

Research on Development Strategy of Zhuhai Port Container Sea-rail Combined Transport

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Abstract

Under the "One Belt One Road Initiative" strategy, Chinese domestic traditional industries have transformed and upgraded in order to meet the requirements of the economic development of the new era. Some of the surplus production capacity has been sought for export. In addition, the large labor and land costs in coastal areas have outweighed the advantage of cheap coastal transportation. The labor-intensive industries have been gradually transferring to the interior land. Moreover, container sea-rail transportation has the advantages in terms of transportation efficiency, environmental protection and cost etc. These factors have stimulated the development of container logistics business in different types and levels of ports in China. Therefore, to improve Zhuhai Port's overall competitiveness in the Pearl River Delta port group, this article uses the SWOT method to comprehensively analyze the strengths, weaknesses, opportunities and challenges of the Zhuhai Port container sea-rail combined transportation. It puts forward such development strategies as construction of inland "dry port" system and sea-rail transport information platform, exploration of supply chain convergence and other strategies so as to enable Zhuhai Port to re-enter the forefront of the times.

Keywords

Zhuhai Port; One Belt and One Road; Container sea-rail combined transportation; SWOT analysis; Development strategy.

1. Introduction

The strategic concepts of building the "New Silk Road Economic Belt" and the "21st Century Maritime Silk Road" were put forward by Chinese President Xi Jinping in September and October 2013 respectively. 40 years ago as the forefront of reform and opening up, Guangdong province, be bold, bold innovation, after 40 years of Guangdong province for the country's grand strategy in June 2015 in the country take the lead in introducing all the way "" area of Guangdong province to participate in the construction of the implementation of the plan, as the bridgehead of reform and opening up, Guangdong province, Zhuhai, Zhuhai with Pakistan's Gwadar city signed the memorandum of friendship and cooperation, actively participate in national area of southwestern Guizhou international land port construction, for the sea lanes of the Zhuhai into an important fulcrum, Zhuhai port to carry out international exchanges and take an active part in domestic construction of two parts.

Sea-rail combined transport is one of the important ways for Zhuhai port to carry out collection and distribution. From the perspective of affecting the throughput of Zhuhai port and the economic development of Zhuhai, the development of container sea-rail combined transport can help save the turnover cost of goods, better expand the radiation scope of Zhuhai Port and develop the economic

hinterland. In 2014, the container throughput of Zhuhai port exceeded one million for the first time, reaching 1,177,000 TEU, up 33.6% year-on-year. Although it ranks first in container growth rate of major coastal ports in China, it only reached 4.9% and 7.2% of container throughput of Guangzhou port and Shenzhen port. And the port of zhuhai sea rail transport cargo throughput of 1.1 million tons, only accounts for only 1% of transportation, and the iron transport container volume accounts for only 0.36% of transportation, compared with the developed countries accounted for 20% ~ 40% for port transportation, development of zhuhai port in transportation is still a huge gap, low cost for failed to give full play to the transportation, low energy consumption, the characteristics of high capacity. The development of container sea-rail combined transport is affected by many factors, such as infrastructure construction, the introduction of relevant policies and the construction of information platform. This paper analyzes the advantages, disadvantages, opportunities and challenges of zhuhai port's development of container sea-rail transport through SWOT method, so as to more accurately carry out the investment development of container sea-rail transport and promote the overall development of Zhuhai Port's container sea-rail transport.

1.1 Overview of Container transport development of Zhuhai Port

Gaolan Port is the main port area of Zhuhai Port, and also the port area where container sea-rail combined transport business takes place. By the end of 2017, The Gaolan National Code of Zhuhai Port has passed the construction of phase I and phase II projects, and currently has two 50,000-ton container berths (with a structure of 100,000-ton) and four 100,000-ton container berths (with a structure of 150,000-ton).

Major projects such as the 150,000-ton main waterway project were also approved by the end of 2017, further promoting the construction of Zhuhai Port into an important international port in south China. In 2017, the cargo throughput of Zhuhai port reached 130 million tons, up 15.3% year on year, and the container throughput reached 2.27 million teUs, up 37.3% year on year. On the basis of the original four international routes (Zhuhai-Japan, Zhuhai-Singapore, Zhuhai-Vietnam, etc.), Zhuhai Port Group has also opened gaolan to the South Pacific and Zhuhai-Victoria Port in Brazil. In addition, there are 14 routes between Hong Kong and Macao and foreign trade internal branch lines to achieve full coverage of major domestic ports.

In the past, zhuhai port's source of goods was mainly concentrated in the Pearl River Delta region in south China, and the main source of goods at the port was bulk dry bulk (coal, iron ore, oil, gas and chemicals, etc.). However, the collection and distribution mode of import and export container goods is still dominated by traditional unilateral highway, waterway, or public water and water transportation, and the combined transportation of water and iron is less involved. In July 2015, the National Development and Reform Commission, together with the Ministry of Communications, issued the Notice on The Development of Multimodal Transport Demonstration Projects, which started the period of development of Multimodal transport in China. The multimodal transport business in container transport entered a rapid development, and the supporting policies were also introduced intensively. Zhuhai port is actively seeking for its own transformation and upgrading, grasping the strategic window period of sea-rail combined transport, and putting forward the idea of "Invigorating the city with port 2.0", and actively exploring hinterland and developing container sea-rail combined transport.

Zhuhai port holdings group in 2016 with the national transportation logistics public information platform of information management center signed a cooperation agreement, both sides will be in the national port logistics information platform and zhuhai deepening comprehensive electronic logistics platform data sharing service, resources complementary cooperation, joint efforts to promote the construction of informatization construction material for container transportation.

1.2 Status quo of container sea-rail combined transport development of Zhuhai Port

Refers to the import and export goods once loading for container transportation by rail to the coast port by the freight ship directly, or after the goods once the container by shipping to coastal port again

by the freight railway turnover, container trains is helpful to optimize the environment of the zhuhai operators, for the enterprise provides a more convenient, cheap and safe new logistics channel, reduce logistics cost along the

On the morning of April 20, 2016, the first ocean-rail combined container train (Gaolan - Qingyuan) of Zhuhai Port was officially opened with the sound of the siren, marking that the sea-rail combined container train of Zhuhai Port has entered the normal stage.

In 2017, the container throughput of Zhuhai port just exceeded 2 million TEU, opening up more suitable containers for the development of sea-rail combined transport.

Zhuhai Port-Sea rail Combined transport was started on December 29, 2012 with the opening of Guangzhou-Zhuhai Railway.

The guangzhou-Zhuhai railway is 186.23 kilometers long, connecting Guangzhou, Foshan, Jiangmen and Zhuhai.

In order to further solve the problem of "the last kilometer" and fully realize seamless sea-rail combined transport, Zhuhai invested in the construction of special railway lines for drexle-Port, extending the railway to several terminals in Zhuhai [[]].

In 2015, the Construction of gaolan Port railway container shipping and loading station led by Urban Railway Group started (Shenhua Wharf, Xinhe Wharf, Qinfawharf and Gaolan Port container Wharf).

The station covers an area of 1000 mu. After the completion of the station, container cargoes can be loaded and transported out of the port area by railway instead of being transferred to zhuhai Port West Station by car. The train schedule is planned to run up and down 8 trains every month, and the multimodal transport channel covers southern Hunan, Yunnan, Guizhou and other places.

Sea rail transport container JingYingLiang 11094 teu and 2017 total annual accounts for the port container throughput of 0.48% in 2017, 25% of the relative to Germany Hamburg and Rotterdam, the Netherlands, 10% of the 24% of the Los Angeles, zhuhai port is very necessary to accelerate the development of container transportation in sea, improve the iron transport volume proportion in the port container throughput.

Gaolan Port, as the only railway port in the Pearl River Delta port group, is in urgent need of improving the loading and unloading efficiency of containers, further reducing logistics costs, and finally realizing the seamless docking between the port and the dock.

2. SWOT analysis on the development of container sea rail intermodal transport in Zhuhai Port

This chapter analyzes the advantages, disadvantages, opportunities and challenges of container rail sea intermodal transport in Zhuhai port.

2.1 Advantage

2.1.1 location advantage

Zhuhai port is supported by the Pearl River Delta region, which has the fastest economic development in China. It is close to Hong Kong and Macao, and is located in the intersection of Guangdong, Hong Kong and Macao and the Asia Pacific Economic Circle. Its location advantage is very obvious. Guangzhou can be reached by railway, Shenzhen can be reached by crossing the Pearl River estuary at sea, and Hong Kong can be reached through Hong Kong Zhuhai Macao Bridge on the road. Zhuhai port is close to the sea, and yamen, Hutiaomen, jitimen and Modaomen waterways from the Pearl River to the South China Sea pass through Zhuhai City [[3]]. It can reach the coastal ports in the northeast of China in the north, Guangxi, Hainan and other major domestic ports in the south, as well as the major international ports in Southeast Asia, such as Bangkok and Singapore. Gaolan Port, where container business is concentrated, has a coastline of 68.5 km, more than 100 wharfs can be built into 10000 ton berths, and has the potential to build a large terminal of over 300000 tons, with an annual

design throughput of more than 300 million tons. The favorable geographical advantages provide a congenital advantage for the development of Zhuhai Port Container Rail sea intermodal transportation. Compared with the nearby ports, ships need to schedule to get in and out of the busy Nansha port of Guangzhou and Yantian port of Shenzhen, which increases the time cost of cargo. However, Zhuhai port is not as busy as Guangzhou port and Shenzhen port, which is conducive to attracting shipping companies to choose Zhuhai port for berthing. Compared with Zhanjiang port and Yangjiang port, Zhuhai port has a good distance and is close to the international waterway and is located in the Pearl River Delta economic circle. Zhuhai port's vigorous development of container sea rail intermodal transport can not only relieve the pressure of Guangzhou Shenzhen hub, but also provide cargo owners with a large transport channel in the West Wing of the Pearl River Delta with "large capacity, low cost, low pollution and low energy consumption".

2.1.2 Collection and distribution system and improvement of railway facilities

At present, Zhuhai port is forming a diversified collection and distribution system. The construction of Guangzhou Zhuhai railway, expressway network, large ship channel and Xijiang River inland river lighterage system makes the collection and distribution system increasingly developed and improved. As a transportation hub between Southwest China and Hong Kong and Macao, it is becoming more and more important.

As the most important infrastructure for Zhuhai port to develop container sea rail intermodal transport, the completion of Guangzhou Zhuhai railway is of great significance to the development of container sea rail intermodal transport in Zhuhai port. The 33.8 km long branch line to Gaolan Port has laid a solid foundation for the development of container rail sea intermodal transport in Gaolan Port. Guangzhou Zhuhai railway meets four important railway lines (Guiyang Guangzhou, Nanning Guangzhou, Guangdong coastal line and Guangzhou Nansha Port Railway). Through the Guangzhou Zhuhai trunk line, the special railway line for Gaolan Port dredging has become an important part of the national railway network, a city on the West Bank of the Pearl River where sea rail intermodal transport can be carried out, and an important channel for sea rail intermodal transport in western Guangdong.

2.1.3 Advantages of hinterland supply

2008After the financial crisis in, a large number of export-oriented enterprises in the Pearl River Delta gradually moved to the southwest and Central South inland due to the rising labor and land costs. The extensive collection and distribution network system enables the goods from Guangxi, Yunnan, Guizhou, Jiangxi, Hunan, Hubei and other regions to reach Zhuhai port through railway transportation. The westward movement of traditional manufacturing industries (electronic information, machinery manufacturing, hardware, textile and clothing, paper-making, ceramics, etc.) and the demand of chemical fertilizer, steel and other bulk goods in southwest, central and southern regions of Yunnan, Guizhou, Jiangxi, etc. has provided a large number of suitable container sources.

In order to realize the "door-to-door" transportation of bulk cargo, the containerized transportation of bulk cargo also provides a large number of cargo sources for Zhuhai port to carry out container sea rail intermodal transportation.

2.2 Inferiority

2.2.1 The scale benefit of port production is low

Although Zhuhai port has achieved rapid development in recent years, the scale and quantity of wharf construction are getting higher and higher, and the technical standards of mechanical facilities are constantly improving, there is still a big gap in the production scale efficiency of Zhuhai Port compared with Hong Kong port, Shenzhen port and Guangzhou port in the Pearl River Delta region. But the port throughput scale is low, which means that the production cost per TEU is increased. This is extremely unfavorable to the operating cost of container sea rail intermodal transportation. For example, the railway passage into and out of Gaolan Port is operated by Zhuhai Communications

Group and Guangzhou Zhuhai group in sections, which makes it difficult to achieve unity and coordination in organization and is not conducive to the improvement of port production efficiency.

2.2.2 Insufficient development of port logistics service function

At present, the main phenomena of port logistics enterprises operating in Zhuhai port are small scale, scattered distribution and lack of the ability to carry out diversified services. Their main business is still in the traditional logistics field, such as loading and unloading, transportation, warehousing, customs declaration, tally, shipping agency and other basic port logistics service functions, while emerging, high value-added, container multimodal transport. In the new era of integration, logistics service is still in its infancy or has not been opened. At present, Zhuhai port is short of large port logistics enterprises that can provide value-added services such as commodity packaging, processing, logistics finance and trade logistics. Guangdong is a big foreign trade province, and more than 90% of foreign trade goods are completed through port container transportation [6]. The single logistics service is bound to affect the development of container sea rail intermodal transportation.

2.2.3 Port information construction lags behind

In the construction of EDI data exchange system for port and shipping, Zhuhai port has realized paperless and inspection application services for foreign trade container business of container terminals. However, there are two shortcomings: 1) the key enterprises and departments in the logistics supply chain have not established a comprehensive information platform; 2) information sharing between Guangzhou Zhuhai railway information management system and Zhuhai port information management system Connection is still in the primary stage. Guangzhou Zhuhai Railway Group has its own transportation management information system, because the system is the internal management system of the group, and there is always a problem of compatibility with the management information system of the port. Thus, it is impossible to track the whole process of cargo information. The blocked information flow is one of the most important risk factors for developing container sea rail intermodal transportation. If the port and shipping related functional departments fail to form an organic whole, they can not reflect the characteristics of convenient and rapid development of container sea rail intermodal transport, which brings practical difficulties to the operation of sea rail intermodal transport. The efficiency of container sea rail intermodal transportation will be greatly reduced if the information is not unblocked, asymmetric and can not be received and sent in real time.

2.2.4 Lack of professionals in multimodal transport

Under the background of the new era, the development of Zhuhai port has been on the fast track, but there are still some deficiencies in the construction of talent team. The deficiency here does not refer to the lack of talents of simple port operation and management type, but refers to the lack of talents who really understand the development of multimodal transport in Zhuhai port under the strategic background of the massive development of multimodal transport in Zhuhai port. Whether it is the river sea intermodal transport in the "Xijiang strategy" put forward by Zhuhai municipal government or the sea rail intermodal transport discussed in this paper, we need multimodal transport professionals who are familiar with the port, source of goods, collection and distribution conditions, etc.

There are many reasons for the lack of professionals in the operation of multimodal transport in Zhuhai port, among which there are two main reasons: 1) compared with the neighboring Guangzhou City, the lack of scientific research institutions and institutions of higher learning on shipping in Zhuhai City can not provide sufficient theoretical basis for the development of Zhuhai Port and cultivate local advanced shipping management personnel; 2) the deep development of Zhuhai port is the same as that of the Pearl River Delta. Compared with Shenzhen City, the total economic scale of Zhuhai City can not be compared with that of Shenzhen city. In addition to the differences in treatment and welfare provided by Shenzhen City, the opportunities provided by the internationalization platform of Shenzhen city are incomparable to those of Zhuhai City. Naturally, the attraction of high-

level shipping talents is low. These factors restrict the development of Zhuhai Port multimodal transport professionals.

2.3 Opportunity

2.3.1 "One belt, one road" strategy brings new opportunities

One belt, one road, one belt, one road, is to promote the construction of the Silk Road Economic Belt and the maritime Silk Road in twenty-first Century. It is proposed to continue to deepen exchanges and cooperation with Hong Kong, Macao and Taiwan to promote the construction of the Bay Area in Guangdong, Hongkong and Macau. The advantages of Hengqin Free Trade Zone, Zhuhai Gaolan Port Economic Zone and Hong Kong Zhuhai Macao Bridge will be the way for Zhuhai to connect with the state." The great strategy of licking bricks and tiles also provides an excellent opportunity for Zhuhai port to develop container rail sea intermodal transportation.

With the deepening of exchanges and cooperation between Guangdong, Hong Kong and Macao, it will naturally promote the optimization and upgrading of trade, logistics, tourism, equipment manufacturing and other industries. Among them, the efficient and fast transport mode of container sea rail intermodal transport will continue to be supported by technology and funds, and gradually develop into mature and reliable aspects. Therefore, the most important thing for Zhuhai at present is to form a high-level open economic system, build corresponding supporting infrastructure, and meet the new era of rapid development of container rail sea intermodal transport.

2.3.2 Cooperation between Zhuhai and Gwadar of Pakistan

Thanks to the one belt, one road, Zhuhai and Pakistan Gwadar signed the MOU on April 10, 2015. The goods of Zhuhai port use the railway network of Guizhou, Guangxi, Yunnan and other provinces and regions in the southwest to develop sea rail combined transport to Gwadar Port. An international land port in Guizhou Province is under construction, which aims to dredge the logistics channels between Southwest China, Pearl River Delta and Gwadar Port, the Middle East and the vast African region. The construction of "Guiyang Guangzhou South Asia international logistics channel" will not only drive the development of foreign trade economy along the southwest of China, but also extend the hinterland of Zhuhai port for container sea rail intermodal transportation, enhance the comprehensive competitiveness of Zhuhai port, and open a new era of Zhuhai Port becoming the bridgehead of the West Bank of the Pearl River.

2.3.3 Zhuhai port and Victoria port in Brazil sign cooperation agreement

2015The strategic cooperation framework agreement signed by Zhuhai Port holding group and Victoria port of Brazil on June 28, 2006 marks a new height of cooperation between Zhuhai port and South America. Brazil is rich in high-quality iron ore, and is also one of the world's largest iron ore exporters. China is also one of the largest importers of Brazil's iron ore. The two sides have close ties in this field. Victoria port in Brazil is Brazil's largest iron ore export port. The container transportation of iron ore will contain huge transportation volume. With the continuous transfer of traditional metallurgical industry to southwest China, the bulk cargo needs to be transported inland. The transfer of bulk cargo tests the collection and distribution capacity of the port. At this time, the sea rail combined transportation of iron ore container is the most economical and fastest way of transportation.

The import of iron ore through container sea rail combined transport can save logistics costs, and container transportation has the advantages of fixed schedule, safety and environmental protection, simple procedures, and flexible batch [[8]], which expands a huge source of goods for Zhuhai port to carry out container sea rail intermodal transport.

2.3.4 Investment in the construction of Southwest "dry port" and Xijiang Pearl River Economic Belt

In the southwest area, it is planned to build exclusive Zhuhai port dry port freight stations in guiding Guizhou and Suining Sichuan in the near future, while the medium and long-term plan is to take the Changming international land port in Guizhou as an important node, so as to open up the Sichuan Guiguang South Asia international logistics channel, so as to deepen the cooperation among Guizhou

land port, Guangdong Zhuhai port and Pakistan Gwadar Port. One belt, one road, will be built up. The close cooperation between the three ports will connect the needs of Southwest China and the Pearl River Macao region with the huge overseas markets in South Asia. [[9]], such a strategic layout will greatly promote the integration of Zhuhai into the national "one belt and one way" strategy, and also help Zhuhai port develop the long and orderly development of the sea rail intermodal transport. In order to better build the West Bank of the Pearl River and take Zhuhai as the locomotive to drive the whole southwest region to a better, more balanced and more favorable development, the Xijiang Pearl River economic belt has been upgraded to the national strategic level. The Xijiang River Basin has a huge potential for the supply of goods. The demand for coal in cement, power generation and ceramics, and the demand for grain in the grain deep processing industry and feed industry test the collection and distribution capacity of bulk cargo in Xijiang River Basin.

2.4 Threaten

2.4.1 Competition adjacent to ports

The homogenization competition in the Pearl River Delta port group is fierce, and most of the port functions overlap, resulting in the structural surplus of port capacity, and the final result is the price competition between adjacent ports. The second is the competition for supporting shipping services. Among the ports in the Pearl River Delta, Nansha port in Guangzhou, Yantian port in Shenzhen and Hong Kong port are all major international ports. The main business of these ports is containers. The operation efficiency of these ports is very high. The financial and insurance industries serving shipping are developed. The advanced shipping arbitration guarantees the development of shipping. All kinds of comprehensive strength of these ports are in Zhuhai port This is a threat to Zhuhai port from the east of the Pearl River. The threat to the west of the Pearl River comes from the rapid development of Zhanjiang port, whose main business is bulk cargo transportation. In recent years, all ports are actively developing the sea rail intermodal transport mode of containers.

2.4.2 Competition with highway transportation and inland waterway lighterage

The highway itself has the advantages of high speed, high flexibility and strong adaptability. With the help of the increasingly perfect highway network, highway transportation can provide "door-to-door" service for customers. With the completion and opening of the Hong Kong Zhuhai Macao Bridge and Shenzhen China channel, the rapid highway network connects several economic Pearl cities (Hong Kong, Shenzhen, Dongguan, Guangzhou, Foshan, Zhongshan, Jiangmen, Zhuhai, Macao, etc.) in Guangdong Province, and the rapid road transportation can reach the ports with multiple routes and intensive voyage, which will lead to the diversion of goods in the western region of the Pearl River through road transportation To Hong Kong, Shenzhen and other ports. Railway restrictions can only achieve "on-site" transportation, which will further intensify the competition between highway and railway. The start-up of Beijiang dredging project will affect the freight owners' choice of transportation mode in Shaoguan, Yingde and Qingyuan, which is a great challenge to the railway transportation of Zhuhai port's dry port. With the development of wharves along the river in southern Hunan, the goods in southern Hunan can be transported to Shanghai port through the Yangtze River waterway, which is bound to divert the sea rail intermodal business of Pearl River port. Inland ports along the Xijiang River can provide transportation services of inland river lighterage. Containers can be directly transported to Gaolan Port of Zhuhai through the inland river lighterage of Xijiang River for transit. Compared with railway transportation, it can save the cost of truck lighterage from railway stations to port areas.

2.5 SWOTstrategic analysis

Based on the above analysis, the SWOT analysis table and alternative strategy table of Zhuhai Port Container Rail sea intermodal transport development are shown in table 2-1 and table 2-2 respectively.

Table 2-1 SWOT analysis of the development of container sea rail intermodal transport in Zhuhai Port

Internal environment	Advantages (s)	Disadvantages (W)
	location advantage	The scale benefit of port production is low
	Collection and distribution system and improvement of railway facilities	Insufficient development of port logistics service function
	Advantages of hinterland supply	Port information construction lags behind Lack of professionals in multimodal transport
external environment	Opportunity (o)	Challenge (T)
	"One belt, one road" strategy brings new opportunities	Competition adjacent to ports
	Cooperation between Zhuhai and Gwadar of Pakistan	
	Zhuhai port and Victoria port in Brazil sign cooperation agreement	Competition with highway transportation and inland waterway lighterage
Investment in the construction of Southwest "dry port" and Xijiang Pearl River Economic Belt		

Table2-2 SWOT matrix of Zhuhai Port Container Rail sea intermodal transportation -- alternative strategy table

		internal conditions	
		Advantages (s)	Disadvantages (W)
external environment	Opportunity (o)	So strategy SO1: regional port integration strategy SO2: government issues policies to support rail sea intermodal transport	Wo strategy Wo1: integrated platform strategy of container transportation informatization WO2: Port marketing
	Challenge (T)	St strategy ST1: innovation strategy of port and shipping cooperation mode ST2: green development strategy of container transportation	Wt strategy WT1: Construction Strategy of container transportation cooperation mechanism WT2: talent strategy

3. Construction of rail sea intermodal transport in major ports of Pearl River Delta and Its Enlightenment

3.1 Construction situation

This section introduces the construction of rail sea intermodal transport between Guangzhou port and Shenzhen port. Because Hong Kong has two different social systems and policy autonomy with the mainland, it is difficult for Hong Kong to carry out rail sea intermodal transport at present. Therefore, this section will not discuss it.

3.1.1 Guangzhou port attaches importance to the development and solicitation of inland goods

As of June 2017, Guangzhou port has set up 26 inland ports or offices in Guangdong Province and the Pan Pearl River Delta region, which are distributed in Yuantan, Qingyuan, Heyuan, Zhaoqing, Yunfu, Qinzhou, Wuzhou, Kunming, Hunan, Changsha, Zhaoyang, Yongzhou, Chenzhou, Guizhou Guiyang, Jiangxi, Shanghai and other provinces and cities. Its main business is to carry out sea rail intermodal transportation, scattered to integrated business and sea rail circulation Ring trains and other services. To this end, Guangzhou is also actively introducing administrative regulations to continue to simplify customs clearance procedures at ports. As of November 2015, there are 102 container

liner routes connecting with Guangzhou port, and major countries and regions in the world are on the routes. In order to attract business in the main areas of the Pearl River Delta, 51 feeder barges have been opened. In terms of infrastructure construction, Nansha port has built 14 berths to reliably berth the world's largest container ship.

3.1.2 Shenzhen Port actively improves its collection and distribution capacity

Yantian Port cooperated with Guangzhou Shenzhen railway company to open the "five fixed trains" of Changping, Huangpu and Shaoguan in Dongguan, which is equivalent to opening up the "two arteries of Ren and Du" of Shenzhen port, and the sea rail transport channel between Guangzhou and northern Guangdong to Shenzhen is smooth. In order to realize the smooth transportation of goods in Jiangxi, Jiangxi and Shenzhen Customs signed a cooperation agreement to realize "territorial declaration and port inspection and release". Under the principles of mutual benefit, market operation and legal compliance, the two places actively promote the sharing of sea rail intermodal express modes in Nanchang, Shenzhen, and jointly support the sea rail intermodal market. In addition, Shenzhen port is also actively establishing inland cargo terminals and dry ports (Zhuzhou, Changsha, Dongguan Dalang, Kunming, Shaoguan and Liling, Hunan). As of September 2015, 238 international container liner routes have been linked, and 47 feeder barges from coastal and foreign trade have been connected. There are 15 sea rail intermodal routes connecting Shenzhen to Chongqing, Changping, Shaoguan, Changsha, Kunming, Chengdu, Zhuzhou, Liling, Nanchang, Hengyang, Dalang, Ganzhou, Shilong, Guiyang and other places. In addition, Dongguan and Shenzhen have jointly planned the dry port at Changping Railway Station in Dongguan.

3.2 Enlightenment

According to the above analysis of the main ports of the Pearl River Delta port group, sea rail intermodal transport has the nature of public goods compared with other modes of transport, so its development can not only rely on the enterprise itself, the government also needs to carry out reform and sharing on the supply side [[11]]. Zhuhai port needs to set up a department responsible for sea rail intermodal transport, actively carry out cooperation with inland provinces. Inland provinces set up inland ports and offices. Customs and commodity inspection also need to actively cooperate with relevant inland departments to provide door-to-door services for inland cargo owners, realize the linkage mechanism of "territorial declaration, port inspection and release", fully reflecting the efficiency and convenience of sea rail intermodal transport, presenting a professional sea rail intermodal transport. In addition, Zhuhai port also needs to straighten out the connection channel between sea transportation and railway transportation, and explore a set of management system integrating the efficient operation of railway, port and sea transportation, so as to create new brilliance in this reform experimental field.

4. Development strategy of Zhuhai port container sea rail intermodal transport

Based on the analysis of the advantages, disadvantages, opportunities and challenges of Zhuhai port in developing container rail sea intermodal transportation, this chapter puts forward corresponding development strategies.

4.1 Expanding the hinterland of container supply

We should make full use of the existing advantages of collection and distribution, increase the frequency density of domestic and foreign trade routes, actively deepen cooperation with domestic and foreign ports on each route, actively participate in the construction of railway freight hub and the construction of dry ports in southern, central and southern and southwest inland provinces along the railway, so as to realize the seamless connection between inland dry port and sea rail combined transport, and continue to expand container cargo. The hinterland of the source will form a large-scale economy, reduce the cost of container sea rail intermodal transport, and promote the sustainability, continuity, convenience and efficiency of container sea rail intermodal transport.

4.2 Provide whole process tracking logistics service

Modern service industry more and more pursues the customer's use experience, provides the information tracking, inquiry and transmission service for the customer, reduces the tedious operation and the unnecessary trouble of the customer service process as far as possible. Therefore, to solve the last "one kilometer" problem of container sea rail intermodal transport has become an important link in improving container sea rail intermodal transport. Zhuhai port should make full use of the advantages given by the state to Hengqin Free Trade Zone, make use of the flow of people, logistics, capital flow and good policy advantages brought about by the construction of the free trade zone, and vigorously develop a comprehensive logistics park (a large-scale supply chain logistics provider integrating warehousing, distribution, distribution, third-party logistics, supply chain management, international freight and freight forwarding), so as to make up for the shortage of sea rail intermodal transportation, Realize the "door-to-door" service of container rail sea intermodal transportation. Higher level supply chain management practice can improve competitive advantage and organizational performance. At the same time, competitive advantage has a direct positive impact on organizational performance [12].

4.3 Establishing an effective coordination mechanism for rail sea intermodal transport

To improve the construction of EDI system and port information infrastructure, the final result is to realize the interconnection and sharing of various business enterprises (shipping, cargo owners, logistics, transportation, production, ports, settlement banks, insurance companies) and government departments (customs, inspection and quarantine, taxation, etc.) in Zhuhai port, and implement sharing and sharing on this basis Efficient operation of logistics center of Zhuhai West Railway Station. The second is to realize the real-time transmission, reception and processing of information with the major enterprises and institutions in the economic hinterland (ports, shipping companies, inland ports, port departments, freight forwarders, etc.). The coordination mechanism of container sea rail intermodal transport should coordinate the functions of relevant departments, establish an organization with comprehensive management, coordination and guidance functions, promote information sharing, realize network transportation mode, and promote the development of container sea rail intermodal transportation.

4.4 Innovating the cooperation mode of ports and routes

We will carry out business cooperation in the community of economic interests by means of capital operation such as equity participation and joint venture, and carry out close and all-round cooperation with key nodes of container sea rail intermodal transportation (cargo owners, large shipping enterprises, transportation enterprises and inland ports). For example, taking advantage of the advantages of the special zone and the free trade zone, introducing preferential policies to attract large-scale shipping enterprises and ports to build specialized container terminals; cooperating with ports or shipping companies along the Xijiang River to consolidate the container supply of Xijiang.

4.5 Developing low carbon container rail sea intermodal transportation

To develop containerized sea rail intermodal transport with low carbon and green as the general keynote. The construction of shore power will help to reduce the light oil consumption of ship berthing power; the transformation of gantry crane from oil to electricity can not only reduce the loading and unloading cost, but also reduce the carbon dioxide emission of operation; the use of LNG dual fuel for container trucks and tugboats, which consume a lot of oil in the port area; and the construction of double deck container loading transportation using electric gasification trains and container sea rail transport lines. Build a low-carbon, energy-saving container sea rail intermodal transport system, and build the container sea rail intermodal transport of Zhuhai port into a green, environmental protection and sustainability.

4.6 Promoting professional and efficient sea rail intermodal transport

The distance between Zhuhai Port yard and Gaolan railway station is no more than 500m, which can integrate the existing yard resources, realize the efficient sea rail intermodal transportation, and launch the operation mode of "yard sharing, one-time stacking and one flip". This kind of operation mode can improve the utilization rate of resources, reduce the number of transshipment and reduce the transportation cost in the initial stage of container sea rail intermodal transportation with less containers. In addition, Zhuhai port should refuse multi management, and Zhuhai port should take the lead to set up an integrated information service platform for sea rail intermodal transport of Zhuhai port with railway departments to dispatch port and railway resources in a unified way, and set up an operation supervision system for sea rail intermodal transportation to supervise the whole process of sea rail intermodal transportation.

4.7 Strengthen personnel training and reserve

The lack of main body of multimodal transport operators and weak service capacity are the bottleneck sharing of the industry at present [14]. Therefore, it is necessary to reserve enough professional operation personnel and professional shipping management personnel to develop container sea rail transportation. The following measures can be taken: 1) school enterprise cooperation to cultivate professionals in multimodal transport, enterprises participate in the development of courses and teaching materials, and provide teachers and students with the teaching and research bases and practice bases needed, so as to cultivate and reserve talents suitable for sea rail intermodal transport; 2) to send enterprise specialists and scientific research personnel to countries with developed sea rail intermodal transportation to track and observe the whole business process, learn, introduce and learn from mature experience and technology.

4.8 Strengthening policy reserve and financial support

At present, China's support policies for sea rail intermodal transport mainly pursue scale effect, focus on short-term effect sharing [15], and act independently. Therefore, in order to avoid the unhealthy and unfair competition among the ports in the Pearl River Delta, Zhuhai port should focus on the following aspects: 1) encouraging subsidies for the whole process of multimodal transport; 2) increasing competitive subsidies for highway transportation for container sea rail intermodal transportation within 1000 km; 3) adopting dynamic financial subsidy policy and adjusting real-time according to market changes. The whole scheme.

5. Conclusion

Based on SWOT analysis, this paper puts forward its own views on the systematic construction and business development of Zhuhai port container sea rail intermodal transportation from four aspects of Zhuhai port's own advantages, disadvantages, opportunities and challenges, combined with the current new situation.

Compared with other ports in the Pearl River Delta port group, Zhuhai port not only has a better sea rail intermodal transport advantage, but also has a relatively sound inland river, railway, shipping and other collection and distribution systems. In order to make Zhuhai port the most convenient choice for the access to the sea in Southwest China, in the future, with the support of various policies, we will continue to improve the container collection and distribution system of Zhuhai port, and continue to promote the development of container sea rail intermodal transport. Container sea rail intermodal transportation is a more complex system organization project compared with other single transportation modes. All links need the coordination and cooperation of government departments, joint inspection units, shipping companies, railways and cargo owners. Scientific planning and conscientious implementation of the development strategy is very important to promote the orderly development of rail sea intermodal transport. Therefore, the development of Zhuhai port container sea rail intermodal transport needs special policy support from the government, accelerate the

construction and cultivation of Zhuhai Port multimodal transport, and develop one-stop logistics service of sea rail intermodal transport.

One of the shortcomings of this paper is that it fails to carry out in-depth research on the source of goods of Zhuhai port, and can not provide the basis for the sea rail intermodal transport of Zhuhai port to formulate personalized service for the freight source. In the future, it is necessary to conduct in-depth investigation and investigation on the hinterland of Zhuhai port, and carry out exchanges and cooperation with enterprises in various departments of the hinterland, so as to better serve Zhuhai port.

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