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Intelligent Development of Enterprise Logistics and Its Application Analysis in Supply Chain

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***Abstract*:** *In the era of knowledge economy, global competition is becoming increasingly fierce, and competition between individual enterprises has gradually transformed into competition between supply chains. This article mainly studies the intelligent development of enterprise logistics and its application analysis in the supply chain. In this paper, the entropy weight method is used to determine the weight of each index in the index layer of the logistics service provider selection evaluation system. When integrators evaluate logistics suppliers, they must adjust their evaluation index system in real time according to different environments and needs, and modify, add or delete relevant evaluation indexes based on actual conditions. This article uses a two-factor analysis of variance to test the relationship between the two types of social cues and the participants' social presence. The relationship between the two types of social cues and behavioral willingness was further tested through analysis of variance. After verifying the relationship between social clues and social presence, the structural equation model is further used to test the relationship between social presence and subsequent variables. According to the weight data table, it can be determined that the transaction risk has the greatest impact on the risk level in the supply chain risk, and the corresponding weight value is 0.42. Supply chain technology has greatly promoted the development of enterprise logistics intelligence.*

***Keywords*:** *Enterprise Logistics Intelligence, Supply Chain, Logistics Management, Business Analysis*

1. Introduction

In the logistics supply chain management system, improve and improve the level of logistics management business, reduce the transmission of useless information, and reduce the proportion of useless processes. From the acquisition of raw materials, the procurement, transportation and storage of parts and components to the production of the entire vehicle at the production base, and finally through a variety of sales channels and after-sales services, the entire process of the automotive logistics supply chain is completed.

With the development of logistics and distribution integration, all parts of distribution are integrated. Optimizing the distribution system is mainly the optimization of transportation vehicles, including the optimization of collection lines, the optimization of cargo distribution and transportation lines, and the optimization of cargo distribution [1]. The logistics distribution vehicle optimization plan is an important part of logistics distribution optimization and an important content of e-commerce activities [2]. The ultimate goal of information management of the logistics supply chain is to reduce the use cost of logistics services, improve the operational efficiency of logistics institutions, strengthen the information exchange between customers and suppliers, and enable the management of the logistics supply chain to achieve informatization, automation and intelligence, and improve the overall benefits of the port logistics supply chain [3, 4]. From the perspective of the entire supply chain, the management of the supply chain is carried out, and the logistics efficiency of the entire supply chain is improved by optimizing logistics distribution [5, 6]. The financial information in the supply chain is also effectively coordinated and interacted through the information platform, and it also brings the rapid flow of funds, making the logistics, information flow, and capital flow in the supply chain flow more efficiently, thereby effectively reducing the business cost of the enterprise [7, 8]. Therefore, optimizing the logistics distribution mode in the global supply chain management environment and seeking financial process support to reduce logistics costs are of great significance for improving the competitiveness of Chinese enterprises and the competitive advantages of products in the international market [9, 10].

In the development process of iron and steel enterprises, in addition to increasing the internal logistics management and reducing the logistics cost, we should formulate a reasonable logistics

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strategy based on the integrated supply chain management according to the development strategy of the enterprise, so as to reduce the total logistics cost in the supply chain and optimize the allocation of social resources.

2. Enterprise Logistics Intelligence

2.1 Intelligent logistics

With the continuous development of enterprises, the scope of trade has gradually expanded, the trading locations have become wider and wider, and the requirements for logistics management have become higher and higher. The third-party logistics enterprises obviously cannot meet the logistics needs of these enterprises. If you design a logistics planning program from the perspective of global trade, you need to integrate third-party logistics, excellent management concepts, and information technology. Similarly, an intelligent open system also collects information, raw materials and energy from the environment, and then converts these resources into knowledge and processes, and produces goods and services for environmental consumption. In today's era of explosive development of the Internet industry, the logistics industry has new development trends. The primary goal of logistics now is to achieve the greatest commercial value with the smallest cost in the entire process of logistics transportation, while at the same time satisfying the needs of users. Therefore, moving most of the traditional offline logistics business to online with the help of the Internet is not only a response to the Internet era, but also a qualitative leap for the entire logistics industry.

2.2 Supply Chain

Supply chain management reduces the financing credit risk of supply chain finance. Supply chain management focuses on the coordination and unification of logistics, information flow, and capital flow. Supply chain management has prepared for the credit collection of supply chain finance from the perspective of risk credit. When the core enterprises pay attention to the products of the suppliers, they have done a lot of investigations on the supplier's assets, technical equipment, human resources, product research and development, social relations, etc., and set up access to abuse.

The relationship between the environmental impact factors of product storage and the geographic location of the facility is not obvious, but the material flow in different regions will be different. Therefore, the emissions at this stage are only affected by the material flow. The formula is as follows:

$$I_{ps} = f_{ps} \sum_{g} F_{ps,g} \tag{1}$$

$$\sum_{g} F_{ps,g} = \sum_{k} \sum_{p} \sum_{t} INV_{k,p,t} \tag{2}$$

$$I_{ps} = f_{ps,k} \sum_{k} \sum_{p} \sum_{t} INV_{k,p,t} \tag{3}$$

3. Enterprise Logistics Intelligent Simulation Experiment

3.1 Establishment of evaluation index system

The comprehensive service capability evaluation index system is a complex evaluation index system composed of quantitative and qualitative indexes. Each index has a different degree of influence on the evaluation and selection results of logistics service providers. Therefore, this paper adopts the entropy method to determine the weight of each index in the index layer of the logistics service provider selection evaluation system. When integrators evaluate logistics suppliers, they must adjust their evaluation index system in real time according to different environments and needs, and modify, add or delete relevant evaluation indexes based on actual conditions.

3.2 Model checking

This article uses a two-factor analysis of variance to test the relationship between the two types of

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social cues and the participants' social presence. The relationship between the two types of social cues and behavioral willingness was further tested through analysis of variance. After verifying the relationship between social clues and social presence, the structural equation model is further used to test the relationship between social presence and subsequent variables.

4. Discussion

4.1 Model test results

Through software analysis, the corresponding supply chain risk index layer and the weight value of each index corresponding to the total index are obtained, as shown in Table 1. According to the weight data table, it can be determined that the most important influence on the risk level of the supply chain risk is the transaction risk, and the corresponding weight value is 0.42, that is, if the supply chain has a risk, the most likely risk is the transaction risk, which can also be understood as the transaction risk. The probability of occurrence is 42%; the second is environmental risk, the corresponding weight value is 0.31, which can also be understood as the probability of environmental risk occurrence is 31%; the third is logistics risk, the corresponding weight value is 0.22, which can also be understood as logistics the probability of risk occurrence is 22%; the fourth is network marketing risk, the corresponding weight value is 0.05, that is, the probability of occurrence of network marketing risk is relatively low, less than 0.1, and the risk of network marketing can be ignored in this article. From the overall perspective of supply chain risks, the most obvious impact is credit risk, with an overall weight value of 0.39; followed by logistics itself risk, with an overall weight value of 0.17; third, legal and regulatory risks, and its overall weight the value is 0.14; the fourth is the industry environmental risk, and its overall weight value is 0.11.

Table 1. Weight value of each indicator

First level indicator	Weights	Comprehensive weight
Cross-border logistics risk (0.22)	0.76	0.17
	0.24	0.05
Transaction risk (0.42)	0.94	0.39
	0.06	0.03
Internet marketing risk (0.05)	0.80	0.04
	0.20	0.01
Environmental risk (0.31)	0.45	0.14
	0.15	0.05
	0.37	0.11
	0.03	0.003

4.2 Evaluation index analysis

The optimization results under different weighting schemes are shown in Figure 1. It can be seen from the figure that the improved particle swarm algorithm is used to solve the problem, and the customer satisfaction obtained is relatively high, all above 90%, and the change in the weight of customer satisfaction does not have the two driving expenses and travel time. The target is sensitive to the change of weight. Customer satisfaction is more complicated with the change of weight. Although it does not intuitively reflect the impact of the increase of the weight coefficient on customer satisfaction, the overall range of change is small, and driving The changes in the optimization results of the two objectives of cost and travel time are very obvious. When the first weighting scheme is selected, the obtained travel cost and travel time are 207.8 and 653.8, respectively. When the fourth weighting scheme is selected, the optimization results for the travel cost and travel time are 407.2 and 1517.3 respectively, which can be intuitive it can be seen that the optimization results get worse and worse as the respective weight coefficients decrease. From the perspective of the entire logistics system, this will inevitably lead to the waste of the entire logistics resources, resulting in increased incoordination factors in the logistics process, and confusion in logistics management. Therefore, the logistics department needs to establish a distribution center with relatively complete functions and a unified management system and scheduling method. Various companies provide services through the Internet and coordinate all business activities, share information and resources in order to improve performance and profitability. Collaborative logistics expands the scale of the enterprise to all node enterprises, with the cost advantage of the network economy, allowing enterprises to obtain the information in

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collaborative logistics as thoroughly as possible, so that enterprises can understand whether production, transportation, etc. can arrive on time, so that production enterprises, transportation enterprises and retail companies use the least cost to solve the logistics problems inside and outside the company.

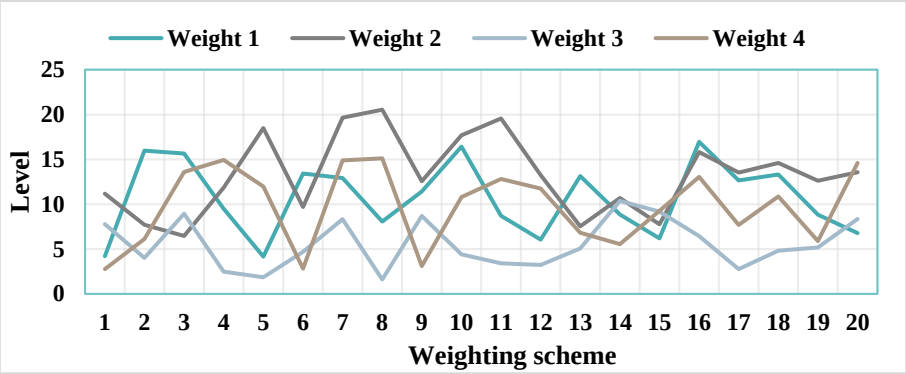

Figure 1. Optimization results under different weighting schemes

The cost index results are shown in Figure 2. Through comparison, it can be seen that after reasonable resource allocation, the total cost has been reduced while the overall resources remain unchanged, and the overall performance of the supply chain system has been effectively improved. In the end, the goal of improving the service level and reducing the total operating cost of the enterprise under the condition of limited resources was achieved. According to the description of the customer's logistics service order, the account receivable is issued to the financial department in a timely manner, and the accounts receivable are registered in turn, which is very conducive to managing customer relationships and accounting for the financial system. According to the detailed regulations of each logistics business order, issue the payable orders payable to all third-party logistics providers to the financial department, and record the flow of funds in detail, which can help third-party logistics providers to evaluate and financial system accounting. Use advanced manufacturing technology, information technology and modern management methods to maximize the integration of technical functions and management functions to break the traditional functional organization structure and establish a new process organization structure to realize the enterprise the improvement in cost, quality, service and speed of operation has promoted the rationalization of enterprise logistics.

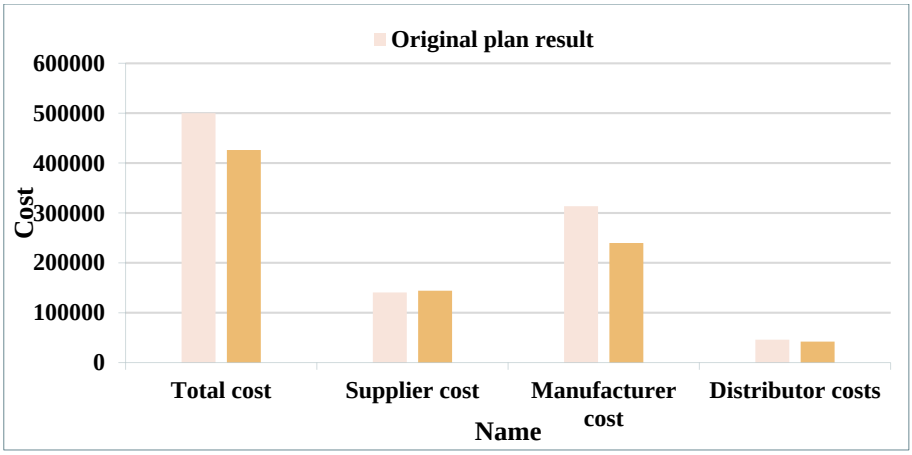

Figure 2. Cost indicator results

5. Conclusions

Logistics information platform not only promotes the information communication among enterprises, customers and governments, but also provides enterprises with software and hardware resources on demand and a platform for enterprise software development through virtual resource pool.

In recent years, the development of information technology and the application of information management system in production and logistics distribution, to a certain extent, accelerate the capture and analysis of the rapidly changing market information of enterprises, so that production and

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distribution can achieve rapid response, and also promote the research process of production and distribution integration of enterprises.

In the logistics supply chain, resources can be traditional resources such as logistics infrastructure, logistics management technology and logistics customer group, or logistics assets, logistics information, logistics knowledge and logistics organization process.

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