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Logistics performance issues and improvement opportunities at JD

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Logistics performance issues and improvement opportunities at JD

by Xiao Liang

A Creative Component paper submitted to the graduate faculty in partial fulfillment of
the requirements for the degree of MASTER OF SCIENCE WITH CREATIVE
COMPONENT

Major: Supply Chain & Information System

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ABSTRACT

In recent years, with the increasing use of the Internet and mobile Internet, the scale of online shopping in China has continued to expand. Online retail business is growing at a high speed. More and more people are enjoying the convenience of shopping online. They not only purchase clothing and daily necessities but also buy groceries such as fresh vegetables, meat, and almost everything. Thanks to the latest technologies, it is easier than ever for people to make purchase online. In the first three quarter of 2018 in China, the national online retail sales amounted to 6278.5 billion yuan, a year-on-year increase of 27%. Logistics service is the key component in online shopping, because it plays an important role in connecting the customers with e-commerce companies and has a significant impact on the performance of these companies. However, companies are still struggling with the inefficiency and inflexible of the current logistics services. Therefore, it is imperative for e-commerce companies to improv their competitiveness by optimizing logistics services.

The creative component focuses on Jingdong (JD.com), a leading online retailer in China and tries to identify issues with existing logistics services and improvement opportunities. This research consists of two major components. First, existing literature and publicly available data about logistics service and JD were reviewed and synthesized. Second, a survey study was conducted to investigate JD customers of experience and perceptions. Finally, based on literature review and data analysis, issues were identified and suggestions were provided accordingly.

INTRODUCTION

In recent years, the rapid development of China's information technologies has promoted the development of the e-commerce market. Online shopping has been favored by most consumers and the scale of the transactions has grown exponentially. However, the huge market size brings not only opportunities to e-commerce companies, but also challenges: consumers have abundant choices on different online shopping platforms. Logistics service, as the major means to connect the e-commerce companies with consumers, become extremely important as the quality of the service directly influence the shopping experience of consumers. Compared to the rapid development of e-commerce, it is a challenge for logistics services to catch up at the same level. Informatization, web-based services, intelligence, flexibility, and automation are all the new requirements for logistics development in the context of e-commerce. Therefore, improving logistics service quality has become a major concern for business managers and scholars.

Now in China, there are two main models of logistics service for e-commerce companies: one is self-operated logistics model which is represented by JD; the other one is the third-party logistics distribution model which is represented by Taobao.com. Each model has its own advantages and shortcomings. The overall Chinese logistics has problems such as low quality, high cost, poor service and unstable distribution quality. Due to the wide distribution of online shopping consumers, the sheer number of shopping packages and the small order sizes, it is extremely challenging to meet the distribution needs. In addition, some consumers have personalized need for logistics

services such as package pickup or delivery in a specific period, which will increase costs for e-commerce companies. If e-commerce companies want to survive and achieve success in the fierce competition, they must improve the logistics service quality. From the control perspective, self-operated logistics is the key to guaranteeing the speed of logistics and the quality of distribution. JD is the most representative e-commerce company that adopts the self-operated logistics model.

Initially, JD used third-party logistics services just like most other online retailers (such as Taobao), but as it could not provide stable and efficient services and caused problems like untimely delivery of logistics information, difficulty in management, inability to monitor shipments throughout the process, third-party logistics could not meet the requirement of company's development. In 2007, JD took the lead and started self-operated logistics. As a result, JD gradually improved its nationwide logistics distribution system, simplified its network, provided consumers with higher-level logistics services, and improved user experience.

On April 25, 2017, JD logistics subsidiary was established to help the company further develop its logistics capabilities, provide efficient logistics service, reduce total supply chain costs. JD has become China's largest self-operated e-commerce company, and this achievement is inseparable from its own logistics system. However, the rapid growth of its business volume has also added pressure to JD's logistics network. As logistics service quality directly affects customer experience, it also affects the company's image as well as market performance.

In order to explore the issues with self-operated logistics, the current study's focus is JD, a leading e-commerce company for this model. By identifying and analyzing existing issues in logistics service, corresponding improvements are made to help the company improve logistics efficiency and effectiveness.

LITERATURE REVIEW

Research Foundations

Much research has been done on e-commerce logistics service. From the logistics provider perspective, the most representative theoretical framework is the 7RS theory proposed by Russ and Perreault(1974), which suggests that logistics service is evaluated by goods correct rate, goods intact rate, accurate product information, on-time delivery rate, delivery accuracy rate, time and price, in that case, logistics services added value to the product and that part of the value is created by logistics service.

LaLonde and Zinszer (1976) pointed out that the key to logistics service is meeting customers need. As a result, some other researches took the perspective of customers. Mentzer, Gomes and Krapfel (1989) proposed that logistics service should contain two meanings: physically distribute service and customer marketing service. A nine new indexes of logistic service was developed by Mentzer, Myers and Cheung (2004):

- 1) Personnel Contact Quality
- 2) Order Release Quantities
- 3) Information Quality
- 4) Ordering Procedures
- 5) Order Accuracy
- 6) Order Condition
- 7) Order Quality
- 8) Order Discrepancy Handling

9) Timeliness.

Scholars also conducted research on logistics service in the China context, He and Tian (2004) proposed that logistics service could be measured from internal consumers and external customers perspectives; Zhang and Zheng (2002) proposed five indexes to measure logistics quality: practicality, reliability, responsiveness, safety and persistence. However, much is still unknown on how to improve the e-commerce companies' logistics service and how to meet customers' individualized requirements.

In the past, underdeveloped Chinese logistics sector imposed logistics costs on businesses of up to 21% of the product costs, more than twice the average for developed markets (Waters, 2007). Factors such as fuel, vehicle spoilage and overcharging of road tolls became a huge burden of Chinese logistics providers. Local government in some areas in China set up bureaucratic and regulatory barriers to prevent outside competitors and protect local business. Jiang and Prater (2002) hold the view that local protectionism is driven by the desire to maximize local economic growth, employment, social stability, and tax revenues, and less by concern about the efficient utilization of regional resources or the creation of an integrated national transport network. JD was one of the first e-commerce companies in China decided to break the status quo by developing its own logistics system and building a nationwide logistics network in order to reduce the shipping costs and simplify the procedures of logistics.

Another relevant factor for e-commerce companies is after-sale customer service. E-satisfaction has become the primary factor of success or failure of a website (Oliver,1997) because most e-commerce companies have shifted their business focus

from acquiring new customers to remain the current customers. Jones and Suh (2000) have divided customer shopping satisfaction into two categories: transaction-specific satisfaction and cumulative satisfaction (customers' total consumption experience). Leading U.S. e-commerce companies have expanded their business increase their market share, not only providing high-quality products to ensure the transaction-specific satisfaction, but also keep improving in after-sale service to gain the cumulative satisfaction from customers.

Yi (1990) proposed that the focus of the analysis of satisfaction may be on consumers' feelings toward the process or the outcome. For e-commerce companies, as customers can not have an in-person shopping experience, it is critical for companies to construct their online shopping platforms in an effective way. Customers should be pleased from the time when they get on the website. Product description must be accurate and has no exaggeration. The website should also be easy to navigate, and the following logistics distribution service should also be fast and reliable. Simply put, the entire shopping process should be pleasant. Therefore, it is important for e-commerce companies to develop their logistics services with customer in mind.

Current Logistics Service Model

The review of existing literature suggests that there are three major models of offering logistics service in the aspects of delivery rate, time, price, etc. These three models have their own unique advantages and characteristics. Companies should choose the most appropriate approach based on their own conditions (for example,

company size, capital strength) and corporate strategies to maximize the profit.

1. Self-operated logistics service: The company establishes its own logistics distribution system, performs product deliveries from warehouses or distribution centers to customers. Taking this approach allows the company to combine customer needs and their own logistics capabilities. It is thus possible to develop a logistics system that can serve customers with the available company resources.

The most significant advantage of this model is that the company has absolute control over logistics. It is convenient to make business adjustment because the company can fully control the nine indexes proposed by Mentzer, Myers, and Cheung:

- 1) Personnel Contact Quality service can be met from customer service staffs by communicating with customers before they place orders, knowing what customers need and provide professional suggestions.
- 2) Order Quantities will be released when customer service staffs received the payment from customers and notify the warehouse to prepare orders.
- 3) Information Quality is the detail in the product description page when customers can access product catalogs and characteristics provided by the e-commerce companies.
- 4) Ordering Procedures is the efficiency that the e-commerce company deals with orders, the faster they process the orders, the more satisfaction gained from customers.
- 5) Order Accuracy is if the delivered package matches the orders that customers want; the warehouse is the department to control order accuracy before shipping.
- 6) Order Condition is the essential part to satisfy customers and it is also a factor for customers to measure if the self-operated logistics service is reliable to deliver packages

completely.

7) Order Quality is the product quality, e-commerce companies cannot decide how the quality of the products is, but they can cooperate with well-known brands to rent their online platform to sell the products in order to provide good quality products.

8) Order Discrepancy Handling is a challenge for customer service staffs, no matter the problem is the logistics service or the product quality, customer service staffs need to respond to customers quickly and provide solutions timely.

9) Timeliness is if the order can be delivered on time; self-operated logistics service is easy to track the orders as the logistics service is self-performed and customers do not need to worry about delayed tracking information.

This model can not only meet the logistics needs of companies but also lay a foundation for future development. At the same time, self-build logistics is more conducive to ensure information security and reducing the risk of information leakage caused by external logistics. From the perspective of logistics service, the self-operated logistics model can provide effective support for the activities of companies. Since it can directly contact with customers, the problem arising in the distribution can be more intuitively reflected the e-commerce companies. Direct and effective communication between households can improve the level of logistics services. For e-commerce companies that choose to build their own logistics mode, the cost of investment in infrastructure construction in the early stage is large, restricting the turnover of the company funds, and the huge logistics system also requires a large number of specialized logistics management skills as a support, introduction and training the staff

is also required amount of funds which increase the burden on the company. Adopting this model will enable the logistics needs of the company to be met, and at the same time, the logistics costs will increase and the ability to withstand risks will be weakened.

2. Third-party logistics: This is an operating model in which companies transfer logistics activities to a third-party logistics provider, that is to meet the company's logistics service needs through the form of logistics outsourcing. Taking this model, the e-commerce company does not perform logistics activities. Compared to self-operated logistics model, the biggest feature of this mode is that it requires the participation of third-party logistics companies and the company would have a strong dependence on them. There are many advantages associated with using the third-party logistics model. On one hand, capital investment for logistics will be low because the company does not need to build various logistics facilities. This will also result in savings of manpower and materials resources. It can be expected that the overall logistics costs might be reduced. On the other hand, companies can devote resources to their core business operations, and focus on what can actually help the company stay competitive.

Today's third-party logistics service providers have gained more trust from e-commerce companies because of the value they provide. However, third-party logistics also has some potential issues. First, it only has the basic functions of what LaLonde and Zinszer defined that logistics service is the process of product transportation; it reduces the control of e-commerce enterprises; entrusting logistics to third-party enterprises cannot guarantee the timeliness and accuracy of distribution. At the same time, if the selected cooperative enterprise is not suitable, it will be unable to track the

cargo information and the quality of logistics service cannot guarantee. Secondly, the adoption of this logistics mode is not conducive to establish a good and stable relationship between the enterprise and the customer. It is easily affected by the quality of the third-party logistics service, reducing customer satisfaction, thereby weakening the relationship between the enterprise and the customer which will weaken the enterprise customer relationship management.

3. Logistics alliance: This is a contractual relationship formed between two or more small or middle size companies. They form a long-term cooperative relationship through agreements, contracts, etc. to achieve their respective logistics goals. They are strategic alliances among companies, and their purpose is building a common owned logistics distribution network and system to meet respective customers' need because these companies are small in scale and insufficient in funds, they cannot support a logistics system alone. They can only build and improve their logistics service capabilities through cooperation with others that can compensate for their own deficiencies and complement each other. Logistics alliance model has three main types: vertical integrated logistics alliance, horizontal integrated logistics alliance and mixed mode. These modes have made the development of enterprises more fully guaranteed. By cooperating, companies share in the resource, technology, equipment, and management, it enables the benefits to be maximized. Logistics alliance can effectively solve the limitation of a single company logistics distribution scope and distribution quality and the logistics distribution system they made which is like the self-operated logistics distribution system that can meet nine indexes of logistics service which

proposed by Mentzer, Myer, and Cheung. However, it is difficult for alliance parties to maintain a long-term stable relationship. Long-term alliance relationship is likely to cause unstable because of the difference between those companies

Each of above-discussed logistics model has its own characteristics and suitable business types, such as self-built logistics model, although there is a strong advantage in terms of distribution speed and quality, it still requires a lot of cost investment in the initial stage of construction, and not all companies can achieve it. Therefore, e-commerce companies need to select or effectively combine the above modes to maximize the logistics operation mode suitable for themselves, to reach the goal of low cost and high efficiency.

JD LOGISTICS ANALYSIS

JD officially entered the e-commerce market in 2004. Its main business includes an e-commerce platform, logistics, and finance. After several years of development, JD users have spread all over the country and the order volume has maintained rapid growth, becoming China's largest self-operated e-commerce enterprise. JD is a comprehensive shopping platform dedicated to providing consumers with a wide range of quality and reliable products. Online products include 18 categories ranging from food, books, digital products, to home department products etc. JD sells over ten thousand of types of commodities to meet the diverse needs of consumers. At present, JD has the largest logistics infrastructure among all Chinese e-commerce companies, and the goal of JD's professional and efficient logistics system is to ensure product safety and users' experience.

JD attracts many customers with high-quality products and efficient logistics services. It keeps growing rapidly in recent years. According to the financial report of 2018 Q3, JD's third-quarter net revenue was 104.8 billion yuan, a year-on-year increase of 25.1%, net profit of JD's group to ordinary shareholders under US GAAP was 3 billion yuan, compared with 1 billion yuan in the same period last year, a significant increase of 200% on a year-on-year basis. As the core business of JD's group, JD Mall's operating profit margin reached 2.2% during the same period, which was basically the same as the highest profit level in a single quarter. JD's expansion and rapid development of its business scale undoubtedly benefited from the support of its logistics system, which is considered as one of its core competitive competencies. JD adopts a

self-operated logistics model in developed areas in China and chooses to cooperate with third-party logistics companies in under-developed areas as the third or fourth-tier cities with the low population density are challenging for its self-operated logistics to meet market requirements.

JD Logistics Network Layout and Distribution

Initially, JD's business volume was small and did not have many orders, so it mainly used third-party logistics, which made sense. As its business grew, purely relying on third-party logistics could no longer meet the logistics service needs of JD, so it began to build its own logistics system. In 2007, JD established three major logistics centers in Beijing, Shanghai, and Guangzhou, then accelerated its business layout throughout the country. As a result, JD's logistics network layout has been continuously evolving. At first, it chose to establish logistics centers in densely populated and well-located first-tier cities. With the continuous business growth, JD began to expand its national logistics network by building more logistics centers in more cities. As shown in Figure 1 and Figure 2, JD has successively built seven major warehousing and logistics centers serving the entire country, which are supported by many smaller warehouses and logistics centers. The construction of the logistics network has enabled JD to utilize its self-operated logistics to serve most provinces and cities in China. Compared to other Chinese e-commerce companies, JD's main advantage is reflected in its efficient logistics distribution network. Especially after the northwest logistics center in Xi'an was officially put into operation, JD's distribution

efficiency and effectiveness in the western areas of China has been substantially improved, JD is able to achieve a true coverage of national market. As of September 30, 2018, JD was operating more than 550 warehouses across the country with a total facility area of approximately 11.9 million square meters. These warehouses are located throughout the country and each province has its own logistics centers (as shown in Figure 2).



Figure 1: Seven JD's major logistics centers

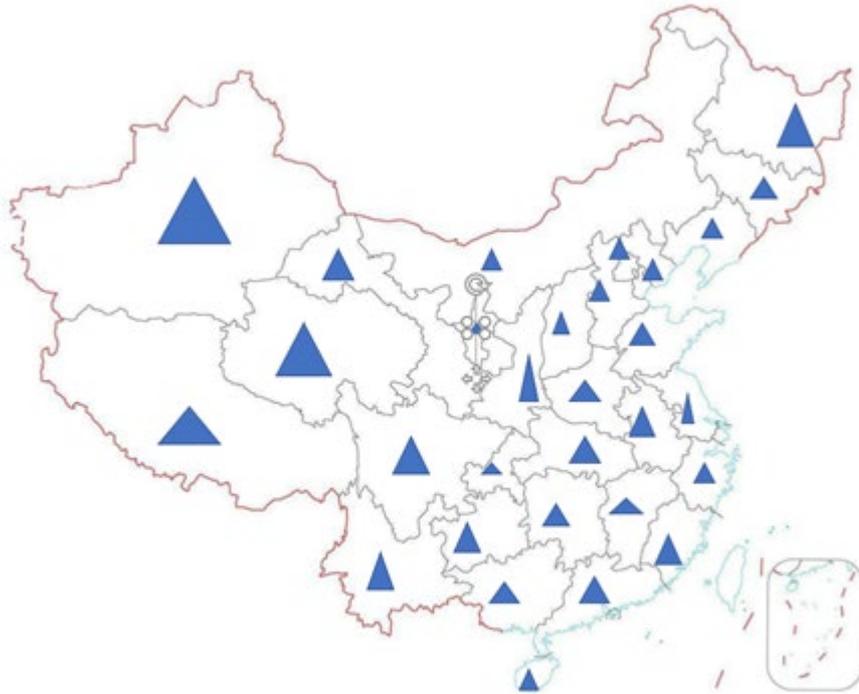


Figure 2: Chinese provinces covered by JD warehouses

With its own warehouses and pick-up stations throughout the country, JD's logistics network is not far behind those of specialized logistics service providers in China. This helps JD to reduce its dependence on external logistics service providers and eliminate intermediate links in logistics distribution.

Customer ordered products are sent from the logistics center to the delivery stations or the pick-up points. There are two delivery methods for the customer to choose, that is, the delivery man can deliver the orders to the door or customers can pick up their products from the pick-up points. JD's door-to-door service can provide convenience for customers, which saves time. However, in many scenarios, such as customers are not at home during the delivery window or it is not safe to leave the package by the customer's door, a better option for customers may be to pick up the orders at their own convenient time.

In addition, JD has launched a variety of personalized logistics services with its self-operated logistics model such as 211 limited time service (orders submitted by 11 am can be delivered on the same day; orders submitted before 11 pm can be delivered next day before 3 pm in some specific cities), precision delivery (customer can request for the delivery time which the accuracy of predicted delivery time is within 30 minutes); evening delivery (customer orders will be delivered between 7 pm and 10 pm). JD also offers special services such as pay at delivery, which allows the customers to make payments to JD delivery employees with the option to decline the delivery if they are not satisfied with the product. These logistics services allow JD to provide superior customer service and offers great flexibility to its customers.

JD After-Sales Service

In the after-sales service phase, JD also utilizes its self-operated logistics system to provide unique features such as pick-up, door-to-door pick up for exchange and fast refund. If customers have the intention to return the order, they can submit the product return form within the specified time window. JD extended customer return window to 15 days from the original 7 days. In areas where JD's self-operated logistics can cover, JD will provide free pick-up or replacement service after return approval. Customers can complete the return and exchange process without even needing to leave home. Figure 3 provides an overview of the entire procedure for a product that needs to be return/refund/repaired.

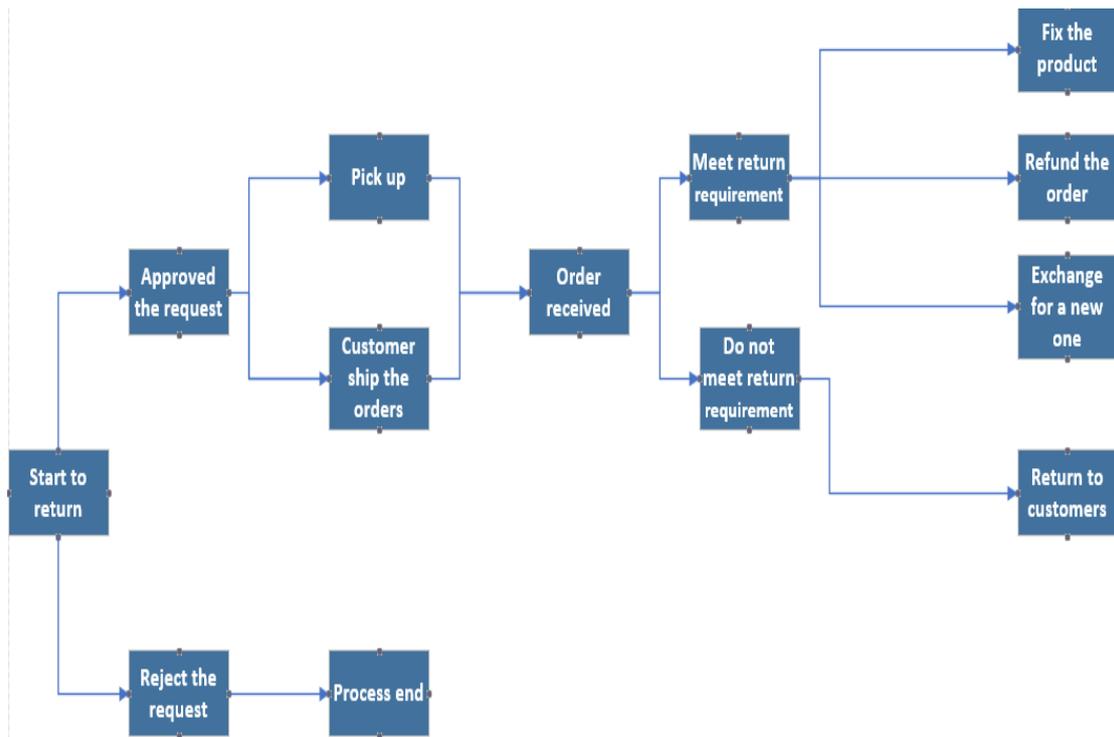


Figure 3: After-sales service procedure

JD has an after-sales service team of more than 3000 employees. All after-sales issues can be handled through the 24-hour customer service hotline. At the same time, JD also provides online chat services for customers. If customers need to consult any issues related to products they purchased or intend to purchase, they can either contact customer service through phone call or online platform. However, return and exchange process still presents a significant challenge for JD for several reasons. The backlog due to long processing time of returns has become a problem in the JD supply chain. In addition, service employees do not always possess the best attitude, knowledge, and skills, making after-sales service become a key issue affecting customer relationship.

EMPIRICAL SURVEY STUDY

As the first e-commerce company with self-operated logistics, JD has been able to provide tailored customer services to its customers. These unique capabilities have assisted JD's fast growth. However, as discussed previously, there are still issues in JD's existing logistics practices and customer service. Therefore, it is meaningful to obtain JD customers' perspectives to identify improvement opportunities. As such, a customer survey was conducted to assess their opinions on JD shopping experiences.

This survey focuses on customers' feedback on their previous shopping experience with JD. The survey contains ten questions and they are listed in Appendix. A convenience sample of 100 people was used for analysis. Survey respondents were all aware of the study objectives. Because of the simplicity, all 100 people returned their completed survey and there is no missing data in their response. The age range of the respondents is from 20 to 55 years old. Their professions range from college students, office workers, to company employees. Among all the survey respondents (as shown in Figure 4), there are 68 female and 32 male customers. This is in line with the fact that female prefers to shop online more than male. Therefore, it is determined that this is a reasonable sample to represent JD's overall customer base. All data analysis used IBM SPSS software package.

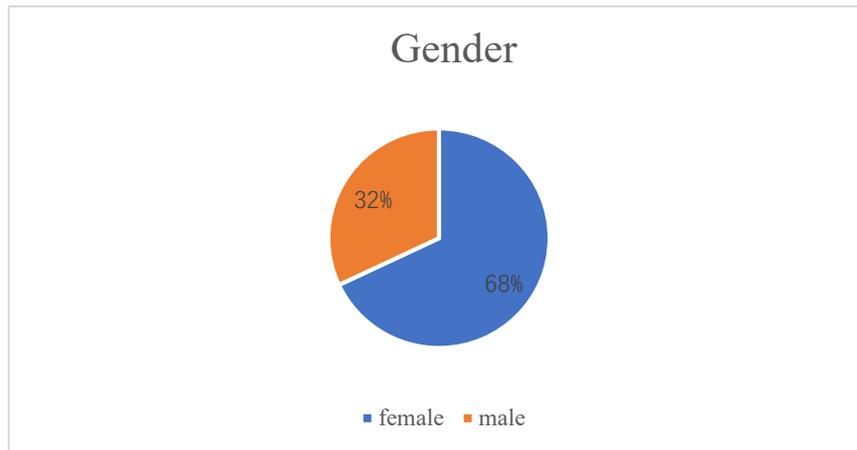


Figure 4: Customer Gender Distribution

As shown in Figure 5, there are over half of the respondents started to purchase from JD within the past 1-2 year. This probably due to the fact that JD has had aggressive promotions and discounts in the last two years and drew many new customers. Majority of the respondents (91) started to purchase from JD within the past 4 years as this is time frame when online shopping gained its popularity. Figure 6 indicates an interesting phenomenon: while much more female customers started to purchase from JD online in previous years, JD attracted the same number of male customers as female customers in the past year. This may be due to JD's specific marketing efforts toward male customers or female customer base was nearly saturated.



Figure 5: Customer Purchase History with JD

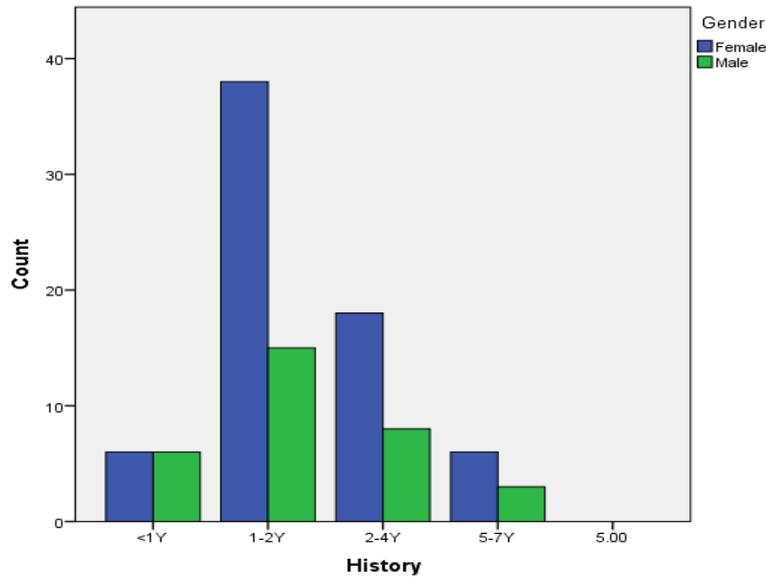


Figure 6: Purchase History with JD by Gender

Figure 7 indicates that 89 of the respondents purchase 9 times/year or less from JD, which means less than 1 transaction from JD per month. Figure 8 suggests that male customers are more likely to be frequent buyers (over 9 times/year) while female customers are more likely to be casual buyers who shop from JD 9 times/year or less.

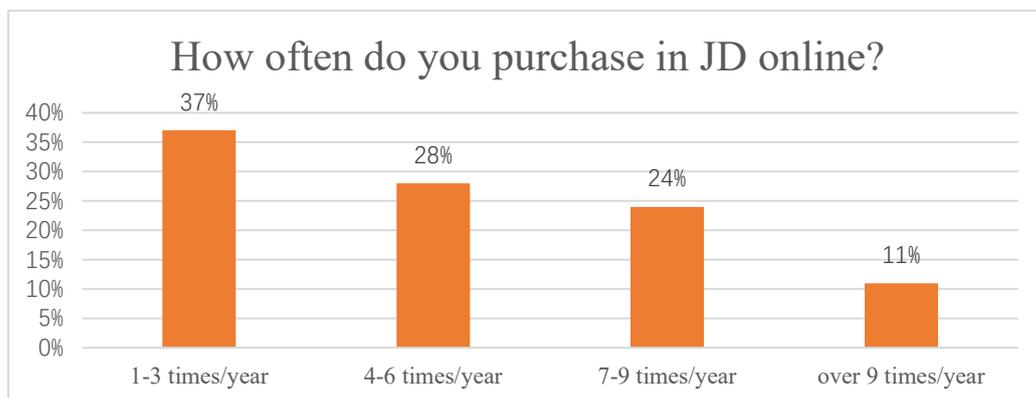


Figure 7: Purchase Frequency with JD

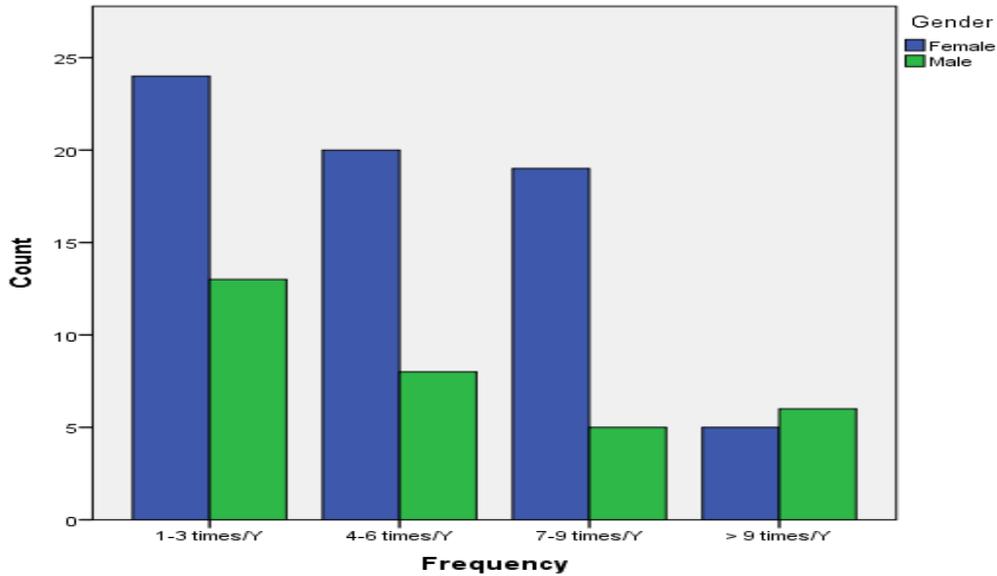


Figure 8: Purchase Frequency by Gender

When respondents were asked about the price of JD when compared to other online platforms (Figure 9), 62 of them agreed that JD is “higher than others” and 22 others did not think JD has a price advantage. This is understandable because low price is not JD’s core business strategy. Unlike some of its competitors (such as Alibaba’s Taobao) which allow third-party sellers to sell products on their platforms, JD intends to have the control of all the products on its website and provide quality guarantee. In Figure 10, out of the 62 respondents who think JD has a higher price than other online retailers, almost half of them only purchased 1-3 times/year from JD. This just that a significant portion of JD customers are very price conscious and make purchase decision accordingly.

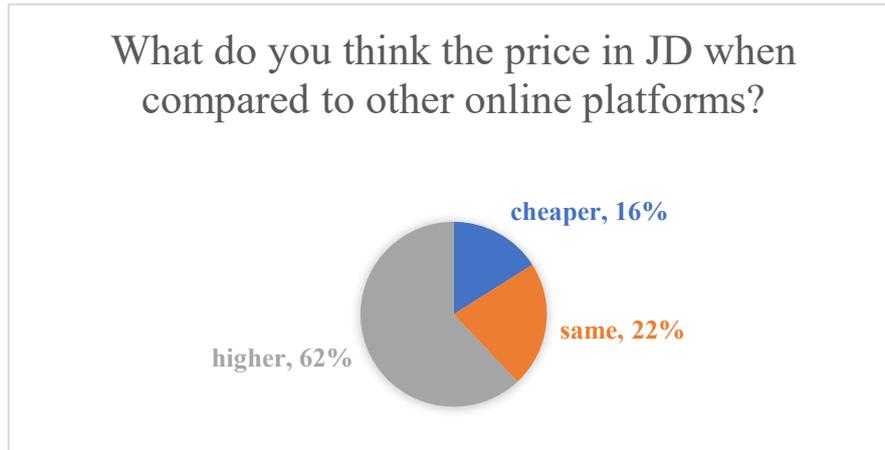


Figure 9: Price Comparison between JD and Other Platforms

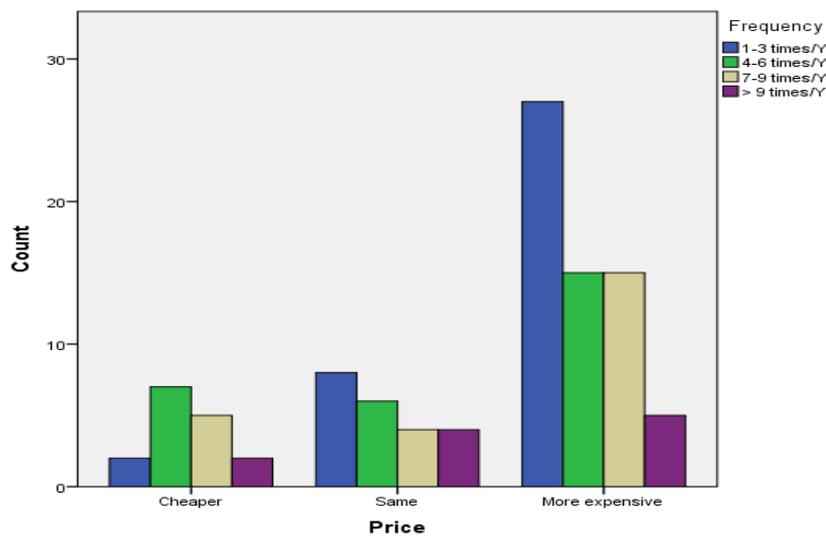


Figure 10: Price Comparison vs. Purchase Frequency

According to Figure 11, home electric appliance and smart phone, laptops, office products are JD's most popular product categories. JD has successfully secured some leading brands in these categories on its website. Comparing to purchasing from Taobao where third-party sellers often cannot guarantee the quality of the products or provide necessary services, JD still presents as an attractive shopping platform that provide great value even the price is necessarily the lowest.



Figure 11: Purchased Product Category Distribution

As shown in Figure 12, 72 of the respondents held the opinion that JD sells authorized products as all their orders are received completely and the products are brand-new without any problems. However, there are 22 respondents suggested that products sometimes are defective and have to be returned or exchanged. 6 of the respondents did not have good shopping experience with JD at all, and they claim they bought fake products and customer service is incompetent in handling the issue.



Figure 12: Product Quality Perception

When customers were asked to choose one aspect of JD's customer service, 67% of them answered "product quality" (as shown in Figure 13). In contrast, only 9% of

the respondents chose “product price”. This result suggests that JD should continue to focus on its high-quality product image instead of competing on low prices with other companies.

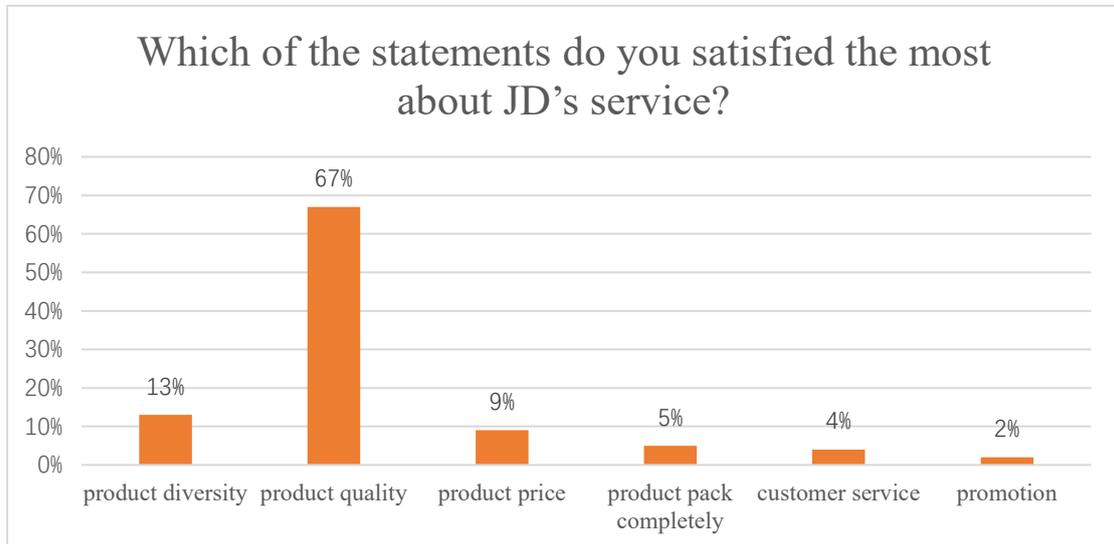


Figure 13: Customer Satisfaction with JD Service Aspects

In Figure 14, 37 respondents agreed that their orders placed with JD were shipped out of the warehouse quickly and 34 of them were satisfied with the diverse shipping options. As most of the products are guaranteed to be delivered within two days with free shipping, few of the respondents selected delivery on time or cheap shipping rate because customers have taken these as granted and consider them as integral components of JD’s service offerings. This result suggests that JD should remind its customers about the great value they are getting from time to time such as free on-time deliveries.

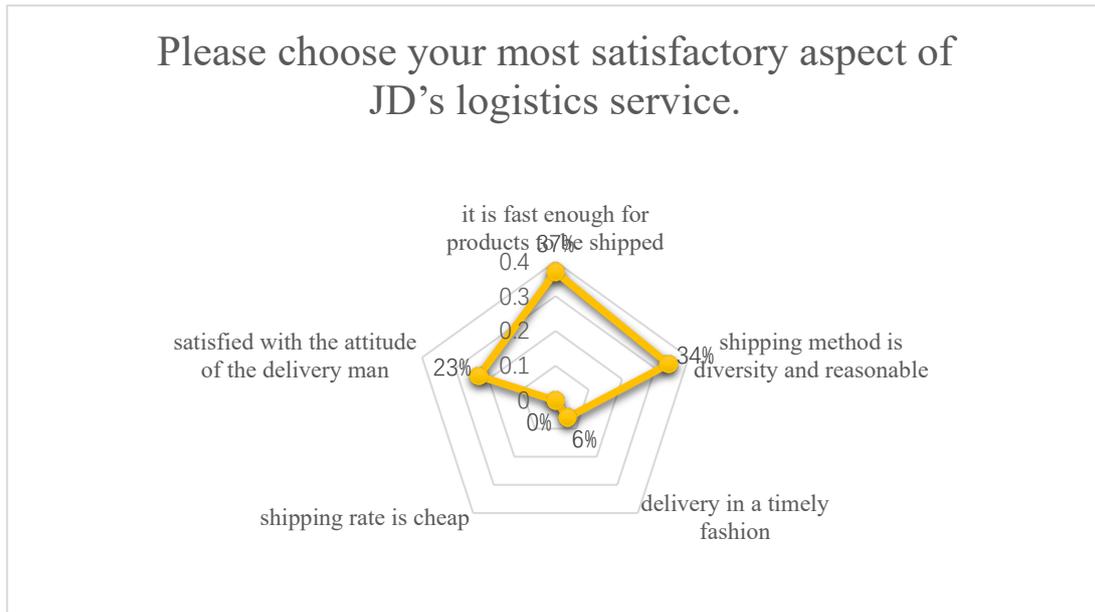


Figure 14: Customers Logistic Satisfaction

Although most respondents in general were satisfied with JD's product quality and its self-operated logistics services, they did have most complaints about the after-sale service as shown in Figure 15, which was followed by logistics service.

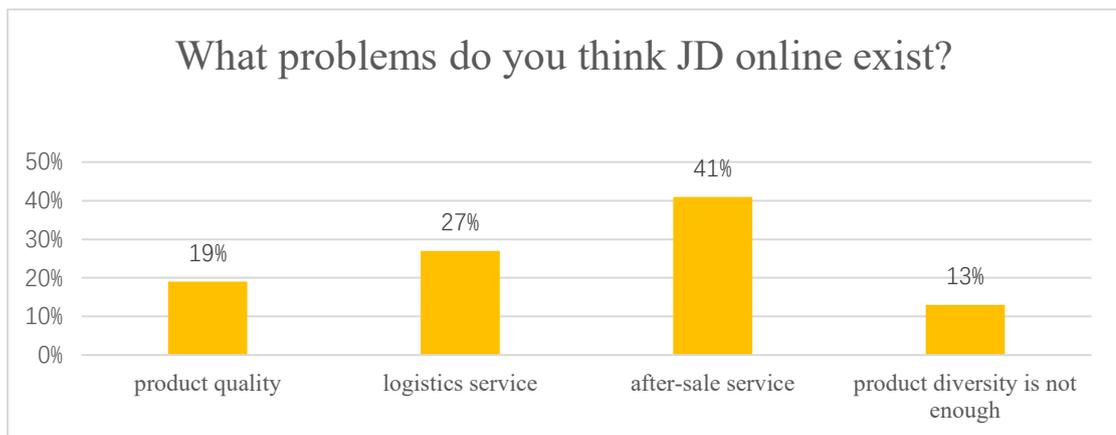


Figure 15: Customer Perceived Problem Areas

Such result suggests that JD's after-sale service still cannot meet many customers' expectations and warrants improvements. The complaints about logistics service may indicate that although JD has its logistics centers covering all provinces in China, their self-operated logistics service still cannot reach certain rural areas. In these scenarios,

JD relies on third-party logistics providers to save costs and provide services. However, due to the differences of those third-party logistics providers and JD cannot completely control their service and quality, most customers complaints are directed toward these third-party operators.

More specifically, JD had to terminate its partnership some third-party logistics providers such as Baishi and Tiantian due to poor service quality and bad customer experience: sorters throwing packages, opening packages without authorization and intentionally damaging packages. According to the announcement of consumer complaints issued by the China Postal Service Bureau in November 2017, the key issues of Tiantian and Baishi are the delivery delays and cargo losses. In a 2018 announcement, Tiantian still is the logistics company that received the most consumer complaints. Because JD's customers do not really care if the logistics provided by JD itself or a third-party logistics provider and they only care if their packages can be received properly, JD should be very careful in choosing its logistics partners who can cooperate with JD and provide superior services to JD customers.

Currently, JD chooses its logistics partners mainly based on the written materials submitted by third-party logistics providers instead of doing the on-site inspection. Also, JD does not have a classification management strategy for third-party logistics providers and all partners are treated equally, ignoring the differences in service level. Based on the above analysis, JD should select third-party logistics partners based on a comprehensive and ongoing evaluation.

When asked about their overall opinion about JD (Figure 16), only 8 out of 100 respondents indicated that they will not purchase from JD again, 79 of them explicitly indicated that they would continue to purchase from JD. This is a quite a good sign, as most of JD's customers remain loyal to the company. This will be a great foundation for JD's future growth and expansion.

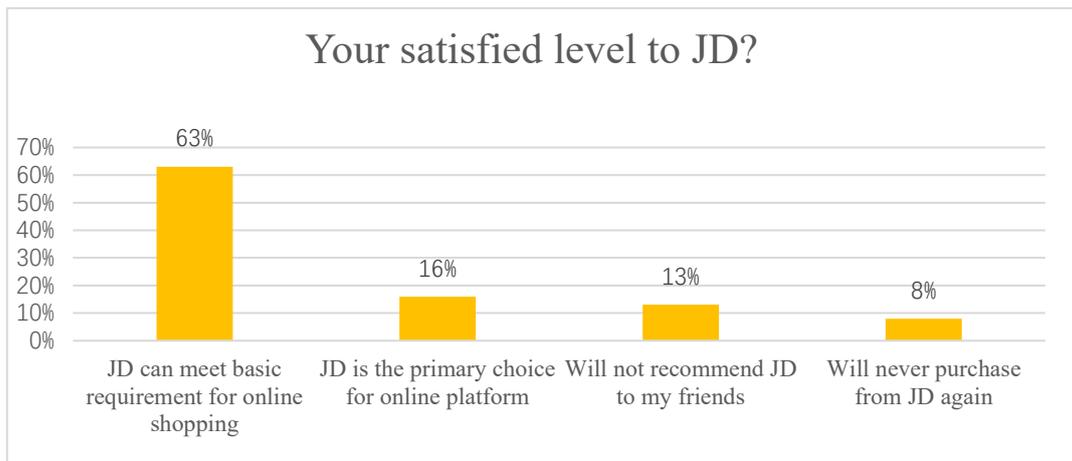


Figure 16: Overall Customer Satisfaction Level

RECOMMENDATIONS

Based on the literature review and the survey study, suggestions are provided in this section regarding how JD can improve its logistics and distributions services and strengthen its customer relationship management to improve the overall company performance.

Improve Logistics and Distribution Services

Logistics service is now considered as an integral part of a company's overall service offerings, and its importance cannot be overstated. JD obviously realizes this. JD's self-operated logistics system has given the company significant control over service quality and allows the company to offer some unique prices. While this is appreciated by many customers, the downsides of self-operated logistics should also be addressed. JD still relies on third-party logistics providers in some markets and the outcome is not ideal. The variance in these companies' service levels have irritated some customers as the survey study indicated. Therefore, JD must take actions to carefully screen and monitor these logistics partners' performance. Instead of solely relying on submitted written materials, JD should take a more comprehensive approach to evaluate its existing and potential logistics partners. Only when externally outsourced logistics functions can match JD's internal standards, can the company achieve optimal logistics service levels.

Improve the Distribution Flexibility In The “Last Mile”

JD currently uses two delivery methods: self-pick up at the delivery station or delivery to the door. In order to provide maximum convenience and value to customers, JD should re-evaluate its existing practices and seek possible improvements. For example, an assessment of current self-pick up stations can help the company determine whether the location is the best option in terms offering value to its customers (as convenient and time-saving as possible) and saving costs for the company. Also, JD could explore the possibility of jointly setting up self-pickup stations with local convenience stores or supermarkets, which could costs much less than building self-pick up stations. Because a significant customer base for JD is students and commuting workers, they have a high dependency on convenience stores in their daily life. Picking up JD deliveries at nearby convenience store or supermarkets presents an ideal solution for them. This will help alleviate an awkward situation JD had been facing for a long time: delivery man cannot deliver the packages safely without customers being at home; or when customers are ready to send packages for returns and exchanges, delivery man cannot arrive on time.

However, the selection of convenience store partners is a crucial decision, there are some key considerations. First, the location of the convenience store must match the distribution of JD’s customer groups and these convenience stores should be close to target customer population, such as college campuses or residential areas. Second, convenience stores with long business hours should be given favorable consideration as it will serve the purpose well.

Establish Customer Database

E-commerce companies can gather customer information by using a high-security data collection platform that protects customer privacy and provides suggestions on purchase. Many other companies such as Amazon and Apple offer customized recommendations based on browsing history or previous purchases (Mallapragada et al, 2016). Collect basic information such as customers' gender, shopping history, and purchase preferences can help JD better understand their needs and provide tailored recommendation on potential purchases. At the same time, it is necessary to record the details related to logistics operations: customer transaction information such as the type, quantity and price of products, purchase frequency, the logistics company or the delivery man who was responsible for delivery, customer evaluation of the delivery service, delivery time and accuracy, mode of transportation, etc. A high-quality customer database will enable JD to fully understand customers' requirements and preferences for goods and delivery services, thus allowing the company to better serve these customers in the long term. Customers also get benefit by these recommendations as it helps them reduce their decision-making efforts and assists them in information screening and comparing the products as well (Alba et al, 1997)

Using big data analysis to predict customers' propensity to purchase, JD's logistics centers can predict the quantity to be processed, make arrangements in advance in order to optimize the storage management and inventory deployment. As a result, logistics operations' risk can be reduced, asset utilization rate and turnover rate of distribution center and warehouses can be improved. At the same time, by matching package and

delivery station, it can optimize the route, reduce transportation distance, shorten the transit time, and make each delivery as efficient as possible.

Focus on Customer Satisfaction Management

Customer satisfaction is affected by the total cost of payment and the total value obtained during the shopping process. In the process of shopping with JD, if customers can buy quality products conveniently, enjoy fast and reliable logistics services, then they are satisfied; otherwise, it will lead customer dissatisfaction and even get complaints from customers. As scholar Oliver(1997) mentioned that E-satisfaction became the primary factor of success or failure of a website, JD has been generally successful in keeping its customers happy. However, room for improvements still exist. There are two types of online customers: one-time purchase customers and returned customers. Transaction-specific satisfaction is important to one-time customer because if customers experience a bad encounter during the process of shopping, then they might not consider being returned customers anymore. JD can keep improving the customer shopping experience by maintain their website regularly, making sure the website load quickly and it is easy for customers to search for products.

The survey study found that many JD customers had issues with its after-sales service. When transaction is complete, customer's payment has been received. However, after-sale service still plays a key role in developing good long-term relationships with customers, and thus need significant attention. JD should improve its service employee training in order to standardize its service levels. In addition, JD

should utilize advanced information system and data analytics tools to track customer after-sale service requirements and the company's performance in meeting those requirements. JD should also develop an effective mechanism to collect customer feedback and use such feedback to improve after-sales service.

CONCLUSION

As a major bridge between e-commerce and customers, e-commerce companies have realized the importance of logistics services. JD is no exception. This creative component studies China e-commerce giant JD. Combining both literature review and a survey study, this study analyzed JD's self-operated logistics network, the status quo of after-sales service and third-party logistics, identified several problems and made recommendations accordingly.

APPENDIX

Survey Questions:	
1. Your gender is:	
A. Female	68%
B. Male	32%
2. When did you start to purchase from JD online?	
A. Within 1 year	12%
B. 1-2 years before	53%
C. 2-4 years before	26%
D. 5-7 years before	9%
E. Over 7 years before	0
3. How often do you purchase in JD online?	
A. 1-3 times/year	37%
B. 4-6 times/year	28%
C. 7-9 times/year	24%
D. Over 9 times/year	11%
4. What do you think of the price in JD when compared to other online platforms?	
A. Cheaper than others	16%
B. Same	22%
C. Higher than others	62%
5. What kind of products did you purchase from JD online?	
A. Books	0
B. Home electric appliance	32%
C. Smartphones, laptops, office products	43%
D. Home improvement, kitchen ware	0%
E. Clothes	8%
F. Beauty/skin care	5%
G. Watch/jewelry	9%
H. Sports/healthy	1%
I. Infants & mom	2%
J. Toys & instrument	0
6. What do you think of the products quality in JD online?	
A. Fake products	6%
B. Defective products	22%
C. Authorized products	72%
7. Which of the statements do you satisfied the most about JD's service?	
A. Product diversity is satisfied	13%
B. Product quality is satisfied	67%
C. Product price is acceptable	9%
D. Product package is complete	5%
E. Customer service is satisfied	4%
F. Promotion is the same as described	2%

8. Please choose you most satisfactory aspect of JD's logistics service:	
A. It is fast enough for products to be shipped	37%
B. Shipping method is diversity and reasonable	34%
C. Delivery in a timely fashion	6%
D. Shipping rate is cheap	0
E. Satisfied with the attitude of the delivery man	23%

9. What problems do you think JD online exist?	
A. Quality of the product	19%
B. Logistics service	27%
C. After-sale service	41%
D. Product diversity is not enough	13%

10. Your satisfied level to JD online?	
A. Will never purchase from JD online again	8%
B. Will not recommend JD online to my friends	13%
C. JD can meet the basic requirement for online shopping	63%
D. JD is the primary choice for online platform	16%

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