Tmall Recycling Logistics Solution Research

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Abstract: In the online shopping process, because users only rely on pictures and text description to make the purchase decision, it is easy to have impulsive consumption or purchase goods that are not suitable for them. In the process of online shopping logistics, due to improper packaging and handling, it will cause damage to the goods. In addition, the inevitable product production process, the improvement of consumers' awareness of rights protection and other factors all contribute to the reverse logistics of Tmall shopping. This paper analyzes the advantages of reverse logistics, the general process of recycling logistics, the present situation and existing problems of Tmall return logistics, and the optimization scheme of reverse logistics based on the joint recovery mode is proposed. Finally, the feasibility of the scheme is analyzed.

1. Introduction

In the 21st century, reverse logistics based on sustainable development has become an important area for internationally renowned enterprises to enhance competitive advantage and improve management efficiency. China's annual losses from returns, overproduction, non-conforming returns, scrapping and damage are growing at an alarming rate. According to the survey, 90 percent of consumers believe that a website-friendly return program plays an important role in making their purchase decisions, 85 percent say they may not shop online when returns are inconvenient, and 81 percent say they will factor in the convenience of returns when they choose an online shopping store. In recent years, with the increasing number of consumers shopping in Tmall, resulting in more and more disputes due to return and exchange, which further reveals the complexity of return procedures and low efficiency of information management of Tmall, which has an important impact on the development of Tmall. In addition, Tmall at this stage is mainly as a third party to provide a trading platform, in the business expansion there is a lot of space. In view of the problems and business development in Tmall's reverse logistics process, the solution is put forward.

2. Reverse logistics analysis

2.1. Advantage analysis of reverse logistics
From the micro point of view, reverse logistics has the explicit and implicit role of improving customer value, enhancing competitive advantage, reducing material cost, increasing enterprise benefit, improving environmental behavior and shaping enterprise image, etc. From the macro point of view, reverse logistics is beneficial to the rational flow of social resources, saving resources, improving the sustainable development of environment and economy, etc. Therefore, the implementation of "reverse logistics" conforms to the requirements of the development of the times. The existence of reverse logistics replaces the one-way operation mode of traditional materials, which is beneficial to reduce the environmental pollution caused by improper logistics and reduce the waste of resources caused by incineration and landfill. At the same time, it can also reduce the cost of enterprises to deal with waste goods, improve the performance of enterprises and the whole supply chain, and produce great social and economic benefits. The main purpose of green reverse logistics management is to fully save and utilize resources and energy, to protect the ecological environment, to improve economic efficiency, and finally to approach of sustainable development.[1]

2.2. Analysis of recycling logistics in reverse logistics
In the process of social reproduction, it is the production of recycled goods, such as scrap materials, waste water, waste gas, waste residue, etc., which are formed in the process of production, waste packaging equipment materials produced in the process of circulation, and a large number of materials which have lost their use value due to deterioration, damage, end of service life or failed to form qualified products in the process of production and have no use value. They are all separated from the main channels of logistics and become emissions in production or circulation. How the emissions are recycled or disposed of becomes an issue of "recycling logistics ". Some of these emissions can be recycled and recycled, called renewable resources, they form a narrow sense of recycling logistics, that is, reverse logistics.

2.3. General process analysis of recycled logistics
At present, the specific process of recycling logistics in China is shown in figure 1.[2]
3. Analysis of the problems of recycling logistics

3.1. Problems in urban recycling logistics

Since the reform and opening up, urban recycling logistics has made unprecedented progress, but at the same time facing many difficulties, there are Many issues are summarized in five areas:

(1) Management system problem: at present, the management system of urban recycling logistics in our country is not perfect, the focus of the problem is that the system changes frequently, the government and enterprise do not divide, the management does not work in one lacks the authority of management and supervision, which leads to the single main body of logistics recovery.

(2) The problem of recycling logistics management: the type and quantity of recycling logistics are unstable, and the individual recycling based on profit only collects products with high economic efficiency, and a considerable part of the waste products with serious pollution and low recovery efficiency are not recovered, resulting in serious environmental pollution.

(3) Issues of laws and regulations: at present, the role of municipal waste regulations is limited to the macro control. There is a lack of economic efficiency, a lack of scientific technology, and very scattered, law enforcement is not operational, and even many fundamental problems to be solved without legal basis.[2]

3.2. Current situation and problems of Tmall return logistics

Prior to the study, we conducted a questionnaire which showed the following:

(1) Almost all users are online buying returns; The reason and proportion of return is shown in Table 1.[3]

| Tab 1 Reasons and proportion of Tmall returns |
|----------------------------------------------|
| option                                      | scale   |
| quality problem                            | 65%     |
| Non-conformity with product description     | 51.67%  |
| Delivery time does not match commitment     | 16.67%  |
| Goods purchased are not suitable            | 60%     |
| Seven days without reason                   | 33.33%  |

(2) 3-5 days is the maximum return time, followed by 5-7 days;
(3) Most people are willing to recycle the boxes when paid;
(4) Most people think there should be better optimization in terms of return time and freight.

In recent years, with the increasing number of consumers shopping in Tmall, the resulting exchange disputes are also increasing, This is also advanced - one step shows the Tmall net return steps are complex, information management efficiency is low, management is scattered and so on, This has had an important impact on the development of Tmall.

At present, China's recycling logistics is in its infancy, most people do not realize the significance of recycling logistics, Although recycling logistics has made unprecedented progress, it faces many difficulties and problems at the same time. Based on this situation, Tmall recycling logistics development will have some limitations.[4]

For a manufacturing system that contains product recycling, seven features complicate the planning control of manufacturing systems:

(1) The uncertainty of the time and quantity of recycling products.
(2) It is necessary to balance the demand and supply of recycled products.
(3) The recycled products need to be decomposed.
(4) The uncertainty of the quantity of materials needed to recycle the product.
(5) It needs the support of reverse logistics network.
From the above analysis, we can see that the management of reverse logistics is much more complex than that of forward logistics.

4. Optimization scheme of reverse logistics based on joint recovery mode

Commercial returns are mainly due to the responsibility of the manufacturer. It is aimed at the products that are returned or recalled voluntarily within a certain period of time after the sale of products, such as defective goods, overstock and so on. Judging from the existing experience of individual manufacturers, the frequency of commercial returns is relatively small. In order to minimize the recovery cost of such products, reduce intermediate inventory and increase the flexibility of recycling, according to the scope of sales, combined with service capacity, cross-regional recycling centers can be set up to centrally deal with returned goods from different regions. On this basis, Tmall cooperated with businessmen to set up a recycling center and establish a joint recycling model. Tmall, as a third party, cooperates with the manufacturer to recall and return the goods. The specific optimization scheme is shown in figure 2.[5]

5. Project Feasibility Analysis

5.1. Policy feasibility analysis

As the first administrative regulation of the express delivery industry, the release of the interim regulations on express delivery has greatly optimized the development environment, improved the operation system, enriched the service rules, consolidated the responsibility of safety, and innovated the means of supervision. On the basis of promoting the development of express delivery industry, ensuring the safety of express delivery and protecting the legitimate rights and interests of all parties, based on inclusive and prudent supervision, the mandatory regulations such as express delivery service vehicles have been adjusted, the processing procedures for non-delivery of express delivery have been improved, and the contents of encouraging the sharing of terminal facilities and the construction of integrity system have been added.

By the end of 2018, Chinese express delivery has exceeded 50 billion scale, per capita annual express delivery volume of more than 35 markets, more and more need to regulate from the national
level. Whether it is the professional management of couriers, the security management of sending business, the supervision of delivery services, the supervision of operating vehicles, and the guarantee of user data and information security, the issuance of express delivery law has important social value for the healthy development of the industry.[6]

5.2. Feasibility analysis of enterprise self-interest
Because of the low repurchase price and wide source of used products, repurchase processing of these products can greatly reduce the material cost of enterprises. Especially with the development of economy, the problem of resource shortage is increasing day by day, the contradiction between supply and demand of resources is more prominent, and the recycling logistics will show its importance more and more.[6]

Consumers are increasingly vocal about business ethics. A business can not only focus on making profits, but also bear in mind its social responsibilities. Consumers are increasingly vocal about business ethics. The implementation of recycling logistics reflects not only responsibility for the products sold, but also responsibility for the ecological environment. This sense of responsibility can be conveyed to consumers and establish a good corporate image in society. In addition, due to the scarcity of non-renewable resources and the increasing pollution of the environment, countries have developed a number of environmental protection regulations that provide a binding norm for the environmental behaviour of enterprises. The environmental performance of enterprises has become an indispensable index to evaluate their operational performance.

5.3. Environmental feasibility analysis
With the rapid development of economy, green development is also a hot topic of our concern. In the process of implementing green logistics, we can restrain the harm caused by logistics to the environment, at the same time, realize the purification of logistics environment, and make the most use of logistics resources. In the promotion of sustainable development today, logistics greening is the 21st century logistics management facing urgent need to be solved, is the inevitable trend to achieve sustainable development. Whether it is positive logistics or recycling logistics, to achieve green recycling is the first step to achieve development.[7]

In the above proposed scheme, we have made the optimization of green recycling, which is beneficial to both the express company and the Tmall platform. The express company has realized the reuse of resources, reduced the cost of logistics, and laid the foundation for the sustainable development in the future. For Tmall, it creates a good logistics environment, and sets a benchmark for the current national situation of advocating green development, which can effectively promote the development of business.

6. Conclusion
Although the design scheme has improved the complexity of the return steps, the inefficiency of information management and the dispersion of management, there are still many shortcomings in the scheme because of the limited knowledge reserve and the short time. For example, we did not make an effective division of benefits in green recycling, in the second scheme, the functions of Tmall and manufacturer are not effectively divided, there are more uncertainties in the implementation of the program, and there may be deviations from the idea in the implementation of the program.

References
[1] Gong Ying Supply Chain Reverse Logistics [M]. China Material Press ,2008.01
[2] Sun Xueqin, Liang Jun. Function Management of Logistics Centre [M]. Mechanical Industry Press ,2004.07
[3] Lin Hui-dan Third Party Logistics [M]. Shanghai Finance Press ,2010.06
[4] Zhang Xinying, Zheng Ming, Recycling Logistis [M]. China Material Press ,2003.10
[5] Wang Wenjuan. A Study on Decision-making Method of Green Reverse Logistics in Enterprises [M] Northeast University of Finance and Economics Press, 2014.06
[6] Sun Minggui, Recycling Logistics Management [M] China Social Sciences Press, 2005.05
[7] Zhou Xianghong, Cheng Pengfei, Planning and Application of Re-manufacturing Reverse Logistics Network in Multiple Recycling Mode [M] Xi'an Jiaotong University Press, 2016.08