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ITL – 2018

TOPIC: **Diagnosis on layout of china's multimodal
demonstration project**

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Abstract

The multimodal transport demonstration projects could promote the development of the logistics industry and it is an important method to accelerate the construction of comprehensive transportation system. In June 2016 the first batch of demonstration projects were 16 and in November 2017 the second batch of demonstration projects were 30. The multimodal transport projects have achieved a lot of achievements and promoted the development of the logistics industry. It could reduce the cost of the full transportation process and it could simplify the relevant documents and procedures and improve the efficiency of transportation. These projects are mainly concentrated in the Bohai rim region and the northeast regions in China and the major cities in the northwest China. The distribution of the demonstration projects is relatively uniform and the distribution is more dispersed. It basically covers China's main foreign trade areas and transport hub cities and there are few cluster phenomenon, it makes full use of the railway resources. It can lead to the development of local logistics industry and also can strengthen the cooperation with other countries. In the introduction this paper mainly introduces the background and significance of this paper and the main content and research methods of this paper. In the first chapter the intermodality concept and advantages of the intermodality are introduced. The intermodality demonstration projects in China was introduced in chapter 2, such as the introduction of two batches of demonstration projects, the introduction to the effect achieved by the two batches of projects to this day and the analysis and comparison of the pros and cons of two batches of projects. In chapter 3 the paper analyses the distribution of two batches of projects in the country and establishes a distribution map and analyzes the advantages and disadvantages of the project through the distribution map. In chapter four it is some solutions to the problem found.

Key Words: the intermodality; the demonstration projects; the logistics industry; goods collection

Introduction

Carrying out the multi-modal transport demonstration project is an important measure to accelerate the construction of comprehensive transportation system. With the constant improvement of the transportation infrastructure in China, the transportation industry has entered the critical period of building a comprehensive transportation system, improving the level of the cohesion and collaboration of different modes of transportation, and increasing the overall efficiency of the integrated transport service has become the important tasks of the current work. By conducting the demonstrative projects of the multimodal transport, to give full use to the combination advantages of different modes of transportation, to realize the high integration of the transport resources and the seamless connection of the transport organization, it is one of the important measures to speed up the construction of comprehensive transport system. It is an important content to promote the construction of logistics channel and to promote the building of logistics channel, the country starts from the development strategy to solve some problems such as the blocked connection of the logistics infrastructure network, the lag of the transport channel construction, the low intensive level of the transport organization, the low freight efficiency and so on. Promoting the multimodal transport demonstration projects is an important content of the construction of logistics channel, it is beneficial to adjust the optimal transportation structure, and to significantly improve the efficiency of transport organization, and to effectively reduce the channel logistics costs, to enhance the capacity of transportation security, it could provide strong support to protect important materials transportation, enhance the level of logistics services, drive the economic

development along the routes. It is the important basis to promote the comprehensive development of the multi-modal transport. The multimodal transport is still in its primary stage in China, the overall development form is single, the coverage is small, the professional and organized level is low, and the integrated operation is not very good, and it is facing the obstacles such as the policies, regulations, standards, technologies. By conducting the multimodal transport demonstration projects, and improving the transport infrastructure, promoting the development of the multimodal transport policies and key technologies and service innovation, optimizing the transport organization and gradually breaking the restriction of the multimodal transport development bottleneck, and comprehensively promoting the development of multimodal transport in China, promoting comprehensive transportation service quality and level. To develop the multimodal transport in China the government should develop the free trade area, on the basis of comprehensive transportation system integration, the system innovation is the core, the lead is the standards, the direction is intensive organization, and standardized operation, and normalized service, and the informationization support, to improve the mechanism and the system construction, and to strengthen the cooperative, and to support by intelligent transportation technology and the energy conservation and environmental protection technology, in order to reduce social logistics cost and improve the efficiency of transport organization, it is needing to promote the demonstrative leading and the integration development of transportation logistics. In the early time there were 16 demonstration projects of the multimodal transport, and it formed typical and exemplary and leading multimodal transport operations, organization models, information systems and the hub of multimodal transport carriers¹. And it was continuously improving the technical standards and service specifications of multi-modal transport facilities, equipment, informatization and the operation organizations. It explored the management and operation mode of the pallet assembly unit and gradually enriched and accelerated the

policies and regulations for the development of multi-modal transport. On this basis, it inductively produced the typical experiences and practices, and made the top design, and built the system and mechanism to guarantee the orderly and continuous development of the multimodal transport, and to accelerate the construction of the logistics channel, and to promote the quick development of multimodal transport in China.

The transportation logistics enterprises are the main body of the demonstration projects, which can be independently or jointly cooperate with the relevant enterprises to make the specific implementation plan of the demonstration projects, and to choose and determine the specific lines of the multimodal transport demonstration projects, and to conduct in-depth analysis of basic conditions for the demonstration projects, and to fully demonstrate the necessity, feasibility of the demonstration projects, and to clearly put forward the overall plan and construction content and operation organization and implementation plan of demonstration projects, and to analyze the economic and social benefits for carrying out the demonstration projects. When two or more enterprises jointly declare a demonstration project, they should sign the cooperation agreement. The provincial level of transportation and economic operation regulation departments are responsible for the examination and approval of the preliminary scheme of the demonstration projects prepared by the transportation (logistics) enterprises, and it is also needing to coordinate the cross-provincial demonstration projects. After the examination and approval, the projects with the implementation conditions shall be submitted to the ministry of transport and the national development and reform commission. If the demonstration project is determined, the transportation (logistics) enterprise is responsible for the specific implementation, and carrying out the multimodal transport, and promoting and applying the rapid transit equipment technology, and exploring the innovation

organization mode for the multimodal transport. The local transportation and economic operation regulation departments should actively strive for the local government policy and the financial support, and they are responsible for perfecting the connection of the multimodal transport infrastructure, and making service rules for the multimodal transport and promoting the multimodal transport information system construction. It should closely embrace the comprehensive transportation, intelligence transportation, green transportation, safe transportation construction, the logistics channels are the main basis. It should pay more attention to construct the multimodal transport organization system, the effective connection is the basis, the rapid transit of stations is the key point, the development of various multimodal transport models is the way, the information resources integration and sharing are the support, the facilities and service standards are the guarantee, and to speed up the construction of comprehensive transportation system, and to vigorously promote the healthy development of the logistics industry. There are some basic rules, the government guidance and market-driven, the classification advance and key breakthrough, the innovation-driven and service support, and the strengthened collaboration and cohesion. The literature research method and analytical method are mainly used in the paper.

The main principles for the selection of demonstration projects of multimodal transport are, first of all, whether the region has special resources and whether these resources are valuable. Secondly, whether the region is in the position of a transportation hub, whether the transportation is relatively developed, and whether it has better logistics facilities. Thirdly, whether it is able to play a certain role in driving the regional development and promote the development of regional economy, it is helpful for the adjustment of the industrial structure in our country, for example, transferring some manufacturing industries to the western region to promote the economic development in western China. Forthly, whether it could play an important

role in the hub in international trade, it could use the railway, highway, water resources fully and as far as possible use the transportation conditions in China to minimize the shipping costs and to play an important role in exploring the international routes. Fifthly, whether it meets the requirements of the national economic development strategy, such as the "One Belt and One Road" strategy and the development of the central and western regions strategy. The major distribution methods of demonstration projects of multimodal transport are firstly the local logistics companies should give application requirements, the demonstration projects are three years, the government should check the qualification of the logistics company, whether it has the conditions to carry out the multimodal transport logistics, whether it could play the leading role in driving the development of local logistics industry and the development of economy. Whether the project development strategies and goals are feasible, whether it can achieve the desired goal and can play a major role in the logistics industry, whether it has a close relationship with other parts of the logistics company in China, whether it can play a leading role in the multimodal transport. The distribution of demonstration projects of multimodal transport could promote the development of logistics industry in the country to constitute an integral part of the logistics network and to achieve nationwide transportation of resources and to promote the development of international logistics industry. It can make full use of the domestic material condition of transportation, it can take advantage of the low price of the railway transportation and water transportation, with the lowest cost, to achieve the highest transportation efficiency. It could choose some central cities with relatively developed logistics industry to drive the development of local logistics industry and to promote the adjustment of local industrial structure and economic development. It can reasonably allocate resources and drive the development of logistics industry with less capital.

Literature review

Yang Junai(2017) said that the logistics industry is an important basic industry. Multimodal transport based on logistics nodes, as an efficient form of transportation organization, improves transportation efficiency and quality by integrating various modes of transportation. Therefore, multimodal transport based on logistics nodes is the development direction of logistics industry in the future. the analysis of Yunnan logistics node layout and the current situation of the development of multimodal transport system in yunnan province, the optimization of logistics system in Yunnan province and it plays an important role in the development of regional economy^[1]. Tan Xiaoping(2016) said that Multimodal transport is an advanced and intensive and efficient transportation organization way. From the perspective of transportation industry, the development of multimodal transport is an important breakthrough for transportation transformation and upgrading. The development of multimodal transport is a systematic project, which needs to be promoted from the aspects of infrastructure, equipment technology, standard specifications, operation organization, subject cultivation and policy guarantee^[2]. Wang Mingwen(2016) said that Multimodal transport of commercial vehicles has good economic, social and environmental benefits, such as reducing logistics cost, improving transportation safety, energy conservation and environmental protection. This article analyzes the present situation of transportation of the goods vehicle and the existing problems, combining with the current state of promoting the development of multimodal transport, it put forward some countermeasures for developing the multimodal transport of commercial vehicles in the country^[3]. Duan Linlin(2017) said that the development of multimodal transport is a effective way to improve the efficiency of logistics, it is helpful to implement the strategy of "One Belt And One Road" and

promote structural reform of the supply side, but the proportion of current Chongqing multimodal transport business is low, the service levels is poor and the degree of information sharing is low, the enterprise strength is weak, etc. According to the investigation and analysis, the existing problems are: the multimodal transport enterprises are weak and the endogenous power is insufficient. The multimodal transport and distribution network is not complete, and the construction of logistics informatization is insufficient. The administrative barriers of multimodal transport remain and the policy system is not well connected. The model unit of multimodal transport is missing, and the international communication level of intermodal transport is low. It should improve the infrastructure, create a multi-modal transport market environment, cultivate multi-modal transport demonstration enterprises and deepen the foreign cooperation and exchanges ^[4]. Zheng zhousheng(2016) said that multimodal transport is mainly the container of the water and rail transport and the progress of modern internet of technology provides the foundation support for the development of container rail transit^[5]. Zhan Rong(2015)said, The demand for multimodal transport in China mainly comes from the three economically developed regions: the Yangtze River Delta, the Pearl River Delta and the Bohai Rim region. Inland road transport and waterway transport have basically been market-oriented, and the rail transport sector is controlled by a state-owned enterprise. The main inland transportation demand is within 500 kilometers, and the road transportation and water transportation along the Yangtze River have a large competitive advantage. At present, the objects of multimodal transport services are almost all foreign trade goods, especially in the import direction. Due to the relatively lagging economic development of the vast central and western regions, the railway transportation capacity has been very tense in recent years. Coupled with competition from roads and waterways, the development of container sea-rail combined transport has been very slow. Development status: As China's multimodal transport is mainly based on foreign trade

cargo transportation, there is no statistical data on container multimodal transport volume in the whole society. From the perspective of Shanghai Port, the largest container port in China, container multimodal transport is mainly based on river-sea combined transport, and has shown rapid growth. In 2010, the combined volume of rivers and seas reached 2 million TEU, accounting for 9.2% of port container throughput. The sea-rail combined transport has been affected by factors such as the transportation system and insufficient railway transportation capacity. The pace of development has been very slow. In 2010, the sea-rail combined transport was only 84,000 TEU, accounting for 0.4% of the port container throughput. The following problems exist: The railway transportation capacity is tight, and the quality of service for the inland transportation part of multimodal transport cannot be guaranteed; there are too many participants in multimodal transport, from inland freight forwarding, shipping generation, railway transportation departments to coastal shipping companies. Multi-modal transport operators and international freight forwarders, the whole multimodal transport links are too many, which is not conducive to cost reduction and competitiveness improvement; there are too many inland containers handling stations, failing to form a certain number of large container handling centers. It makes it difficult to form a scale effect.

From this we can see that multimodal transport is an important position in the current era. Therefore, this article will study the layout of multimodal transport demonstration projects in China and hope to propose a possibility for the future development of multimodal transport.

Chapter1.The introduction of the multimodal transport

1.1 Principle analysis of the multimodal transport

The intermodality is a kind of transport process that is carried out by two or more transportation vehicles, the vehicles should relate each other and change from one to another to complete the transport process, the intermodality is also called the composite transport. The United Nations defined the international intermodality that according to the international intermodality contract, with at least two different modes of transportation, the intermodality operator put the cargo from domestic management offices to the specified delivery locations, it is a transportation process. According to Chinese maritime law, the domestic intermodality should have one mode with sea transportation. From Shanghai to Johannesburg in South Africa, for example, by sea - from Shanghai to Durban and then by land - from Durban to Johannesburg, this is a intermodality. The cargo of the intermodality is mainly the container cargo, with the characteristics of container transport. The intermodality is one ticket to the end with the single freight rate in the transportation process. The consignor can complete the whole process by making a contract once, once insurance, through a single certificate.

The intermodality is a comprehensive organization in different ways, and the entire transportation is completed by the intermodality transport operators. No matter how many modes in the transportation process and no matter how many transport sections in the transportation process, and the intermodality operators should be responsible for the whole freight. The intermodality is mainly consisted of the following parts: the intermodality operator, the consignor, and the contract carrier and the actual carrier, the consignee, the intermodality contract and the intermodality document (note). The intermodality contract referred to in "Maritime law" means that the intermodality

operators use two or more different modes of transportation, one is a way of maritime transport, they should receive the goods and transport them to the destination for the consignees and charge the whole freight. The intermodality is developed on the basis of the container transport, for the mode of transportation, there is no new channels and tools, but it should use the modern means of organization to organize the various single transport mode organically and it break the boundary of each transport region, it is the result of modern management applied in the transportation industry. The intermodality is involves two or more different means of transportation, but the shipper and the intermodality operator only have a contract, the shipper only get a intermodality document from the intermodality operator and pay the freight with a fixed rate to the operator. The single mode has a lot of procedures in the multiple transport, and it is easy to make mistakes, the intermodality can resolve that problems and it is easy for the shippers to determine the transportation time and transportation cost. There are at least two modes of transportation: the sea and land, the land and air, the sea and air. This is different from the single sea, land, air. Although the latter is a combined transport, it is still the mode of transport between the same means of transport. As is known to all, various modes of transportation have their own advantages and disadvantages. Generally speaking, the waterway transportation has the advantage of the large volume and low cost. The highway transportation has flexible features, and it is easy to closely contact with people. The main advantage of the rail transport is that it cannot be affected by the climate, and it can implement the goods transportation in long distance inland and it could be on time. The main advantage of air transportation is the fast transportation of goods. Because the international intermodality strictly rules that the transportation must have two or more than two ways, so the transport organization form can comprehensively use the advantages of each transport mode, and fully embody the characteristics of socialization production. Its business programs are to accept the shipping application and make a intermodality

contract, to issue and extract and transport the containers, the export declaration, to pack the goods and receive the goods, to book and arrange the goods delivery, to deal with the insurance, issue the intermodality bill of lading to organize the full transport of goods, the customs business in the process of transportation, the delivery of goods, the freight accident treatment. In international intermodality, Land Bridge Service plays a very important role. It is the main form of international intermodality in the far east/Europe. Land bridge transportation refers to the use of the special train of container or truck, the transcontinental railway or highway should be as a "bridge", container shipping lanes at the ends of the mainland and the special train or truck could be connected, it is a coherent mode of transportation. Strictly speaking, the land bridge transport is also a form of sea and land transport. Only because of its unique position in international intermodality, it is used as a form of transport organization. North American land bridge, Siberia land bridge, etc. The intermodality of air and sea is also known as the Airbridge Service. In the mode of transport organization, the airbridge service transportation and the land bridge transport is different: in land bridge transport in the whole process the freight is used the same container, which do not change, and usually the freight in airbridge service should be changed the container in aviation. However, the aims of the two are the same that is to provide fast, reliable transport services at low rates. The mode of air and sea transportation began in the 1960s, but it began to have great development until the 1980s. Adopting the mode of transportation, the transportation time is usually less than the entire shipping time, the transportation cost is much cheaper than the entire air transportation, in the 1960 s, the goods will be shipped to the west coast of the United States from Far East, then by air to the inland or the east coast of the United States, thus it appeared the sea-air freight.

It is certainly that this is mainly on sea transport organization form, only the final delivery of the goods by air transport section, at the end of 1960, the former Soviet

Union airlines opened the air line through Siberia to Europe, in 1968, the Canada airline took part in the international intermodality, in the 80s, it appeared the air routes from Hong Kong, Singapore and Thailand to European. The international sea-air freight line mainly include: From far east to Europe, from far east to the middle and south American, from far east to the middle and near east、 Africa and Australia. However, in terms of its organizational structure and system, it can be divided into two categories: collaborative intermodality and connected intermodality. The collaborative intermodality means two or more of the transportation enterprises, according to the unified regulations or agreed protocol, they transport the goods from the location of shipping the goods to specified locations of the delivery of goods. The connected intermodality means that one intermodality enterprise (hereinafter referred to as the intermodality operator) integrated organizing two or more than two mode of transportation, it transports the goods from the location of shipping to specified location of the delivery. In practice, the intermodality operator maybe do not have any means of transport, such as the international freight forwarders, the station operators or the warehousing operators and so on, they are maybe the actual carriers who are occupied in a certain transportation section. But in any case, he must hold the approval certificate issued by the competent authorities of the state and be able to bear the responsibility independently. The intermodality in the ideal state should have several characteristics, namely, using various ways and having various industries and referring to various regions and it should have one intermodality operator and one rate and one transport insurance and one transportation document and people should connect with each other very good and cooperate with each other well. The international intermodality is a kind of transportation organization that is more advanced than the segment transportation, in the 1960s, the United States firstly tried the international intermodality business, which was welcomed by shippers. Subsequently, the international intermodality was adopted in North America, Europe and the Far East. In

the 1980s, the international intermodality was gradually implemented in some developing countries. At present, the international intermodality has become a new and important mode of the international container transportation, which is widely recognized by the international shipping industry. The United Nations produced the international intermodality convention, it will have a positive impact on the development of international intermodality in the future.

Today, with the rapid development of intermodality, some people still have some misunderstandings about intermodality. For example, container transportation is of great significance to intermodality, so that some people regard the two as equals, but the use of container transport may also be accomplished by a single transport method or multiple transport methods, and intermodality is not necessarily Use containers as carriers for transportation. In addition, the characteristics of intermodality are also numerous. For example, intermodality operators are indispensable. Therefore, even if it involves a variety of modes of transport, it is not must be multimodal transport.

Because multimodal transport is closely paid attention by the country and all related industries, the possibility of its future development is brightly. First of all, we must rationally plan and build an integrated logistics base and strengthen the seamless convergence of transport modes. The key to seamlessly linking railways, ports, airports and highways is to integrate the facilities of existing logistics bases. In this process, we must base ourselves on the combination of logistics planning and other methods, strive to expand the range of railway radiation at this stage, and realize the personalized logistic service of railways must through the centralized supply of goods. Secondly, it is also very important to speed up the construction of public logistics information platform and the coordinated operation of multiple links is important too. Integrated multimodal transport requires the cooperative operation of all parties involved. It is inseparable from the support of information technology. Ports, shipping companies,

railways, civil aviation, and highways all have independent information systems. To achieve information interconnection, we must rely on unified Public logistics information platform.

1.2 The analysis to the development reasons of intermodality

The international intermodality has a lot of advantages, generally speaking, it reduces the time loss of traditional segment transportation and the risk of breakage and theft. Reducing the complexity of the relevant documents and procedures for staging. Reducing all costs associated with full transport. The owner only needs to contact the multi-modal transport operator, and the multi-modal transport operator shall be responsible for the goods of the shipper^[6]. The full freight rate and the cost provided by the multi-modal transport operator are more convenient for the owner to reach an agreement with the buyer^[7]. The decrease of transportation cost will help to reduce the total logistics cost and improve the market competitiveness of the products.

The procedure is so much simple and the responsibility is unified. Under the way of international multimodal transport, no matter the shipping distance of the cargo, no matter how far of the shipping, no matter how many transportation methods the whole process had to finish goods transportation, no matter how many times of transshipment the goods on the way had for the transportation, all transport matters shall be the responsibility of the multimodal transport carriers. The shippers can only handle one consignment, enter into a contract of transportation, pay the freight once, handle the insurance for one time, and obtain a combined transport bill of lading for one time. The problems associated with each mode of transport are reduced to a minimum. The shipper should only negotiate with the multi-modal transport operator. Due to the

responsibility are unified^[8]. The goods are damaged or lost in transit, the multimodal transport operator shall be responsible for the entire transport, and the carriers of each segment points are only responsible for the loss of goods in their transportation sections. It could reduce the loss of time during transportation and make the transportation of goods faster. The multimodal transport, as a separate transport process, is arranged and coordinated to reduce the loss of time in operation and the risk of the loss, damage and theft^[9]. The multimodal transport operator through his communication and do well for coordination, they could coordinate various of transportation manners to transport the goods faster, to make up the disadvantages of the far distance to the market and the backlog of money. It could reduce the cost of transportation, due to the use of container, the advantages of container transportation are reflected in the international multi-modal transport. The multi-modal transport operator can charge the whole transportation fee at one time and one-time insurance expense^[10]. After loading the goods into the container, it can use the combined transport bill for foreign exchange settlement that will help to speed up the turnover of goods and reduce the loss of interest^[11]. It also saves people, wealth and material resources, thus it could reduce transportation costs^[12]. This will help reduce the export cost of goods and improve the competitiveness of goods in the international market^[13]. It could improve the level of the transport organization and realize the door to door service and make the reasonable transportation to be true, the multimodal transport can improve the level of transportation organization, improve the cohesion between the different modes of transportation work, realize the continuous transportation of various mode of transportation, it can put the goods from shipper's factory or warehouse to the consignee's warehouse or mainland factory, do the door to door transportation, to make reasonable transportation become a reality. Under the current situation of fierce competition in international trade, the cargo transportation requires fast speed, low loss and low cost, while the international multimodal transport is adapted to these

requirements^[14]. Therefore, in the international market more and more people adopted the multimodal transport^[15]. It can be said that the international multimodal transport is the development direction of international freight transportation. China has a vast territory and has the potential to develop the international multimodal transport^[16]. It can be expected that with the improvement of inland transportation conditions, China's international multimodal transport will develop vigorously.

It could improve the level of transport management to realize the transportation rationalization: for the segment transport, because various transportation operators have their own system, and its business scope is restricted, the freight volume correspondingly is limited^[17]. And once different multimodal transport operators take part in the same system, and the operating range can greatly be extended, at the same time it can maximize its existing equipment, choose the best transportation route organization rationalization^[18]. From the government's point of view, the development of international multi-modal transport has the following important significance: it is helpful to strengthen the supervision and management of the whole cargo transport chain, to ensure that the country obtains a large proportion of freight income in the whole process of goods transportation, to facilitate the introduction of new advanced transport technologies, to reduce the foreign exchange expenditures, to improve the utilization of national infrastructure, Through the macro-control and guidance of the state, it is necessary to ensure the use of the least environmentally destructive means of transportation to protect the ecological environment of the country^[19]. The focus of the first batch of multimodal transport demonstration projects will include: the transportation system construction, the transportation organization innovation, the process optimization, the multimodal transport information sharing, the innovative applications of technical equipment and uniform standard specification^[20]. In today the international cultural exchange is increasingly frequent, the multimodal transport

has become the key point of the multinational trade development, how to guarantee the safe and efficient logistics and economic factors, it has far-reaching influence to a country's multilateral trade development^[21]. At present for solid goods transportation China mainly includes four ways of the highway, railway, aviation and shipping, the highway transportation is the main way of the land transport of goods at present stage^[22]. In China, the shipping is mainly used for international cargo transport, the railway is mainly used for domestic long distance transportation of bulk cargo, the air is mainly used for higher requirements of some limitation of transportation of the goods. However, with the continuous development of economy in China, the single mode of transportation can hardly meet the huge logistics demand of enterprises^[23]. Plus the high logistics costs at the present stage in China, the multimodal transport as a way to improve efficiency and reduce the cost of the mode of transportation is more and more popular, the development of multimodal transport became as a consensus^[24].

Chapter2. The introduction and analysis of the current layout situation of multimodal demonstration projects in China

2.1 The introduction of two batches of demonstration projects

On November 10th 2017, the ministry of transport and the national development and reform commission jointly announced the second batch of 30 multi-modal transport demonstration projects^[25]. The first one is " Tianjin Port China-Mongolia-Russia Economic Corridor Container Multimodal Transport Demonstration Project ". The leading enterprise is Tianjin port (group) co. LTD and the joint ventures are Beijing Railway Administration, COSCO SHIPPING Lines Co., Ltd., Tianjin CR intermodality. The second one is " Hebei Province changjiu logistics commercial

vehicle road ,rail, water transport demonstration project" ". The leading enterprise are Tangshan Logistics and Beijing Logistics and the joint ventures is CRSCS(Shenyang). The third one is " Taiyuan Railway Bureau "One Core, Two Networks, Three Links and Four Ways" rail, sea, road Container Multimodal Transport Demonstration Project ", railway transportation and ocean transportation and highway transportation container intermodality demonstration project. The fourth one is "Demonstration Project of Multimodal Transport of Bulk Containers of International Bonded Ports of Inland Ports in Shanxi Province",bulk cargo container intermodality demonstration project. The leading enterprise is Shanxi Fanglue Inland Port Group. The fifth one is " "Northwestern Region-Beijing-Tianjin-Hebei Region" Railway Multi-function Vehicle, rail, water Multi-modal Intermodal Demonstration Project". The leading enterprise is Shenhua Group and the headquarters is in Beijing. The sixth is "Liquid Chemicals (Methanol, Refined Oil) Tank Container road, Sea Multimodal Transport Demonstration Project", the leading enterprise is Taijili Petroleum chemical co. LTD (China railway) and the headquarters is in Beijing. The seventh is "Jilin Huahang Group Creates a Multimodal Transport Demonstration Project of FAW Logistics Supply Chain Service System", the leading enterprise is Changchun Huahang Group and the headquarters is in Changchun. The eighth is "Multi-modal Intermodal Demonstration Project of Mudanjiang International (Domestic) Land and Sea Transport Channels in Heilongjiang Province", the leading enterprise is Huasheng international logistics and the headquarters is in Mu Danjiang in Heilongjiang. The ninth is "Nanjing Regional Shipping Logistics Center" "Multi-modal Transport Demonstration Project" with Yangtze River, Eurasia Europe, Docking Coastal, and Radiating Midwest, the leading enterprise is Nanjing Port and the headquarters is in Nanjing. The tenth is "SF Aviation Containerized Land and Air Transport Demonstration Project", the leading enterprise is Zhejiang Shunlu logistics and the headquarters is in Hangzhou.The eleventh is "Relying on Yangtze River golden

waterway and based on the Lanzhou City Belt Maanshan multimodal transport demonstration project", the leading enterprise is Ma Steel and the headquarters is in Ma Anshan. The twelfth is "China Unicom's "Belt and Road" Xiamen Southeast International Shipping Center Marine Rail Multimodal Demonstration Project", the leading enterprise is XPGCO in Xiamen and the headquarters is in Xiamen. The thirteenth is "Luzhou Port "One Belt and One Road" Multimodal Transport Demonstration Project, the leading enterprise is Ganzhou Nankang district port development co. LTD. and the headquarters is in Ganzhou. The fourteenth is "Railway and Ro-Ro transport demonstration project of Luzhou rail, water Company around Bohai Sea", the leading enterprise is Shandong Booming Total Logistics. and the headquarters is in Yantai. The fifteenth is "Airport Group of Henan Province Creates "Air Silk Road" Demonstration Project, the leading enterprise is Henan airport group and the headquarters is in Zhengzhou. The sixteenth is "Strategy for Establishing the Free Trade Zone Strategy for the Central Plains M-shaped High-speed Railway Logistics Network Multimodal Transport Demonstration Project", the leading enterprise is Henan Zhongyuan railway logistics co. LTD. and the headquarters is in Zhengzhou. The eighteenth is "Huangshi New Port in the Middle Reaches of the Yangtze River" Creates an Integrated Railway Port Front Station to Serve the Coordinated Development of Domestic Production and "rail water road Transport Demonstration Project", the leading enterprise is Wuhan railway administration. and the headquarters is in Wuhan. The eighteenth is "Hunan Chenglingji Newport Water Ferry Container Multimodal Transport Demonstration Project", the leading enterprise is Chenglingji Hunan new port area and the headquarters is in Yueyang. The nineteenth is "Yantian Port, Asia Pacific, Pan-Pearl River Delta-European International Container Intermodal Demonstration Project", the leading enterprise is Yantian Port and the headquarters is in Shenzhen. The twenty is "Guangxi serves the "One Belt and One Road" strategy "Southwest - Beibu Gulf - ASEAN/China Coastal" point-by-point

line, overseas deployment of multimodal transport demonstration project", the leading enterprise is Beibu Gulf Port Group and the headquarters is in Guangxi coastal. The twenty-one is "International Air-to-rail Multimodal Transport Demonstration Project on the "Air + Land" Silk Road in Sichuan Province", the leading enterprise is Chengdu railway bureau. and the headquarters is in Chengdu. The twenty-two is “Chongqing Orchard Port Serves Yangtze River Economic Zone Strategic Rail-Water Intermodal Demonstration Project”, the leading enterprise is Chongqing port logistics group co. LTD. and the headquarters is in Chongqing. The twenty-three is “Guizhou Guizhou International Landport Unicom Sichuan-Guizhou Area—Guangdong, Hong Kong, and Macao Dawan District Container rail and water Intermodal Demonstration Project”, the leading enterprise is Guizhou(Changming) international land port and the headquarters is in Guiding. The twenty-four is "Yunnan Province's "One-Core, Three-Axis, Multi-Node" International Multimodal Transport Demonstration Project for South and Southeast Asia", the leading enterprise is Yunnan Baoxiang logistics group co. LTD. and the headquarters is in Kunming. The twenty-five is "Xi'an Port Construction "Belt and Road" inland transit hub land, sea and air multimodal transport demonstration project", the leading enterprise is Xi 'an international land investment development group co. LTD. and the headquarters is in Xi'an. The twenty-six is “Air, rail, water Public Multimodal Transport Demonstration Project in Lanzhou New District, Gansu Province”, the leading enterprise is anzhou new district road port logistics co. LTD. and the headquarters is in Nanzhou. The twenty-seven "Eastern Coast - Ning Meng Region (Shizuishan)" - Sino-Arabic Container Multimodal Transport Demonstration Project, the leading enterprise is Ningxia Fuhai logistics co. LTD. and the headquarters is in Shi Zuishan. The twenty-eight is "Xinjiang's "East-West Out" Container road, rail, water Demonstration Project", the leading enterprise is Urumqi railway bureau. and the headquarters is in Urumqi. The twenty-nine is "Xinjiang Two-way Open and Multi-support Logistics Large-aisle Multimodal

Transport Demonstration Project", the leading enterprise is Xinjiang agricultural capital group north xinjiang nongjiale co. LTD. and the headquarters is in Kuitun. The thirty is "Xinjiang Production and Construction Corps bulk material international multimodal transport demonstration project", the leading enterprise is Xinjiang Tianye group and the headquarters is in Shi Hezi.

The first demonstration projects included 16 projects, The first is "Hail transportation (railway transport) demonstration project", the leading enterprise is CRSCS and the headquarters is in Beijing. The second is "Delivering a demonstration project of container sea-rail multimodal transport in the "Eastern Coastal-Beijing-Tianjin-Hebei-Northwest Passage" of Hebei Province", the leading enterprise is Tangshan port group and the headquarters is in Tangshan. The third is "Dalian Northeast Asia International Shipping Center "Asia-Pacific-Northeast Area Channel Container Sea Rail Multimodal Transport Demonstration Project", the leading enterprise is Dalian port group and the headquarters is in Dalian. The fourth is "Delivery demonstration project of container iron and water transport in the "Southeast Coast-Yingkou-Europe" channel of Liaoning Province", the leading enterprise is Yingkou port group and the headquarters is in Yingkou. The fifth is "Jiangsu Province New Eurasian Continental Bridge Container Multimodal Transport Demonstration Project", the leading enterprise is Lianyungang port group and the headquarters is in Lianyungang. The sixth is "Ningbo Zhoushan Port - Zhegan (Xichuan)" container sea rail multimodal demonstration project, the leading enterprise is Ningbo port group and the headquarters is in Ningbo. The seventh is "Qingdao "Belt and Road" Cross-border Container Sea Rail Public Multimodal Transport Demonstration Project", the leading enterprise is Qingdao port group and the headquarters is in Qingdao. The eighth is "Zhengou International freight trains in Henan Province listed "one dry and three" rail, sea, road multimodal demonstration

project", the leading enterprise is Zhengzhou port group and the headquarters is in Zhengzhou. The ninth is "Wuhan City, Hubei Province Promotes the "Belt and Road Strategy" and the "Yangtze River Economic Belt Strategy" Container Iron and Steel Intermodal Demonstration Project", the leading enterprise is Wuhan port group and the headquarters is in Wuhan. The tenth is "Sinotrans (Guangdong) "ASEAN-Guangdong-Europe" Railroad Multimodal Transport Demonstration Project", the leading enterprise is Sinotrans Guangdong. The eleventh is "Demonstration project of the cold-chain logistics channel of the express rail transit through Eurasia", the leading enterprise is China railway Tielong container and the headquarters is in Nanning. The twelfth is "Chongqing Fuxin European Multimodal Transport Demonstration Project", the leading enterprise is CQ Transit and the headquarters is in ChongQing. The thirteen is "Rail Road Water Multimodal Transport Demonstration Project of Chengdu International Railway Port in Sichuan Province", the leading enterprise is CD international port and the headquarters is in ChengDu. The fourteen is "Yunnan Province Kunming-Southeast Asia, Yangtze River Economic Belt, Guangxi Beibu Gulf Container Railroad Multimodal Transport Demonstration Project", the leading enterprise is Yunnan Tenjin logistics and the headquarters is in Kunming. The fifteen is "Lanzhou South Asia International Class Railroad Intermodal Demonstration Project", the leading enterprise is Nanzhou port and the headquarters is in Nanzhou. The sixteen is "Xinjiang Production and Construction Corps Silk Road International Multimodal Transport Demonstration Project", the leading enterprise is XingJiang Lianyu Investment and the headquarters is in XinJiang.

2.2 Analysis of the effects of two batches of project

By the first half of 2017, the first 16 multimodal transport demonstration projects opened 39 multimodal transport lines and the total capacity has been more than

600,000 teu containers, the average price of the multimodal transport is about 35% lower than the road transportation, it also could reduce the energy consumption of about 660,000 tons of the standard coal to reduce the carbon emissions about 1.7 million tons, and the comprehensive benefits has been preliminarily revealed. The multi-modal transport demonstration enterprises had 16 construction projects that met the requirements, and they were included in the construction project library of the "13th five-year" freight hub (logistics park) of the ministry of transport. The transportation services department is working to establish the multimodal transport dynamic monitoring system, the main aspects are the running performance and construction progress, and it preliminarily had the dynamic monitoring index system constructed by 11 first grade indexes and 26 secondary indexes, the key monitoring fields are the combined transport scale , the combined transport quality and the multimodal transport efficiency, and the energy conservation and emissions reduction, the alliance cooperation and so on, it should timely evaluate and analyze the effect of the demonstration projects construction in reducing logistics cost, saving fuel consumption and reducing pollutants discharge and so on. The multi-modal transport demonstration project has attracted a large number of enterprises, and the number of enterprises participating in the first batch has reached 788. It should establish the enterprise alliances of the cross-region, cross-mode and cross-industry. It should establish the unified rules system of the multimodal transport of the alliances, and promote the logistics network and resource sharing between members, and they should research and develop the advanced technology and equipment. With the opening of the China and European trains and the over limit and overload management implemented in the road freight transport, the rail freight ushered in a new round of development, on the one hand, the railway became international transportation way between sea and air, having both timeliness and economy. On the other hand, the efficiency and price advantage of railway in long-distance transportation are gradually revealed. In

November 2016, the QT1 and QT2 models developed by the group passed the trial evaluation, it has the conditions of on-line trial operation and could save the loading and unloading time. According to the plan, the first demonstration line will be opened in the third quarter of 2017, by 2020, there will be a total of 12 lines and 28 pairs of daily trains, it could serve the east China, south China, north China, southwest and northwest China. In the “Rail Road Water Multimodal Transport Demonstration Project of Chengdu International Railway Port in Sichuan Province” , Chengdu international port relied on the Rongou logistics channel, the cargo transport corridors from the southwest regions to the southeast coastal area and the Yangtze river shipping channel, it built 8 “Rongou +” multimodal transport channels with Chengdu as the center , for example, “Rongou + Xia”, “Rongou + Yong”, “Rongou +Shen” and “Rongou + Han” and so on. For the whole year of 2016, the company has a total of 460 columns and 15,090 cars. The China and Asian train has a total of 60 columns and 1,343 cars, and the "Rongou +" line has a total of 1,113 columns and 31,246 cars. Through independent research and development, Yingkou port has produced 20 feet of high grain special containers. And it has developed a 40 feet and a half special box, it can adopt double stacked transportation on railway and on highway it could adopt single transportation, it could combine the transportation efficiency and safety requirements. In 2016, Sheng Ha red transportation in the port of Yinkou had multimodal transport volume of 526, 000 teu, it was up 22.0% from a year earlier, and it accounted for above 8% of the container throughput in Yingkou port, the amount and rate of the multimodal transport of the three consecutive years ranked first in the country. And it cooperated with four oversea country and seven oversea cities to open 11 Liao, Man and Europe trains, in 2016 the China and Europe cases were 33,000 teu, which accounted for 51.3% of the total exit volume in Manchurian port. Chengdu international port developed the ail-sea intermodal transportation products for the refrigerated container transportation, and it used the new technique of NBX

refrigerator cars of railway, the frozen meat from Uruguay can be landed by the Ningbo port, by rail it could directly be sent to Chengdu, the logistics cost was reduced by 30% to road transport. Chengdu international port developed double loading car technology of containers, through multimodal transport of rail and road it solved the outbound car problems of chengdu area, and it has implemented a single container could load 4 cars.

In Changchun, “Chang Man Europe” drives the surrounding logistics industry, on August 31, 2015, the Changchun - Manchurian - Germany international railway freight train started from Changchun east station to Germany. Since 2016, the business of “Chang Man Europe” has exploded. From January to September in 2017, it shipped as many as 25,058 containers, carrying nearly \$900 million worth of goods. And the density of trains, the radiation scope, or the outbound destinations, the service content, it is in the leading position of China trains in the eastern China to Europe trains. The “Chang Man Europe” has already shown the functions of the international multi-modal transport center in northeast Asia, and has become the booster of the economic and trade cooperation between Jilin and Europe. After the operation, the role is also increasingly apparent in commodity trade and logistics, it could promote the development of Changchun location advantage and promote the industrial transformation and upgrading of Changchun, it could play its role as the regional central cities of the northeast Asia. From the perspective of the goods source, in 2016, Changchun was 41%, Shenyang was 4%, Dalian was 6%, Yingkou was 6%, and Harbin was 6%. This could bring the opportunities for the industry transformation and upgrading for the northeast old industrial base. In addition, it can not only drive the logistics industry in northeast China, Inner Mongolia and the Bohai rim region, but also for some countries in northeast Asia. In Xinjiang, "rail, road and air" has constructed the logistics channel. In September 2017, the Xinjiang autonomous region and the general administration of customs signed a memorandum of cooperation on

the construction of the core area of the silk road economic belt in Urumqi. Among them, the new model of "multi-modal transport + to the western international trains" has got great concern. On May 19th 2017, the Urumqi-Lianyungang-New Delhi multimodal trains with the rail, road and sea was opened, it implements the seamless joint of the railway, shipping and road, build the channel to Xinjiang. Xinjiang is located in the core area of the silk road economic belt and is adjacent to the eight countries, and the unique geographical advantage is good for the multimodal transport of rail, air and road. From May 26th to October 5th 2016, the Urumqi train center from China to Europe has been running 600 columns. Therefore, the logistics industry in Xinjiang has been developed rapidly that has attracted many logistics companies. As the enhancing of the international import and export volumes, and the scale and efficiency of freight transport with the inland cities has been greatly improved. In Shandong Jiaozhou, in 2016, with the approval of Jiaodong airport economic demonstration zone, it opened four international trains of "China and Asia", "China and South Korea", "China and Mongolia", "Qingdao and Vietnam". And it also opened 7 domestic trains from Jiaozhou to Urumqi, Xi'an, Zhenzhou, Luoyang. It could do business with the 600 sites in China at the same time. The Jiaozhou multi-modal transportation projects completed the work volume in 2016 to exceed 350,000 standard boxes, and it is expected to carry out 400,000 standard containers in the whole year of 2017. At present, the good logistics agglomeration effect has appeared, the modern transportation system in Jiaozhou has been improved, and the efficiency of logistics operation has been improved. As of May 2017, the total number of logistics enterprises in Jiaozhou has reached more than 350, among which the registered capital was more than 10 million yuan was 56, and it had 22 logistics enterprises at the national 3A level.

Lianyungang Port Holding Group Co. Ltd, as a pilot company of the container multimodal transport demonstration project of Jiangsu New Eurasian Continental

Bridge, has continuously improved the Lianyungang sub-center of the national traffic electronic port, through the interaction and sharing of EDI (Electronic Data Interchange) platform. The function is to create a multi-modal information system with full-featured and informative information, and to promote the interconnection and intercommunication of relevant entities and management departments in the multi-modal intermodal chain of ports and railways, shipping companies, freight forwarders, terminals, customs, and national inspections. Realize the unobstructed circulation and sharing of information throughout the entire transport organization. Lianyungang Port successfully established the first two-way channel for electronic data exchange between ports and railways in China, and revised 32 kinds of message standards. The development and application of the EDI system effectively solved the customer's need for real-time access to cargo dynamic information. The vehicle stoppage time decreased by 12.2% year-on-year, container tipping rate decreased by 78%, and the average booking time was advanced by 5 hours.

Based on the above results, it can be seen that these intermodality demonstration projects have made great contributions in optimizing transport organization, optimizing transport organization to expanding service scope, and promoting data sharing.

2.3 Analyzing and comparing the pros and cons of two batches of projects

The main problem of the multimodal transport enterprises in China is that the infrastructure is not developed. Suo Husheng(2014) said that it is generally believed that the shortage of railway capacity in China leads to a large number of goods that

have to be transported by road, thus it is increasing the cost of logistics transportation in China. In connection with the system of transport sectors, the railway, port and other relevant departments are not willing to cooperate with each other to carry out the multimodal transport in the interest of the department. (Zhang Zhehui(2014) said that the connection between the multi-modal transport organizations in China is not smooth.It has lower level of the standardization and information. The information system construction and the information sharing standard and the mechanism of sharing are not very perfect that leads to the asymmetric information. Wang Ya (2011) analyzed the multimodal transport development situation of Ningbo port and found that the back port transportation system is imperfect, the goods arrived at port could only be through the highway transportation to transport, and the port does not have the railway linked to the inland. One of the main reasons that the proportion of the marine and railway multimodal transport is much lower than that of the developed countries is that the railway transportation system is incompatible with the port, including the examination and approval process, transportation supervision and other issues. Lin Tan(2014) said that the enterprises in domestic, which can afford to the responsibility of international multimodal transport operator, is not much, and because the freight market in China is lack of the necessary qualification review mechanism, the credit level is not very high, it has no competitiveness abroad. Fen-ling Feng(2012) said that the rail and water transport are more cheaper than other modes of transportation, it is good for reducing the social total cost and protecting the environment, so the development of multimodal transport should pay attention to these two kinds of mode of transportation. For example, in Chongqing The proportion of multi-modal transportation is low and the cost of transportation is high that is mainly manifested in the following three aspects: firstly, the goods are transported mainly by bulk truck and box truck. In 2015, the road freight volume accounts for 83.71%, and the water freight volume accounts for 14.48%, and the rail freight volume accounts for 1.79%, the

volume of road, water and railway transportation are incongruous. The cargo transportation mode of road including the whole vehicle, part-load vehicle and the container. In Chongqing, the main forms are part-load vehicle and integration transport. Most shipping companies do not deliver containers with the waterway and railway that reduces the rate of the use of containers. The railway and the industrial zone cannot related seamlessly, the road transportation is needed. The logistics enterprises in Chongqing are very scattered, small and weak. By the end of 2016, there were more than 1200 logistics enterprises in Chongqing, but only one tenth of them with the main business income over 10 million yuan, and the logistics industry as a whole was underdeveloped. There is a shortage of multi-modal transport operators, and it also has the slow construction and low efficiency of information sharing platform. In terms of external contact, the railway freight channel of the east and west has been opened up, but the railway freight channel in the south and north is obviously insufficient. The proportion of transportation with dumping trailers and container transportation is too small, and the infrastructure of inland waterway transportation is backward, and the river flow and water level vary with the seasons. The information between different modes of transportation such as the railway, highway, water transportation and aviation are also lacking effective connection. It has caused administrative barriers that obstructed the development of multi-modal transportation of single card and one ticket. There is a lack of multi-modal transport demonstration units and low international communication. The enterprises in the first batch of pilot projects was very less, it was 16 companies and the government investment was relatively less, it was mainly distributed in the Circum Bohai rim region, and the northeast of China, and the southwest of China and the northwest of China, and the major cities in the eastern coastal cities and the middle and lower reaches of the Yangtze river. Most of the cities play the major role in transportation in these areas, namely the core hub cities of transportation, and those cities are more evenly distributed in these areas. The first

demonstration projects have played an active role in promoting the development of the local logistics industry by strengthening the construction of regional infrastructure.

The first batch of multimodal transport demonstration projects is mainly connected the regions with the national logistics network and linked with the international logistics network, and it also strengthened the infrastructure construction in this regions and the construction of system and mechanism, etc. And it also has the effect of driving the development of logistics industry in this areas. It contains building roads, railways and purchasing other means of transportation such as ships and vehicles. (Liang Xiaojie, 2012) said that the infrastructure construction should be scientifically and rationally planned, and the implementation plan and fund budget should be prioritized for the infrastructure with strong public welfare. Zhang Zhehui (2014) suggested that it should be planning as a whole of the integrated transport system, and realize the efficient connection of the road network and the freight yard, strengthen the construction of port transportation system, strengthen the supporting service function of the terminals, optimize the space layout of the freight yard and the logistics park. The development of the first batch of multi-modal transport demonstration projects is also conducive to improve the local multimodal transport market system, and strengthen the coordination and communication among various departments, and make the market more efficient. Suohu sheng (2014) believed that improving the order of logistics market can effectively reduce the transaction cost of enterprises. LinYan (2014) studied the multimodal transport process of Dalian international shipping center and said that some effective ways to improve the multimodal transport market system are the exemption from the ship's metric ton limit, research suggests from ship mt restrictions, allowing transport enterprise has its own pricing and standardizing the customs clearance process. The first batch of multimodal transport demonstration projects also can promote the development of the logistics

company and foster the subject of multimodal transport market, to increase their competitiveness in the market and the ability to cope with risk. Xiao-jie Liang(2012) put forward that in quantitative terms it should reduce the barriers to entry of multimodal transport market and extend the industrial chain. In terms of quality, it should cultivate the multi-modal transport market players who can participate in international competition and cooperation and it needs to promote the international certification of logistics enterprises and improve the standardization level of the enterprise logistics. The advance of multi-modal transport demonstration projects also facilitates the establishment of multi-modal transport information cloud system. The scholars emphasized the importance of multi-modal transport standardization, and believed that the development of multimodal transport is indispensable for informatization construction. Liu Zhaoran (2013) on the basis of the experience of the development of multimodal transport policy in EU, proposed that it should build the information tracking system for the multimodal transport of railway and water and formulate unified standard of the information transmission mechanism for the multimodal transport of railway and water. The development of the second batch of multimodal transport pilot projects will further expand the scope, in these areas basically every province or city has a important project that has been approved. These projects are more dispersed so that it is good for the construction of the infrastructure, and the logistics resources of the province could be related greatly, it could increase the opportunity of communication with the international logistics and domestic logistics enterprises.

Chapter3. Diagnosis on layout of the project

3.1 The analysis the distribution of two batches of projects in the country to establish a distribution map

In the first batch of multi-modal transport demonstration projects, the leading enterprises in Beijing have one cooperated with Qiqihar's company and one company was in Tangshan cooperated with the company in Shanghai. There are one company in Dalian and one company in Yingkou cooperated with Harbin railway bureau. And there is also one in Qingdao. There are five companies in the bohai rim region and the northeast region. They primarily have trade with South Korea, Japan, Russia and other countries of Europe, it is also the main path to Europe, China mainly uses the railway transport and Marine transport and it has the effect of cost savings and less waste of resources. In the northwest one company was in nanzhou and one company was in Xinjiang cooperated with companies in Shandong and Henan. It has trade with Mongolia, Russia and other countries, Xinjiang and Gansu are located in the important position of the ancient silk road, and it is a bridge between China and European countries to contact with each other, it also conforms to "One Belt and One Road" policy in China, it could make full use of the resources in this region and the advantages of railway transportation to strengthen trade with neighboring countries and European countries. In eastern China, there is one in Lianyungang cooperated with Shanghai railway bureau and one in Ningbo cooperated with Shanghai railway bureau. It mainly uses the local port resources and maritime superiority to develop the logistics industry. It located in the Yangtze river basin and can strengthen the logistics transportation with the mainland. In the middle of China, there is one company in Zhengzhou and one company in Wuhan, by utilizing the abundant railway and

highway resources in the central region, and the Yangtze river water transportation resources, it could strengthen the connection with the mainland of China and can fully utilize the resources and realize the effective transportation of logistics. In the southwest of China there are one company in southern China, there is one company in Nanning and one company in Chongqing and one company in Chengdu and one in Yunnan. It could make full use of local railway, road, inland waterway resources to strengthen the communication between inland China and southeast Asian countries, it is the main channel of communication between China and southeast Asian countries. In China the first batch of multimodal transport projects are mainly distributed in the Bohai sea area, the northeast of China, the southwest of China and the northwest of China, the regions are bordering with Russia, Mongolia, the Southeast Asia countries, it mainly can make full use of the railway resources to reduce the cost of logistics and can effectively save resources.

In the second batch of multi-modal transport demonstration projects, one of the leading enterprise was in Tianjin cooperated with Beijing railway bureau. There is a company in Tangshan that works with the company in Shenyang. There are two in Shanxi. In Beijing, there are two companies and they are working with Guiyang companies, Qiqihar companies and Shandong companies and Tianjin companies and Inner Mongolia companies and Hebei companies and Weifang companies. There is one in Jilin province cooperated with the company in Shenyang, and one in Heilongjiang province. In the bohai rim region and the northeast region there are eight leading companies and they cooperate with companies across the country and they have expanded the scope of cooperation. In the first batch it was 5 companies and in 2016, it mainly increased the companies in Shanxi province and Jilin province and Heilongjiang province. In the east of China, there was one in Nanjing and there was a company in Zhejiang cooperated with the Shenzhen company. There is one in

Maanshan in Anhui province cooperated with Shanghai railway bureau. There is one in Xiamen, Fujian province, which had cooperation with Nanchang railway bureau. There is one in Ganzhou. In the second batch there are 5 companies compared with two companies in the first batch and it was mainly increased in Anhui province, Fujian province and Jiangxi province. In the middle of China, in Henan province, there are two companies that cooperated with Zhengzhou enterprises. There is a company in Wuhan, which has cooperated with Huangshi company, and there is one in Hunan Chenglingji and one company in Xi'an province. There are 5 companies compared with 2 in the first batch, the companies are mainly increased in Xi'an province and Hunan province and Henan province. In the northwest regions there is one in Lanzhou city of Gansu province, and one in Ningxia province and three in Xinjiang province. There are 5 companies compared with 2 companies in the first batch, the companies are mainly increased in Gansu province and Xinjiang province. In the southwest of China, there are two companies in Shenzhen, which cooperated with enterprises in Bohai rim region. In Guangxi it is one company and it is one company in Sichuan province, one company in Chongqing, one company in Guizhou, one company in Yunnan, there are 7 companies compared with 5 companies in the first batch, the companies was mainly increased in Guizhou province. The first batch of pilot projects are mainly distributed in the main transport hub cities of the circum Bohai sea area, the northeast region, the southwest region, the northwest areas, and in the middle and lower reaches of the Yangtze river areas, the second batch of pilot projects is mainly distributed in these areas too, the scope is even larger. The distribution is more uniform, and it will contain more provinces, such as the Heilongjiang province, Jilin province, Xinjiang province and Guizhou province, etc. From the distribution of the demonstration projects, the first batch of pilot projects were mainly distributed in some major cities of the region with developed foreign trade, generally the cities are the key to the logistics industry that can drive the development of the logistics industry in the

province and make the effective connection with the national logistics industry. The number of the second batch of pilot projects is relatively more, on the basis of the first demonstration projects it was more distributed, it was mainly for relating the channel of logistics in the province, and it would join in some resource-rich cities to strengthen effective transport material resources in the province.

Table 1 The first batch and the second batch of demonstration projects in China

	The first batch	The second batch
Beijing	1	2
Tianjin		1
Heilongjiang Mudanjiang		1
Jilin Changchun		1
Hebei Tangshan	1	1
Liaoning Dalian	2	
Liaoning Yingkou	1	
Shandong Qingdao	1	
Shanxi Linfen		1
Shanxi Taiyuan		1
Anhui Maanshan		1
Jiangsu Lianyungang	1	
Jiangsu Nanjing		1

Zhejiang Hangzhou		1
Zhejiang Ningbo	1	
Fujian Xiamen		1
Jiangxi Ganzhou		1
Hunan Chenglingji		1
Henan Zhenzhou	1	2
Shanxi Xi'an		1
Hubei Wuhan	1	1
Guangdong	1	
Guangdong Shenzhen		2
Chongqing	1	1
Sichuan Chengdu	1	1
Yunnan Kunming	1	1
Guangxi Nanning		1
Guizhou Guiding		1
Ningxia Shizuishan		1
Xinjiang Urumchi	1	2
Xinjiang Kuytun		1

Gansu Lanzhou	1	1
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(Data sources:Ministry of communications)

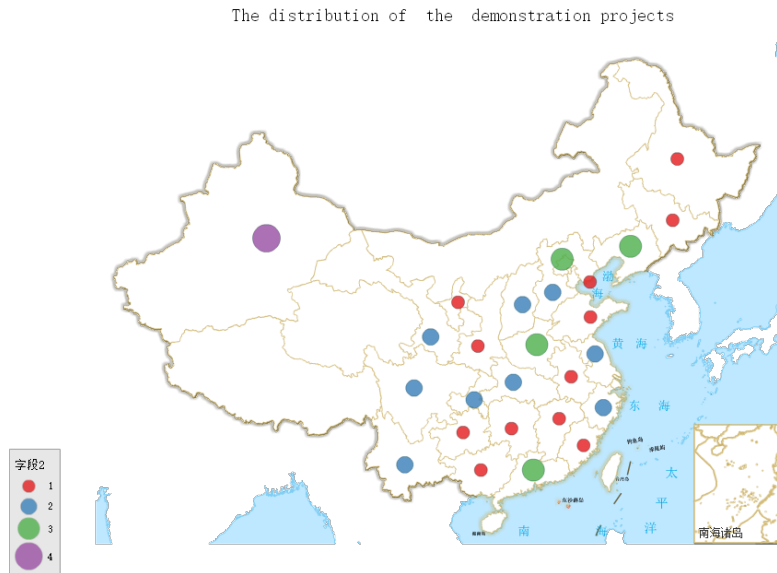


Figure 1 The distribution of the demonstration projects

3.2 Finding the advantages and disadvantages of the project through the distribution map

From the map people can found that the projects are mainly distributed in the bohai region, the ancient silk road, the southwest region of the trade road for the southeast Asian. It is presented in Table 2.

Table 2 The distributions of the projects

	the first batch	the second batch	the main purpose
the bohai region	6	6	Connecting the northeast provinces and the

			eastern regions, connecting with the ancient silk road to form the maritime silk road.
the ancient silk road	2	5	Connecting the mainland of China with the continent.
the southwest region	4	7	Trading with the southeast Asian countries.

There are 46 projects in the first batch of demonstration projects and the second batch of demonstration projects. It can be seen that these projects are mainly concentrated in the major cities in the Bohai rim region and the major cities in the three provinces of the northeast in China. The major cities on the ancient silk road, such as Urumqi and Kuytun, which are the major cities in northwest China. There are major cities in the southwest, such as Sichuan, Chongqing, Yunnan, Guizhou, Guangxi, etc. There are also major transportation hubs in the central region, such as Zhengzhou and Wuhan. The projects mainly focus on the Bohai rim region and the northeast region and the northwest region, it is mainly to develop the “One Belt and One Road” strategy and maritime silk road strategy. The distribution of demonstration projects are relatively uniform and basically covers China's main foreign trade areas of China and transport hub cities in central China, it makes full use of the railway resources, the water resources, the road resources, and the distribution is more dispersed and there are few cluster phenomenon, especially in the Bohai rim region and the northeast three provinces, and the northwest regions in the ancient silk road, those are the main demonstration areas of the multimodal transport projects. It relates the logistics network of the main transportation hub in those areas and resources cities together, it is not only to strengthen the construction of the regional logistics infrastructure, the construction of the market system and mechanism, the construction of information internet, and it has built a good logistics base to promote the transfer of the regional

material. Its main characteristic was to select the more representative regions and cities, it fully uses the Chinese railway and water transport resources, for example, Lianyungang and Chongqing opened routes to Europe that greatly saves the cost of logistics and effectively saves resources and it further perfects the logistics network of China, the logistics industry has been very great developed. For example, the Bohai rim region and the northeast of China, the projects in those areas can lead to the development of local logistics industry, and it also can strengthen the cooperation with South Korea, Japan, Korea and other countries, it also can strengthen the cooperation with European countries such as Russia, and it relates China and the European continent to promote the development of foreign trade. At present in the ancient silk road it has 5 demonstration projects in northwest China, it relates the ancient silk road and Europe together and launched a train arrived in Europe. It not only promote the development of the local logistics industry, but also promote commerce development with neighbouring countries. The main drawback of demonstration projects is the number was relatively small, it chose the capital cities generally and do not chose some cities with rich resources, so it limits the development of goods transportation in the resource-rich city. Many of the demonstration projects are invested in some relatively backward areas, and it strengthens the construction of logistics infrastructure in these areas and drives the development of the logistics in these areas. The amount of investment is more, but the effect is slow, it is difficult to form the short-term economic effect. For example, in Xinjiang, Gansu, Guizhou, Yunnan, Guangxi province. The investment in these areas is in conformity with the requirements of the "one belt and one road" policy because it is difficult to get the short-term benefits, it also affected the effect of "One Belt and One Road" policy.

The government should actively expand the new multi-modal transportation project and promote the construction of the Changjiang river and sea combined

transport and the railway and water combined transport, to actively expand the international road multimodal transport and land and sea multimodal transport construction of countries along the maritime silk road in the 21st century. Relying on the advantages of the aviation hub, it should improve the construction of international air freight network system, for example, the air and air and the air and land multimodal transport. It should promote the construction of multi-modal transport corridors connecting the Yangtze river economic belt and deepen the cooperation between Chongqing and the provinces and cities of the middle and lower reaches of Yangtze river. To promote the economic interaction between cities of the Yangtze river economic belt to reserve the demand for multimodal transport services. In May 2014, the first phase of the China-Kazakhstan logistics cooperation base project was built and it is mainly used to undertake the goods which is from Kazakhstan and sent to Japan and South Korea and southeast Asia, and goods from Japan and South Korea and southeast Asia is sent to Kazakhstan, it is the first domestic entities projects of the trade and economic cooperation to carry out the strategy of "one Belt and one Road", it is also the only departure port that Kazakhstan food could transit in China. Lianyungang port successively opened the rail and water multimodal transport train to Alataw Pass, Zhengzhou, Xining and Houma, including Lianyungang to Alataw Pass, Xining, Zhengzhou of three channels and six trains. On February 25, 2015, "Lianyungang - Alma-Ata" of China and Asia international train was officially launched, and now it has achieved the stable operation scale of 5 columns per week. In November 2015, "Lianyungang-Kazakhstan-Europe" of China and Europe international train was opened. Lianyungang port is the first port in China to carry out the continental bridge transit transport and the largest volume port. After many years of development, it has formed the transit transport pattern of "one port and two lines" of Khorgos and Alataw Pass. But in recent years, influenced by the depreciation competition of Siberian continental bridge, it directly weakens the overall

competitiveness of the new Asia-Europe continental bridge with the leader of Lianyungang, to a certain extent affect it influences the implementation of the national strategy of "one belt and one road". In the management of shipping box on the road and railway box on the ship, it should accelerate the research on railway container changing with shipping company, and the integration of business resources utilization and the terminal, especially for the containers of sea transportation cooler, it should speed up the research and development of new technology and new equipment of logistics to achieve the compatibility and application of sea special boxes. It should accelerate the connectivity between ports, shipping companies and railway information system and establish data exchange standard, and it should guide and coordinate the parties of the sea and rail multimodal transport to establish the data exchange mechanism and research and develop the collaborative system. The operation of multi-modal transport is different from that of logistics enterprises in the past, which requires more professional information integration and a fully coordinated management mode. The existing multimodal transport enterprises are mostly the state-owned enterprises, lacking of the private enterprises and foreign enterprises to participate in, the whole market is lack of competition and vigor, and the upstream and downstream firms are fewer on multimodal transport chain that makes the synergistic effect of the industrial chain is not very good. The multi-modal transport firstly relies on the trans-regional logistics channel, so it needs to coordinate the layout in space, otherwise it is difficult for the resources to be optimized and matched. In order to avoid the development of ports and hubs, as well as the development of the central European class, all projects were conducted together, the multi-modal transport could not play the intensive efficiency. In terms of infrastructure, the facility connection should be seamlessly and focus on the last kilometers for the railway transport, the highway connects the hub station for the last one hundred meters. And the technology and equipment should be standard, including the carrying unit, the carrying tools and the

rapid transit equipment, only standardization can improve the level of general and specialized level, it is the technical support for the multimodal transport efficiency, China has the great gap with other countries, the carry back transportation and the equipment standard for roll-off transportation are in missing station. The multimodal transport is an integrated operation organization that reflects fast and efficient transshipment. For the whole process of transportation and seamless connection, China still do very badly in this respect. For example, the legal standard of multi-modal transport operators and the rules of multimodal transport service. In the second batch of demonstration projects, the leading enterprises cooperated with many enterprises in China, for example, the logistics company of Xinjiang can cooperate and logistics company in Beijing, a project has a lot of mutually cooperated logistics companies, compared with the first demonstration projects, the cooperative enterprises with the second batch of pilot projects was significantly increased, the distribution of the logistics network is more widely.

3.3 Finding problems from Fishbone Diagram

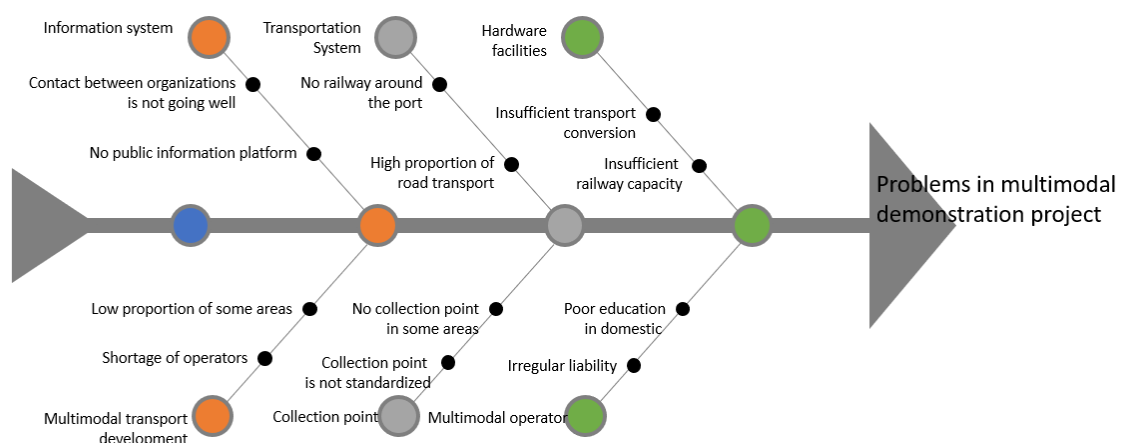


Figure 2 Fishbone Diagram of the demonstration projects

In the fishbone diagram, the shortcomings in the multimodal transport demonstration project can be found from various aspects.

From information system, at present, China's port container multimodal transport associations attach great importance to the informatization construction of their respective fields, and the degree of informatization is relatively high. However, because there is no unified information coordination platform between systems, the systems of each department are independent. Operation will inevitably lead to the phenomenon of information islands, information cannot be smoothly transmitted and shared, which directly restricts the further development of multimodal transport. Based on the current status of multimodal transport in China and the development of informatization, it is necessary to integrate the data sources and information systems of the relevant logistics nodes and build a unified information platform for multimodal transport services.

From transportation system, the two modes of transportation, water transport and railway transport, are connected to the middle-broken belt. The distance between broken belts is usually one to several tens of kilometers. This transport needs to be bridged by container road trailers, and the cost of bridges often accounts for the cost of main line transportation. More than 50% of the time spent on phagocytosis is even more amazing. In some places, the proportion of road transport is too large. As in Chongqing, the proportion of multimodal roads is relatively high, and the goods are mainly transported by bulk trucks and vans. In 2015, the road freight volume accounted for 83.71%, water transportation volume accounted for 14.48%, railway freight volume accounted for 1.79%, and roads, waterways, and rail transportation were inconsistent.

From hardware facilities, due to insufficient railway transportation capacity and inadequate conversion of goods, the huge potential of China's sea-railway transport is difficult to achieve due to the constraints of railway transportation capacity, and only a large number of containers in the port can be transported by road to inland areas, accounting for 84% of the total transportation volume. Developed international sea-rail combined transport accounts for 20% to 40% of port container throughput, which is only about 2% in China. Take the above seaport as an example. In 2010, the domestic container throughput was 29.06 million TEU, of which sea and rail combined transport was 12.71 million TEU, accounting for only 0.44% of port container throughput. The overall vehicle satisfaction rate for the entire railway line is only about 35%. The lack

of rail capacity has seriously hindered the development of sea-rail transport.

From multimodal transport development, as the multimodal transport demonstration project in China is still in its infancy, the proportion of multimodal transport in many regions is still low. Excellent multimodal transport operators are still in a state of shortage, which is closely related to the inadequacies of domestic regulations.

From collection point, collection points are less distributed in some relatively backward areas, such as Inner Mongolia, Gansu, Qinghai, and Tibet. No multimodal transport demonstration project has been established so far that multimodal transport in these areas is difficult to develop. Although there are more points in developed areas, the standards of some points are not standardized, which also limits the development of multimodal transport.

From multimodal operator, multimodal transport operators, as an important part of the entire multimodal transport network system, are of great significance to the development of the entire multimodal transport network system. The various modes of transport are perfectly linked, resources are used rationally, and all service organizations are able to co-operate with each other to maximize the advantages of multimodal transport. They are inseparable from the reasonable organization and operation of operators. In China, because the relevant regulations are not perfect, multimodal transport operators cannot reach the level of foreign countries. This has a lot to do with the lack of attention paid to the cultivation of multimodal transport operators in China. The next is the solutions to several typical problems.

3.4 The solution to the problem found

3.4.1 Dealing with distribution of goods collection point is not reasonable

The infrastructure and management system and information technology and cohesion regulation are very important for the intermodality. The intermodality in Chongqing forms the main channel of international trade between Chinese inland region and the silk road economic belt, and the international railway of "Yuxinou" relates Chinese inland region and Europe. Chongqing is the center of the southeast of China and the intermodality projects in Chongqing should speed up the construction of the upstream shipping center of the Yangtze river. It is necessary to strengthen the

construction of waterway infrastructure, improve the cargo capacity of the three gorges, and improve the mechanization level of the main branch ports. It should offer certain preferential policies for cargo transport. It should develop the middle and lower reaches of the Yangtze river provinces and cities of the rail and road intermodality market, the cargo shipped to Europe could implement by that railway. We should promote the informatization and facilitation of the shipping trade network and improve the shipping supporting service system. It should vigorously promote the international airport construction and expansion. We will advance the construction of infrastructure and the expansion of cargo terminal, and expand the domestic and international flight routes, and build up the capacity of cargo mail. Because of the uneven distribution, in the central regions in China, and Qinghai province, Tibet and other regions it did not carry out the demonstration projects, the goods of these areas can be transported only through the local railway and highway transportation, it is hard to do the middle mile service of transportation, and the construction of the logistics infrastructure of these areas, the logistics information network, the market system and mechanism are relatively backward, and it hindered the development of logistics industry and the availability of material transportation, and affect the efficiency of logistics. These areas should make full use of the local railway resources, strengthen the construction of railway infrastructure, and strengthen communication with other logistics industries in China. The resources in the central region should be transported mainly by water or by rail transport to the destination. The materials in such provinces can use the inland river shipping advantage or develop the railway and highway network to carry on. The transportation in the central region is relatively developed that is a resource that can be fully utilized. In many areas, the goods can be transported through the middle regions to other places of China. In Tibet, Qinghai province, in order to accelerate the development of the logistics industry, the main measure is to strengthen the construction of the railways, highways and other infrastructure construction. The

developed railway transport industry can realize the mass transportation of goods, and reduce the cost of transportation. And it also can let the regional logistics network and the domestic logistics network relate together, and the goods in these areas will be sent abroad effectively. In addition to the construction of infrastructure, the construction of logistics information network, the construction of system and mechanism and the logistics market system are also very necessary, through the construction of these aspects can simplify the logistics process, and improve the efficiency of logistics operation effectively. It could establish an integrated logistics transportation system, it can not only integrate the resources, but also save the resources effectively and reduce the logistics costs.

3.4.2 Train Multimodal transport operator

It should strengthen the policy support for multi-modal transport enterprises and implement the policy of tax deduction for the logistics industry and study the cost reduction measures for the development of multi-modal transport integration, and strengthen the overall coordination and enhance the synergy between government and enterprise. And to set up standard system for multimodal transport development. And it should detail the related implementation rules and regulations such as the statistical evaluation standardization, the operation and service standardization, the transport equipment standardization, the information standardization, the terminal equipment standardization and so on. Through perfecting the relevant legal system of multi-modal transport, it should expressly provide the shipper's responsibility, the operators' liability of multimodal transport, the claims and litigation regulation specification, the contract content, the documents standard, and provide better protection for the healthy development of multimodal transport market. It should introduce and cultivate logistics talents, and study the introduction project of multi-modal transport operation talents at home and abroad, and organize seminars for experts in multi-modal transport field. Comprehensive utilization of education resources is needed, the local logistics

talent would have related training. The multimodal transport operator should have the professional knowledge, skills and experience required for international transportation. It has a relatively complete branch and agency network formed in the international freight forwarding business. It has the financial ability to adapt to the business operation. The multi-modal transport operators should not only have their own branches or agents in coastal ports and ports along the river at home and abroad, but also have their own branches or agents in inland cities both at home and abroad. It should establish their own intermediary organizations at home and abroad, such as the limitation of manpower and financial resources, and it should also engage in joint ventures, joint operations or establishing the mutual entrustment relationship with domestic and foreign local counterparts. It should establish the computer management systems and establish the professional teams and have abundant capital. The government should cultivate the multimodal operators provided the integrated transportation services with road, rail and water transportation. The large-lot producers are occupied in the integrated transportation services with road, rail and water transportation and managing port business and freight forwarding business that should be encouraged to extend the operating range and operate the logistics service network through jointly owned the company and the asset restructuring, and furnished the whole logistics service of multimodal transport. The enterprises should be encouraged to develop the rail and water multimodal transportation and the water and water multimodal transportation to improve the rate of rail transportation and inland water transportation. The ministry of transport should simplify the procedure for examination and approval for the industry access and it should relax restrictions suitably. It should give aid to the development of leading enterprises running the multimodal transport. And it should lead the traditional freight transportation enterprises to cooperate in different modes and establish various forms of multimodal transport enterprises. It should develop the industrial clusters for the equipment

manufacturing industry and improve the level of the equipment.

3.4.3 Dealing with shortcomings of hardware facilities

It should be oriented to the international community and speed up the construction of domestic and overseas distribution points and storage centers, and actively cooperate with foreign leading multi-modal transport enterprises to expand international business. It should solve the problem of highway transportation congestion and improve the operation capacity of the main access to the city, improve the transportation network between different functional areas and between urban and rural areas, and improve the efficiency of highway transportation. In addition, It needs to strengthen the effective connection of the infrastructures between air transport and rail transport, road transport and water transport, and vigorously develop air and rail transport, the air and water transport, and improve the logistics park system and logistics distribution system layout and promote the connection of road network and logistics park. And it should connect the end of the railway, highway, water transportation, aviation and logistics park, it should focus on promoting the construction of the railway and highway construction of main ports. It should speed up the construction of external rail links and highways of key hubs, such as air cargo hubs and logistics parks, and improve the efficiency of the linking capacity and transfer allocation. It should establish a sound network service platform to promote the development of "Internet + multi-modal transport" and create a seamless multi-modal transport channel. It should cultivate multi-modal transport enterprises and innovate combined transport mode. With the help of multi-modal transport engineering construction, it is positively affecting the powerful transport enterprises to carry out the multi-modal transport operation and attract the upstream and downstream enterprises of the multi-modal transport service chain. It should explore new multimodal transport service mode and enrich multimodal transport service category and encourage enterprises to purchase reefer containers, tank container multimodal

transport equipment, and it needs to professionally guide and cultivate the development of the rental market of the multimodal transport equipment such as the containers, semi-trailer and so on. It should develop the agricultural cold chain logistics, medicine logistics, hazardous articles logistics and other professional logistics of one-stop transport, it could reduce the attrition rate. The multimodal transport business enterprises should build the international multimodal transport network system, and build the foreign transit center, distribution center and retail operations, and strengthen the cooperation with excellent servicers at home and abroad to improve the competitive ability of the enterprise brand and promote the construction of the international multimodal transport platform. By strengthening the cooperation with various logistics outlets in China, the logistics resources of other logistics enterprises can be fully utilized and the logistics resources can be fully and effectively used. For areas with poor traffic conditions, such as Tibet province, Qinghai province, etc., the government should strengthen the construction of railways and other infrastructure, and let the railway drive the development of the local logistics industry, the cost of the railway freight is low and can achieve a large number of transport of the goods.

3.4.4 The middle kilometer of transportation

“The Middle kilometer” means that there have break belts between two transport modes of water transport and railway transport, and the distance from broken belts is usually from one kilometer to several tens of kilometers. This transport needs to be bridged by container road trailers to bridge the gaps. Costs often account for more than 50% of the cost of mainline transportation, and the transit time for wasting is even more alarming. The " The Middle kilometer " has become a prominent issue in the development of multimodal transport, which restricts the development of multimodal transport. The poor convergence of transitions and the incompatibility of capabilities are the main problems in the “The Middle kilometer” of multimodal transport in China.

The “The Middle kilometer” problem has complicated causes, including that infrastructures are in their own stages of planning, there is no space convergence and coordination between different modes of transport and integration are insufficient, and information exchange and sharing channels are not yet smooth, and the entire transportation organization chain is broken. Poor, it is difficult to efficiently link all aspects of logistics, which is the main contradiction in the current development of transportation logistics, and it is also an important bottleneck for transportation to promote the healthy development of the logistics industry.

The logistics channel is not perfect. It is mainly reflected in the “the connection is not smooth” and “neighboring areas are not connected” between important hubs. The convergence of ports, hubs, logistics parks, and railway stations is insufficient. rail and ship transport, rail and road transport, and international rail transport are the three most mature types of multimodal transport in China, with the largest share of rail and ship transport, and the problem of poor connection between ports and railway stations is the most prominent. The influences are that the port and railway are difficult to achieve synergy in working hours and operational efficiency, and the inbound rail transportation capacity of the inbound port does not match the operating capacity of the container in the port, resulting in the sea-rail transport business. The cycle has been lengthened, affecting the improvement of sea-rail combined transport capabilities. Solving the problem of " The Middle kilometer " convergence has a great effect on improving the efficiency of multimodal transport and on the overall benefits of integrated logistics.

First of all, referring to the Alameda Freight Corridor in the United States, I do not think that it is impossible for the railway to enter port. In the 1980s, due to the rapid development of the port, the city of Los Angeles in the United States did not match the capacity of port transportation and port transportation, causing seriously contradictions

between the ports and cities. The Southern California government therefore proposed to optimize the resource allocation of the Port Railway to coordinate the port and The development of the metropolitan area led to the development of the Alameda Corridor project, which brought enormous economic, social and environmental benefits to the city of Los Angeles. Construction of the Alameda Corridor. In order to alleviate the increasingly serious contradiction between the port and the city, the California government adopted the PPP (Public-Private Partnership) model under the authorization of the federal government in 1995.

The construction of the Alameda cargo corridor has brought a series of benefits that have effectively promoted the multimodal transport efficiency of the United States west coast.



Figure 3: Alameda freight corridor map

Multimodal transport is not a simple combination of several modes of transport. Only a reasonable and efficient connection can make multimodal transport truly effective. It is necessary to actively promote the construction of multimodal transport hub sites and transportation systems. The infrastructure construction of multimodal transport plays a key role in the construction of a multimodal national system. The road, the rail, and the water must be connected as far as possible in the physical space. However, China's large coastal ports do not have all the conditions to enter the railroad. If the short-board repairs are carried out, the biggest difficulty faced is the severe shortage of land space behind the port, even surrounded by sea-view house. Not to mention the sea-rail transport and swap facilities, the normal operation of the port has been seriously affected.

For such a port city, the Alameda freight corridor approach is an option. The railways will be repaired into the wharf operation area, and through the sunken corridors or suspended rail corridors, they will be connected to the nearest railway logistics center, reducing the city's land consumption.

Multimodal transport hub cities need to establish their own freight lanes. With the increasing attention paid to multimodal transport, many cities with large cargo volumes and large road, rail, water, and air hub resources have played cards for the establishment of multimodal transport hub cities, but have visited these cities, the freight transportation network in these cities is overcrowded. The faster the logistics development, the more contradictions the urban roads cause. Therefore, it is necessary to open up exclusive freight lanes between multiple logistics bases in the city to ensure the free flow of trucks, thereby ensuring the port and rail transportation environment, and giving the freight vehicles the right to driving on the road.

There is also a problem of funds. To solve " The Middle kilometer " of multimodal transport requires the innovative development of investment construction and

operation management models. The problem of “The Middle kilometer” has a wide range of impacts, customers, carriers, government traffic management departments are complaining. However, when designing an investment transformation project, the problem comes, who will invest money to build such a dedicated freight lane? Business investment not only solves its own problems, but also needs to solve social problems. It not only alleviates road congestion, but also saves the government thousands of dollars or hundreds of millions of road maintenance costs each year. The construction of the Alameda cargo corridor adopts the PPP model, the government and social management entities establish a community relationship of “sharing benefits, sharing risks, and full cooperation.” The government’s financial burden is reduced, social entities’ investment risks are reduced, and resources are increased. Use efficiency and construction, operational efficiency. Multi-party income, multi-party investment, government-led, and corporate operations solve the problem of short-circuit multimodal transport infrastructure.

Chapter 4. The future development of China multimodal transport

To build a good demonstration project, it should form a joint force at the government level. On the one hand, it should strengthen the uniform organization and leadership of the provincial departments of transportation and it should firstly integrate the resources of water transportation and road transportation and so on, at the same time it should communicate and coordinate actively with the railway, civil aviation, postal industry and so on. The ministry of transport will also cooperate with the national development and reform commission to supervise, inspect, guide and track the work. In the process of project implementation, the government plays a leading

role and the enterprise needs to cooperate with the leadership of the government. In order to truly mobilize the initiative, enthusiasm and creativity of the enterprise, it should fully performance their main role of the enterprises. The departments of government are responsible for the publicity and completing the mobilization work and effectively interpreting the policy and organizing the conduction of the project, and providing effective technical guidance. The government should really elect good enterprises, good projects and create a good environment for the project execution. The key of the multi-modal transport is to innovate in organizational mode and standard, and truly break the mode of transportation production organization in traditional way of divided ways, divided areas, divided links and form a complete chain of transportation organization. The multimodal transport has six "one", now the all are completed that is difficult, but for every demonstration project construction, there will be a few "one" of innovation at least. If there is no innovation, it is just simple collaboration between enterprises or project improvised, it cannot reach the effect of the project. When choosing a project, it should highlight the innovation, leadership and demonstration, and it should select the project strictly. The implementation plan is the important basis for demonstration projects selection, organization and management, supervision and examination, preparing good "implementation plan" should grasp several basic principles: one is realism, to clarify the existing business foundation and objective demand, the project should have early work necessary conditions; Secondly, it is innovative to make clear the organizational process of multimodal transport, and highlight the innovative points of the pattern, not just simple packaging or piecing together; The third is pertinence, the arrangement of station construction, equipment renewal, information system transformation and other projects, should be closely related to the design of multi-modal transport organization pattern; The fourth is policy, to understand the two ministries file spirit, the demonstration projects stresses the seamless joint of different transportation mode and

rapid transit, it do not support the construction of a single port and freight hub station, and it just support the construction and reform of multimodal transport function part; The Fifth is the target, it should scientifically design the expected economic benefit indexes and social benefit forecast indexes such as the energy saving and emission reduction, and it should be monitored, reported, and verifiable; The six is controllable, the design must have the characteristics, the project schedule must have the rationality, and it cannot blindly pursue scale, the plans should be controlled and can satisfy the expiry of the examination requirements. We should encourage enterprising enterprises to make bold and innovative exploration and try to fill in the technical gap, for example, the carry back transport and transportation with dumping trailers for road and rail. The support policy about this aspect should not be confined to the scope of the two ministries files, for the research and development of the equipment, the procurement and the operation test and so on, it is believed that the ministry of transport and other related departments will actively help to expand other policy support channels. The multi-modal transport demonstration projects depend on the positive effect of the enterprise, but the policy guidance of the government is also indispensable. It is hoped that the local transportation departments should positively related the departments of the national development and reform commission and will actively seek the support of local people's governments and strive for more supporting policies. At the same time, the local organizations should be encouraged to carry out pilot demonstration projects of local multimodal transport. It should strengthen the tracking and supervision of the demonstration projects, and help enterprises to solve the problem in a timely manner, and find and summarize the good practices in the process, people should be good at summarizing the good practice experience and change it into the institutionalization of good experiences, it should truly form a batch of demonstration results or typical models, and actively promote the application. Firstly, people should accelerate the construction of a standardized system for multimodal transport. Without the

standardization it is impossible to have efficient multimodal transport, it is necessary to study and use for reference of the experience of Europe and the United States to speed up the building of the multimodal transport technical standard system with Chinese characteristics and the standardized delivery unit. The ministry of transport had issued by the "standard of comprehensive transportation system" tables, which covers all aspects of revision plans of the multi-modal transport standard system, at the same time it set up the comprehensive transportation standardization technical committee, with the professional team of the multimodal transport. The next step is to accelerate the revision of the standard system. It should grasp the following two points: firstly, people should mobilize all aspects of resources and gather the intelligence, and organize and coordinate the work with an open mind. Secondly, it should give full play to the backbone role of the enterprise. At the same time, we hope that more enterprises will join us and build up a platform for the production, the learning, the research and the collaborative innovation. The government should speed up formulating a multimodal transport related laws and regulations, and provide effective legal protection for the development of multimodal transport and institutional guarantee, at the same time the government intends to develop the technology and policy research of multimodal transport development, it should form the policy institutionalized system. In addition, it should encourage and strengthen the local legislation of multimodal transport and jointly accelerate the improvement of the system of multi-modal transport laws and regulations.

It should be set in Hubei Enshi of the demonstration projects of multimodal transport to relate the logistics enterprise and logistics engineering projects in Sichuan province and Hubei province, and to play the advantages of developed transportation system and the Yangtze river shipping resources and rich resources of railway transportation in Hubei province, by Sichuan province it can strengthen the trade with

Southeast Asian countries and to develop the international association with the Southeast Asian countries. Also it can be set up in Shiyan, the demonstration projects of multimodal transport could strengthen the trade in Shanxi province, through the Shanxi, Gansu province, and Xinjiang region, and through the ancient silk road, it could strengthen the trade with the Europe continent and it also could promote the construction of transportation infrastructure in northwest region, and promote the development of logistics industry and the development of economy in northwest China. It can also establish contacts with the eastern coastal areas and make full use of the resources of the maritime silk road. It should set the demonstration projects of multimodal transport in Gannan Tibetan autonomous prefecture in Gansu province, it could strengthen the cooperation with Sichuan province and set up channels of contact with the Southeast Asian countries, it also could strengthen the cooperation with Qinghai province and Tibet autonomous region, in order to strengthen the flow of materials in these areas and promote the development of the regional logistics industry and the development of economy. It should set up the demonstration projects of multimodal transport in Zhangye district of Gansu province, and to strengthen logistics cooperation with Lanzhou and Xinjiang uygur autonomous region, and to open up contacts with the European mainland. In Xining city in Qinghai province and in Lhasa of Tibet province it should also set the demonstration projects of multimodal transport, to strengthen its material flow and strengthen the cooperation with Sichuan province, Yunnan province, and to strengthen the cooperation with southeast Asian countries and promote the development of international trade. It should strengthen the cooperation with Xinjiang province and strengthen contacts with the European continent and develop links between China's interior and the European continent. In Hohhot in Inner Mongolia autonomous region it should set up the demonstration projects of multimodal transport to strengthen the contact with the Bohai rim region and make full use of the shipping advantage of Donghai and to develop the maritime silk road, it also

can strengthen the cooperation with the three northeastern provinces, and it could set the demonstration projects of multimodal transport in Alxa region, to strengthen the cooperation in Xinjiang uygur autonomous region and Gansu province, to connect the mainland of China and the Europe continent together, and take advantage of the ancient silk road. The distribution of the demonstration projects should be as follow.



Figure 4 The distribution of the demonstration projects

Conclusion

Implementing the multi-modal transport demonstration projects is an important measure to accelerate the construction of comprehensive transportation system. It could reduce the cost of the full transport and it could simplify the relevant documents and procedures and improve the efficiency of transportation. Now there are 46 projects in the first batch of demonstration projects and the second batch of demonstration projects that were determined in June 2016 and November 2017 respectively. The multi-modal transport projects have achieved a lot of achievements and promoted the

development of China's logistics industry. These projects are mainly concentrated in the major cities in the Bohai rim region and the three provinces of the northeast in China. And the major cities on the ancient silk road in northwest China and in the southwest regions and in the central regions of China. The projects mainly focus on the Bohai rim region and the northeast region and the northwest regions. The distribution of the demonstration projects is relatively uniform and basically covers China's main foreign trade areas and transport hub cities, it makes full use of the railway resources and the distribution is more dispersed and there are few cluster phenomena. In the northwest of China, there are mainly located in Xinjiang province and Gansu province accounted for 10.87% of the total projects. In the central regions they are mainly in Zhenzhou, Xi'an and Hubei, the number of multimodal transport projects is relatively small. Its main characteristic was to select the more representative regions and cities, it fully uses the Chinese railway and water transport resources. The projects in the Bohai rim region and the northeast of China can lead to the development of local logistics industry and it also can strengthen the cooperation with South Korea, Japan, Korea and other countries, it also can strengthen the cooperation with European countries such as Russia and it relates China and the European continent to promote the development of foreign trade. The second batch of multimodal transport projects compared to the first demonstration projects has more wide scope, it mainly chose the demonstration projects in Guizhou, Shanxi, Xinjiang provinces. The demonstration projects in China are mainly distributed in the Bohai rim region, the northwest region and the southwest region, in these areas it could better develop the foreign trade and strengthen the communication with the surrounding countries and develop the international logistics network. The multi-modal transport demonstration projects are widely distributed in some underdeveloped regions in China with large investment and slow earnings. It is good for the development of the logistics industry in these areas and it could promote the development of the local economy in these regions that is

conducive to the comprehensive development of the logistics industry.

It can be seen from the current distribution, the demonstration projects of multimodal transport are mainly concentrated in the Bohai sea area, the eastern region, the southwest region, the number is 8 in the central region and the number is 7 in the ancient silk road, they respectively accounted for 17.39% and 15.22% of all multimodal transport projects. The country is now in the implementation of the development strategy of central region and the strategy of "one belt one road", it should give full play to the role of the transport hub in central China, especially to connect the east, the west and the mid logistics together, connecting the maritime silk road in the east and the land silk road in the west, associating the continental Europe to China, and making full use of railway resources advantage and resources advantage of shipping. In order to promote the development of logistics transportation, it should strengthen the construction of railway and road in western China, and develop the transportation industry, and provide the basis for the development of logistics industry. This is the deficiency of the first and two multimodal transport projects at present. Logistics nodes can be set up along the Yangtze river in the central region, and more business outlets should be set up in the western region of China's Xinjiang province. It can also set up logistics nodes in Gansu province, Xinjiang province, Qinghai, Inner Mongolia autonomous region, it is good for the transportation of the resources in that place, it could relate these regions resources to the national logistics to strengthen the construction of the western region logistics network and strengthen the construction of the western region traffic network to lead the development of western region economy. The central and western logistics enterprises should be encouraged to apply for multimodal transport projects, especially in some cities with special resource or traffic advantages, and it should let the eastern region, bohai logistics companies lead the development of logistics enterprises in the mid and west China and have the effect of

demonstration to take the lead.

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Appendix

Due to deviations in the translation process of some multimodal demonstration projects, the following is the Chinese name of the multimodal transport demonstration project that appears in the thesis.

The first multimodal transport demonstration project:

1. “驮背运输（公铁联运）示范工程”
2. “河北省“东部沿海—京津冀—西北”通道集装箱海铁公多式联运示范工程”
3. “大连东北亚国际航运中心“亚太—东北地区”通道集装箱海铁公多式联运示范工程”
4. “辽宁省“东南沿海—营口—欧洲”通道集装箱公铁水联运示范工程”
5. “江苏省新亚欧大陆桥集装箱多式联运示范工程”
6. “宁波舟山港—浙赣湘（渝川）”集装箱海铁公多式联运示范工程”
7. “青岛“一带一路”跨境集装箱海铁公多式联运示范工程”
8. “河南省郑欧国际货运班列“一干三支”铁海公多式联运示范工程”
9. “湖北省武汉市推进“一带一路战略、长江经济带战略”集装箱铁水联运示范工程”
10. “中外运（广东）“东盟—广东—欧洲”公铁海河多式联运示范工程”
11. “贯通欧亚大陆的公铁联运冷链物流通道示范工程”
12. “重庆市渝新欧多式联运示范工程”
13. “四川省成都国际铁路港集装箱铁公水多式联运示范工程”
14. “云南省“昆明—东南亚、长江经济带、广西北部湾”一心三支“点轴辐射型”集装箱公铁海多式联运示范工程”
15. “兰州南亚国际班列公铁联运示范工程”
16. “新疆生产建设兵团丝绸之路国际多式联运示范工程”

The second batch of multimodal transport demonstration project:

1. "天津港中蒙俄经济走廊集装箱多式联运示范工程"
2. "河北省长久物流商品车公铁水联运示范工程"
3. "太原铁路局“一核两网三联四通”铁海公集装箱多式联运示范工程"
4. “山西方略保税口岸型国际内陆港“一园双网两级多维”大宗货物集装箱多式联运示范工程”
5. ““西北地区—京津冀区域”铁路多功能车智慧公铁水多式联运示范工程”
6. “液体化工（甲醇、成品油）罐式集装箱铁公海多式联运示范工程”

7. “吉林省华航集团打造一汽物流供应链服务体系多式联运示范工程”
8. “黑龙江省牡丹江国际(国内)陆海联运通道集装箱多式联运示范工程”
9. “南京区域性航运物流中心“连长江、通欧亚、对接沿海、辐射中西部”多式联运示范工程”
10. “顺丰航空集装器空陆联运示范工程”
11. “依托长江黄金水道，立足皖江城市带马鞍山多式联运示范工程”
12. “联通“一带一路”的厦门东南国际航运中心海铁多式联运示范工程”
13. “赣州港“一带一路”多式联运示范工程”
14. “环渤海鲁辽公铁水滚装联运示范工程”
15. “河南省机场集团打造“空中丝绸之路”空陆联运示范工程”
16. “服务自贸区战略构建中原“米”字型高铁物流网络铁公空多式联运示范工程”
17. “长江中游黄石新港“打造一体化铁路港前站服务港产协同发展”铁水公联运示范工程”
18. “湖南城陵矶新港水公铁集装箱多式联运示范工程”
19. “广东省盐田港亚太—泛珠三角—欧洲国际集装箱多式联运示范工程”
20. “广西服务“一带一路”战略“西南—北部湾—东盟/中国沿海”点线并举、境外布局多式联运示范工程”
21. “四川省“空中+陆上”丝绸之路国际空铁公多式联运示范工程”
22. “重庆果园港服务长江经济带战略铁水联运示范工程”
23. “贵州省贵州国际陆港联通川贵地区—粤港澳大湾区集装箱铁水联运示范工程”
24. “云南省面向南亚东南亚的“一核、三轴、多节点”国际多式联运示范工程”
25. “西安港建设“一带一路”内陆中转枢纽陆海空多式联运示范工程”
26. “甘肃省兰州新区空铁海公多式联运示范工程”
27. ““东部沿海—宁蒙地区(石嘴山)”——中阿国家”集装箱公铁海多式联运示范工程”
28. “新疆“东联西出”集装箱公铁水联运示范工程”
29. “新疆(奎屯)双向开放、多点支撑的“两主两拓展X型”物流大通道多式联运示范工程”
30. “新疆生产建设兵团大宗物资国际多式联运示范工程”