

Study on Reverse Logistics System Issues

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Abstract: In this information age, competition is fierce in all sectors, and the logistics industry is no exception. Numerous enterprises enjoy the great benefits brought by the advanced logistics system, and at the same time must respond to the call of the times, the sustainable development strategy and green logistics is imperative. Therefore, the establishment of a reasonable reverse logistics system is able to reduce the economic development of the ecological environment brought about by pollution, and effectively solve the rapid economic development and environmental protection issues between the special contradictions, but also appropriate to reduce the pressure on the supply of resources in the community, while easing the constraints on the contradiction of resources. The construction of low-cost, high-efficiency reverse logistics network can not only greatly enhance the efficiency of the logistics chain but also promote the synchronized and coordinated sustainable development of society, economy and environment.

Keywords: Reverse Logistics; Circular and Efficient; Sustainable Development.

1. Introduction

Reverse logistics in China's development there are problems such as lack of control, scattered channels and lack of awareness[1]. With the awareness of environmental protection, resource recycling and sustainable development ideas continue to take root in people's hearts, more and more enterprises began to pay attention to the recycling of resources[2]. In this era of increasingly prominent contradictions between limited environmental resources and rapid socio-economic development, people need to pay more attention to the benign development of reverse logistics. In the supply chain this big network, if the upstream enterprise adopts the reasonable and effective way of return, it can make the downstream customer business risk reduction, not only regulates the relationship between supply and demand, but also actively catalyzes the strategic cooperation between enterprises, and can enhance the competitive advantage of the whole chain, especially in the risk of obsolescence of the product is slightly high, the strategy creates a competitive advantage is more obvious. Material cost, material consumption and material utilization are all indispensable in the study of enterprise cost management, and at the same time as a number of important means to increase efficiency and enhance the potential value for the enterprise. In the traditional management mode, because not too much attention to the effective use of external materials and waste products, so many recyclable resources are wasted, which seriously exposes the limitations of material management on the internal operation of the enterprise materials. Therefore, through reasonable analysis, the buyback of these low-priced and widely sourced waste products can, to a certain extent, realize a significant reduction in the cost of enterprise materials. Reverse logistics system and forward logistics system is very different, the former is more uncertain, in order to speed up the recycling of materials and waste products remanufacturing, enterprises need a good reverse logistics system, the process of reducing the use of resources, improve the efficiency of forward and reverse logistics, to realize and improve the green logistics has a positive significance.

2. Enterprise Reverse Logistics System Structure and its Function

2.1. Reverse Logistics Network Structure

Reverse logistics network structure has its own characteristics, due to the different forms of takeover into reuse, remanufacturing, recycling and business return reverse logistics network.

Basic characteristics of reverse logistics network systems

(1) Complexity. Complexity resulting from a range of uncertainties about the quality, quantity and return date of products recovered from buyers, with possible influences from within the system.

(2) Diversity. It is extremely important that environmental considerations be taken into account in the establishment of the system and that economic costs not be taken into account unilaterally.

(3) Imbalance between supply and demand. This refers to the fact that there is sometimes a mismatch between supply and demand for recyclables.

(4) From many to few. This refers to the pooling of logistics from a small number of locations in multiple directions.

2.2. Reverse Logistics System Functions

Not all logistics systems cover the same processes, and their functions are roughly as follows:

(1) Collection: Through acquisition and storage, the scattered products to be recycled are brought together and transported to the operation processing place, and care is taken to minimize the cost consumption caused by non-essential transportation in the process.

(2) Classification and testing: first test the recyclables to be classified in accordance with scientifically feasible methods, the process also covers dismantling and warehousing and other steps.

(3) Reprocessing: The dismantling of parts of the recovered material or the handling of the entire product operation in order to extract secondary value. Reprocessing also includes reuse, remanufacturing, recycling and commercial returns (for details, see the reverse logistics network structure in

chapter II, Overview of reverse logistics systems).

(4) Disposal: Due to various factors, it is difficult to reuse the product parts or products for destruction.

(5) Redistribution: The finished product after operational processing is sent to the relevant place for sale through transportation storage and other steps.

3. Problems with Reverse Logistics Systems

A complete logistics system consists of forward and reverse logistics systems[3]. Because of China's reverse logistics system research has not yet matured, the enterprise's resource reuse system can not be established, reusable materials did not embark on its due green recycling pathway, reverse logistics system center is also difficult to arrange, so that the social economy suffers a small loss.

If the forward logistics system and the reverse logistics system collide, due to the insufficient recognition of the importance and value of the latter by the enterprise simply feel that the implementation of the process is more costly, usually the reverse logistics will not be selected by the management because of its own uncertainty and other characteristics. Fully reusable materials as an effective basic resource has been seriously wasted, the production process is blocked, the reverse logistics process is also stagnant, a series of problems reduce the efficiency of logistics and more directly increase the costs. The lack of social enterprise's cognition of the reverse logistics system and the lack of attention have become a huge barrier to the development of reverse logistics, and at the same time, it also hinders the construction of the reverse logistics system.

4. Countermeasures to Improve the Problems of Reverse Logistics System

4.1. Recycling Reverse Logistics Systems

Accompanied by the rapid development of social mass production, all the time enterprises are in their production and consumption areas to produce a huge amount of waste materials, so how to better recycling is the study of recycling reverse logistics is an important prerequisite for the economic development of enterprises has a pivotal role. Perfect reverse logistics services can improve the consumer's purchasing experience, and guide consumers to repeat shopping, the maintenance of customer relations has a positive significance [4].

The components or processes of a recycling reverse logistics system are as follows:

(1) Recycling, product goods from the logistics terminal may be returned to the starting point in the form of a certain substitute, and the starting point is not a fixed node is the existence of any one of the links in the process.

(2) Inspection is a prerequisite for choosing the post-processing method of the goods, the initial basis for re-operation and utilization after dismantling, and detailed analysis and testing of the recycled material parts and products.

(3) Splitting, based on the characteristics of the goods themselves disassembled and re-divided.

(4) Reprocessing, as the name implies, is the use of back goods and dismantled parts and materials, such as reprocessing and remanufacturing to give it a new life and

new value.

(5) End-of-life treatment, for certain wastes and parts that do not pose a high risk of environmental damage, etc., with the help of unconventional means in order to implement end-of-life destruction treatment.

4.2. Costs and Benefits of Remediation

The operation and utilization of waste or recyclable materials generated during production, packaging and transportation has a certain probability of remaining storage costs or costs incurred in the recycling process, which are the costs of reverse logistics. Many of the EU member states pay great attention to the recycling of materials, and the increasing importance of recycling and the increased attention paid to it have made the cost of reverse logistics an indispensable part of research. Enterprises can expand their existing supply chain by establishing an effective recycling system, combining the forward distribution of products with reverse recycling, and improving the resource utilization and operational efficiency of the logistics system while obtaining the recycling value of products[5].

Effective programs to reduce reverse logistics costs are listed below:

1. Construction of reverse Logistics Information System

First of all, the enterprise itself needs to strengthen the understanding of the reverse logistics system, integrate the modern logistics information technology and take the complete management information system as the foundation of the huge reverse logistics information system. In the process of operation, the potential resources are constantly explored to strengthen the adaptability so that when the unexpected situation occurs, it can be dealt with calmly and efficiently. Collecting and categorizing the retrospective information is the core element of the construction system, and should also develop a unified return standard in the return process can be better tracking and positioning, speed up the response rate while optimizing the process cost. Increase the training and selection of logistics personnel to establish an effective reverse logistics information system and improve the overall satisfaction of the user at the same time to increase profits.

2. Strengthen management to limit returns

Before and during the transportation of products as far as possible without error, planning and reverse logistics network is closely related to the forward logistics network; enterprise departments to cooperate, and strive to improve the coordination of various network nodes to promote the communication of members and managers; return checking process strict control and repair and simplification, in the policy of reasonable adjustments in order to avoid the existence of the seven days no reason for the malicious return behavior.

3. Recycling

If there is little or no impact on the normal use of the product, it can be assessed how much it is needed, and if there is a regular demand for this type of product, a corresponding market is created, so that the returned product gains some of its value, and can be re-sold with a new package; the centralized recycling of products with minor defects can be re-sold directly if they do not need to be repaired or treated, and only a supply route needs to be found in order to make the product available to the customers who need it. If a damaged product or a product with similar problems can be repaired by low-cost means after considering the cost, it will

be transported to a centralized processing center for repair; if it is difficult to be repaired or if it cannot be maintained by low-cost technology, it should be immediately recycled and discarded, and then classified through the prerequisite steps of testing, so that materials that can be disassembled and completed can be put into a new cycle and used, thus reducing the loss.

4. Processes and configurations dedicated to local recycling

Optimize route design, build a more complete and efficient reverse logistics network, make innovations in the supply chain, and control a different proportion of back goods or materials to each node to improve efficiency. Integration as the basic premise, so that the upstream and downstream work closely together to deal with the operation of recycling operations separately to improve efficiency and reduce the cost of the process. A series of operations such as inspection, checking and categorization require companies to configure special sites to build warehouses to deal with, so that the traceability efficiency is greatly improved, this program can also be given to the third party to implement.

5. Increase in the Number of Supportive Economic Policies

Maintaining the development of enterprise reverse logistics system, the establishment of regional reverse logistics system needs very targeted government policies, through a variety of relevant policies to support different business to stabilize the reverse logistics reform system, and stabilize the framework of reverse logistics development to maintain the harmonious development of the environmental economy:

Financial rewards and penalties. The local authorities will provide financial subsidies in the form of quantitative or reasonable capital ratios for the reverse logistics systems of enterprises that actively respond to green logistics programs; implement loan financing and provide interest subsidies; and reduce or waive the taxes of reverse logistics enterprises that operate well to a certain extent, or take into account the status quo of waste of resources and environmental pollution by charging additional taxes on non-renewable resources and virgin materials.

Industry guidance. In the recycling process, it is necessary to extend the logistics chain, expand the operation radius, and establish multiple public platforms so that each node can be fully mobilized. Strengthen the construction of centralized

recycling centers, so that a small amount of scattered low-cost materials to integrate a certain scale to improve the efficiency of the reverse logistics system. The local government will give economic support to the construction of the reverse logistics network within a reasonable range, and build a specialized market to promote the rapid circulation of many elements in the process.

6. Conclusion

Although the development of China's reverse logistics system is still in the early stage, but through the understanding of domestic and foreign related research found that there are problems, the study of recycling reverse logistics system to calculate the cost of transportation and repair and processing revenue value of the problem of reverse logistics to help. In the future, reverse logistics is not only the support of the circular economy, but also the necessary means and important guarantee for the realization of the circular economy, the development of reverse logistics network construction is an important way to comprehensively satisfy the people's ever-increasing material and cultural life, and a perfect reverse logistics system must be the absolute condition for the survival of the enterprise, but also the bridge between the national green logistics economic development and the sustainable development strategy.

References

- [1] Ai Tingting. Exploration of Reverse Logistics Problems and Countermeasures in China. *China Storage and Transportation*, 2024 (03):81-82.
- [2] Zheng Xianchao, Qiu Antelope. Optimization study of reverse logistics recycling network based on closed-loop supply chain management. *Logistics Science and Technology*, 2024, 47(01): 105-106+111.
- [3] PAN Xiaoxiao, QIN Xuelui. Research on the optimization of reverse logistics process in Jingdong Mall. *China Storage and Transportation*, 2023(12):124-125.
- [4] Zheng Tingting. Research on B2C reverse logistics service quality evaluation and management optimization in Company A. *Huaqiao University*, 2023.
- [5] YAO Haijing. Research on site selection-path optimization of distribution and recycling center under closed-loop logistics. *Dalian Maritime University*, 2023.