

Supply Chain Analysis of Jingdong in the Post-Epidemic Period

Nan Xiao^{1,a,*}

¹*Singapore Institute of Management-Royal Melbourne Institute of Technology (SIM-RMIT)
S599491, Singapore.*

a.S3936551@student.rmit.edu.au

**corresponding author*

Abstract: During Covid-19 and the saturation of China's e-commerce market, JD.com stands out with its successful supply chain operations and supply chain infrastructure. Through the SWOT analysis of JD.com, background information, and the comparison between JD.com and other Internet companies in the same category, it can be concluded that the supply chain of JD.com lacks or is good at. In view of these aspects, it is more reasonable to put forward effective countermeasures and suggestions for the company to improve and perfect the supply chain. Therefore, the main content of the research is the achievements and shortcomings of JD.com in logistics and supply chain, and the opportunity of its famous smart supply chain and the help it brings to the company are also part of the research. In addition, how to develop the supply chain infrastructure to the greatest extent under the condition of limited cost to ensure the stable operation of the supply chain is also a question worth considering. The research focus of this paper is its supply chain status and improvement methods. Research JD's supply chain from the social point of view, use SWOT theory to analyze and put forward suggestions for supply chain problems, and solve the current problems in JD supply chain.

Keywords: supply chain management, supply chain, JD.com

1. Introduction

1.1. Background

Based on recent reports of the pandemic, the COVID situation is still evolving, and the complexity of the operating environment will continue to increase. The epidemic has affected many industries in China, and the retail industry is one of them. Faced with a series of challenges such as slow production speed and poor circulation of goods, [1] Liu Qiangdong emphasized the transformation of the company in 2017 is that the smart logistics and smart supply chain produced by focusing on the development of 5G networks, cloud computing, big data, artificial intelligence, and the Internet of Things help JD.com to ensure the stable supply of its products. The sorting center of Wuhan Asia One was put into operation in the fourth quarter of 2019 which shows that JD Logistics also played an important role in guaranteeing epidemic prevention materials and basic life in the epidemic blockade area.

1.2. Related Research

During the inventory replenishment process during the epidemic, JD.com's strong supply chain capabilities enabled many companies to effectively solve transportation and warehousing, overcome problems caused by logistics, and ensure material supply during the epidemic [1]. In addition, the rapid development of China's new infrastructure will better support the development of smart logistics and smart supply chains. As the leader of these two projects, JD will continue to develop data-driven supply chain technology and new infrastructure to ensure efficient logistics.

As of the end of the third quarter of 2021, JDL operates more than 1,500 warehouses with a total construction area of more than 30 million square meters [2]. And a surprise is that JD Logistics Aviation, a subsidiary of JD Logistics, started operations. As a part of perfecting the JD logistics grid, the emergence of JD Logistics Aviation has reduced the cost of the logistics link, increased efficiency, and can also help it strengthen the integrated logistics supply chain service. This also reflects that JD's next goal is still to improve and update its supply chain infrastructure and technical capabilities.

JD plans to launch the Global Supply Chain Innovation Center (GSIC), designed as an international hub for smart supply chain research and innovation [3]. After well accumulating top supply chain management technologies such as artificial intelligence, big data and Internet of Things, JD intends to share its resources and provide support for the research and development of emerging technologies. It plans to use GSIC to develop the next generation of intelligent supply chain infrastructure.

1.3. Objection

The study is divided into two parts that are financial data and supply chain analysis. First, use the company report and SWOT model to study JD's business status and supply chain, deeply analyze the feasibility and market demand of JD's supply chain, and then use data and comparison to choose the optimal solution, and conclude that JD needs to expand the source of suppliers, Improve the self-operated logistics distribution company and after-sales service, and strengthen the construction of the supply chain information platform. The research focus of this paper is its supply chain status and improvement methods.

2. Basic Description of Jingdong

JD.com is a Chinese e-commerce company headquartered in Beijing. It is mainly a B2C shopping website, formerly known as 360buy and Jingdong Mall, founded by Liu Qiangdong. The company started by selling 3C products such as floppy disks. In 2014, Jingdong Group was listed on the Nasdaq Stock Exchange in the United States [4]. The slogan of Jingdong Group is "more, faster, better and cheaper". "Multiple" refers to providing users with a one-stop comprehensive shopping platform. "Fast" refers to self-built logistics to achieve extremely fast delivery services. "Good" refers to adhering to genuine licensed products to ensure product quality. "Province", that is, relying on low cost and high efficiency to achieve low prices every day. In addition, Jingdong Group is positioned as a "supply chain-based technology and service enterprise". At present, its business has involved retail, technology, logistics, product development, health, insurance, industry, private label, technical service and overseas/international business and other fields. The core business is retail, technology, logistics and technical services.

In recent years, JD.com has continued to take the basic business of e-commerce with steady revenue growth and continuous optimization of operating efficiency as its core business. Its operations have kept pace with market changes, and it has focused on the long-term layout of "self-operated + supply chain". The understanding of business flow and logistics endows JD.com with the ability to do integrated supply chain logistics, and its market demand mainly comes from ultra-large-

scale markets such as automobiles, FMCG, apparel, and 3C. On the other hand, cross-border retail cooperates with Shopify, and the cross-border supply chain has more than 80 bonded warehouses and overseas warehouses, and the routes cover more than 220 countries and regions [5]. Finally, JD Industry has invested in the construction of supply chain infrastructure, which has been implemented in power stations, high-speed construction, and other scenarios [6]. As a provider of high-quality goods and high-quality logistics, JD.com has the potential for long-term steady growth.

3. Balance Sheet

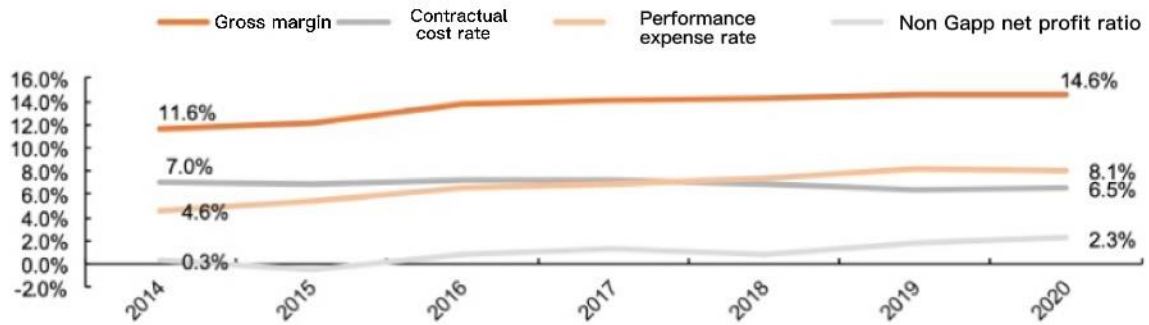


Figure 1: JD overall gross margin, fulfillment expense ratio, non-gaap net margin (source: GlobaiData).

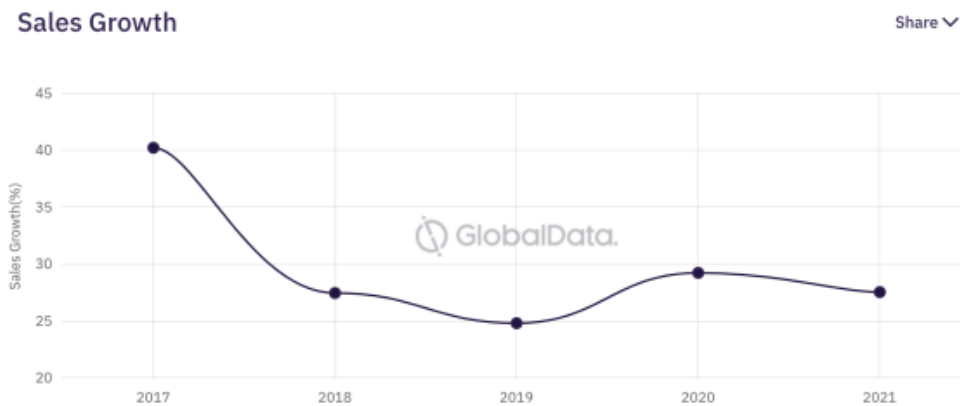


Figure 2: JD's sales growth (source: GlobaiData).

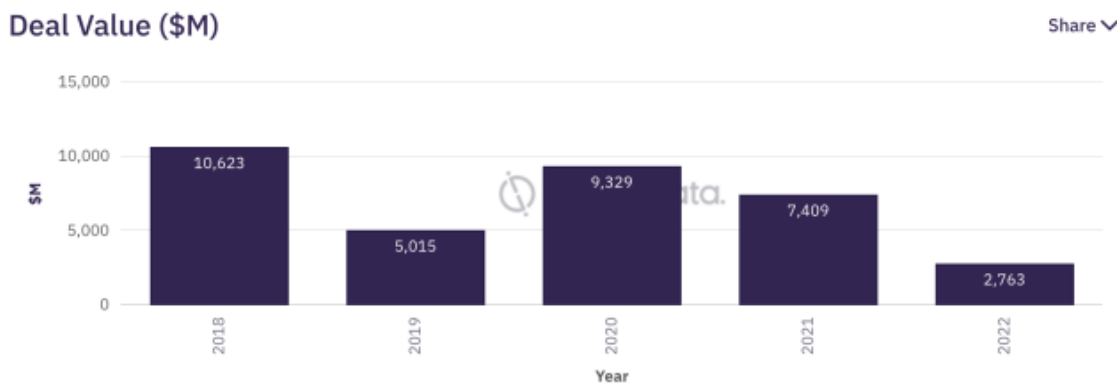


Figure 3: JD's deal value (source: GlobaiData).

JD.com's gross profit margin and performance expense ratio drive the gradual increase in profitability. Under the advantages of JD.com's scale effect, even though the category has expanded from 3C home appliances to fast-moving consumer goods and the logistics infrastructure continues to sink, JD.com's gross profit margin and performance expense ratio have maintained a steady improvement trend. According to the Fig.1, the gross profit rate has increased from 11.6% in 2014 to 14.6% in 2020, and the performance expense ratio dropped from 7.0% in 2012 to 6.5% in 2020. These have boosted JD.com's non-gapp net margin from 0.3% in 2014 to 2.3% in 2020.

From Fig.2 and Fig.3, it is easy to see that Jingdong reached the lowest value in both Sales Growth and Deal Value in the past five years in 2019, but unlike other companies, it seems that Covid-19 did not affect JD's operation to a great extent. By 2020, the pandemic was still going strong, and JD's Deal Value had almost doubled to \$9,329million, and sales growth was up about 5%. This was due to its well-developed supply chain infrastructure, and a resilient supply chain that ensured normal supply chain operations during the pandemic.

In addition, [7] JD Group's 2022 first quarter profit margin reached 1.7%, about 0.61% higher than the previous market expectation of 1.09%. The profit greatly exceeded expectations. On the one hand, the revenue slightly exceeded market expectations. Decrease in R&D expense ratio and fulfillment expense ratio.

JD.com's income mainly comes from JD.com's self-operated commodity income. JD's operating income includes self-operated commodity revenue and service revenue, and service revenue includes JD platform, promotion revenue, JD logistics and other service revenue. In the first quarter of 2021, JD.com's revenue was 203.2 billion yuan, of which self-operated commodity revenue was 175.3 billion yuan, accounting for 86.3% [8]. In addition, the proportion of JD's service revenue continues to increase, from 7.4% in the first quarter of 2016 to 13.7% in the first quarter of 2021, which is on an upward trend.

From these data, it is not difficult to see that although JD.com's profit margin is higher than expected, it has successfully completed its brand goals. But there is also an obvious problem, that is, JD's self-operated profits accounted for 86.3%, which will lead to a relatively limited product category of JD.com and the need to attract more third-party merchants to enter.

4. Marketing

4.1. Supply Chain Analysis Based on Logistics

Before the logistics company's listing in May 2021, JD Logistics has built six major logistics networks, including warehousing, comprehensive transportation, last-mile distribution, large-scale, cold chain, and cross-border networks. It can respond to the different needs of B-end and C-end customers in different scenarios and provide customers with integrated supply chain services from transportation, warehousing to sorting and distribution.

JD uses logistics to improve the supply chain system to ensure retail sales. JD Logistics was established because of the original self-operated retail business. With more and more investment in supply chain facilities, a stable warehousing and logistics system has gradually formed, and JD.com can more accurately predict the demand for commodities, thereby improving its inventory turnover efficiency. As of 2020, JD.com's inventory turnover days are 33.3 days, which is lower than Suning.com which inventory turnover days is 40.9 and Amazon's 34.2 days. Inventory turnover days are one of the criteria for judging the speed of corporate realization. The shorter the turnover days, the faster the inventory turnover days, the higher efficiency of inventory management. As the only Chinese brand JD.com that surpassed Amazon, its inventory turnover days are already at a super-class level. In other words, JD performed very well in terms of inventory management efficiency.

JD.com's supply chain system provides a good foundation for JD.com's omni-channel marketing model. Relying on its own upstream procurement capabilities and supply chain system, combined with the data flow of multiple partners, JD.com put forward the user growth methodology "JD GOAL" through precise positioning of target users and precise marketing strategies in September 2020, breaking the breakthrough. The brand's user growth bottleneck.

4.2. SWOT Analysis

4.2.1. Strengths.

The logistics and distribution capabilities have a significant moat and are less impacted by content/social platforms. JD.com has the same-day and next-day delivery network covering the widest area of the country and the most complete products. Logistics construction requires a long time and heavy capital investment. JD.com has significant advantages in this field. Secondly, the unified procurement makes the procurement volume larger, forming a scale effect and reducing the procurement cost. In addition, smart warehouses such as JD.com's "Asia No. 1 super warehouse" also ensure the efficient operation of the storage end, and the use of supply chain technology can improve the storage scale and capacity.

A lot of money has been invested in ensuring the quality of the goods to give consumers a sense of satisfaction. Since the establishment of JD.com, it has been adhering to the principle of preferring not to sell goods than to sell inferior goods and has effectively achieved remarkable results and won praise from consumers.

Compared with other e-commerce platforms such as Pinduoduo (PDD) and Alibaba, JD.com mainly targets high-end consumers aged 18-35 and most of them are men. This consumer group has a relatively strong purpose when shopping and a relatively high consumption level. Moreover, the time from viewing products to placing an order is shorter than other platforms, so in the same time period, the unit price of purchased items for JD consumers is higher.

4.2.2. Weaknesses.

In terms of logistics, due to the huge logistics investment of Jingdong, it needs to continue to invest, which will make the basic cost of Jingdong relatively high. Moreover, the coverage of Jingdong Logistics is too wide, and the service of door-to-door delivery will also require more human and material resources. The practice of improving service quality by increasing costs will also increase the pressure on JD.com.

In terms of commodity categories, as an open platform, now JD.com still has 80% of its sales from self-operated products, which means that JD.com may not have enough product categories and relatively few merchants [9]. In addition, the cost of self-operated products is higher relative to other commodities, and the gross profit margin of self-operated products is lower, which may limit JD's funds and put the company at a disadvantage.

4.2.3. Opportunities.

With the development of the mobile Internet and the popularization of mobile devices, more and more people can easily browse the e-commerce platform in their free time, that is, the number of customer bases has increased.

On the other hand, in recent years, the growth rate of JD.com's GMV has maintained a steady growth, and the integrated supply chain model has shown greater resilience. In the future, with the continuous optimization of the company's supply chain and the increase in the proportion of daily products, the company will show a stronger ability to resist risks. Logistics is the core competitiveness

of the company. JD.com's self-built logistics system strongly guarantees its industry-leading contract performance capabilities. A unique consumer experience is an important way to acquire core users. With the rise of emerging business models such as live broadcast e-commerce and new markets, the company is facing these new challenges more resilient.

Finally, the intelligent supply chain developed by JD.com (technical intelligent logistics and intelligent warehousing, etc.), the speed and efficiency demonstrated by the technological automated assembly line will bring great benefits to the company and the company's operating efficiency.

4.2.4. Threats.

The first is that due to imperfect e-commerce laws and weak market supervision, JD.com's reputation has been discredited due to the occurrence of inferior products. The interests of both parties to the transaction cannot be fully protected by law. It is worth mentioning that JD's warehouse coverage does not guarantee the delivery efficiency of all third-party merchants when using JD Logistics.

Furthermore, the increase of competitors and the entry of traditional large enterprises into e-commerce have brought a great threat to JD.com, whether it is the cost price of procurement, the degree of emphasis of suppliers and the offline after-sales service brought by the brand. Seriously affect Jingdong. Apart from the Alibaba organization that already competed, the rise of PDD and live broadcast e-commerce, which have very different business models, has undoubtedly increased the pressure on JD.com. Price competition will only further reduce JD.com's profits, which is tantamount to making things worse for JD.com.

5. Suggestion

Based on the above analysis, JD.com needs to pay attention to the lack of categories, improve the supply chain management platform and after-sales service. In view of this, this section proposes the following reasonable countermeasures.

5.1. JD.com Needs to Expand Its Supplier Sources

Formulate welfare policies to attract more third-party merchants to join, so as to solve the problems of fewer types, and at the same time ensure that the self-operated part is not affected [10]. This requires expanding JD.com's warehouse and logistics layout, Even the layout of the supply chain, to ensure the delivery time of the goods of the third-party merchants who choose JD Logistics.

5.2. Improve Self-Operated Logistics and Distribution Companies

JD.com must improve its self-operated logistics and distribution company to ensure that the distribution process does not affect the delivery process, and the quality of employees also needs to be improved. Strengthen the implementation of the integrated supply chain model and create a "digital and intelligent social supply chain" [4], which will be a brand-new industrial infrastructure that uses digital and intelligent technologies to connect and optimize social production, circulation, and services All aspects of the process, reducing social costs and improving overall efficiency. The warehousing part continues to improve the layout of the smart warehouse to improve the efficiency and capacity of the warehousing. In the future, as consumers increasingly demand experience, JD Logistics' strong performance capabilities will help improve user retention, increase user stickiness, and enhance corporate competitiveness.

5.3. Strengthen the Construction of Supply Chain Information Platform

Improve the supply chain logistics information monitoring and management platform to ensure the accuracy and timeliness of information. Efficient, complete and accurate logistics information feedback is the guarantee of a strong supply chain. Once the logistics link stagnates, it will cause problems in the supply chain and reduce the efficiency of SC. Therefore, establishing an information platform can ensure good supply chain circulation and provide high-quality customer service.

5.4. Improve After-Sales Service

JD's process is relatively complicated. After the customer service receives the complaint, it first leaves a message to the supplier's background through the work order and waits for the supplier's second processing. This has led to a lack of direct after-sales service communication between suppliers, distributors and JD.com, and such a process is prone to improper and untimely handling. Therefore, JD.com needs to strengthen its relationship with suppliers and distributors, and deal with after-sales issues efficiently and quickly.

6. Conclusion

To sum up everything that has been stated so far, JD has been investing in logistics infrastructure to bring a large degree of success to its supply chain, in addition to the early layout of the development of intelligent supply chain. Among domestic e-commerce companies, JD's supply chain can be considered as the most complete. Despite so many advantages, JD still has many problems that need to be solved. For example, from the aspect of cost efficiency experience, how to control the cost problem is to be considered when improving the efficiency experience; fewer third-party merchants also make JD's product range not very complete. Based on this, JD needs to expand the source of suppliers, strengthen the implementation of supply chain integration model, enhance the construction of supply chain information platform, and improve after-sales service, which are proposed to improve JD's shortcomings and maintain its advantageous logistics. In addition, facing the fierce competition, JD should strengthen its advantages in logistics to make it the core competitiveness of the company. Through cooperation to get the resources it needs and to play steadily is the next method for JD to prosper and grow.

References

- [1] A New Standard and Solution for Modern Supply Chain, MAR 20, 2020. By Tracy Yang. <https://jdcorporateblog.com/in-depth-jd-com-a-new-standard-and-solution-for-modern-supply-chain/>
- [2] Q3 2022 Earnings Call Transcript. November 18, 2022. By Xu Lei. <https://www.insidermonkey.com/blog/jd-com-inc-nasdaqjd-q3-2022-earnings-call-transcript-1100645/#q-and-a-session>
- [3] JD.com launches multi-million-dollar Global Supply Chain Innovation Centre. May 18, 2020. By James Henderson. <https://supplychaindigital.com/technology/jdcom-launches-multi-million-dollar-global-supply-chain-innovation-centre>
- [4] JD.com's financial report (balance sheet and cash flow), The Wall Street Journal. <https://www.wsj.com/market-data/quotes/JD/financials/annual/cash-flow>
- [5] JD.com, Inc. (NASDAQ:JD) Q3 2022 Earnings Call Transcript. December 26, 2022 by INSIDER MONKEY TRANSCRIPTS. <https://www.insidermonkey.com/blog/jd-com-inc-nasdaqjd-q3-2022-earnings-call-transcript-1100645/#q-and-a-session>
- [6] E-commerce research framework: from "more, faster, better and cheaper" to "integration of supply and demand of people, goods and yards" model. December 24, 2021. By PingAn Securities, Wang Weiyi, Li Bingting, Zhang Gong, Chen Xianghe. https://pdf.dfcfw.com/pdf/H3_AP202112241536461691_1.pdf?1640364566000.pdf
- [7] In the next ten years, where is the room for JD.com's high growth? November 27, 2020. by Sui Yuan. <https://finance.sina.com.cn/chanjing/cyxw/2020-11-27/doc-iienezxs4062301.shtml>

- [8] *A quality e-commerce group created by an efficient supply chain.* July 22, 2021. By Everbright Securities, Tang Jiarui. https://pdf.dfcfw.com/pdf/H3_AP202107231505578285_1.pdf
- [9] *JD.com: Self-operated resilience is evident, and it is optimistic about long-term value.* May 18, 2022. By Sinolink Securities, Li Jinglei. <https://www.wukongzhiku.com/report/1250822.html>
- [10] *Supply Chain Collaboration at JD.com.* Jun 14, 2021. By Yinan Qi, Paul W. Beamish, Xin Li, Ke Gon <https://hbsp.harvard.edu/product/W21286-PDF-ENG?itemFindingMethod=IDP+Recommendation>