

# *Research on Logistics Transportation Project Design Based on Supply Chain Management*

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**Abstract:** Different from the significance and methods of traditional logistics and transportation project design, in the supply chain management environment, logistics and transportation project design is the basic element to ensure the integration, parallelization and flexible operation of supply chain enterprises and enhance the ability to respond to the market quickly, and its role plays an important role. The key factors that restrict the success of a project are usually scope of work, cost, schedule and customer satisfaction. Several influencing factors will also influence each other, and finally jointly restrict the implementation results of the project. Analyzing these project constraints can guide the project manager's actions when the project encounters problems. Based on the current situation of logistics and transportation projects, this paper studies the design of logistics and transportation projects based on supply chain management, and discusses related issues.

## **1. Introduction**

In today's network economy era, with the change of manufacturing environment, the traditional organizational structure is relatively fixed, and the manufacturing resources are relatively concentrated. In the past, the manufacturing model with regional economic environment as the mainstay and product-oriented characteristics has been out of keeping with it, so it is necessary to establish a market-driven networked manufacturing model with rapid response to the market mechanism [1]. Supply chain management is a comprehensive business activity that connects the production of goods with the circulation and other services. Supply chain management attaches great importance to integration, while logistics and transportation project design is to make reasonable plans and management of the flow process of products. Combining the idea of supply chain management with the design of logistics information platform is the future development trend. Based on the current situation of logistics and transportation projects, this paper studies the design of logistics and transportation projects based on supply chain management, and discusses related issues.

## **2. Characteristics of logistics and transportation project design under supply chain management environment**

Different from the significance and methods of traditional logistics and transportation project design, in the supply chain management environment, logistics and transportation project design is

the basic element to ensure the integration, parallelization and flexible operation among supply chain enterprises and enhance the ability to respond to the market quickly, and its role is very important [2-3]. At the same time, the innovative practice of enterprise logistics transportation project design will promote its position in supply chain management, and then promote the development of logistics customer service strategy and supply chain management strategy itself.

Driven by the pursuit of greater market opportunities and sustainable competitiveness, the logistics system of enterprises is required to have the ability to coordinate with the manufacturing system to ensure the synchronous and parallel operation between upstream and downstream enterprises in the supply chain and realize the ability to respond to the market quickly. Supply chain management is a material chain, information chain and capital chain that connects suppliers to users. It is a value-added chain in which materials are processed, packaged and transported in the supply chain to increase their value and bring benefits to all departments of related enterprises.

The design of logistics and transportation projects is collaborative, and the concept of supply chain management is to seamlessly connect the whole process, make full use of the functions and resources of logistics, and integrate them into a convenient, fast and effective control method, so that logistics can freely enjoy the smooth flow of information, products, division of labor and cooperation in the supply chain system, and jointly provide guarantee for the real-time monitoring of logistics [4]. Those enterprises with strong strength and perfect and smooth sales network generally adopt the method of self-built logistics system, regard logistics intelligence as an important part of the core functions of enterprises, pay attention to the relationship between business departments, emphasize comprehensive integrated management, and give full play to the advantages of factor cooperation and resource reorganization.

### **3. Current situation and problems of logistics and transportation project design**

#### **3.1. The understanding of logistics service is not comprehensive enough**

In the supply chain, materials gradually increase in value due to processing, packaging, transportation, sales and other operations in the process of moving to the market from purchasing, and the increase in value continues until the products or services with specific prices and meeting specific needs can be transferred to the end customers at a specific time and place. As China's economic growth mode determines that most enterprises in our country still produce and sell in an extensive way, some enterprises are influenced by the design of traditional logistics and transportation projects, and they don't know enough about modern logistics services, and they don't pay enough attention to the whole chain of logistics, thus affecting customer satisfaction and the value of enterprises [5-6].

#### **3.2. Low level of informatization**

The relationship between members in a supplier will be strategic cooperation, which has a decisive impact on the production cost and market share of products. A benign strategic cooperation will undoubtedly make the whole strategic alliance more stable and achieve the overall goal. The supply chain of dynamic alliance enterprises includes external supply chain and internal supply chain. The external supply chain of an enterprise includes suppliers, manufacturers, storage centers, distribution centers, sellers and users [7]. The project organization itself is established to meet special tasks, and specific tasks are generally time-sensitive, that is, the control of time schedule is particularly strict. In a life cycle, at each stage, the development process of the project is also different. The whole development process of a general project is: start slowly, accumulate scale, reach the peak, start to slow down, and finally end the project.

With the rapid development of information technology, both the supply chain based on information technology and the modern logistics industry relying on communication technology and information technology are faced with the collection and collation of huge logistics information. The establishment of logistics information platform is to provide a systematic platform for enterprise decision makers to collect and process a large amount of information and assist decision-making. At present, the infrastructure of most enterprises' logistics transportation projects in China is relatively simple, which can not meet the requirements of logistics development.

#### 4. Logistics transportation project design based on supply chain management

##### 4.1. Project quality control

The key factors that restrict the success of a project are usually: Scope of work, cost, schedule and customer satisfaction. Several influencing factors will also influence each other, and finally jointly restrict the implementation results of the project. Analyzing these project constraints can guide the project manager's actions when the project encounters problems. If the problem is directly related to these constraints and seriously affects any one factor, then this problem will directly and profoundly affect the final result of the project, which needs to be paid attention to and given priority.

Quality is the sum of characteristics reflecting the ability of an entity to meet explicit and implicit needs, including product quality and work quality. Quality management includes quality planning, quality control, quality assurance and quality improvement. Quality management is a systematic process. In the process of implementation, necessary resource conditions must be created to meet the quality requirements of the project. All functional departments and implementing units should ensure the quality of work and projects, and implement procedural, standardized and standardized business work. Support the quality department to exercise its functions and powers independently and effectively, and implement the whole process quality control of the project [8].

A successful project should not only meet the requirements and satisfy customers at the end of the project, but also make KPI as the decomposition of the company's strategic objectives, which can effectively promote the effective implementation of the company's strategy in all departments. For this purpose, the Gantt chart of monthly project plan can be established (Figure 1).

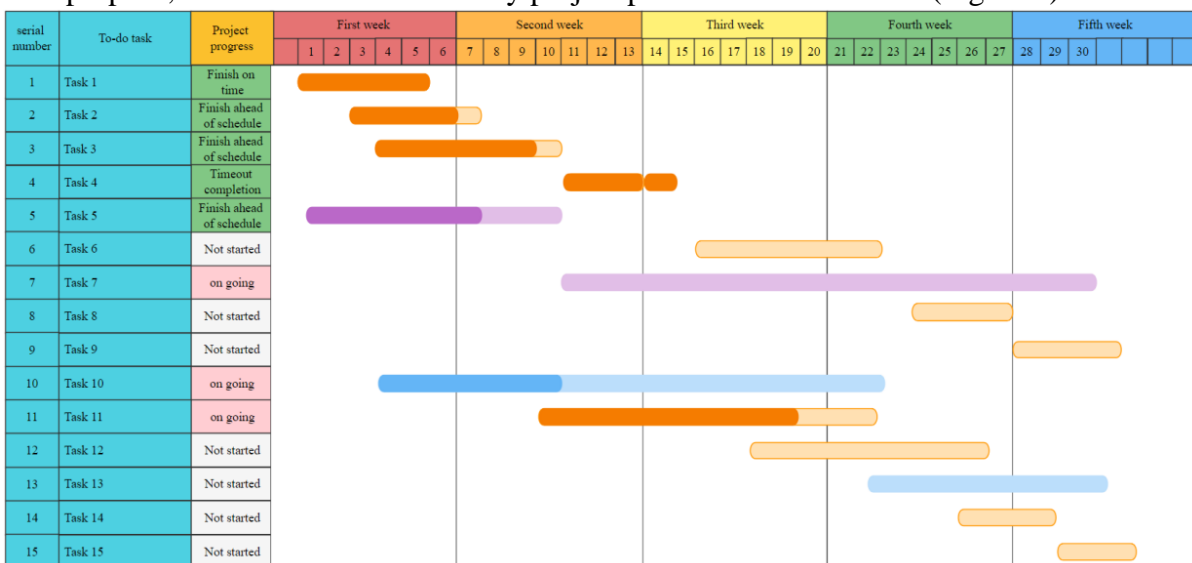


Figure 1: Gantt chart of monthly project plan

In the systematic cycle of performance management, it is very important to formulate the key performance index system, and all the work achievements of employees are reflected here. Whether the key performance indicators are selected accurately and appropriately, and whether they can be recognized by the examinees is related to whether KPI can play its role effectively. These are the contents to be considered in designing KPI system.

#### **4.2. Strengthen the structural innovation of logistics**

Structural strategy includes channel design and network analysis. Channel design includes reconstructing logistics system and optimizing logistics channels, which is an important content of supply chain design. By optimizing logistics channels, we can reduce the logistics cost of supply chain and improve the responsiveness and agility of logistics system [9]. Relying on network and e-commerce, the traditional logistics business process should be transformed through intensive and modern management, and the upstream and downstream enterprises should be formed into a dynamic, virtual and global networked supply chain network by using WEB technologies such as ERP, e-commerce suite and CRM, so as to realize value-added from product design, demand forecasting, outsourcing, manufacturing, distribution, storage and transportation and customer service.

From the enterprise organization, it is guaranteed that the design function of logistics transportation projects always runs through the construction, planning, organization and coordination of logistics services. For example, the establishment of a logistics leading group, the establishment of a logistics department and other departments specializing in the design of logistics and transportation projects, exercise the design functions of logistics and transportation projects before, during and after delivery, and implement specific planning, design and organization and management of the supply chain.

In the supply chain management, the strategic alliance of members in the chain improves the enterprise's logistics network planning ability and inventory control ability, thus reducing the wrong judgment made by risk factors within the enterprise, thus effectively reducing the enterprise's inventory and related costs and expenses, and reducing the backlog of liquidity, thereby improving the financial efficiency of the enterprise.

The coordination mechanism formed by the integration of logistics, capital flow and cash flow in the chain enhances the cooperative relationship of all members, while the logistics and transportation project design system under the supply chain environment connects every part of the whole supply chain, thus making the cooperation of all parts closer. The agility and adaptability of the supplier's information system are enhanced, and the monitoring ability of the node companies in the supplier is enhanced to enhance the overall competition. In a sense, the international competition of modern logistics has become the international competition of logistics enterprise information system.

#### **4.3. Constructing logistics information platform**

Project management is a complex and systematic work. To successfully achieve the project objectives, it is impossible to achieve it only by the logistics department or the sales department [10]. The goal of the project is to achieve the desired results in the implementation of this project. In order to ensure the mobilization of relevant departments and personnel in the company, it is necessary to establish a temporary project committee and formulate a well-thought-out project implementation plan. The evaluation of logistics service providers involves both qualitative and quantitative indicators, and some evaluation indicators are relatively vague and uncertain. In the specific evaluation process, we need to combine various indicators to be considered, combine

quantitative analysis with qualitative analysis, and combine special evaluation with comprehensive evaluation.

Using some advanced functions of the information platform, such as decision support in data warehouse, fuzzy analysis in data mining, neural network prediction and other functions, according to a large number of comprehensive data mastered by the information platform, all kinds of information are deeply analyzed and mined to provide auxiliary support for information service and decision-making. Figure 2 is the constructed logistics information platform.

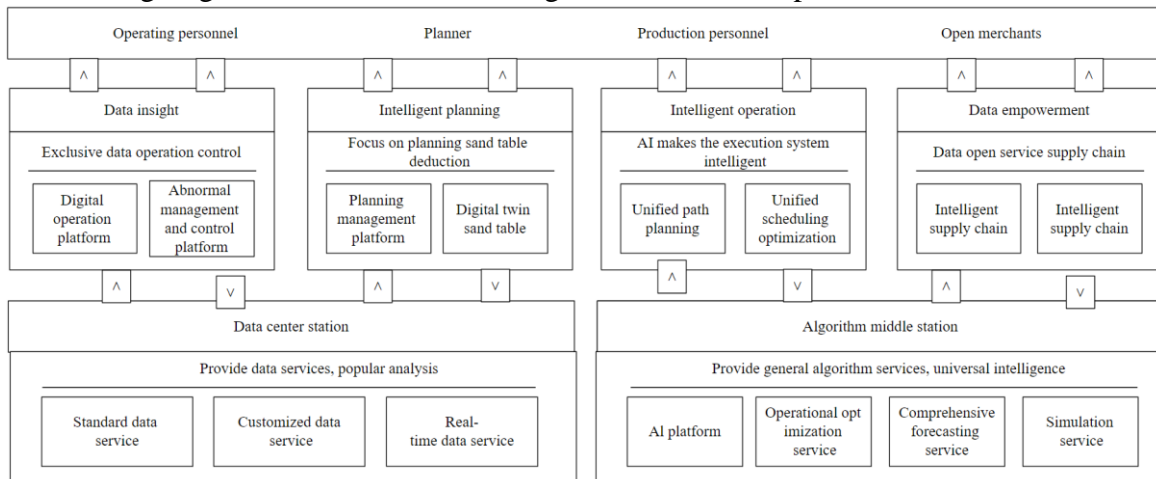


Figure 2: Logistics information platform

The platform must provide a comprehensive interface with relevant subsystems, and extract all kinds of relevant information from each subsystem for subsequent information processing and information service. Make use of the transportation resources of the logistics center, the supply information of merchants and the shopping information of consumers to optimize the distribution, so as to make the distribution cost lowest and deliver the goods within the time required by users. The usual solution is to establish a mathematical model, and the decision-making scheme is given by the computer using mathematical programming method, and then the managers choose according to the actual situation.

The system designs the basic logistics operation system according to the supply chain process of logistics business, including five modules of the internal supply chain of alliance enterprises, namely, procurement and supply, manufacturing, packaging, warehousing and transportation. Information exchange among enterprises in the supply chain is more timely, and operating costs are reduced. The seamless connection technology of database makes the internal and external information environment of enterprises become a unified information platform, realizes information sharing among node enterprises and their internal departments, and provides tools for organization, management and decision-making.

## 5. Conclusions

Supply chain management is a comprehensive business activity that connects the production of goods with the circulation and other services. Supply chain management attaches great importance to integration, while logistics and transportation project design is to make reasonable plans and management of the flow process of products. Combining the idea of supply chain management with the design of logistics information platform is the future development trend. By deeply analyzing the market demand and actively innovating the logistics distribution mode, modern logistics companies can only develop effectively by actively changing the traditional logistics distribution

mode and innovating the management form and connotation according to the market demand. Only when the enterprise and the H-party logistics supplier raise their awareness of quality management together and treat the logistics and transportation project with the idea of sustainable development can we ensure that the project will create better value in the future.

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