data statistics can analyze the supply chain report independently, and "people, goods and fields" serve as the participants of this chain. The data could be used to complete the target prediction for future and guide product management. In some extents, it shortens the time consumed in grasping business trend together with customer demand, and accelerates the flow speed of logistics and information. Finally, Walmart accomplishes the maximum sales profit as well as maximum of customer benefits.

The advanced means in artificial intelligence allow the traditional retail industry to gain innovative remould and the transformation of online and offline integration during the process for transforming the commodity circulation. This stage is no longer limited by the traditional retail industry only including physical sales stores. With the comprehensive development of digital technology and e-commerce business and retail media advertising, Walmart has re-emerged in a digital form, activating the digital technology retailer model of "Internet and in-store" integration.

In addition, big data helps retailers evaluate market drivers, such as fuel prices, human resources, and geographic location, so that they can avoid losing core competitiveness in the market. Walmart identifies customers in different geographic stores and completes customized services to improve the consumer experience successfully.

Walmart set up the comprehensive supply chain, so that it could improve transformation and achieve the upgradation from manufacturing, global procurement, logistics distribution and online to offline sales. Walmart integrates more diversified Internet technologies into supply chain management, which includes several methods like optimizing e-commerce, opening "offline stores online", enhancing brand competitiveness. The corresponding behavior alleviate the risk of reduced customer flow in offline stores. Through taking cost-effective commodity sales as a selling point, Walmart uses digital marketing technology to expand logistics and other value-added services. The cooperation between suppliers and retailers will be maximized with the maximum benefits provided for customers , bringing more high-quality shopping services as the common goal.

5. Conclusion

Since there is no timely updated enterprise data set, there may be a lag in the analysis in this paper. Moreover, the analysis of the supply chain lacks specific models to simulate unknown outcomes, which may affect the accuracy of decision-making.

Walmart will grasp the future development potential on its own initiative. After ensuring customer satisfaction in offline stores, Walmart expands the online sector to catch up with competitors' advantages through e-commerce. Meanwhile, the integration of the Walmart supply chain enables suppliers to know sales conditions in stores through the global satellite network so they can complete manufacturing and replenishment on time. All participants in the supply chain delete the intermediate warehousing links and also lower the potential risks caused by emergencies. Walmart implements refined distribution services as well as real-time tracking of logistics, which means that the electronic information exchange through EDI could be used to provide specialized services for different customers. While Walmart raises its brand reputation, it updates its technology as well. It will further gain cost advantages through expanding global scale and influence and provide consumers with preferential consumption policies to obtain a superior shopping experience at the lowest price.

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