Research on Logistics Service Supply Chain Model Characteristics and Performance Evaluation

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Abstract: The supply chain has a service supply chain, a product supply chain, a manufacturing supply chain, etc. Different supply chain models have jointly promoted the development of the logistics industry, and the logistics service supply chain model is becoming more and more important. This paper begins with the meaning of the logistics service supply chain and the comparison with related concepts, introduces the research situation, and finally puts forward the considerations for the performance evaluation of the logistics service supply chain.

1. Introduction

With the development of society and the improvement of living standards, people's demands for services are getting higher and higher, which greatly increases the uncertainty of social demand. The competition between enterprises has risen from the competition between individual enterprises to the supply chain. How to gain competitive advantage in the fierce environment has become the most concerned issue for enterprises and scholars. Through reasonable and strict accounting and correct evaluation of the performance of the entire supply chain, it can provide a more reliable basis for the management decision-making of the enterprise, and it is beneficial to the feasibility of the enterprise to supervise the execution strategy and ultimately win the competitive advantage. Therefore, choosing a scientific and reasonable evaluation method is an important issue in the research of logistics service supply chain.

2. Overview of logistics service supply chain

2.1 Meaning

The basic meaning of the Logistics Service Supply Chain (LSSC) is to integrate and integrate the superior resources of the partners in the supply chain based on the ideas and methods of capacity cooperation and management, with a logistics service integrator as the core. The goal of improving the level of logistics services and reducing the total cost of services will ultimately lead to more revenue and greater competitiveness. There are few studies on the logistics service supply chain in foreign countries, but there are many definitions for the general service supply chain. Some scholars believe that the service supply chain refers to a network composed of suppliers, service providers, customers and other business support units. Providing customers with resources, services, and core business operations. There are also scholars who define the service supply chain as an interconnected organizational network that utilizes resources and transforms its input into service solutions that provide enhanced "flexible" customization.

Although different scholars have different definitions of the logistics service supply chain, their connotations are essentially the same. In the narrow sense, the logistics service supply chain is based on capacity cooperation, with logistics service integrators as the core, relying on advanced IT to integrate logistics resources, and long-term close cooperation among members to meet the needs of customers' integrated logistics services and ultimately achieve Functional network chain structure for value-added logistics services. Broadly speaking, it can be extended to the overall structure of logistics companies, logistics companies and other cooperative enterprises to achieve the integration of logistics service needs. Many research scholars believe that the basic structure of the logistics

service supply chain is "integrated logistics - the supplier of service providers - integrated logistics service providers - manufacturing, retail enterprises." As a new management mode to improve the performance of the logistics industry, the “in-chain” members of the logistics service supply chain should include logistics core enterprises and cooperative enterprises engaged in different logistics function businesses. The research on its structure has attracted the attention of scholars at home and abroad. With emphasis. Therefore, the research on logistics service supply chain capacity cooperation strategy helps to improve the performance of logistics service supply chain from theory and in fact.

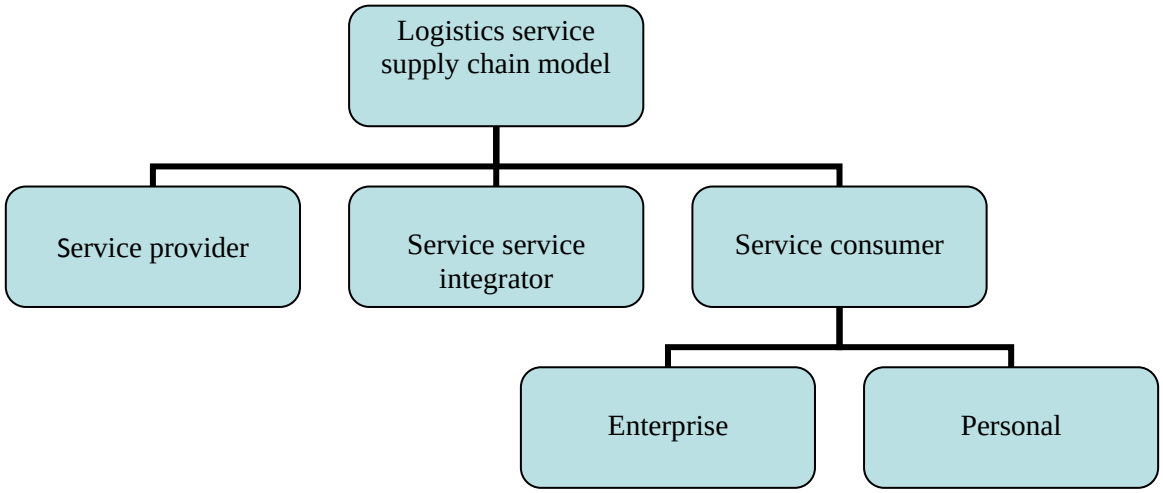

Figure 1. Logistics service supply chain structure model

2.2 Features

The logistics service supply chain has the following characteristics: (1) It reflects the highly integrated logistics service and ideas. Logistics service integrators organically integrate all member companies in the service supply chain and implement integrated management, which not only standardizes services, but also makes the business more standardized. (2) LSSC is more complicated. The service supply chain contains a variety of enterprises and customers, and each company contains different functional departments, which is easy to cause poor communication of information. (3) LSSC has higher requirements for service reliability. If there are too many changes in the service delivery process, it will inevitably lead to customer dissatisfaction caused by low service level, and also play a key role in gaining competitive advantage. (4) LSSC requires enterprises to have excellent information processing capabilities. In order to realize real-time information sharing among all member companies in the service supply chain, a good information system must be used as a technical support. Only in this way can logistics operations be smoothly connected among enterprises. Fully understand these characteristics of the logistics service supply chain, the whole supply chain process will be more clear, and will provide some guidance for supply chain performance evaluation.

3. Logistics service supply chain and product supply chain, manufacturing supply chain comparison

3.1 Comparison of logistics service supply chain and product supply chain

First, the services provided in the logistics service supply chain are characterized by “intangibility and indivisibility”. Unlike tangible products that can be touched, logistics services behave as an action or performance that can only be “feeling” that cannot be touched and subjective. In addition, the quality of logistics services is ultimately related to more objective environmental factors, so the same logistics services may appear "heterogeneous." Different from the first production and then the consumption of products, the production and consumption of logistics services are carried out at the same time, and it is not easy to obtain economies of scale. At the same time, logistics services cannot be stored and cannot be returned once a transaction occurs, which

creates difficulties for the handling of disputes. Second, performance evaluation is different. The existing product supply chain performance evaluation indicators are generally designed by manufacturing companies or retail enterprises as the leading enterprises, and the level of performance depends mainly on the product providers. However, the level of performance of the logistics service supply chain is determined by the logistics service integrator. Its resource integration capability and process control capability are key factors. The performance of the logistics service chain depends on the logistics capability of each service provider and its cooperation with the integrators. And fitness in the supply chain environment. Third, there are many differences in the architecture and mode of operation. A typical product supply chain structure model typically consists of six levels of complex structure. Relatively speaking, the service supply chain is usually simpler in structure and less hierarchical. In the operating model, the product supply chain is usually a combination of push and pull, while the service supply chain's operating model is more market-driven. Fourth, the stability and coordination of the two are different. The product supply chain usually has a good stability system, and the stability of the service supply chain is generally relatively low. In supply chain coordination, the product supply chain is usually the coordination of production planning and inventory management, while the service supply chain is more about service capability and service plan coordination.

Table 1. Comparison of logistics service supply chain, product supply chain and manufacturing supply chain

Comparison item	Service form	Evaluation System	Mode of operation	Stability, coordination
Service supply chain	invisible	High	Less level, simple	Not stable enough
Product supply chain	tangible	Low	Complex, multiple levels	More stable
Manufacturing supply chain	Invisible, subjective	Low	Complex, multiple levels	More stable

3.2 Comparison of Manufacturing Supply Chain and Service Supply Chain

First, there is a significant difference in the optimal control rights in the manufacturing supply chain and the service supply chain. The optimal control of the supply chain members under the decentralized decision-making in the manufacturing supply chain is greater, while the supply chain under the decentralized decision-making in the service supply chain The optimal control of members is small. When the supply chain dominance is transferred from the provider to the integrator, and the service level is within a certain range, the wholesale price of the provider to the integrator will increase, and when the service level exceeds a certain value, the wholesale price will decrease. Third, in the manufacturing supply chain of decentralized decision-making, the party with the supply chain dominance will get more benefits. However, in the service supply chain of decentralized decision making, which control model achieves greater profitability is related to service levels. When the service level is low, the members of the supply chain dominate the profit. When the service level exceeds a certain threshold, the members of the supply chain are more profitable in the subordinate position.

4. Research on the performance of logistics service supply chain

Supply chain performance evaluation is an important part of supply chain management. Effective supply chain performance evaluation can provide favorable guidance and help for supply chain decision-making. In recent years, supply chain performance management has increasingly become an important part of corporate concern. In a dynamically changing business environment, increased competitive advantage and comprehensive business improvement are inextricably linked to effective management of supply chain performance. Scholars' research shows that good supply

chain performance can effectively reduce customer service time and cost, and thus improve customer satisfaction and corporate profits. The importance of supply chain performance is reflected in four points. One is to support better decision making and make decision-making results more targeted and accurate. The second is to help achieve good communication. Third, the results of performance evaluation have a certain guiding role. Supply chain members can improve and improve the weak links affecting supply chain performance in the performance evaluation process. The fourth is to encourage and help. The assessment of supply chain performance will motivate and guide corporate behavior to the desired outcome.

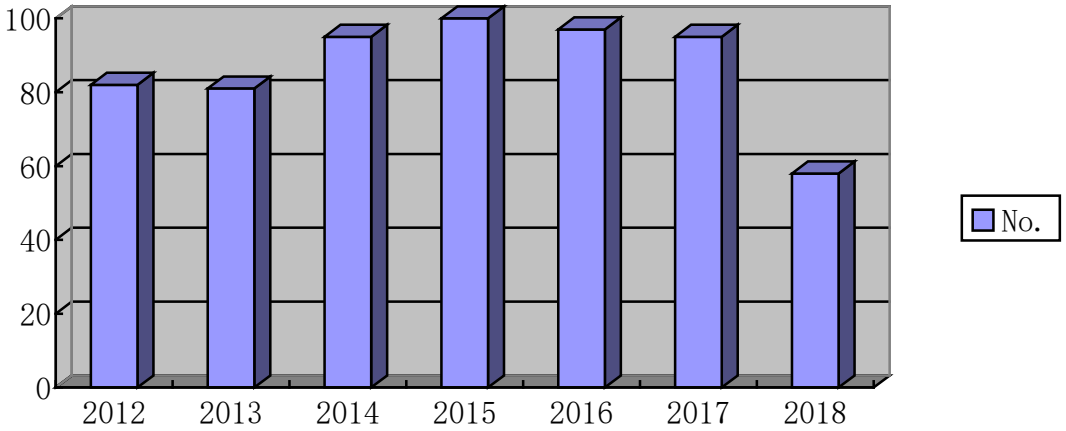

Figure 2. With the logistics service supply chain as the key word in China Knowledge Network

4.1 Research on Logistics Service Supply Chain

Domestic scholars are still in the nascent stage of research on logistics service supply chain. The definition of its definition has not yet reached a unified consensus. Yang Mingming proposed that the logistics service supply chain is value-added between the interaction process from the logistics service demand network to the service supply network integration. Qi Xiuxia and others believe that the logistics service supply chain is a process of realizing user value and service value-added around the core enterprise through the integration of logistics, information flow and capital flow in the control chain through IT technology. Cui Aiping defines the logistics service supply chain as a functional network chain structure model that integrates the resources of logistics service providers into the value creation of logistics needs. Chen Wang proposed that the logistics service supply chain is a process in which the logistics service integrator realizes the complete process of business process reengineering for the customer's logistics service.

4.2 Research on Supply Chain Performance

The influencing factors of supply chain performance can be summarized mainly into two aspects. On the one hand, the quality of the enterprises in the supply chain, including the supplier's supply capacity, the retailer's sales ability and the quality of the products. On the other hand, the relationship between members, that is, the coordination and cooperation between manufacturers, suppliers and retailers in the supply chain, including supply chain membership, power distribution strategies and other factors. For the logistics service supply chain, many basic methods can be used to evaluate and measure performance, such as linear programming, data envelopment analysis (DEA), principal component analysis, gray comprehensive evaluation, ABC cost method, and analytic hierarchy process. Method (AHP), fuzzy comprehensive evaluation method, neural network method and integrated application method of these methods. On the basis of fully considering the characteristics of logistics service supply chain coordination and the service characteristics of logistics service supply chain, Liu Weihua designed the network performance analysis ARP model of logistics service supply chain comprehensive performance evaluation index system. Chen Hu used the fuzzy evaluation method to evaluate the performance of logistics service

supply chain in different historical periods. Tian Xue and Zheng Caiyun proposed two methods for performance evaluation of logistics service supply chain. One is analytic hierarchy-fuzzy comprehensive evaluation method, and the other is data envelopment analysis method.

5. Matters needing attention in the performance evaluation of the logistics service supply chain

5.1 Pay more attention to the selection of evaluation indicators.

It is necessary to establish a scientific supply chain performance evaluation index system. At present, there is no unified standard for the evaluation index of logistics service supply chain. The basic approach in each research center is to combine different dimensions to establish an index system that is conducive to research.

Table 2. Service logistics supply chain evaluation index system

Primary indicator	Secondary indicators
Functional resource operation capability	Total asset turnover
	Flow ratio
	Return on Assets
	Assets and liabilities
Logistics service system	Logistics service cost advantage
	Logistics service flexibility

5.2. Logistics service supply chain evaluation method.

There are many evaluation methods for LSSC performance, but many are basically a general method for supply chain performance evaluation, and rarely consider the characteristics of the logistics service supply chain. There are two types that are commonly used, namely, analytic hierarchy process—fuzzy comprehensive evaluation method and data envelopment analysis method. The fuzzy comprehensive evaluation method is a comprehensive evaluation method, which mainly combines the analytic hierarchy process with the fuzzy comprehensive evaluation method. Firstly, the AHP method is used to determine the weight of each level of indicators, and then the fuzzy evaluation is carried out in different levels, and finally the total evaluation results are obtained. This evaluation method is applied to the performance evaluation of logistics service supply chain, which not only avoids the fuzzy comprehensive evaluation method, but also reduces the weakness of each index level, and reduces the possible deviation of AHP method, and fully considers the characteristics of LSSC. Data envelopment analysis is a systematic analysis method that refers to the relative effectiveness or performance evaluation of those decision units with the same type based on multiple indicator inputs and corresponding outputs. DEA can be used for multi-objective decision-making problems. It is based on the concept of relative efficiency and uses linear programming to solve the performance evaluation of DEA applied to LSSC.

5.3 Attach great importance to the normative nature of the experimental procedures.

The performance evaluation of logistics service supply chain has become an important part of logistics service supply chain management. Many times, the program is more important than the result. The supply chain is essentially a procedure or process. Therefore, the indicators of each link must be strictly measured during the calculation to ensure the scientific rigor of the final result.

6. Conclusion

At present, the competition between enterprises has risen from the competition between individual enterprises to the supply chain. How to gain competitive advantage in the fierce environment has become the most concerned issue for enterprises and scholars. Through the analysis of this paper, it can be concluded that the logistics service supply chain has its own

characteristics. It is very important to conduct performance evaluation. There is a close relationship between the two. Selecting scientific indicators can help enterprises find suitable performance evaluation methods and make calculations more convenient.

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