Study on Integrated Management of Railway and Water Transport

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Abstract. The study of the combined transport system of railway and water in China refers to the current policies, regulations and management mechanism in China. We will establish and improve the management mechanism for the combined transport of railway and water, and ensure the integrated management of the system and its long-term and stable development. Firstly, the necessity of the combined transport of railway and water are analyzed. Then, a multi-department joint supervision mechanism was established, and the policy system management mechanism was improved. At last, the process of information integration of railway and water transport is built.

1. Introduction
As far as the combined transport system of railway and water is concerned, China implements the system of management of multiple departments. In terms of the container transport with a higher market share, it involves the joint management of multiple departments such as border inspection, customs, maritime affairs, port and quality inspection. In the management process, there are some problems which are not conducive to the management, such as cross-function, tedious operation process, low operation efficiency and serious waste of time. The implementation of the integrated management of the combined transport of railway and water is conducive to the formation of a complete and diversified management system from macro, micro, internal and external aspects.

2. Analysis on the necessity of integrated management of railway and water transport

2.1 The trend of enterprise management development
With the advent of economic globalization and the "One Belt And One Road" strategy, the transportation industry has ushered in new prospects and challenges. The transformation from industrial economy to knowledge-based economy is the main feature of contemporary society. In such an environment, the level of management plays a crucial role in the rise and fall of enterprises. The integrated management has attracted more and more attention from government departments and enterprises due to its systematized management. Enterprises that have implemented integrated management are not a minority in the transportation industry. The integrated management has become the first choice in large departments of transportation.

2.2 The inevitable result of the comprehensive transportation system and the large department system
Improving transport economic efficiency is the main goal of developing comprehensive transport system. By analyzing the transport capacity of various transport modes and comparing the advantages and disadvantages of various transport modes, comprehensive transport system can not only improve the transport framework, but also maximize the benefits of the whole and part. Large transportation is an inevitable requirement for the development of comprehensive transportation system, which effectively deals with the poor connection of goods between different transportation modes and avoids the waste of resources and environment pollution. Therefore, the combined transport of railway and water will flourish under the comprehensive transport system in China.

2.3 The inevitable requirement to improve competitiveness and open up new markets
From the current market situation, railway Ore direct transport accounted for about 65 percent of the total Ore transport, railway and water combined transport accounted for about 30 percent, and road less than 10 percent. Ore transport is the main mode of transport for combined railway and water transport in China. In the case of container transport, due to the low efficiency of container handling and long transport time, the road to be taken by railway is not so smooth in the face of more flexible transport by road. The integrated management of railway and water transport makes use of the existing advantage base of bulk and miscellaneous goods transport to improve the share of container market and open up a new transport market[1].

3. The establishment of the integrated management mechanism of railway and water transport

3.1 Establishment of joint supervision by multiple departments
The state railway administration, the water transport administration, the general administration of customs, the import/export control, foreign exchange control, transport licensing, and public health consular authorities jointly set up an integrated management agency for the combined transport of railway and water. This organization carries on the integration management to the railway and water transportation chain, then makes the further division to the railway and water transportation management function. This organization sets up the department of planning and development, the department of laws and regulations, the headquarters of transportation, and the department of equipment and logistics management. The organizational structure of a multi-department joint regulator is shown in Figure 1[2].
3.2 Establishment of policy system management mechanism

In recent years, the government has greatly improved and enhanced its attention to and implementation of the combined transport of railway and water. Relevant policies, laws and regulations have also made a qualitative leap, but there are still deficiencies of policies, laws and regulations and imperfect management system among various transport functional departments. Under such situation, the policies, laws, regulations and management mechanism of the combined transport of railway and water should be jointly coordinated and strengthened, and the respective transport policies, laws and regulations of railway and water transport should be discussed through consultation and formulated into a unified policy and regulation system, and it should be promoted to the level of national government. Moreover, China should actively strive to promote the national economic growth and improve the comprehensive transport system as the main development goal of the combined transport of railway and water. And according to the concept of system perfection and management coordination, China should perfect the policy system management mechanism. The form transformation diagram of policies and regulations is shown in Figure 2[3].

Figure 1. Organizational chart of multi sector joint regulatory body
4. Information integration of railway and water transport

4.1 To establish the information sharing platform of railway and water combined transportation
Sections Due to the different dependence of railway departments on information platform in the past, the information cannot be timely communicated and communicated among different departments. Therefore, the information platform is utilized uniformly to establish an open and transparent information sharing platform so that all departments and enterprises can track and grasp the goods information in real time. The following are the main functions of this information sharing platform:

① To release information such as transport plan, purchase, warehousing, loading and unloading, circulation, distribution and customs declaration to users of the information platform; ② To release the real-time dynamic information of containers, freight vehicles, trains, ships and routes to the users of the information platform; ③ To release the information of freight products, receipts, marketing plans and other information to the users of the information platform[4].

4.2 To establish the customer service center platform for the combined transport of railway and water
It is the purpose of establishing the customer service platform to make it convenient for customers to make real-time inquiry of the consignment goods and to reduce the processing time of customers by doing business online. The platform mainly implements the following functions:

① The customers need to know the basic information before shipment;
② The customer makes a quick and real-time query of the cargo information after shipment;
③ To provide the platform for customers to handle cargo insurance, price guarantee, consignment, claim settlement and other business as well as the handling process of each business;
④ To provide customers with insurance claims, online payment platform, electronic document exchange and other services.

4.3 To establish the customer service center platform for the combined transport of railway and water
As a huge transportation system, it is inevitable to need a large database to support the information platform of railway and water combined transportation due to a large number of departments, a large
amount of goods, a large amount of customer demand and complex information. The database system of the combined operation of railway and water is shown in Figure 3.

4.3.1. A database for recording customer information. The customer information mainly records the login id information of the customer such as user name and password, and provides the authentication of the customer login system. At the same time, it was responsible for recording big data information, such as customers' long-term cargo status, delivery point, receiving point, etc., and providing them with personalized and customized services. EDI uploading of railway and port and electronic commerce subsystem of railway and water combined transport are the main ways to obtain customer data.

4.3.2. A database for recording freight invoice information. The information of railway and water combined transportation is an important part of railway and water combined transportation. The next step of freight organization arrangement and work site selection is the inevitable result of making the information record of the rail water combined transport. The record of the ticket information is mainly the collection of the ticket information. All information recorded in electronic documents, including cargo information (quantity, characteristics, etc.) and geographical information (place of shipment, point of receipt), provide basic data for the next step of cargo information analysis[5].

4.3.3. A database for recording consignment price. It is the inevitable result of the price standard that the shipper must check the freight price before shipment. It can define the cost of the quality, volume, extent and distance of the shipment. The basic data flow is shown in Figure 4.
Shipper can inquire the shipper price according to the information published on the Internet. It is in the interests of shipper to make the charges transparent. At the end of the arrival of goods at the station, the price database of the consignment goods will be settled in a timely manner, and then the data information of the consignment fee will be transmitted to the e-commerce subsystem in combination with the dynamic database.

5. Conclusion
The Through the research, it is found that the informatization degree of China's railway and water intermodal transport is not high, and combined with the rapid improvement of international information level, the idea of information integration of China's railway and water intermodal transport is developed, the information sharing platform is established, the goal of information integration of railway and water intermodal transport is completed, and the database of railway and water intermodal transport is constructed. This strengthens the information exchange degree between enterprises of various departments, unifies the information transmission platform, improves the openness and transparency of the information, and provides guarantee for the long-term development of the railway and water transport.

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