

In Closed-Loop Supply Chain Logistics System to Improve the Way of Green Level

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Abstract: On the day of closed-loop supply chain and reverse logistics in the context of continuous development, environmental issues continue to be a priority. It discusses to improve the whole supply chain logistics system works in the way of green level. On the one hand, through the introduction of fourth party logistics to improve the logistics system's informational degree, our goal is to realize the information resource sharing; On the other hand, through the establishment of manufacturing enterprises and logistics industry group's strategic alliance, our goal is to realize the optimal logistics program in entire product life cycle. Thus, through the way of improving operational efficiency and resource utilization, reduce the whole supply chain logistics time while saving resources for the closed-loop supply chain logistics system to find a viable green way.

Keywords: closed-loop supply chain; Fourth party logistics; strategic alliances; environmental protection

So far, reverse logistics and closed loop supply chain management has become important aspects of all enterprises, involved in manufacturing, marketing enterprises, service enterprises, and other types of any business. Closed-loop supply chains are new logistics concepts for proposition in 2003. It's refers to the positive supply-chain and customers of the product as a starting point, through the return, direct reuse, repair, remanufacturing, recycling waste processing and other reverse operation, to compose the logistics, capital flow and information flow in a closed-loop system. That is, closed-loop supply chain is from the perspective of the product life cycle to integrate the forward and reverse supply chain activities, from product recycling, reprocessing and re-sale of the entire process of design and management.^[1] Its purpose is to be closed in the flow of materials handling, to reduce pollution emissions and residual waste, while a lower cost of customer service. Therefore, in addition to content the traditional supply chain, closed-loop supply chain is also of great significance to sustainable development. With the advent of knowledge economy and people's living standards, consumer demand for goods more and more personalized. Shorter product life cycles, speed up the replacement rate and increased elimination, about 24% of customer service will request the return of the product business, renovation, and maintenance. Which kind of situation makes reverse logistics supply chain, part of the rising volume of business. Compared with forward logistics, reverse logistics have the problem of place, time, and number of uncertainty. In contrast, people's environmental awareness has strengthened in many countries. There has been introduced related legislation. For example, the provisions of the original equipment manufactur-

ers (OEM) to be responsible for recycling old products obsolete, and some countries even require its own if the OEM abroad needs to be recovered by the importer. Especially in Europe, the limit for production recycling, packaging, reusable containers and manufacturer's recall liability, all which have strict laws and regulations. However, there will be no enterprise invest to environment in order to save the planet, because it's not the purpose of business survival, but the reasons for the legislative and policy-oriented businesses in this area will generate more operating costs, this part of the cost of business will be further passed on to consumers. Therefore, we have to seek one kind of business model. In this model of enterprise business objectives and environmental protection are unanimous. While in the pursuit of the interests of maximizing, the maximum possible protection of the environment and achieve sustainable and harmonious development.

1. Introduction of fourth party logistics (4PL)

Since the last century 90's, logistics management into the supply chain integration management phase, the competition between enterprises is gradually transformed into supply chain management war. At this point, third-party logistics (3PL) to facilitate for the company, while its limitations are slowly emerged, such as providing services are unitary, limited. The provision of logistics services for business only limited to a certain stage can not be supply chain integration. The same time, because the existence of informational barriers between companies, not only resulted in waste of resources and the occurrence of repeated operations, and will lead to environmental pollution and the relative costs. In this situation, if the logistics enterprise or the logistics industry cluster built

^[1] Li Xin Jun Closed-Loop Supply Chain of Production - Optimization and Coordination of Contract, China Material Press 2009 1 (28)

up a common information exchange platform for enterprises and regions, to sharing of resources and information, it will greatly improve service efficiency and reduced pollution and waste of resources. Concept of fourth party logistics was first used by U.S. management consulting firm-Accenture is a supply chain integrator, deployment and management of the organization itself and other owners of complementary services, resources, capabilities and technology to provide comprehensive supply chain solutions. Its platform to share and disseminate information, is leading force among the third party logistics, supply and demand sides. It is not the logistics of the interests of the parties, but by having the information technology, integration capabilities and other resources to provide a complete set of supply chain solution, in order to obtain profits. It helps enterprises reduce cost and effective integration of resources, and relying on the excellent third-party logistics providers, technology providers, management consulting and other value-added service providers, to provide customers with unique and extensive supply chain solutions. 4PL full take advantage of including third party logistics, information technology providers, contract logistics providers, call centers, telecom value-added service providers, coupled with the ability of customers and 4PL of advantages of their own, through a full range of supply chain solutions to meet the broad and complex enterprise business needs, which focus on supply chain all aspects of management, provides constantly updated for the technical programs, while meeting customer's unique needs. Realize profit growth, lower operating costs, the dramatic fall in the cost of work and increase resource utilization. In the development and application, the fourth party logistics (4PL) continuously demonstrated its superiority and power, such as highly integrated, comprehensive, standardized, and low-cost and achieve supply chain management, logistics and supply chain integration capabilities recycling function. 4PL can stand overall height of the supply chain; provide tailor logistics solution programs for customers, and through professional experience, skills, business resource and integrated application on IT. As a more neutral role provide the most suitable solution for the customers. Therefore, we can say that the emergence of fourth party logistics meet the need of the market demand. Development of 4PL to meet the needs of society, get maximum integration of social resources, reduce time and cost of logistics, make the logistics industry to find a practical way of achieving a balance between development and environmental protection.

2. The strategic alliance of logistics industry groups and manufacturers

The concept of strategic alliance first proposes from president of the United States DEC J.Hopland and the management scientist R. Nigel. They consider, strategic alliance means that two or more than two have common

strategic interests and the same management power enterprises to achieve co-owned market, the common use of resources and other strategic objectives, through diversified agreements, contracts and form of the advantages of complementary or advantage with long, risk-sharing, a loose cooperation of two-way or more factors of production to the horizontal movement. Throughout the supply chain system, any enterprise can only be in the "supply chain" has an advantage in certain sectors, but can not have all the advantages. In the value chain, the factory has the advantage in the special links. In other links, rest of companies may have advantages. In order to achieve "win-win" synergies between the key success factors in their part of the supply chain advantages to cooperate, you can achieve the maximization of collective revenue, which is the driving force behind corporate strategic alliances.

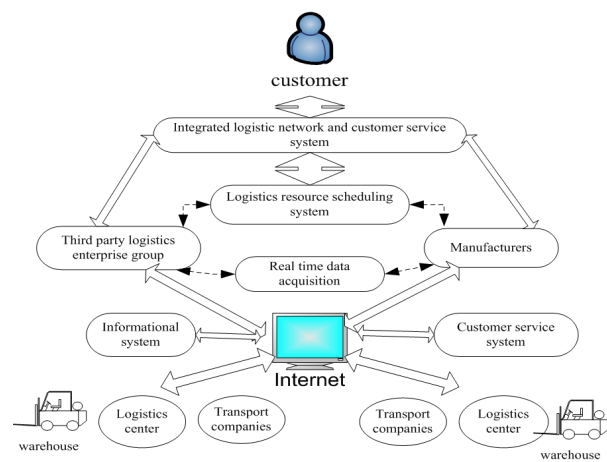


Figure 1. Fourth Part Logistics

Resource-based theory of strategic management rise in 1989. Representatives are Birger.Wernerfelt, Robot. M. Grant, Barney. The theory is not limited to the specific product to explore the competitive advantage of formation mechanism. In the market level, rather focus on the business owned group of resources, and try to use those resources composition and nature to explain frequent survival of the fittest phenomenon of competition. Grant and others divide corporate resources into financial resources, physical resources, technical resources, innovation resources, goodwill resources, human resources and organizational resources. In addition to capital and raw materials are the same for all enterprises have a sense of homogeneous resources, other resources with active factors such as knowledge, experience, skills, decisiveness, adaptability and other resources with versed forms and rich changes is heterogeneous resources. This heterogeneity of resources with various shapes of resources create sustainable competitive advantages of enterprises, and specially this heterogeneity for the enterprise offers the possibility to monopolize some certain resources, result-

ing obstacles of the other enterprise to imitate. However, the dynamic and sustainable competitive advantage nature of heterogeneous resources need enterprise required to maintain constantly utilizes external sources and expand the business of scarce resources. Strategic alliance is an effective way to achieve this goal. International companies and complementary company establish the partnership can full utilize external shared factors and exploit their own advantages of heterogeneous technology and management experience. All of these come into one of the new international competitive advantages and a new source of interest. This economic situation is from harmonization of cooperation and conflict in competition; from improvement after the re-allocation of resources efficiency; from high technology to accelerate development and combined application; from the rapid formation of new markets and first advantage.

Logistics industry cluster as a logistics base for the city's most concentrated in the corresponding logistics park and logistics center. Through the introduction of fourth party logistics so that the whole logistics industry to achieve real-time interaction and information sharing, with the possibility of making industrial group as a whole with manufacturing enterprises or multinational groups signed an agreement to maximize synergies and resource utilization, thereby reducing the operating costs of logistics enterprises to achieve economies of scale. Strategic alliances apply in logistics companies and manufacturing enterprises or between logistics companies. For manufacturing, not only increases the size of the third profit source, but due to some large logistics companies also have the corresponding function, and repair services, worldwide service network allows manufacturers and customers in the return, recovery can choose the nearest to makes it more efficient to reduce inventory while shortening repair cycle. For logistics enterprises, these can be greatly reduced in the reverse logistics costs and increased customer satisfaction. And because the logistics efficiency and reduction in repeated process, unreasonable in transportation arrangements, it will be played an active role in environmental protection. Enable enterprises to see the value of products from recycling to better improve the logistics system to achieve the sustainable development of business and the environment combine. In the market area, as established a good environmental image, making logistics companies and the product manufacturers will win the support of consumers and public opinion, thus making the image of company and even the industry has increased. For logistics enterprises, because a full complement, the enterprise's business scale and scope has been expanded, and as part of the whole logistics system may be more involved in the type of industry, through the overall advantage obtained the broader space for development. In the overall operation of the logistics system, because of information sharing, different types and different scale logistics enterprises in

crease evolution in technology, experience exchange and development, which is also conducive to the advancement and integration of the industry. Of course, at the same time reduce pollution and waste of resources.

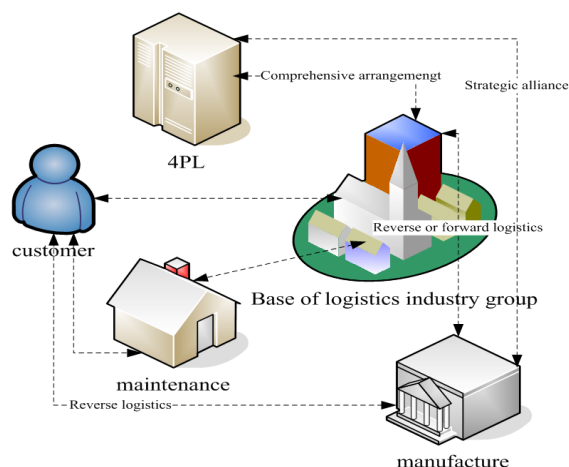


Figure 2. Schematic diagram of the strategic alliance.

3. Conclusion

On background of environmental issues get more and more extensive attention, logistics, as a more environmental impact industry has been more concerned. With the progress of the industrial revolution, with the emergence of hazardous materials and waste, so that the end of the garbage and waste handling, pollution on the survival of the human and natural bio-hazard problem caused more attention with the government and the regions . Continuous improvement of relevant laws, more and more visible or invisible green barriers, the hot spots of public's attention, so that either manufacturing or logistics enterprises have had to put environmental issues at a strategic position to be considered. In this paper, on the day of closed-loop supply chain and reverse logistics in the context of continuous development, environmental issues continue to be a priority. Discussion to improve the whole supply chain logistics system works in the way of green level. On the one hand, through the introduction of fourth party logistics to improve the logistics system's informational degree, to realize the information resource sharing; On the other hand, through the establishment of manufacturing enterprises and logistics industry group's strategic alliance, to realize the optimal logistics program in entire product life cycle. Thus, through the way of improve operational efficiency and resource utilization, reduce the whole supply chain logistics time while saving resources for the closed-loop supply chain logistics system to find a viable green way.

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