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Research on Cost Control of Reverse Logistics of E-commerce Return

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ABSTRACT

With the rapid development of e-commerce, China has entered a new stage of rapid expansion and intensive innovation. However, in the process of rapid development of e-commerce, there are also some problems increasingly prominent. This paper analyzes the causes, current situation, characteristics, mode and some problems of reverse logistics, and divides its cost composition into three categories: transportation cost, inventory cost and other costs. Based on the current situation of B2C e-commerce return logistics service in China, based on the cause analysis and cost analysis of reverse logistics, this paper puts forward some suggestions on the cost control of return reverse logistics.

Keywords: E-commerce; return logistics; cost control

INTRODUCTION

Nowadays, a new business operation mode relying on Internet technology is developing and improving constantly under the background of the rapid development of computer network technology and information technology, and the masses are getting used to the way of electronic transaction. But at the same time, this new business operation mode also has some problems. As people are more and more used to shopping in the virtual network, the situation of returning and exchanging goods is also increasing. Because the information asymmetry between consumers and merchants may cause the business to fail to meet the expectations of consumers, consumers gradually realize how to protect their rights through the law, as well as the reasons such as the delay of product distribution or the damage in the distribution, which will cause the return and exchange of goods. Therefore, how to control the cost of reverse logistics has been paid more and more attention by B2C enterprises.

Deloitte report points out that from 2016 to 2020, China's forward logistics market capacity will be greater than 9 trillion, and reverse logistics market capacity will be greater than 2 trillion. If the bottleneck of forward logistics in supply chain is the "last kilometer", then the bottleneck of reverse logistics is the "first kilometer". In order to win a place in the fierce market competition, improve customer satisfaction, maintain and improve customer loyalty to the company's products, more and more e-commerce online sales companies have adopted a more relaxed return policy, resulting in a substantial increase in returns. But then there is the high rate of return, a large number of return costs seriously affect the company's profits. Therefore, e-commerce companies realize that returning to reverse logistics is increasingly becoming a powerful weapon of competition among enterprises. Returning to reverse logistics strategy is an important means to enhance their competitive advantage, improve customer satisfaction and improve the overall performance of the supply chain.

The management of reverse logistics plays a very important role in the logistics operation management of enterprises. Because good reverse logistics management can not only make enterprises improve customer satisfaction by constantly improving their own quality, thus improving customer loyalty, increasing the competitive advantage of enterprises, but also improve the utilization rate of materials by reducing the consumption cost of materials. Return logistics accounts for a large proportion in reverse logistics. Facing the increasing return behavior of consumers, enterprises in e-commerce environment will inevitably produce return reverse logistics activities. At this time, it is particularly important to study how to optimize the cost. Because most e-commerce enterprises don't attach great

importance to reverse logistics, they don't have enough management and capital investment, which greatly increases the logistics cost. Based on the analysis of previous studies, this paper makes an in-depth study on the cost of e-commerce return reverse logistics, which provides a solution to reduce the cost of reverse logistics.

2. LITERATURE REVIEWS

The concept of reverse logistics was first proposed in 1992 by stock, who pointed out that "reverse logistics is a series of logistics activities covering a series of procedures, such as product return, parts replacement, goods remanufacturing, waste disposal, repair, etc." This definition focuses on the utilization and treatment of waste, which is suitable for interpretation from the perspective of waste product management. However, the functions and activities of reverse logistics are not described specifically and clearly[4]. Later, Rogers and Tibben redefined reverse logistics in 1998: "the purpose of reverse logistics is to make the goods get the use value again and deal with various wastes effectively. From the aspect of operation and cost, it efficiently plans, implements and controls the activities of raw materials, process inventory, products and related information flow from commodity consumption to remanufacturing point." This is also a more comprehensive definition so far.

The research on reverse logistics in China started a little late. Du Y. X. (2015) introduced the concept of reverse logistics to Shengbin, explored the close connection between reverse logistics and ecological protection, and the establishment criteria of reverse logistics supply chain.

Chen X. J. analyzes the value of reverse logistics. Firstly, reverse logistics improves customer satisfaction and enhances the competitiveness of enterprises. Secondly, reverse logistics can promote the continuous improvement of the quality management system of enterprises. Thirdly, reverse logistics can shape a good corporate image; 4. Further improve the supply chain relationship.

Dang G. Y. and Duan X. L. think the new consumer law stipulates that online retailers should allow consumers to return goods within 7 days after receiving the goods. According to the latest national e-commerce return and exchange survey released by modern international research company, 96% of respondents believe that the quality of return service has an important impact on their purchase decisions. Therefore, a good return policy will help to improve customer experience, and also help enterprises establish a good brand image in the market.

According to Mou Y. N. , the reasons for reverse logistics include: Subjective factors of e-commerce enterprises: return caused by information asymmetry, increase of competitive advantage of enterprises. Personal reasons of consumers: return caused by blind consumption psychology of consumers. Factors of commodities themselves: return caused by quality problems of commodities themselves. There are four main reverse logistics operations in B2C e-commerce environment: (1) Self managed reverse logistics; (2) Third party reverse logistics; (3) Strategic alliance reverse logistics; (4) Integrated solution provider mode. According to Niu L. P. , reverse logistics is a systematic operation project, which is related to the cost, service and image of the enterprise. Balance scorecard's finance, customers, learning and growth, internal operation and the company's scale and strength. In the enterprise, reverse logistics business comprehensively analyzes the strategic position, logistics characteristics, advantages and disadvantages of the goods operated by the enterprise itself, and determines the operation mode of reverse logistics.

Zhang H. takes JD as an example to study the problems in return logistics: (1) The e-commerce platform service is not perfect. (2) The return process is not perfect. (3) The return information cannot be obtained in time. Zhao J. and Li X. C. analyzed the existing problems in the management of return reverse logistics: (1) Lack of return reverse logistics information system. (2) Underestimation of return reverse logistics. (3) Lack of sound laws and regulations. (4) Lack of talents and technology in the logistics industry.

Zhang H. F. has taken several countermeasures. We can strictly control the quality, reduce the information asymmetry between consumers and B2C e-commerce enterprises, suppress the impulsive purchase behavior, select logistics companies.

Luo Q., Cai M. and Li Y. pointed out that the instability of B2C e-commerce market has greatly improved. First of all, the cost advantage brought by information technology makes the entry threshold of products low, and many useless information is provided to consumers, resulting in many false and useless information. Secondly, the ordering and distribution of

tangible products in e-commerce market are separated from operators. Thirdly, the proportion of intangible products (information products) has greatly increased. Once a consumer buys a defective product, he is more likely to move immediately to an alternative market. In order to gain more customer trust and loyalty, we need a good return mechanism. Liu Y. Q. mentioned that B2C companies should choose their own reverse logistics mode based on their own views. On the other hand, it analyzes that large retail enterprises can consider establishing reverse logistics system.

Feng Y. and Zhang Y. R. analyzed four main reasons for the formation of reverse logistics: consumer return behavior, supplier product recall behavior, international and legal environmental protection requirements, product life cycle shortening. Li Y. introduces the reasons for return logistics under B2C e-commerce mode: (1) The virtual nature of the network: information asymmetry, separation of ordering and goods distribution, deceptive information description. (2) Subjectivity of online businesses: lack of scientific information description, no reason for the commitment of return policy, instability of consumers' preferences.

3. ANALYSIS ON THE CURRENT SITUATION OF E-COMMERCE RETURN LOGISTICS

The development of reverse logistics in China is unbalanced and lacks theoretical support. Therefore, the development of reverse logistics has not received enough attention from e-commerce enterprises, especially in small and medium-sized e-commerce enterprises. According to some data, 43% of logistics managers think that reverse logistics seems to be less important for enterprises. More than 33% of enterprises lack the strategy of reverse logistics. The survey data provided by these materials is enough to show that enterprises do not pay enough attention to reverse logistics. The sellers of shopping websites, because they sell similar products, have strong substitutability. Therefore, they will spend more energy and time on positive logistics to attract customers. Because of this, reverse logistics is ignored. When e-commerce hasn't realized that reverse logistics will promote its own development, they often think it's wise to reduce or even abandon reverse logistics management. However, in the long run, on the basis of comprehensive analysis of the impact of economic, environmental and social benefits, it is an extremely effective way for e-commerce enterprises to pay close attention to reverse logistics to reduce costs, enhance image and enhance competitiveness.

Consumers buy and return goods irrationally. In online shopping, because the product introduction is often mixed with whitewash and exaggeration ingredients, in this case of asymmetric information, the buyer is likely to be confused by the product introduction, and the price is not expensive, so it is easy to lead consumers to impulsive consumption without considering whether the product is practical for themselves. But when the excitement disappears, buyers often choose to return or discard. In return, when the postage has been higher than the value of the goods themselves, these goods without practical value are also put into the process of recycling reverse logistics. In order to attract consumers, e-commerce often makes relatively loose return agreements, providing protection for blind consumption and return customers. However, compared with the whole logistics system, this approach not only enhances the positive logistics intensity, but also increases the burden of reverse logistics.

The construction of reverse logistics information system is not perfect. The establishment of a relatively complete reverse logistics system requires a lot of capital and professional investment. This kind of cost investment is difficult for non large e-commerce enterprises. In fact, they do not have enough capital and manpower to explore reverse logistics system. In addition, the complexity and instability of reverse logistics make it put forward higher and more accurate requirements for logistics technology. The lack of infrastructure is part of the reason for the low efficiency of reverse logistics, which restricts the operation of reverse logistics.

Due to the high return rate of the current e-commerce industry, the return cost has been in a high state. To a large extent, the business income of e-commerce is due to the transportation cost of returned goods and secondary distribution, and the impairment cost in the transportation process.

4. ANALYSIS ON THE CHARACTERISTICS OF E-COMMERCE RETURN LOGISTICS

In the whole value chain of an enterprise, reverse logistics is a special part. It has the same characteristics as positive logistics, but also has two different places. They have the same logistics functions, such as packaging,

transportation, storage, etc. The difference between the two lies in the unique characteristics of dispersion, mixture and slow and chronic of reverse logistics.

(1) Dispersivity

The time, space and quantity of reverse logistics are not controllable. Waste materials may occur in different fields, different regions, or between different groups. In a word, it occurs in the corners of society, all the time. Just like this, it has the characteristics of dispersion. Forward logistics usually has a certain quantity, relatively accurate delivery time and a certain delivery point. The main reason for this difference is that the reverse logistics is mostly due to the abnormal quality or quantity of goods.

(2) Slowness

The process of online shopping is complicated and takes a long time for consumers to return their products when they find that they can't meet their own needs. Therefore, consumers will generally have higher requirements on goods return and refund time. However, the current situation in China is that the return and refund time is still relatively long. Due to the wide distribution of reverse logistics, to a certain extent, it increases the difficulty of collection and arrangement of reverse logistics, and reduces the speed of sorting and collection process. Some of the collected waste is not necessarily able to get people's needs in time. In many cases, the waste needs to be processed twice, and some even need to be used as raw materials. This process will take a long time. All of these determine that reverse logistics is slow.

(3) Mixing property

The original waste materials are often many kinds, a variety of situations disorderly stacked together. This makes it difficult for reverse logistics to classify the waste from the beginning. Only after the recycle has been checked and classified many times, the mixture will gradually disappear with the generation of the waste.

5. CAUSES OF REVERSE LOGISTICS OF E-COMMERCE RETURN

To analyze the reasons of customer return is helpful to reduce the high cost of return. In fact, all the reasons for the return of goods can be regarded as that the products do not meet the expectations of consumers. Objectively speaking, the main reasons may be product quality problems, inconsistent description of products and sellers, problems in distribution and damage to goods. On the subjective level, the reason for returning goods may be the unreasonable return of goods due to the impulse consumption of consumers.

(1) Return due to customer

As the market competition intensifies, in order to attract consumers' attention and dispel consumers' concerns, many businesses have launched a series of unconditional return commitments. This kind of commitment can bring some benefits to the buyer, but it does not exclude the occurrence of malicious return of some buyers. It will also appear on the premise that the goods fully meet the quality standards. After receiving the goods, the consumers find that they do not like them and cause the return of goods.

(2) Return due to supply chain reasons

Due to the delay of production or transportation, the products can not be delivered to customers on time. In this case, some consumers will ask for return. In the process of transportation and distribution, it is possible to damage the product itself and also lead to return of goods.

(3) Return of goods due to defects of goods

The problem of product itself has a great influence on whether consumers choose to return goods. If there are defects in product design, problems in production and manufacturing, and the quality of the product is not up to the requirements, the seller provides goods not designated by the buyer, etc., which will lead to the return of goods.

(4) Return due to information asymmetry

In the e-commerce mode, consumers often know the characteristics and structure of products through the information released by sellers on the Internet, but they have no chance to contact the real products. Therefore, when customers receive the products, there may be a certain gap between the physical products and the information about the products published on the Internet. If consumers feel that the difference has exceeded their acceptable range, they will return the products.

6. RESEARCH ON COST CONTROL OF REVERSE LOGISTICS IN E-COMMERCE

(1) Cost composition of reverse logistics for e-commerce return

The cost of e-commerce return reverse logistics is composed of many aspects, including: Logistics cost. In the packaging, loading and unloading, storage, transportation and other links need a lot of costs. Material consumption costs. It mainly includes consumables, energy consumption and other tools consumption during packaging. Labor cost. In the process of return, from the review of return application, to the door-to-door pick-up, to the inspection of goods and other processes consume costs. Other costs. For example, the cost of management, the cost of logistics information system maintenance, etc.

(2) Transportation cost

The total cost of the transportation industry for the purpose of passenger and freight transportation is called transportation cost. In the return process, the process of transporting goods from consumers to merchants or producers requires the help of aircraft, communication, automobile and other means of transportation. In this process, a large amount of fuel oil will be consumed, which brings a large proportion of the fuel cost in the logistics cost and has a great impact on the profits of enterprises.

(3) Inventory cost

Inventory cost is the total cost incurred in the whole inventory process. All returned goods in the process of reverse logistics inevitably need some space for storage. Whether the space is obtained through leasing or purchase, whether it is self-supporting or third-party return logistics center, there are certain explicit costs and hidden costs, which are storage costs.

(4) Other costs

In addition to the above costs, in fact, in the return of reverse logistics, each link will produce corresponding costs. Specifically, there are resource consumption costs and labor costs. Resource consumption cost generally refers to the cost generated by the consumption and depreciation of materials, devices, equipment, etc. in the process of return reverse logistics. For example, when classifying, packaging or reprocessing returned goods, there must be input and consumption of materials. In this process, it also needs to be completed with the aid of equipment, thus resulting in the loss of equipment, which are all consumption costs. Labor cost refers to the cost of labor input in the reverse logistics, such as review of return application, on-site pick-up and quality inspection. Packaging and other links need input of labor cost.

(5) Cost measurement and accounting of reverse logistics

Some costs in the reverse logistics management of Jingdong's product recovery, such as the costs incurred in the sales phase, are not directly related to the product recovery volume. In this case, we need to use Activity-Based Costing for accounting, which needs to allocate the consumed resources to the activities according to the resource drivers, and then allocate the activity costs to the products according to the activity drivers, so as to improve the information quality of reverse logistics cost. First of all, we need to calculate the cost of resources including the cost of reverse logistics, that is, the total cost of resources consumed for the implementation of product recovery.

Secondly, we need to allocate the cost of resources related to reverse logistics to the corresponding activities. Those that can be directly collected are directly included in the cost of corresponding activities; those that cannot be directly collected to activities need to be apportioned according to resource drivers. It is necessary to calculate an intermediate variable: unit resource cost. By multiplying the unit resource cost by the resource driver quantity of an activity, we can reasonably calculate the resource consumption that the activity should bear.

In the logistics link of product recovery, the possible operation activities and tasks involved in reverse logistics include order processing, packaging, transportation, handling, storage, general management, etc. the unit resource cost of each resource can be calculated according to the following table, and then the number of resource drivers used in each operation can be calculated and collected.

After that, the activity cost is allocated to the corresponding cost object. Finally, by multiplying the unit activity cost by the number of reverse logistics consumption activities in this link, we can more accurately get the cost of labor cost in the logistics link that should

be apportioned to the cost of recycling reverse logistics business.

In the same way, other expenses such as equipment depreciation and rent in logistics can also be accounted for in the same way, so that the required cost can be accounted for in a more complete way.

7. COST OPTIMIZATION STRATEGY OF E-COMMERCE RETURN REVERSE LOGISTICS

(1) Make reasonable return policy

Enterprises should make reasonable return policies to reduce the return rate, so as to reduce the cost of reverse logistics. Jingdong should control the return rate of enterprises from different aspects, because the order quantity of Jingdong Mall is very large every day. Once the return rate increases, it means that there are a lot of goods to be returned and exchanged, which will produce a very high reverse logistics cost.

First of all, the enterprise should have a high service level and overall efficiency of the after-sales department. Professional and systematic training for customer service personnel and logistics personnel in charge of after-sales can set performance evaluation indicators for them to motivate them, so that they can better serve customers. When consumers apply for return, customer service personnel should actively contact consumers, ask for reasons for return, and make certain compensation according to the actual situation, so that consumers can cancel the return application, so as to reduce the return rate and the occurrence of reverse logistics.

Secondly, improve the return process. According to the different commodities, the return policy should be adjusted in a timely manner. For online shopping customers, the return policy should be more convenient and convenient to be familiar with by customers. In the process of selecting goods, customers should pay attention to whether the goods they want to buy are returned or whether there are any additional conditions for return, so as to reduce the costs incurred by the return of non returnable goods. In addition, it can also implement a phased return freight bearing system according to the customer level, dispel the customer's concerns about return and improve the purchase rate. The improvement of return process is to rationalize it, process return application quickly and reduce return processing time. In the selection of return logistics channels, the first factor to be considered is whether to ensure the safety of returned goods, and whether the logistics process can be queried in the whole process.

Finally, the sales department should follow the process of return and exchange in time. The enterprise also needs to supervise and urge it. It can take reward and punishment measures to motivate employees, improve the efficiency of return and exchange, and increase customer satisfaction. In addition, if there is the support of information system, the return application of consumers can be processed through web pages, which can greatly reduce the number of customer service. This approach seems to be a way to reduce human cost and improve the cost of information system construction, but in the long run, this approach can effectively reduce the return cost. For an enterprise of such scale as JD, even if a detail is perfected, it may have a great impact on the cost of the whole enterprise, so that the enterprise profits can be improved. Due to the large order base, the increase of 0.1% will also bring great profits to the enterprise.

(2) Improve product quality and logistics service quality

In order to improve sales volume, e-commerce exaggerates product performance, quality and appearance to confuse consumers, which is one of the main reasons for consumer returns. Businesses should try their best to improve the quality of goods, provide real, effective and detailed information and reasonable suggestions to consumers, so as to avoid some returns caused by the discrepancy between the description of goods and the actual situation, so as to reduce the occurrence of reverse logistics.

Logistics is also a major reason for consumers to return goods. When packaging goods, the logistics department should adopt different packaging methods according to the attributes, transportation methods and transportation distance of the goods, so as to avoid the return of goods caused by the damage of the goods due to the poor packaging. In the aspect of distribution, logistics enterprises should deliver goods to the door in time. In case of special circumstances, they should contact consumers immediately to avoid the return caused by poor communication or delayed distribution.

(3) Establish a centralized reverse logistics Certification Center

In the daily operation of logistics, JD does not have centralized reverse logistics Certification Center, which is still at the theoretical level. Although enterprises can return and inspect commodities through staff, due to low concentration and professionalism, these resources do not play the maximum value. Jingdong Mall should establish a professional certification center to integrate the physical logistics personnel with the background data, and carry out regional management according to the distribution of the city. Moreover, the regional management should cooperate with the distribution of the physical area to realize the sharing of regional information and logistics personnel management information, so that the final big data can play a role in improving competitiveness and optimizing the supply chain. When a large number of goods are returned or exchanged, such as during the double 11 period, the third-party logistics platform can be considered.

After the establishment of the centralized reverse logistics Certification Center, different grades of electronic certificates can be issued according to the old and new degree and quality of the goods. Jingdong can establish a new e-commerce trading platform for consumers and businesses to trade and sell these products with electronic certificates for the second time, and Jingdong can charge a certain platform fee from it. The function of "one key resale" is added to facilitate consumers to publish the information of idle goods purchased on JD.

(4) Establish a perfect return logistics management system

Establish a perfect return logistics management system. In this way, in the process of return logistics, it can not only make the logistics information timely and transparently shared, but also track the return logistics. Jingdong Mall can build such an information system to realize real-time sharing of return logistics among producers, shopping platforms and buyers. Establish a central database to realize data docking among producers, trading platforms and buyers. Data related to return logistics can be recorded and stored in this database. The three can query information related to return in this database to realize seamless docking of all links. Finally, it can reduce the proportion of goods returned, so as to improve the service level and consumer recognition of Jingdong Mall.

CONCLUSION

In the background of the rapid development of e-commerce, to carry out the cost management of reverse logistics, we must effectively control the whole logistics process, coordinate and cooperate with other departments of the enterprise, and deal with the relationship with customers. In the cost management of reverse logistics, strengthen the communication and communication with suppliers, enrich the sales channels, so as to implement the supervision and management of all links in the logistics work. Thus, the cost of supply chain operation can be reduced to avoid the waste of capital. In a word, we should make full use of modern information technology, give full play to the functionality of e-commerce, and adopt modern cost management methods of reverse logistics to ensure the quality of reverse logistics cost under e-commerce.

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