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WORLD MARITIME UNIVERSITY

Shanghai, China

**Research on Development Strategy of Shanghai
Port's Container Transport**

By

Liu Feng

China

**A research paper submitted to the World Maritime University in partial
Fulfillment of the requirements for the award of the degree of**

MASTER OF SCIENCE

INTERNATIONAL TRANSPORT AND LOGISTICS

2008

DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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ABSTRACT

Title of Dissertation: **Research on Strategic Development of Shanghai Port's Container Transport**

Degree: **MSc**

Shanghai port is the biggest of China. As early as in 1930s, Shanghai port has developed as shipping center in Far East by virtue of the golden waterway Yangtze River. At present, economic globalization, China entry into WTO and the construction of Shanghai international shipping center have brought new opportunity to Shanghai port container transport development. Meanwhile, completion of Yang Shan deepwater port has propelled the development of container transport in Shanghai port and makes Shanghai port container transport development enter into a new era. Shanghai port should keep alert all the time and to know the new situation of internal or external environment, complete itself and keep pace with new situation, all of this will make Shanghai port enter into a invincible position. This paper on the basis made an in-depth research to Shanghai port container transport development.

First of all, this paper analysis the internal and external environment of Shanghai port in order to have a more complete understanding. Secondly, by use of SWOT model to analyze the current situation of Shanghai port container transport .Then make strategic portfolio for these SWOT factors, thus providing basis for strategy development. Thirdly, by use of Gray model system to predict the future container throughput of Shanghai port and deeply research on the future development strategy in a perspective view. Finally, on the basis of above research, the author will enumerate new strategies and strategy guarantee system.

KEY WORDS: Shanghai port, SWOT model, Grey model system, Development
Strategy

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LIST OF ABBREVIATIONS

WTO	World Trade Organization
SWOT	Strength, Weakness, Opportunity and Threat
TEU	Twenty Equivalent Units
SSE	Shanghai Shipping Exchange
FOB	Free on Board
CIF	Cost, Insurance and Freight
SCT	Shanghai Container Terminals Limited

Chapter 1 Introduction

1.1 Background of this Dissertation

Container transport is a kind of advanced modernized mode of transport, which is also a development tendency of general cargo transport. It's seems like a revolution in transport history. The creation and use of container has brought a lot to us, such as the high quantity of cargos, the short transit time and the lower cost. After the 1980s, on the premise of economic integration and container transport revolution, the ports with deep water, vast hinterland, good location and strong support of the major cities have gradually developed into a global integrated logistics services center, distribution center and financial center. With China's entry into WTO, China's economic and foreign trade will be even more rapid development, which also brought more broad prospects to China's container transport.

Since ancient times, Shanghai port has been the important port of China's foreign trade and transportation. After more than 50 years of construction and development, Shanghai port has become an integrated, multi-functional, large-scale modernized port, and has became one of the world's largest ports as well. Shanghai port is the largest port of China. International container transport and global economics bring opportunities and challenges to Shanghai port's development. In recent years, the construction of Shanghai international shipping center has made substantial progress.

But refer to the size and facilities, Shanghai port has just been took an initial shape of the international shipping centre.

Nowadays, the world economy is staying at an important period of development. Asia-Pacific region is becoming the world's most dynamic economic region, which has also become a hot area of international maritime development. The development of Shanghai port and the construction of Shanghai international shipping center are facing not only an unprecedented opportunity for development, but also a huge challenge. So how to develop stably in a complex environment and how to be in an invincible position among the other famous port has become a huge task for Shanghai port development.

1.2 Research Objectives

As a primary mode of maritime transport, the development of container transport will bring great impact on local logistics, people, funds and information. All of these will not only promote the explosion development of related industry, such as loading and unloading service, but also help the growth of transit trade and port-oriented industries. These will also enhance the attractiveness to foreign investment and promote local and regional economic development.

The rapid economic development in recent years of China has brought huge volume of freight, which also promote the construction of Shanghai port ,Shenzhen port and so on, but meanwhile the freight volume also brings a fiercely competition among the other world famous port, such as Hong Kong port and Singapore port. Generally speaking, the superior like location, throughput and concentrated routes are not unchangeable. The future is unpredictable, anything like changed environment and

competitors will cause great impact on original port status. After finish the Yang Shan deepwater port project, Shanghai port will enter into a new stage. But at the same time, maybe everything has changed, like the economic environment and technology environment, as well as the competition advantage and disadvantage among the ports nearby. So, it's necessary to recognize the current situation of Shanghai port, discovery its weak point, aware of the potential environmental crisis and the opportunity to build competitive advantage for the future. In a word, Shanghai port should keep pace with the times and compete for a bright future.

The purpose of this paper first re-realize Shanghai port's new situation, and then propose new development strategies for container transport. All the contents are focus on the followings:

1. The needs of adapt to integration of the world economy.
2. The needs of enhancing the competitiveness of the port itself.
3. The needs of develop Shanghai as an international shipping centre.
4. The needs of international shipping market development.

1.3 Literature Review

Port's enterprises and experts are always pay close attention to develop strategies of port container transport. According to the current situation and market needs of container transport development, Zhang Huaqing (2002) analyzed the reason why China's container transport industry develops so fast. Then suggested that how to accelerate construct a hub port in China and how to make a sustainable strategy according to enterprise's own situation.

Shou Jianmin(2007)indicated that since 1978 the first container terminal constructed

in Shanghai, the total container throughput has reached 100 million TEU at the year-end 2007. The development of container transport have bring about great effect in domestic economy. Moreover, it also promotes the development of world's liner ship industry.

Huang Xi (2006) analyzed the present situation of container transport in Hong Kong port, Kaohsiung port, Shanghai port and Shenzhen port, and then concluded the opportunities and challenges in China's container market. Huang Xi also said Shanghai port now facing severe problems, such as the capability of throughput is not enough and water depth is serious inadequate.

Based on the result of comparison between China and US container transport, Peng Chuangsheng(2006)pointed out that compared to the US, China's container transport is still backward, such as ineffectiveness of container terminal operation and the lagged industry standard. In addition, construction of collection, distribution and transportation system is not perfect; most of container transport depends on road transport.

Zhong Xiaojun (2007) in his article describe that in recent years, because of the Chinese Government increasingly invest in the container transport industry, China's container transport industry growth rapidly. Over the past 10 years, container transport industry has made a great progress, but China's container transport industry is still facing a lot of constraints, such as the construction of container port is lagged, logistics develop slowly.

From the above, we can find that there are many problems need to be solved. Recently, more and more people are concentrating on this topic. Ge Rui, Feng

Yuxiao,Lang Maoxiang(2007)suggested that railway could making full use of favorable of fast speed, safety, convenient, multitudinous, long distance, low cost and 24-hour to develop domestic double-stack transportation. They also proposed that to speed up construction of Sea-Rail combined transportation system.

Gao Jie(2005) gave some proposal of development of Shanghai port container transport competitiveness, such as the combination of sea transport and railway transport and promotes the development of information technology.

Zhang Jin and Xu Jianhua (2007) suggested that Shanghai port should strengthen cooperation with Yangtze Delta regional port and avoid the fierce competition with Ningbo port to develop the container transport.

Cai Zhixian(2007)use SWOT method to analyze the current situation of Shanghai port container transport, and then gave some of development strategies, such as promote development of logistics and implement free port policy.

Zhang Junfei (2007) also suggested that human resources is also very important, enterprises should strength human resources management system in order to train more talented person. Zhang also add that to expand function of free trade zone and improve port environment.

<<11th five-year period planning of Shanghai logistics development>>(2006)states that continue to focus on the construction of Shanghai international shipping center, to focus on the Yang Shan deepwater port construction, optimizes port structure and the port environment, try to realize the port and urban area coordinated development.

The container transport development does not have the fixed pattern. We'd better according to the reality of Shanghai port, take the experiences from succeed ports as references to promotes its international competitiveness.

1.4 Structure& Research Methods

The structure of this paper is as the following,

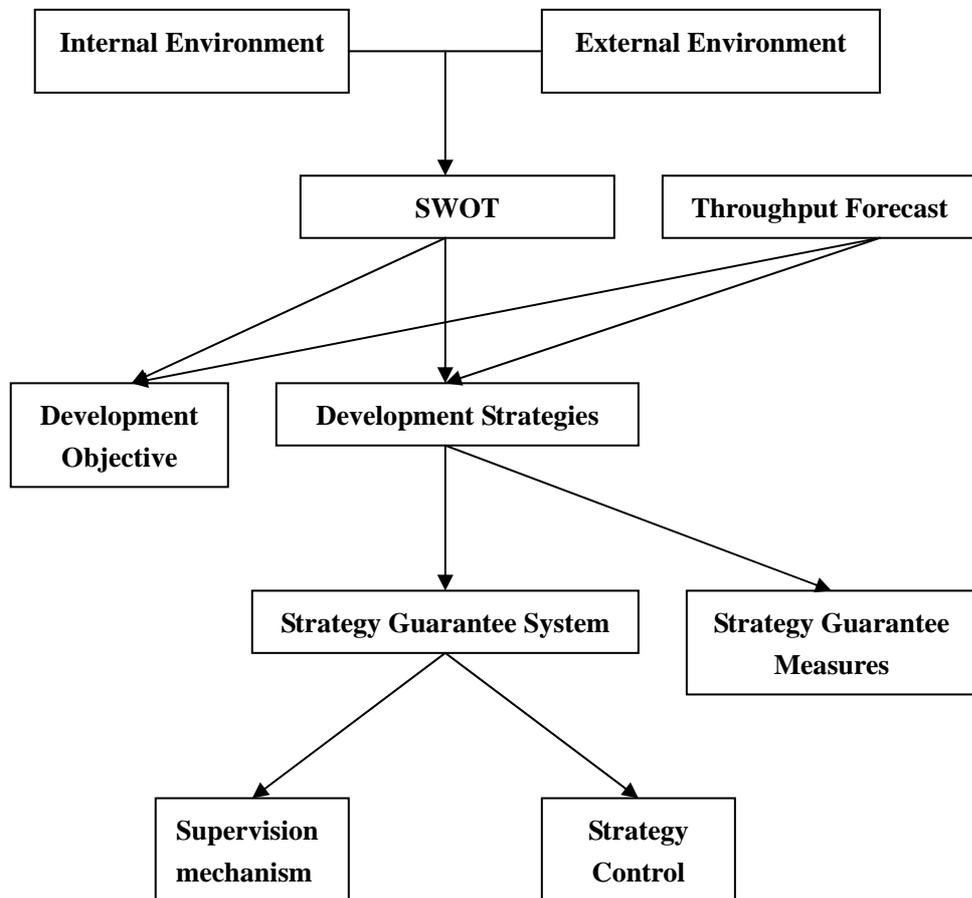


Figure 1.1-Structure of this paper

This paper through SWOT analysis to definite the strength, weakness, opportunity and threat of Shanghai port container transport. It's a scientific way to realize the

internal factors like strength and weakness and external factors like opportunity and threat. It will profit future strategies of Shanghai port's container transport development.

Then the paper use grey model system to forecast future throughput of Shanghai port. It's usually to forecast throughput in related industries. Nothing but to clearly realize the future development trend can lead Shanghai port container transport into a new age.

Chapter 2 Analysis on the Present Situation of Shanghai Port

2.1 Analysis on Internal Environment

2.1.1 Brief Introduction to Shanghai Port

Shanghai port located in the front of Yangtze River delta, which also lies in the cross point between Yangtze River transport channel and seaway transport channel. It's the main hub port of China's coastal areas and it's also an important port of international economic cycling. About 99% foreign goods were imported and exported by Shanghai port, which is about 20% proportion of foreign trade throughput of the total major coastal ports in China. Shanghai has vast economic hinterland. Furthermore, Shanghai has good communications and well-developed air transport. After more than half a century's construction and development, Shanghai port has become a comprehensive, multi-functional and modernized large-scale hub port. (2006)

2.1.2 Distribution of Container Terminals

With the rapid development of container throughput, Shanghai port container terminal is also accelerating the pace of construction. The Wai Gaoqiao 1-5 period has been put into use. The Yang Shan deep water port has become the first deep water port of Shanghai, which also change the current situation of Shanghai port. That is Shanghai port now is shortage of deepwater port. The distribution of

Shanghai port container terminals is as follows,

Table 2.1- Distribution of Shanghai port container terminals

Container terminals	Water depth/m	Berth	Coastline/m	Throughput(TEUs/year)
SCT	-10	10	2281	2400000
Wai Gaoqiao 1	-12	3	900	600000
Wai Gaoqiao 2	-13.2	3	900	600000
Wai Gaoqiao 3	-13.2	2	900	650000
Wai Gaoqiao 4	-14.2	6	1250	1800000
Wai Gaoqiao 5	-12.8	3	1100	700000
Yang Shan 1	-15.5	5	1600	2200000
Yang Shan 2	-15.5	4	1400	2500000
Yang Shan 3	-22	7	2600	5000000

Resource from: Shanghai Port Authority

2.1.3 Introduction to International Container Lines

Presently, the container lines of Shanghai port have a global coverage of 12 district lines. Shanghai port has become the intersection point of east Asia-north America and Asia-Europe lines; it's also the intersection point of America-Asia-Europe and Asia-Europe lines. With the construction of Yang Shan deep water port, the fifth, sixth generation container ships could all-weather navigation to Shanghai port. That is to say, depend on the economic hinterland and the superior amount of containers, Shanghai port will become the most important container lines intersection port of Asia like Kaohsiung and Busan. (Xiao Hong, 2007)

In conclusion of new open routes in recent years, the features are as following (1) The new open ocean shipping lines is much more than before, the size of ship is bigger and bigger.(2)It's very common that shipping companies are cooperate to operating new routes.

2.1.4 Present Situation of Consolidation and Reconsolidation System

2.1.4.1 Yangtze Delta Deep Water Channel Project

The investment of Yangtze Delta Deep Water Channel Project is about RMB 14 billions. The water depth of deep water channel will extend to 12.5 meters. On October 2005, Yangtze Delta Deep Water Channel second period Project has extended the water depth of 10 meters up to Nan Jing. On 30th September, 2006, the third period Project of Yangtze Delta Deep Water Channel has been started. This project will finish at 2010, by that time, Yangtze Delta Deep Water Channel can satisfy the two-way navigation of third or fourth generation container ship, even the fifth or sixth generation ocean container ships can pass through the channel by tidal.

2.1.4.2 Inland Waterway Project

In 2005, Shanghai Port Authority promulgated the <<Shanghai inland shipping development plan (revised)>>, which makes a new construction plan for Shanghai inland waterways. The new revised development plan said that the high class of inland waterway's network will be constructed in 2010, until then, the 1000-tonners ship can pass through the third class channel. This will change the current situation of inland waterway and it will also rebuild the Yangtze River Delta's consolidation and reconsolidation system. By the year of 2010, Shanghai inland waterway system

will divert 4 million TEUs standard containers of Shanghai port. It's about 20% proportion amount of TEUs of Shanghai port container throughput. This will equal to the proportion of foreign container hub port consolidation and deconsolidation system.

2.1.4.3 Sea-Rail Combined Container Transport

By the end of 2005, Lu Chao harbor central container station has been operated. At the same time, the railway from Hu-Hang Jin Shan railway line to Pu Dong branch towards port Logistics Park has been linked up all. It means that containers via Yang Shan port Logistics Park could directly link to Euroasia land bridge railway lines, so that the goods could directly transport to Rotterdam port. Sea-Rail combined transport can bring about seamless transport. Not long before, the Su-Tong Bridge has been open to traffic, which will promote development of container multimodal transport of Shanghai port. (Wang Guanyun, 2007)

By the end of 2006, Shanghai port has been transported Sea-Rail combined containers amount about 84157 TEUs. Despite the rapid growth of Sea-Rail transport, its just small share of whole port's container throughput, it's less than 4%. That's because of the railway transport capacity and restrictions of operational mechanism and it's also hard to meet customer demand like price. Besides, the separated railway and port will leads to a high cost of Sea-Rail combined transport from Shanghai port and weakened the competitive advantage with the other port.

2.1.5 The Process of Yang Shan Deepwater Port Project

Yang Shan deep water port has superior location, which lies to the east of Hang Zhou

bay. It has a water depth of 15 meters, which is the nearest natural port to Shanghai. At the same time, it has the basic conditions of deep water port (1) No siltation, broad territorial waters (2) With good conditions of deep water channel.

At present, the construction of third period of Yang Shan project has started. The third period has a coastline of 2600 meters, with 7 container berths, which planned finish construction before 2010. The third period berth is up to 20 meters depth, which have the best conditions among the Yang Shan deep water shoreline, can accommodate the world's largest-tonner vessel. According to the overall plan, up to 2012, Yang Shan north port district can reach a length of 10 kilometers, with 30 container berths. The container throughput can reach 1500 millions per year, which will be equivalent to the current amount of throughput three times. The final scale of construction can meet the fifth, sixth-generation and 12000 TEU container vessels all-weather navigation requirements.

2.2 Analysis on External Environment

2.2.1 Analysis on Economic Environment

2.2.1.1 Current Situation of World Economy

Economic globalization can be divided into the globalization of production, trade liberalization and financial globalization. In the promotion of economic globalization, every country's economy is interdependence increasingly. This will bring the world into a new longer period of economic growth.

In the year of 2007, the outbreak of subprime mortgage crisis in the US has increased

the prospects of world economic uncertainty, but in 2008 the world economic growth will remain strong in the favorable factors than in the unfavorable factors, so the basic factors of the world economic stability, rapid growth has not changed. In 2008 the world economy expected growth rate is 4.8 percent, roughly equivalent with 2007. The US, EU and Japan's economic growth rate is about 1.8%, 2.3% and 1.8% respectively. It's estimated that the economic growth rate of India and Russia is about 8% and 7%, in other words, the new emerging market countries will continue to promote the world economic growth. The WTO forecasts that, in 2007 the global cargo trade volume growth rate will decline to about 7%, the world trade growth rate of 2008 will be almost the same in 2007. Generally speaking, the economic situation of world economy and China's trade partners is better. It's a positive factor to China's foreign trade, and also promotes the development of China's container transport.

2.2.1.2 Current Situation of China Economy

In 2008, domestic policy environment and production factors will conducive to economic growth steadily and rapidly. The 17th congress will guide China's economic system towards scientific development and harmonious development direction. What's more, the institutional conditions of economic growth will be further optimized. The 2007 Macro Control measures in 2008 will show a more positive policy effect, that is to say, the 2007 Macro Control measures is beneficial to easing the prominent contradictions and eliminate instability factors of economic aspect. Several years of high level economic and investment will promote economic growth at a high speed. In recent five years investment in fixed assets bring the formation of mass production in 2008, which will greatly enhance domestic economic growth of supply. (China and the world economic development report 2008.p1-p4)

Impact on Shanghai Port Container Transport

In the end of 2007, Shanghai Shipping Exchange SSE forecast the trend of container transport market. In 2008, the global economic growth rate will be faster than GDP growth rate, in total, the market of 2008 will be better. With the US subprime mortgage effect gradually appear and the continued rapid expansion of transport, the world container transport market growth rate of nominal capacity will be greater than volume growth. But refer to the structure changing of transport capacity layout, if the Asia-Europe shipping lines can keep a growth rate up to 20%, the market supply and demand will be keep in balance. Considering the port, the canal congestion, the workers strike of US and Europe countries and the brisk dry bulk market will leads to the exist of some dry bulk containerization uncertainty. The supplies of global container fleet capacity will not enough or not, thus the future market situation in general will continue to maintain a more robust posture. In addition, because of the influence of appreciation of the RMB and tax reimbursement policy adjustment in 2008, the growth rate of import and export is about 22.9% and 20.5%. This growth rate will be appromixate 15% of the next year. So the next two years, China's container transport needs will be maintained rapid growth. (Shanghai Container Transport market bullish after the Spring Festival, 2008, p64)

2.2.2 Analysis on Social Environment

2.2.2.1 Analysis on Environmental Policy

1. National Maritime Development Policy

Chinese Government has formulated the << National coastal port development

strategy >>and<< Yangtze River Delta, Pearl River Delta and the Bo Hai Bay three regional coastal port construction plan >>.These two policies emphasis that China's port should focus on construction of coal, petroleum, ore and containers specialized port terminals and deepwater channel. To promote Hong Kong as an international shipping centre of the Pearl River Delta ports group in southern China; to promote Shanghai as the international shipping centre of the Yangtze River Delta ports in east of China; in the north of China, try to accelerate Da Lian, Qing Dao and Tian Jin port's construction. Ultimately make the coastal port system proper redistribution, functional completeness and well-structured.

2. Perfection of Shipping Regulations

(1) Implementation of <<Port Law of PRC>>

On January 1, 2004, <<Port law of PRC>>was implemented. This law indicates that the port should be directly control by the government and separating government from enterprises of the administrative system; the government should through port planning and shoreline management to ensure the port resources will be rational used; to establish a diversified investment and port operation system; to establish a port facilities protection system; to establish a safety in production and supervisory of dangerous goods system. All of these have provided legal protection to national economic construction and social development serviced by port.

(2) Implementation of <<Shanghai Port Regulations>>

On March 1, 2006, <<Shanghai port regulations>> was implemented by Shanghai port. It's the law of local port administration regulations, which was first established

according to the << Port law of PRC>> regulations by port industry. This regulation will be pay close attention and use as reference by national shipping administration department, industry colleagues, terminal operators, and even ship owner. This regulation will also play a very important role in the process of Shanghai port development.

2.2.3 Analysis on Technology Environment

Presently, the trend of larger container ships becomes an irreversible trend. Container ship's growing larger is to adapt to the increasingly global maritime logistics needs. Large container ship due to its large quantity, can reducing the voyage, energy consumption and labor input, so lower the cost of unit container. (Jiang Shaowen, 2007, pp77-80)

The trend of container ship's growing larger directly result in the more deeply water depth of hub port channel and berth. At the same time, the mechanical equipment, the shore of space, land area, consolidation and deconsolidation conditions, and management is also a higher demand. Once the port congestion, the cost of larger container ship will be increased. Container ship's growing larger has been the trend of ocean shipping. It will change the structure between world hub port and feeder port. Because of the ship gigantism, there will be a new model of global port net.

Chapter 3 SWOT Analysis on the Current Situation of Shanghai Port's Container Transport

3.1 Strength

3.1.1 Superior Location and Abundant Hinterland Goods

Shanghai port lies to the east of Yangtze River Delta, and locate at the middle of southeast coastline. Shanghai port east to East Sea, south to Hang Zhou bay, west link to Jiang Su and Zhe Jiang province, north to the estuary of Yangtze River. Shanghai port has good communications and vast hinterland.

Recently, China has become the recognized world's largest container supplier. Shanghai Port lies in Yangtze River Delta region, which is one of the most developed areas of China. Compared with the other economic region, Yangtze River Delta region has the vast hinterland and broad development space. It's the greatest potential area for China's economic growth in current and future, which also the world largest development areas and the most affected areas of inland water economic belt. The rapid development of Yangtze River Delta will brings an adequate and stable supply of goods to Shanghai, which is also a strong supporter to Shanghai container transport development.

3.1.2 Superior Consolidation and Deconsolidation Conditions

Shanghai is one of the largest transportation junctions in China, which has integrated transport network component of railway, highway, waterway and airway and other modes of transport. Refer to Shanghai railway, a Beijing-Shanghai railway, Shanghai-Hang Zhou lines connecting all parts of the country; the highways such as expressway, national highway and city highway connect the national road network; waterways have Yangtze River and the Grand Canal, which are convenient for transit between river and sea. Furthermore, Shanghai also has well-developed air transport system, such as Hong Qiao international airport and Pu Dong international airport. Currently, the Pu Dong airport second period project has been launched. It's estimated that by the year of 2010, Shanghai will be the aviation pivotal port of Asia-Pacific.

3.1.3 Rapid Growth of Container Throughput

Shanghai port container throughput develops rapidly. In 2007, Shanghai port container throughput breakthrough 26 millions TEUs. Shanghai port first exceeded Hong Kong and has become the world second largest container throughput port. In the future, the Yang Shan port construction will let Shanghai port container throughput to a new high spot.

Table 3.1 Container throughput from 2002 to 2007

Year	2002	2003	2004	2005	2006	2007
Throughput(TEU)	8610000	11280000	14540000	18100000	21719000	26152000

Resource from: Shanghai Port Authority

3.1.4 Constantly Improving Related Services of Shipping Industry

As early as 1998, Shanghai shipping exchange and international shipping services centre has been operated. After enter into 2000, Shanghai Shipping Exchange trading volume rising sharply.

At 1999, Shanghai port shipping documentation information center has been built. In the first half of 2000, Shanghai Shipping Information website has been operated, plenty of updated information can easily checked. The <<Shipping exchange bulletin>> published by SSE, has become the major information medium of Ministry of Transport and Shanghai shipping industry. SSE issued China Containerized Freight Index has become the world's three major shipping Price Index with Baltic Dry Index and Baltimore Tank Rate Index

Nowadays, Shanghai is building and completing the port-related service system. Logistics industry and Electronic Commerce are positively development. Shanghai as the largest domestic financial center will attracts more foreign capital to operate with the port and shipping-related services enterprises, which will provide better services to international shipping and trade. As the domestic largest shipbuilding center and the Yangtze River Delta region ship repair base, Shanghai Port's maritime ancillary services will become increasingly perfect.

3.1.5 Concentrated Shipping Companies and Shipping Lines

By the end of 2005, Shanghai has shipping-related industry enterprises is totally 846, in which the international shipping companies is 37, international shipping agency is 42,NVOCC enterprises is 476,some shipping-related enterprises on behalf of foreign

institutions in Shanghai is 205. At present, the world's top 20 shipping companies have been operated in Shanghai. By the end of 2005, Shanghai port container liner ship can reach 2106 scheduled per month, the global route covered more than 200 countries and regions, more than 300 ports. It's the most extensive coverage port of China.

3.2 Weakness

3.2.1 Slow Development of Railway and Inland Container Transport

Compared with the other domestic and foreign port, Shanghai port has many advantages such as the natural container transport conditions and cargo distribution conditions. But because of the separated Yangtze River network and the railway conditions, the lack of specialized ship, specialized railway vehicle and normal-sized container lifting equipment, River-Sea combined or River-Railway combined container transport is just a potential advantages, maybe it will take a period time to make the potential into reality. Presently, container transport in Shanghai mainly relies on roads, the coverage area and distance are limited, and so the flow of goods and distribution are constrained.

3.2.2 Imperfect Transport Structure

Container transport structure In Shanghai is imperfect, among which the proportion of road transport is highest, the water-water transit proportion is lower, and the Sea-Rail combined transport proportion is lowest. With the rapid growth of container throughput, the road transport will increase pressure to Shanghai traffic system and city environment. Water transport has little environmental pollution and lower cost,

the overall proportion of water transit of Shanghai Port in 2006 is only about 20%. Shanghai's annual container volume of water transport is only about 0.5 percent of Shanghai container throughput, compared with port of Rotterdam (36%) and the other ports, there is still an extraordinary disparity.

3.2.3 Inefficient Customs Clearance-Related Environment

Customs clearance-related environment include not only the customs clearance procedures, but also of quality and efficiency of port service and port policy and so on. Currently, refer to port customs clearance procedures, inspection efficiency and port service quality, Shanghai port still has an extraordinary gap with Hong Kong port and the other ports. The survey shows that most concerned problems by shipping companies are customs clearance environment. Above all, Shanghai port should further improve the port-related system, then implement a free port policy and simplifying relevant procedures, finally enhance the development of container transport for the level of soft environment construction.

3.2.4 Inadequate International Transit Volumes

In current international shipping market, the proportion of the container transit volume has become an index to measure the degree of port's internationalization. Shanghai port positioning is international shipping center and container hub port. In order to become an international shipping center must meet two basic conditions (1) Container throughput must reach a certain magnitude. (2) The higher proportion of container transit volume. The reason why Singapore port, Hong Kong port, Rotterdam port and Busan port can become the international port is that they mainly rely on the international container transit volume. At 2006, Singapore port's

container transit volume has reached the proportion of more than 75% of the whole container throughput. Hong Kong port is 55% to 60%. But Shanghai port is lower than 5%. This percentage can not be compared with the other international port, even Shenzhen port.

3.2.5 Shortage of Shipping Industry-Related Professional

Participate in international competition, one need to know international conventions and familiar with international shipping rules. Shanghai Port now is shortage of such personnel. To attract and increase the training of personnel is an urgent task to speed up construction of Shanghai International Shipping Center

3.3 Opportunity

3.3.1 Opportunity of Yang Shan Deepwater Port Construction

The constructions of Yang Shan port not only eases the contradiction of Shanghai berths saturated, but also promote Shanghai have deep water port. Thereout, Shanghai port will be eligible to participate in the competition of East-Asia hub port and position of international shipping center with the other ports. After the construction of Yang Shan port, the forefront of water depth will come up to 15.5 meters, the sixth generation container ships could entry and exit the port all-weather conditions. Yang Shan port is one of China's first bonded ports and the implemented policy is similar to free port policy. Yang Shan port's gantry crane is now the world's most advanced. On 10th December, 2006, the operation of second period terminal and start construction of third period, will lay a strong foundation for Shanghai port container transport development, especially the development of international

container transit.

3.3.2 Next Five-Year Development Plan in Shanghai

According to Shanghai's next five-year development plan, modern logistics as the most potential emerging industries will gradually become the new alternative industries in the future. Shanghai Port will usher great opportunity to modern logistics industry development. Shanghai port will mainly rely on port industry, actively developing the goods classification, packaging, processing, distribution and other services field, and further, Shanghai port will strengthen the combination and cooperation with different transport methods, such as water transport, land transport and air transport and so on. It will also expand container multimodal. In a word, the comprehensive service function of port will be continuously upgrading.

3.3.3 Abundant Talents Reserve

Talent's training is necessary in the process of Shanghai container port development. No matter the construction of deep water port and inland waterway network, or the development of logistics center and container multimodal, or the perfection of legal policy, without exception, all types of specialized personnel will need to support shipping-related industry. Currently, as the Yang Shan deepwater talent base, the new campus of Shanghai Maritime University and Shanghai Ocean University has been moved to Shanghai harbor city. Shanghai port should seize this opportunity, attract more and more excellent professional from both at home and abroad.

3.3.4 After entry into WTO

China entry into WTO will bring several opportunities as following (1)Further promotes China's economic development; promote the rapid growth of international trade volume, bring greater cargo volume to port. Shanghai port now lie on China's most developed, most potential Yangtze River economic belt, endless cargos will provide a better opportunity to container transport development. (2)Foreign capital will more easily enter the domestic port industry and the development of container transport is in need of large amounts of funds. (3) International terminal operators have invested in Shanghai Port will bring advanced management and management techniques, accelerate the improvement of transport service.

3.4 Threat

3.4.1 Competition from Northeast Asia Ports

With the development of upsizing container vessel, operation union and transport network, the competition among global container hub port will be further intensified. The essence is to compete with the position of global container transit center. China's reform and opening up policy, and the development of foreign trade have made China become the "world factory" and an important international container region. Competition for China's container supply of northeast Asia's ports has become increasingly competitive.

3.4.2 Competition from Domestic Ports

3.4.2.1 Competition from Neighboring Ports

Shanghai and Ning Bo in the port building aspect has always been “promote city's

economic prosperity by developing city's port economy" as starting point. According to the central government's planning, an international shipping centre building in Yangtze River Delta must take Shanghai port as the center port, Jiang Su port and Zhe Jiang port as feeder port. As one of the feeder port of Shanghai, Ning Bo port is just a spare port. But now, the fact is Shanghai port and Ning Bo port has become two leading port, they will continue compete for the supply of containers.

3.4.2.2 Competition from Other Ocean Ports in China

Three northern ports, Da Lian, Tian Jin, Qing Dao are now perfecting facilities and improving service quality to meet customer need, reforming ports and port management system, increasing the input of information, speeding up construction of efficiency customs clearance, expanding modern logistics business, promoting the great ports building and compete for the Northeast Asia supply of goods.

Shenzhen port as hub port of Pearl River Delta ports, plays an important role of leading container port, it's the largest container port of China southern region.

In the future, they will fiercely compete for the international shipping center construction, international trade network building and fight for international container transit volume.

3.4.3 Threat from Potential Competitors

China's entry into WTO will further open up shipping market. In the future, there will be more and more foreign and domestic investors enter in to the port market, the joint venture cooperation will also show diversity, the cooperation areas will be

constantly expanding. Different interest of the new port enterprises will join this market and will change the port's competitiveness pattern.

3.5 Forecast of Shanghai Container Throughput

3.5.1 Gray Model System

With the development of market economy and foreign trade, Shanghai Port Container transport maintains an amazing growth rate in a very long period of time. Container development momentum is very good. The use and development of the container, greatly improving the quality of freight, reduce transport links and transit time and lower freight costs, effectively promoted the economic and trade development. The forecast of Shanghai port container throughput play an important role in determining the direction of port development, scale of investment, berth site selection and operation strategies.

Port's container throughput system is essentially a gray system, not only includes many identified factors, such as national or regional economic forms, port development level and other natural and social economy factors, but also includes many unknown factors. Many scholars apply the grey model prediction method to forecast Container throughput and achieved good results. (Yang Zhongqin, 2006)

The basic idea of grey forecast system: At first, the original data will be processed, and then data will be accumulated and convert to grey generation number, so that to eliminate the fluctuation, mutation and randomness of initial data. All of this will make them easier to reflect the inherent law of the system. Then according to gray generation number to establish differential equation and response function for series

of numbers of gray forecast system. Finally, reverse treatment to get predicted value.

Grey system model as a prediction model is normally a GM (n, 1) model, 1 here is a variable, n usually under the order of 3. And the bigger of N, the more meaning will have, but calculation will more complicated. In other words, if an order is excessive in a equation, not only the calculation will last a long time, but also the results is not precision. For this reason, take GM (1, 1) as the prediction model. (An Dong, Cheng Zude , 2007)

3.5.2 Build $x^{(0)}$ -GM (1, 1) model

For a given time of the original sequence data, they usually can not be used to direct modeling. Because of that most of data are random and erratic. This method through accumulate original sequence data to generate a new sequence, so that the randomness of the original sequence will be weakened and then showing a certain degree of regularity, so as to on the basis to forecast.

Assume that time sequence data is $x^{(0)} = \{ x^{(0)}(t) | t=1, 2, 3 \dots n \}$

Make $x^{(0)}$ accumulate once and then get (1-AGO), that is make $X^{(1)}(k) =$

$$\sum_{t=1}^k x^{(0)}(t)$$

That is $x^{(1)} = \{ x^{(0)}(1), \sum_{k=1}^2 x^{(0)}(k), \dots, \sum_{k=1}^n x^{(0)}(k) \}$ (1)

Assume that differential equation is

$$\frac{dx^{(1)}}{dt} + ax^{(1)} = u$$
 (2)

In this equation

$$\hat{a} = (a, u)^T = (B^T B)^{-1} B^T Y_N$$

$$Y_N = \{ x^{(0)}(2), x^{(0)}(3) \dots x^{(0)}(n) \}^T$$

$$B = \begin{pmatrix} Z(2) & 1 \\ Z(3) & 1 \\ \vdots & \vdots \\ Z(n) & 1 \end{pmatrix}, Z(k) = -\frac{1}{2} \{ x^{(1)}(k) + x^{(1)}(k-1) \}$$

Get the result of \hat{a} then get

$$\hat{x}^{(1)}(t) = \left\{ x^{(0)}(1) - \frac{u}{a} \right\} e^{-a(t-1)} + \frac{u}{a}$$

$$\hat{x}^{(0)}(t) = \hat{x}^{(1)}(t) - \hat{x}^{(1)}(t-1)$$

$$e(t) = \frac{x^{(0)}(t) - \hat{x}^{(0)}(t)}{x^{(0)}(t)} \cdot 100\% \quad \text{In which, } t=1, 2, \dots, n$$

3.5.3 Accuracy test: Residual Error Test and Posterior Error Test

Assume that residual error is $e(t) = x^{(0)}(t) - \hat{x}^{(0)}(t)$, number sequence of residual error is $\{e\} = \{e(1), e(2), \dots, e(n)\}$. Original number sequence $X^{(0)}$ and number sequence of residual error e 's variance are S_1^2 and S_2^2 respectively, among

which $S_1^2 = \frac{1}{n} \sum_{t=1}^n \{ x^{(0)}(t) - \bar{x}^{(0)} \}^2$, $S_2^2 = \frac{1}{n} \sum_{t=1}^n \{ e(t) - \bar{e} \}^2$, in which $\bar{x}^{(0)}$ and \bar{e}

are the typical value of original number sequence of $X^{(0)}$ and residual error number sequence of e respectively.

Calculate the posterior error ratio C and tiny error probability, the latter is a proportion, which is to satisfy the $|e(t) - \bar{e}| < 0.6745 S_1$'s number occupy total number's proportion, that is $C = S_2 / S_1$, $p = P \{ |e(t) - \bar{e}| < 0.6745 S_1 \}$

3.5.4 Forecast Result

To carry out forecast, get the result of forecast year t is $\hat{x}^{(0)}(t)$

$$\hat{x}^{(1)}(t) = \{x^{(0)}(1) - \frac{u}{a}\}e^{-a(t-1)} + \frac{u}{a}$$

$$\hat{x}^{(0)}(t) = \hat{x}^{(1)}(t) - \hat{x}^{(1)}(t-1)$$

The throughput of Shanghai port container from 1998 to 2003 is as following,

Table 3.3 -Container throughput from 1998 to 2003

Year	1998	1999	2000	2001	2002	2003
	3070000	4220000	5610000	6340000	8610000	11280000

Make use of software Matlab 7.0 to calculate and get the residual error test $e(t)$ and \bar{e} are very low, and $C \leq 0.35$, $p \geq 0.95$, so this model is good to use, we can carry out the forecast.

According to the above table, get the forecast result of container throughput of Shanghai port from 2004 to 2010 is as following,

Table 3.4-Forecast result of container throughput

Forecast year	2004	2005	2008(5 years)	2010
Forecast value	14050000	17981000	37680000	61690000

According to the forecasted throughput, Shanghai Port Container Transport will keep a high-speed growth in the next few years. This method have certain shortcomings ,can not be completely accurate, because the container throughput is a complex economic system, with the pass of time, the internal and external environment will have a variety of changes.

Chapter 4 Exploration into Shanghai Port's Container Transport Development Strategy

4.1 Significance of Development Strategy

According to the strategic positioning, Shanghai will be build as the international shipping center and international container hub ports. So the overall goal of container transport development is making full use of Shanghai port internal/external advantages and the two-way favorable conditions to speed up port construction and the expansion of port functions, promote economic development in the Yangtze River and coastal areas. Eventually form a logistics centre as carrier, the international set of commodities, capital, information, technology and other distribution center in the allocation of resources of a modern port. In the year of 2010, basically formed the framework of international shipping centre; at 2020, build Shanghai into an international shipping center.

Specific targets are:

- (1) Achieving the upgrading of port's function to promote the port position of the world container port, those will promote the hinterland economic development more evident.
- (2) In the port hardware aspects, construct the modern port facilities in accord with the needs of international and domestic logistics. Port informatization reaches

domestic advanced level.

- (3) In the port software aspects, training number of professional in the port field. Make port's operation and management gear to international standards, create a better environment of customers clearance, promote the service achieve the domestic advanced level.
- (4) Built the world's largest international container hub port and transit centre.

4.2 Strategic Portfolio on the Basis of SWOT Analysis

Based on the SWOT analysis, the author makes the strategic portfolio in order to draw development strategies more clearly.

They are showing as the following table,

Table 3.2- SWOT Analysis

<p style="text-align: center;">Internal</p> <p style="text-align: center;">External</p>	<p style="text-align: center;">Strength</p> <ol style="list-style-type: none"> 1.Superior location and abundant hinterland Goods 2. Superior Consolidation and Deconsolidation Conditions 3.Rapid Growth of Container Throughput 4.Constantly Improving Shipping Service Industry 5.Concentrated Shipping Companies and Shipping Lines 	<p style="text-align: center;">Weakness</p> <ol style="list-style-type: none"> 1.Slow development of Railways, Inland Container Transport 2.Imperfect Transport Structure 3.Inefficient Customs Clearance-Related Environment 4.Inadequate International Transit Volumes 5.Shortageof International Shipping Industry-Related Professional
<p style="text-align: center;">Opportunity</p> <ol style="list-style-type: none"> 1.Opportunity of Yang Shan Deepwater Port Construction 2Next Five-Year Development Plan in Shanghai 3. Abundant Talents Reserve 4.After entry into WTO 	<p style="text-align: center;">SO (Strength-Opportunity)</p> <p>Accelerate infrastructure construction, further develop container transport. Consolidate domestic business and develop the international market.</p>	<p style="text-align: center;">WO (Weakness-Opportunity)</p> <p>Develop inland waterway transport and Sea-Rail combined transport.</p>
<p style="text-align: center;">Threat</p> <ol style="list-style-type: none"> 1.Competition from Northeast Asia Port 2.Competition from domestic Ports 3.Threat from Potential Competitors 	<p style="text-align: center;">ST (Strength-Threat)</p> <p>Consolidate its own advantages and constantly improve its own construction. Actively deal with challenges and establish strategic alliances to reduce competition.</p>	<p style="text-align: center;">WT (Weakness-Threat)</p> <p>Accelerate its own development to enhance competitiveness</p>

SO Strategy

The SO strategy emphasized enterprises should making full use of a strategic advantage to grasp the external opportunities. Shanghai port future should strengthen the link to hinterland, making full use of sufficient supplies advantages, in a favorable external environment to accelerate the development of its own construction and development

WO Strategy

The goal of WO strategy is to use external opportunities to make complete of the internal disadvantage. The development of Shanghai port container transport should depend on the hinterland economic development and adjust industry structure, seize the favorable national development policies, develop the consolidation and deconsolidation system and make the system reasonable. Accelerate personnel training and overcome its disadvantages.

ST Strategy

ST strategy is to use the advantages of enterprise to avoid or reduce the impact of external threats. The future development of Shanghai port container transport should on the one hand to strengthen their advantages, training the core competitiveness. On the other hand should actively deal with challenges, establish strategic alliances to reduce external threats.

WT Strategy

WT strategy is a defensive measure to make complete of internal weakness and

evade external threat. Shanghai port container transport in the future should accelerate the construction of deep water port, improving the soft environment and provide better services, in order to increase competitiveness.

4.3 Suggested Development strategy

The following strategies are based on the above analysis, which has actual significance.

4.3.1 Marketing Strategy

If Shanghai port wants to meet the needs of logistics services market development, it must thoroughly change production methods and management concepts. It must transform the single loading and unloading transport and warehousing services into the whole consumption of raw materials and finished products of logistics service. Port may change its warehouse or freight station into distribution center, which is suitable for logistics services. At the same time, port should strengthen the service's function of freight forwarding or ship agency to establish a one-stop service to complete the network of services, and expand the goods supply of hinterland and the scope of business, by use of the most convenient way, the best distance and the shortest time to complete the delivery process, to achieve the greatest degree between efficiency and benefit of logistics.

Shanghai Port enhancing the ability to control the market should:

(1) Greatly Expand the Living Space of External Market

1st, rational analyze the economic situation, perfection the scientific marketing system and implement effective competition strategy, rapid response to changes of the market.2nd, maintain the continuously supply for development policies and training professional market development team to find goods and transport capacity. 3rd, further promote the development of multimodal transport and seek opportunities to cooperate with shipping companies.4th, must actively open new coastal routes, improving the quality of market development.

(2)Strengthen the Internal Environment Management

The internal environment is the cornerstone for port sustainable development. Within the organization and management, we should actively explore the production organization model, raise working efficiency and reduce internal friction, making full use of overall advantage; strengthen consolidation and deconsolidation's work, ensure smooth flow of goods; Scientifically utilize mechanical equipment to provide a strong support for port production. To establish the concept of the overall situation, strengthen coordination and production scheduling command, and further rationalize the business relationship; we must continue to implement the responsibility system for safety and quality. Correctly handle the relationship between safety and production, ensure safety in production, persist the "owner of the first, the owner satisfied" as the standards and improve handling services, we should taking create port services brand-name strategy as a means to seize the market.

4.3.2 Restructuring of Port

Shanghai port should follow the development trend of world trade and world port, by use of the port's experiences of domestic and aboard to consider its own development

trend, seriously implement the cargo structure of the strategic restructuring , lay the foundation for the port change into large scale commercial port.

According to the Shanghai port throughput forecast results, within the next few years, Shanghai Port Container throughput will raise steadily, particularly the rapid growth of international container. Shanghai port should build the suitable container terminals accord with the container throughput and give full consideration to the recent and long-term container throughput of container terminals on the number of requirements and technical requirements. Shanghai port should also improve the packing techniques, make research on alumina, ferrosilicon, and other goods with the possibility of container transportation.

After the construction of Yang Shan deepwater port, the goods originally transit from North China to Korean Pusan will possibly transit from Shanghai port. After the operation of Yang Shan port, the shipping company will increase its shipping lines. On the other hand, because of the quick transit time, Yang Shan port is very suitable for international transit. Among the other competitors, Shanghai port should adapt reverent policies and measures to attract more and more liner ship to take Shanghai port as port of call. On the other respects, such as attract marine league numbers is a very effective way of methods.

4.3.3 Promote Port Cooperation

The competition among ports can reduce logistics costs, enhance logistics efficiency and service levels, and promote trade and the development of integrated logistics. It will help improve the port project development and operation management level. The competition among ports is mainly manifested in two areas: First, investment and

development areas, namely planning, project status (the main hub port or shipping hub status) competition, with a strong local administrative color, often a duplication of planning, repeat Investment, redundant construction. The second is the field of market competition, that is, consignors, price and other aspects of the competition.

The basic way to resolve excessive internal competition among ports is cooperation. Cooperation among ports should be based on the division of scientific cooperation. That is (1) Establish a rational port planning principles, such as reasonable division of labor, sustainable development and effective use of resources. (2) Promote co-port within the cluster, such as the communication system and the establishment of mechanisms, and gradually form clusters overall competitiveness. (3) Promote the port operators in a fair market environment to restructure resource and capital.

4.3.4 Enforcing the Port's Law

1. Take Necessary Measures to Support Domestic Shipping Industry

Since 1998, China adopted a series of measures to phase out protection policies to domestic fleets, but these policies can not compatible with international standards, even some of the policy goes beyond the international practice, going beyond the bearing capacity of China's enterprises. These lower the competitiveness of domestic shipping enterprises, which will widen the gap between foreign enterprises. Because of the opening up of international maritime service requires a process, and in view of the current maritime developed countries often take more than a series of protection measures to help domestic enterprises, so China should take the necessary measures to support domestic enterprises.

(1) States should make it clear that certain goods such as the governmental materials, foreign aid materials and military and so on should in the form of purchase by state, and allocate all or more than half of its share to native carriers. On the respect of foreign trade contracts, export goods adopt as much as possible CIF terms, import goods adopt as much as possible FOB terms, meanwhile decrease tax so that the container transport companies and cargo transport joint venture can signed long-term contracts, to achieve mutually beneficial; encouraging competition, introduction of tariff bidding system, reducing transport costs and avoid the protection of backward.

(2) In order to promote the development of China's container transport and in accordance with WTO on the provision of national treatment requirements, foreign enterprises should be abolished for the super-national treatment, so that China's enterprises can make a unified, fair and non-discriminatory national treatment under the conditions, give full play to their competition advantages in the international container shipping market.

2. Strengthen Shipping Industry Management and Improve the Quality of Transport

In the international container shipping market, the quality of services be paid more and more attention to, goods transportation security, accuracy and timeliness of transport are important factors of enterprises winning in the increasingly competitive international market. However, China's container shipping business management techniques, quality of service has lagged behind the international advanced level, so China should take a series of policies to improve such situation:

(1) Accelerate the transport structure adjustment. China's fleet has considerable size, but the fleet structure is irrational, old ships, the poor state of security technology

problems, can not completely meet the needs of foreign trade transport. So we should take economic and technological policies and necessary administrative means to control the total transport capacity, optimize the transport structure, and improve the technological level of the ship and operational efficiency to achieve a virtuous circle, to meet all aspects of the fleet needs.

(2) Establish a healthy and orderly container transport market. The government should by means of regulate the market and trading to publish price index and shipping information so as to improve transport services quality. By use of flexible policy tools to promote enterprises to improve transport services quality, so that the container transport market will develop healthier; further enhance native container transport enterprise's competitiveness in the international market.

3. Guide and Promote Unite and International Strategic Alliance of Container Transport Enterprise

World container transport are now taking place the strategic restructuring, large shipping companies are continue to adjust business strategy, various forms of joint and consortium make the market constantly changing.

(1)Accelerate the combination of container transport enterprises. The enterprises should well prepared to face the powerful foreign competitors, on the one hand through the implementation of favorable policy to promote the enterprises combine together, then adopt information sharing and resource sharing to reduce operating costs, improve competitiveness and by means of market share to effectively resist foreign shipping companies. On the other hand, we should have a correct view of the combination between native shipping enterprises and foreign enterprises. Domestic

enterprises can cooperate with foreign investors, to learn their advanced management methods and management experience. Therefore the policy of this joint should be supported, but the market should be strengthened to stop the effective management of foreign enterprises in the Chinese market of monopolies and unfair competition.

(2)With the development of economic globalization, a transnational operation is the trend of the times. Powerful container transport enterprises in China must vigorously carry out transnational operations, to understand international container transportation market dynamic, seize trading opportunities, increase market share and competitiveness.

4. Establish an International Ship Registry System

(1) Essence of International Ship Registry System

The international ship registry system is a kind of system to fight against the flag of convenience, which is a kind of system for ships to moved their nationality into oversea's ships. Currently, there are many marine developed countries take such ship registration system. Its features are that the ownership of registered ship is more loosen than the original registered system. The crew members on the conditions tend to be more open registration system, the taxation, exchange and the registration fee are adopt a number of preferential policies, and for the international ocean shipping fleet has strong foreign-related and competitive features, attached great importance to developing its ocean-going fleet to take a series of favorable measures.

(2)Necessity of implement the international ship registry system

Presently, China takes strict ship registry system. This state will bring about a series

of problems, such as tax revenue, crew employment, quality of transport and the safety of ships, it will also affecting China's container transport enterprises in the international competition.

(2) Possibility of Implement the International Ship Registry System

States implement the ship registry system must strictly comply with the International Convention on the required standards and registration conditions. The port authorities around the world should take a specific inspection to crews and ship technology of arrived foreign ships on the purpose of ensure the security of ship and crew, prevention of marine pollution. Due to the ship technology standards are base on International Convention standards, so there will not a specific restriction from port countries to ships. Currently, most of the marine developed countries adopt the international ship registry system. Because of this system's minimum standards are accord with the International Convention.

China's container shipping market continuously opening to the outside world will beneficial to create the International Ship registry system.

4.3.5 Optimizing the Structure of Consolidation and Deconsolidation

According to official forecasts, by the end of 2010, Shanghai Port Container throughput will reach 33.8998 million TEU, the contradiction between heavy consolidation and deconsolidation's task and imperfect integrated transport system will increasingly prominent. (Jin Zhiwei, 2007)

The biggest problem of Shanghai Port Container Transport is that the transport

structure is not perfect. Shanghai Port is a typical estuary port and the main containers are come from the Yangtze River and China's central and western regions. In recent years, the status quo of Shanghai Port container transport is mainly depend on road, followed by sea and rail transport is extremely weak.

Foreign container ports such as Rotterdam and Hamburg, the proportion among highways, railways and water transportation of container transport is generally 60: 20: 20 around. Excessive reliance on road transport will create an integrated transport system stability weakened. If Shanghai wants to become International shipping center, the free-flowing of container is a necessary precondition. Whether from economic efficiency, environmental protection and system stability of such point of view, the optimization of the container transport structure of is one of the most effective ways. Faced with ever-increasing demand for container transport, in order to protection for the smooth operation of the Yang Shan deep-water port and the Shanghai International Shipping Center building, the optimization of the transport structure and improve integrated transport system is the key level of service.

4.3.5.1 Accelerate Container Sea-Rail Combined Transport

1. Market Orientation

According to the existing research results, in the current rate conditions, if the transport distance less than 200 kilometers , the road transport is the reasonable scope and the objectives of the market; If the distance more than 400 kilometers, the railway transport has comparative advantage; if the distance between 200 kilometers and 400 kilometers, railway will compete with highways. Currently, throughput of Shanghai Port Container has a considerable part in the railway transport, which has a

great development potential. Compared with water carriage, railway has no advantage in freight costs, but railway transport has the advantage of transport time. Most of containerized cargo is high-priced goods, which requires a higher speed and a higher freight rates. So the railway transport is able to compete with highway transport and water transport, strive to bring the Yangtze Delta River's goods into the target market of Sea-Rail combined. In addition, the areas far from Yangtze Delta River need to via railway transport to the Port of Yangtze Delta River, then transit by waterway, this time rail transport also has certain advantages.

2. Accelerate the Construction of Software and Hardware Infrastructure

(1) Accelerate the Construction of Railway Infrastructure

First Speed up Pu Dong railway construction, and then finish the coastal passage as soon as possible, perfection the railway network. To achieve that the railway access to all the major railway Logistics Park and Wai Gaoqiao Port Area, the final completion of the railway into the Yang Shan port to achieve the "seamless" convergence.

(2) Accelerate Scientific and Technological Innovation

In order to improve the Sea-Rail combined transport capabilities, it's necessary to strengthen technological innovation. On the one hand, construct a modern container railway station and terminal to meet the massive demand for Sea-Rail combined transport. Besides, produce the specific vehicle for containers and double-decker train to meet the container transport specialization and standardization requirements. On the other hand, bring the Sea-Rail combined transport's information management

into the port information management system, strengthening the connection with Customs, the general administration of quality supervision, inspection and quarantine. And optimize the container Sea-Rail combined soft environment.

(3) Lower Freight Rates

Shanghai port should further lower the freight rates and increase the transparency of rates, Make the owner enjoys high-quality, efficient and uninterrupted integrated services. Only in this way can we make the Shanghai Railway transport in rates and services have competitive advantages, further expanding the market share.

(4) Resolve the Separation between Port and Station

Currently, most of port area has no direct linkage to railway station, there still needs twice of loading or unloading via trucks, this will increase the cost of Sea-Rail combined transport costs. If ports want to make unloaded containers direct transport to railway stations, or the containers direct transport to liner ships, it's necessary to realize the integration between port and railway station. The essence is that the port division and railway division should joint contribution to invest container station, coordinate their own interests, unified management and co-management, all of these can fundamentally solve such situation.

3. Government Function

Sea-Rail combined transport is a comprehensive, systematic project. Besides port and railway, Sea-Rail combined transport also related to the Customs, agency, transportation and other departments. So there must need an authoritative

government branch to organize and coordinate the Sea-Rail combined transport. The government branch should encourage, support and guide the development of Sea-Rail combined transport, to establish coordination mechanism, to create an open and equitable Sea-Rail combined environment.

4.3.5.2 Inland Waterway Container Transport

1. Construct Inland Waterway

Shanghai currently carries out the construction of inland waterway container port and primary channel. So to develop inland waterway container transport infrastructure has basic conditions.

Shanghai Port should besides accelerate its own future construction, even more actively unite other Yangtze Delta River's port to build inland waterway channel and improve inland waterway levels, perfect Yangtze River waterway network and make Yangtze River's shipping gradually integrate into the international maritime shipping.

2. Design New Ship Form

Shanghai port should according to the channel-building to design more suitable and economic ship forms to transport inland cargos better. In addition, the river should also speed up the ship's technology innovation, develop new ship forms.

3. Construct the Yangtze River Intelligent Transportation System

Shanghai port should establish a technological exchange platform to share

information with Yangtze River Valley cities. What's more, Shanghai port should establish inter-city information exchange centre, to manage traffic intelligently. In addition, Shanghai port should strengthen planning and construction of regional charge networking system, cargo loading information systems and other information-sharing network. Improve inland waterway transport service quality.

4.3.6 Strategic Management Innovation

1. Take Efficiency as the Goal, to Explore the Port Privatization

Through the port privatization, take as many profits as the goal, on the basis of protection national interests, make use of privately-run enterprise to operate and manage the port in competitive environment. Take the promotion of product efficiency, improve service level, lower the cost of production and raise the profit as the goal; to utilize the private resources instead of public resources, to reduce the burden of financial and public institutions in public institution, make port management departments are able to accelerate decision-making, to adjust rapidly in the changing business environment; to introduction and strengthening the mechanism of competition.

2. Take Logistics as Center-orientation and Strengthen Technological Innovation

The development of Shanghai port's logistics should take port and golden water way (Yangtze River) as advantages, take port as leading role, international and domestic transport of goods as the carrier, take modern e-commerce as support, international logistics and domestic logistics simultaneously exist, Vigorously develop the main logistics operators to speed up logistics infrastructure construction, and strive to

make Shanghai Port has a rational layout, perfect functions, advanced facilities, scientific management and efficiency operation of the regional logistics centre.

Take construction of port information center as carrier, strength the communication and information exchange between coastal cities and Yangtze River Delta. Construct the port service information network. The main content is including (1) Accelerate the construction of the port EDI Center, expanding the scope of EDI services and functions. (2) Building databases of information resources to provide rich information resources for information systems development, production, decision-making departments and the whole society. (3) Construct the port network, improve the port INTRANET system, create a secure network application platform for computer information system and realize the sharing of resources.(4) We should deepen the management of information system MIS and establishing a decision support system DSS and achieving the office automation.(5) perfect Shanghai port's construction, improve the development and use of information resources, to provide the whole society for immediate, complete and accurate information service (6)On the basis of EDI system to build Shanghai Electronic Commerce System(7)make use of computer technology to improve terminal handling equipment and increase the production process automation.

At the same time, the Government should increase the port informatization construction, and strengthen the organization and coordination, expand infrastructure investment. Try to finish the construction of electronic ports as soon as possible. To establish port's coordination mechanisms, try to make port networking and construct a relaxed social environment.

The following strategy is just a tentative plan, which is hard to implement in a short

period of time.

4.3.7 Port-City Interactive Strategy

1. Relationship between Port and City

Port is core of city's function. The expansion of urban economic activities, scientific and technological progress and improved productivity, perfection of consolidation and deconsolidation has opened a broad space to ports and related shipping industry's development. Port as a commercial entity, its ultimate purpose is to further promote the city's economic growth.

(1). Port's Contribution to City

1. Port as a part of city's economy, through the creation of the gross domestic product, employment opportunities, taxation to make contributions to urban development.

2. Port provides a superior location for modern industry gather together. Port has large-scale transport capacity, which could cut the transport cost of coastal port industry; Port as people, logistics and information centers, can provide qualified personnel, information, capital and other aspects of support.

3. Port is the distributing center of passengers and cargoes; Port as a node of transport network can lead the development of other modes of transportation and relevant industries; port as the node of sea and land can easily link domestic and over sea's market.

(2). City's Contribution to Port

1 City provides development space for port. City restricts the size of the port: the more big size of the cities is, the more developed economy is, the stronger support for capabilities of the port cargo, logistics services and the greater potential for port development.

2. Urban infrastructure is the basic material conditions of port development. The perfection of transport mode in the city, the degree of convergence effective, advanced communications facilities and the extent of the traffic management level, will affect port's function.

3. The Urban industry structure will impact on the port's nature and scale. If a city's industry base on food and light industry, the port throughput will not large; if an urban economy is outward-orientation, the more developed of foreign trade, the larger scale of port is; if a port's industry structure transform into heavy industry and fine processing industry, the proportion of dry bulk will drop, and the proportion of groceries and containers will increase.

3. The Mechanism Analysis of Port -City Interactive

City has pilot role and leading role to the development of port. When the city's economic and social activities concentrated to a certain extent, there must be a linkage to the out-world. The media is transport. Sea transport in particular, because of the low cost or the other factors of maritime transport, makes port becomes a node of external linkage between urban economy and social activities.

The essence of city-port integrated is that make port in the region and adjacent areas as a whole, unified planning and unified development. The implementation of the integrated development strategy is an inevitable choice for Shanghai Port's function restructuring. The development of port-city integrated represents the development direction for the world port, such as Rotterdam and Antwerp port.

Shanghai port should take Rotterdam and Antwerp port's management experiences as reference, establish a new integrated port management model, through the management integration to promote city-port integrated development. This is a major innovation in China's port.

Chapter 5 Suggested Measures to Ensure Implementation of Shanghai Port Container Transport Strategic Development

5.1 Prerequisite to Ensure Strategic Development

5.1.1 Completing Port Policy and Legal System

The development of port should integrate into the international market competition. Shanghai port future should manage port affairs according to law and make port towards standardization and legalization to establish a united, open and orderly competition water market. Provide port operator a good environment for fair competition.

5.1.2 Raising Port's Reputation

Shanghai port should strengthen future marketing sense, establish marketing mechanisms. From the original regional marketing, domestic marketing towards global marketing direction, then establish a systematic marketing mechanisms and networks in internal group. A good marketing strategy can improve the density of container liner routes and expand port's reputation.

5.1.3 Strengthening Technical Service Exchange with the Other Ports

Shanghai port should focus on the construction of exchange platform, that is information from Yangtze Delta port, service and technology as well as the communication pattern of ports and shippers, freight forwarding, ship owners, ship agency and so on .In a word, Shanghai port should attach importance to exert communication with guild.

5.1.4 Establishing Port Enterprise Features

Business culture is an important part of modern enterprise system. The construction of port business culture is an important guarantee to promote the reform and development of port. Business culture also plays an important role of internal cohesion and formation of external competitiveness. Shanghai port should enhance port's modern philosophy, standardize enterprise behavior and create port's top brand.

5.2 Implementation of Suggested Measures

5.2.1 Establish Monitoring Mechanism

The establishment of supervision mechanisms must be for the purpose of achieving the strategic objectives. The supervision mechanisms has own features, they are scientificness, possibility and adjustability. The possibility of supervision mechanism is that the subject and object in this process must know what they should do and not to, what is the right or wrong. In the process of strategy control, no matter what to do, we must focus on the strategic objective, leave some rooms for adjustment.

5.2.2 Procedures of Monitoring Mechanism

In order to raise the quality of strategy implement, it's necessary to carry on strategy control. The specific approach is that in the process of strategy implement, makes a comparison between actual results and objectives or standards, if there is differences between them, analysis the reason why and adopt suitable measures in order to ensure the achievement of objectives or standards, or when in need amend or change the objectives or standards. (Strategy Control, Website)

There are 5 steps as following,

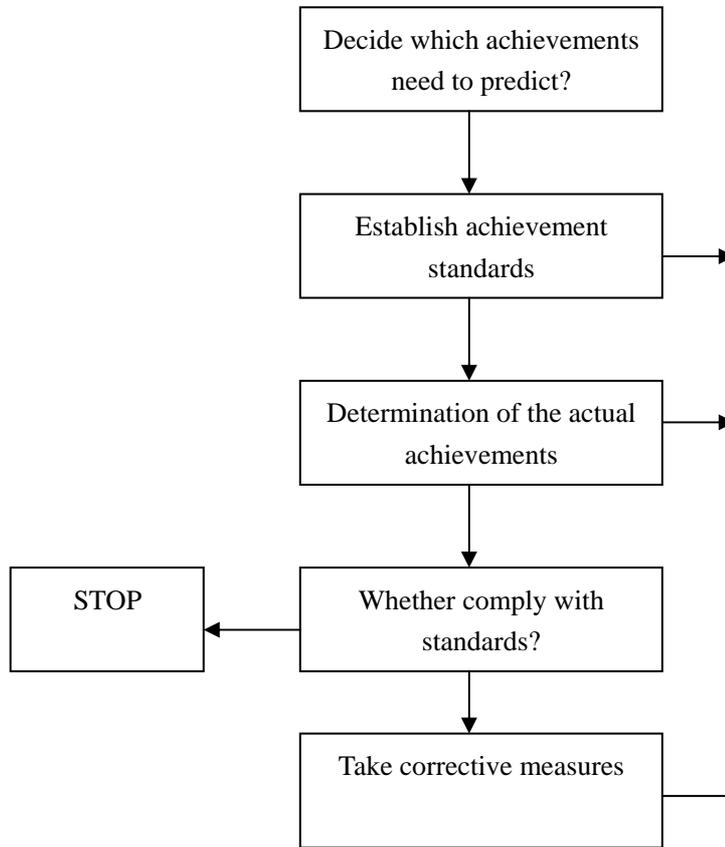


Figure 5.1 –Strategy control flowing chart

1. Decide which achievements need to predict. Shanghai container transport involves many activities, in the implementation of strategy; we must decide which activities or results need to determinate in advance. The decided activities or results ought to be important elements to achieve the strategy of Shanghai port’s container transport.

2. Establish achievement standards. Refer to determined achievements, there must establish several standards. Standard is a kind of measurement to measure whether achievement could be received. Every standards has an allowable extent, if the achievements is in the extent, it’s qualified.

3. Determination of the actual achievements. This must carry on at certain time and frequency.

4. Whether comply with standards. Make comparison between actual achievement and standards, if achievements are in the allowable extent, the control will finish.

5. Take corrective measures. If achievements are out of allowable extent, we must take action to correct difference. Here to consider the following points (1) is this difference is temporary? (2) Are there mistakes when implement the strategy? (3) Are there changes in the external environment led to the original strategy and objectives divorced from reality? If so, Take important measures to find the origin and prevent future recurrence.

CONCLUSIONS

Shanghai port rapid development in recent years, on the one hand benefited from its rapid economic development in the hinterland, on the other it also have valuable experiences in development of Shanghai Port Container business.

The author suggests that Shanghai Port now should first consider the following points to increase the overall competitiveness. First, great improve internal conditions of container shipping port, which including expand deepwater channel and berths, accelerate the construction of deepwater Container Terminal and integrate existing port's resources. Second, give full play to external conditions of container port, greatly develop the Sea-Rail combined transport, enhance the ability of consolidation and deconsolidation system; develop extension network, expand the hinterland of supply; implement a more open policy of shipping to further improve the soft environment. The third is to enhance the capability of operation and management of container transport, including service quality, improve service levels; rely on scientific and technological innovation, improve efficiency of loading and unloading and raising the level of informatization, speed up the process of EDI applications; increase the coverage of the routes and increased flights density, vigorously develop the transit business and so on. The fourth is to further strengthen the strategic competition in container transport and sustainable development capacity. This includes efforts to train qualified personnel and improve the integrated logistics system.

Overall, Shanghai Port Container Transport will maintain a comparatively high growth rate in the future for a long time, but it should pay more attention to inter-regional cooperation and actively play a coordinating role to ensure the development of Yangtze River Delta ports overall competitiveness and the smooth development of international shipping center.

The paper is comprehensively study on the future development strategy of Shanghai port container transport, and through scientific analysis and forecasting methods to definite a clear strategies implement trend for future.

Because of the limitation of time, conditions, data sources and knowledge, this article is also need to be improved in many places, such as the reasonableness and accuracy of container throughput forecasting methods, and also the study of strategic contents have yet to be thoroughly. But I hope this paper having reference value to the development of Shanghai Port Container Transport Planning and it will help other ports to develop strategy. Furthermore, I will also conduct an in-depth study of this topic in the future.

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