Research on the Network Construction of Multiple Modes of Transport on Railway Container

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Abstract. Railway container Multiple modes of transport has the advantages of high efficiency, convenient freight transportation, low transportation cost and safe arrival of goods. The network construction of railway container multiple modes of transport makes China's railway container multiple modes of transport have a certain position in the world. This paper first analyzes the contents of the organization network construction of railway container multiple modes of transport. The infrastructure network on railway container multiple modes of transport is constructed. The information network is constructed from two aspects: container dynamic tracking information and container document transmission information. Finally, the related contents of the operation network construction are put forward.

1. Introduction
Railway container multiple modes of transport plays an important role in developing and implementing the principles and measures of "Belt and Road Initiative", standardizing the international container transport chain as a whole, and pushing the railway "towards the international level". In the development of multiple modes of transport, there are many related industries and long service chains. During the 13th five-year Plan period, the development of multiple modes of transport in China can attract hundreds of millions of yuan in investment, thus promoting the new growth point of "made in China 2025". The current economic development structure of our country is doomed to become the main part of multiple modes of transport, and the development of railway container transportation will have a certain impact on the development of multiple modes of transport in China.

2. The construction of organizational network
The railway enterprises, units and organizations in the process of container multiple modes of transport constitute the organizational network of railway container multiple modes of transport. In accordance with the provisions of the contract of carriage, the various organizational structures coordinate with each other to ensure that the goods arrive in the hands of the consignee in good condition within the prescribed time. The organization network of container multiple modes of transport includes container consignor, multiple modes of transport operator and segmented carrier. The organization network on multiple modes of transport is shown in Figure 1.
2.1. multiple modes of transport operator
Anyone can become a multiple modes of operator through whom he signs a contract for multiple modes of transport with the shipper of the goods. The multiple modes of transport operator is the owner of the entire contract of carriage, he does not represent the shipper or the carrier, he has the obligation to perform the contents of the contract. The operator shall be responsible for the performance or organization of the multiple modes of transport contract, enjoy the rights of the carrier and undertake the obligations of the carrier. Multiple modes of transport operators are generally divided into two categories: one is to have their own means of transport and undertake some transport tasks; the other is that they do not have their own means of transport, they are slowly developed in the long-term transport process.

2.2. Segmented carrier
Segmented carriers mean that each mode of transport has its own carrier, and the part they are responsible for constitutes the entire transport chain. The sub-transport company also include shipping trunk transport enterprises and inland evacuation enterprises. The transportation enterprise of maritime trunk line is the most important part of container multiple modes of transport, which is mainly responsible for the transportation of goods at home and abroad in the form of fixed ships. As the starting point of inland evacuation, the port uses a variety of modes of transport to expand containers inland. Segmented transport carriers include railway transport enterprises, road transport enterprises, inland waterway transport enterprises and coastal transport enterprises.

3. The construction of infrastructure network
Infrastructure network refers to the material conditions of organizational network in the process of logistics and transportation, which includes all the infrastructure equipment that can make the goods shift in space. The basic infrastructure network mainly consists of four parts: container, container vehicle, loading and unloading equipment in the transport process and edge equipment of multiple modes of transport network. The infrastructure network is shown in Figure 2.
In the process of container transportation, there is a special place to complete the container replacement, and these places are the network nodes of container multiple modes of transport. The equipment of the network node includes all the facilities used for loading and unloading containers.

3.1. The transfer station equipment of highway container
The transportation station of highway container is set up at the intersection with all kinds of transportation routes. It is set up to adapt to the need of container transshipment in highway transportation. It belongs to an important node in multiple modes of transport network, and usually has loading, unloading, transportation and other equipment.

3.2. The equipment of container port
Container port is the intersection of waterway transportation and highway transportation, which realizes the extension of maritime transportation to inland areas. At the level of advanced technology, the equipment of port is higher than that of other network nodes, and the technical level is also relatively developed, which can realize the rapid loading and unloading and handling of containers.

3.3. The handling station equipment of railway container
The handling station of railway container refers to the railway freight station which is responsible for container business. It is not only the starting point of railway container transportation, but also the intersection point between railway container transportation and other modes of transportation. In order to set up a handling station of railway container, the following conditions must be met: sufficient container resources; loading and unloading facilities and equipment for handling containers; having a certain office space; and having a certain technical level of office staff.

4. The construction of information network
Information network refers to all the information involved in the transport process on goods from the beginning to the destination. The Information network includes the transmission of information between various modes of transport. The Information network includes container dynamic tracking information and document information. The information network for multiple modes of transport of railway container is shown in Figure 3.
4.1. The information of container dynamic tracking
Although the current level of information technology in our country still needs to be further improved, the existing technical level can also realize the real-time positioning of containers and understand the transportation situation. For example, the application of global positioning system in transportation, it analyzes and arranges the real-time feedback information at the existing technical level, so that customers can clearly understand the logistics information of the goods in transit. In addition, many information network systems are used in the logistics process, using these technologies to realize the dynamic tracking of containers and the transmission of long-distance information.

4.2. The transmission information of container document
In China, the current EDI technology has been able to achieve container documents and other related logistics information transmission. The main function of EDI is to process the information from each link of the logistics chain, analyze and process the useful information, and then realize the interworking between the processed information and each link, so as to complete the information exchange and processing in the process of the transport chain. EDI users can prepare electronic messages in accordance with the international standard format, order, transport bill of lading, foreign trade import and export license invoice, customs, customs declaration form in a computer-readable manner. The "economic information", such as electronic document management and transportation business, such as ship loading diagram and multiple modes of transport document, realizes the transmission between communication networks according to the standardized documents of the protocol.

5. The construction of operation network
The operation network is mainly carried out around the tasks to be completed in the process of assembly and multiple modes of transport, which combines various modes of transportation with infrastructure effectively to accomplish the organizational objectives together. It basically includes everything from the beginning to the end of the multiple modes of transport network of railway container. The operation network of railway container is shown in Figure 4.
Figure 4 Operation network on multiple modes of transport of railway container

The main contents are as follows:
(1) to study the market demand of container transportation at present, and to determine the transportation task according to the needs of customers.
(2) to draw up plan of container multiple modes of transport according to customer’s needs, such as arrival time of goods, transportation service level, transportation price, etc.
(3) The mode of transport is determined according to the contents of the contract, and the carrier is selected to control the multiple modes of transport system in real time after the conclusion of the contract with the customer.
(4) To understand the situation of multiple modes of transport process in real time, and to solve the problems in time to ensure the quality of service in the transportation process.
(5) The dynamic tracking technology and various documents and document transfer systems are used to organize and analyze the cargo information in the course of transportation.

6. Conclusion
The scheme optimization on multiple modes of transport of railway container can not be separated from the effective network of container multiple modes of transport. The perfect network structure provides a theoretical basis for the development of railway container multiple modes of transport. The network structure is mainly composed of railway container handling station, highway goods have transportation points, ports and other connected nodes and some infrastructure. The transportation process of multiple modes of transport is realized through the organization system of multiple modes of transport, different transportation facilities, different loading and unloading facilities, information technology and operation process.

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