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## Synergistic development between shipping centers and cities of excellence

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**WORLD MARITIME UNIVERSITY**

Shanghai, China

**Synergistic Development between Shipping  
Centers and Cities of Excellence**

BY

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**MASTER OF SCIENCE**

**(ITL)**

2019

## Abstract

From the “The Global Competitiveness Report 2017 - 2018”, the relevant indicators for judging the city of excellence are confirmed, and the ranking in the city of excellence is also obtained. In the observation and comparison, it is found that the ranked superior cities are also the shipping centers with perfect shipping networks, and these shipping centers also have international influence.

So, is there a close connection between the shipping center and the city of excellence? If so, how do shipping centers and cities of excellence work together to make progress together?

This article focuses on the links between shipping centers and cities of excellence, and whether all shipping centers are also cities of excellence. I will mainly use qualitative and quantitative methods to study the connection between shipping centers and cities of excellence, and to analyze the synergy between the two.

This article first introduces the background of the report on the shipping center and the corresponding measures taken by Shanghai to build a city of excellence. References and references to relevant literature at home and abroad, and corresponding findings and conclusions, and integrated in the second chapter.

The third chapter of this paper: According to the ranking of global port throughput in 2018, select five shipping centers as samples, and judge the indicators of excellent cities in the report of excellent cities, and use the qualitative and quantitative

methods to judge the shipping center as a sample to discuss if it is also a city of excellence.

Correspondingly, the fourth chapter of this paper: According to the ranking of excellent cities in 2018, select five excellent cities as samples, corresponding to the relevant indicators of the shipping center, using qualitative and quantitative analysis methods to determine whether the sample centers of excellence is also shipping centers.

From the above research and analysis, it is concluded that a certain number of shipping centers are also excellent cities, but not all shipping centers are excellent cities; on the contrary, a certain number of excellent cities are also shipping centers, but not all cities of excellence. All are shipping centers. As both a shipping center and a city of excellence, the two have complementary synergistic developments.

**KEYWORDS:** Development, Shipping Center, Cities of Excellence

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## 1. Introduction

### 1.1. Research Background

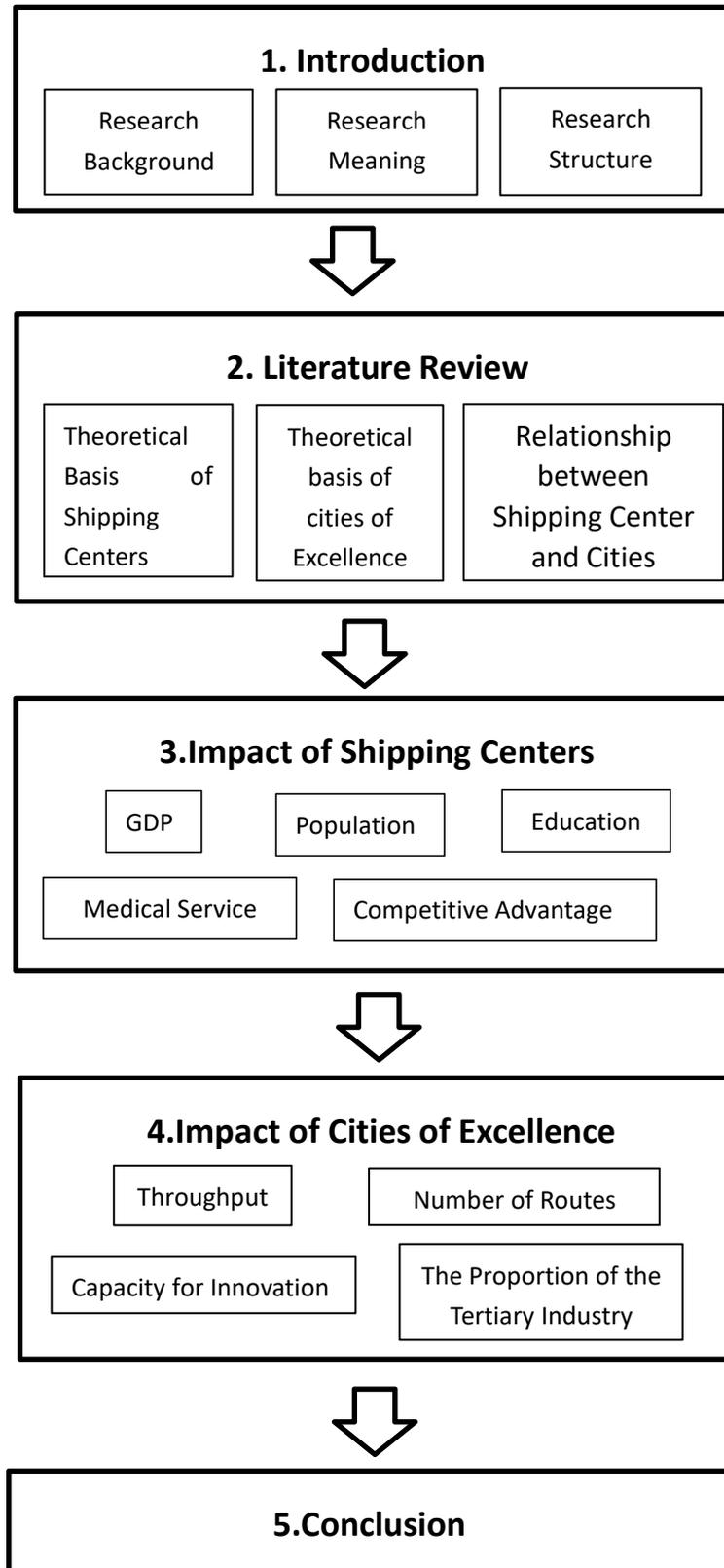
On December 15, 2017, the “Shanghai Urban Master Plan (2017-2035)” (“Shanghai 2035”) was approved by the State Council. The plan clearly pointed out that Shanghai's urban nature is determined as: Shanghai is one of China's municipalities directly under the Central Government, the core city of the world-class urban agglomeration of the Yangtze River Delta, international economic, financial, trade, shipping, science and technology innovation centers and cultural metropolises, national historical and cultural cities. Shanghai will be built into a remarkable global city, a socialist modern international metropolis with world influence. Efforts will be made to build Shanghai into a remarkable global city, a city of innovation, a city of humanities, an ecological city, and a socialist modern international metropolis with world influence.

### 1.2. Research Meaning

Looking at the list of cities of excellence around the world, most cities are coastal cities on the coast, and it is clearly stated in the Shanghai 2035 plan that Shanghai, as a global city of excellence, should actively develop five international centers, including international shipping centers. The cities in which the world's shipping centers are located often have developed financial industries. The relationship between Shanghai's international financial centers and the construction of international shipping centers is also a complementary relationship. How to develop a shipping center and build a city of excellence, how to develop synergy between the

two is exactly the direction that this essay will be focused on.

### 1.3. Research Structure



## 2. Literature Review

### 2.1. Theoretical Basis of Shipping Centers

#### 2.1.1. Foreign Research

In 2016, César Ducruet, Sylvain Cuyala and Ali EL Hosni wrote the book “Journal of Shipping and Trade” shows the changing influence of city-systems on global shipping networks: an empirical analysis. Port cities and maritime networks are at center stage in the world where the most part of trade volumes are carried by sea, and a large proportion of the population concentrates on the shoreline (Noin 1999).

The conclusions under big data were a bit hollow, so I found a related article with a national port as the main research object. Stig Tenold published Norwegian Shipping in the 20th Century in 2019. After reading the whole literary works, the Epilogue: A Century of Norwegian Shipping influences more to me. It says Norway’s strong position in international shipping at the beginning of the 20th century was based on a combination of favourable geographical circumstances, a historical legacy and a strong maritime culture. At the last it also explains the success of Norwegian shipping in the 20th century by processes at four different levels: globalization at the international level, liberalization at the domestic level, concentration and specialization at the regional level and professionalization and innovation at the business level.

### 2.1.2. Domestic Research

In June 2003, Chinese Geographical Science, Volume 13, Issue 2 published “Study on development strategy of shipping centers and transportation networks in the Yellow Sea Rim” which is written by Jin Feng-jun.

The Yellow Sea Rim is the second longest river in China, while the longest is the Yangtze River. In this paper, the development strategies of shipping centers and transportation network are discussed based on economic globalization tendency. As a key component of the economic cooperation, a hierarchical shipping centers network should be established with Hong Kong, Shanghai, Pusan, Kobe, and Tokyo as cores.

Cities mentioned in the literary works have several characteristics: They are all coastal cities and the center of economically developed regions which we can call them as “cities of excellence”.

So where are the advantages of a city of excellence?

For example, the offshore business. It means that the investor's company is registered in the offshore law zone, but the investor does not have to visit the local area, and its business operations can be carried out directly anywhere in the world. Offshore financial business refers to financial activities in which banks absorb non-resident funds and serve non-residents. The operation of offshore trade is a comprehensive and comprehensive approach to international trade that reduces the cost of import and export operations. In some sense, this is the economic way developed by the city as a shipping center.

There is the article named “Offshore Business of the China (Shanghai) Pilot Free Trade Zone” from National Test in 2016, written by Lin Xiao from China. He mainly

discussed about the offshore business in China. Although this is not what I want to study, it can also be proved as a superior point of excellence in the city.

The literary works to encourage Shanghai to be a global center for global trade, finance and shipping. At the same time, it will strengthen Shanghai's capacity to serve as a world economic center, and increase its standing in the global economy.

## 2.2. Theoretical basis of cities of Excellence

### 2.2.1. Cities of Excellence

As for the cities of excellence, when I was looking for the truly definition, my eyes were caught by one chapter - Sustainability Indicators: The Benchmarks of Urban Excellence from the book "Sustainable Cities for the Third Millennium: The Odyssey of Urban Excellence" written by Voula P. Mega in 2010.

Correspondingly, not only the degree of sustainable development of a city can be used as a basis for judging whether a city is excellent or not, but also building a smarter and more efficient city can promote the process of sustainable development.

2018, Peng Xuefen, the Chinese, did the research on the goal and path of smart city construction in pursuit of excellence. It tells us with the rapid development of the world economy, the global urban population has expanded rapidly. Urban development has brought about problems such as traffic congestion, energy consumption, environmental pollution, and uneven resource allocation, which has brought great challenges to the governance of cities. The construction of smart cities will help to effectively solve the series of problems brought about by the urbanization

process and help achieve sustainable urban development. Therefore, the research on smart city construction has great theoretical and practical significance.

While the foreign writers - Kamila Borsekova, Samuel Koróny, Anna Vaňová, Katarína Vitálišová's article - Cities was published in 2018. Typically the chapter: functionality between the size and indicators of smart cities: A research challenge with policy implications. Smart cities can be one kind of cities of excellence.

Smart city is a theme, its importance is increasingly recognized in academic and urban planning. The idea of a smart city is the subject of many research and business planning and policy debates. The importance of smart cities is increasingly recognized in academic and urban planning.

### 2.2.2. Regional Development

Shi-lin Liu, Rong Sheng, Yi-wei Zhang, Xin-jing Liu, Xiao-jing Wang, Duo Kong published "Journal of Shanghai Jiaotong University (Science)" in 2013, mainly discussed the evolution assessment of china's three mega-city regions based on entire-array-polygon method.

The geographical location of China's mega economic zone shows that there is a close relationship between shipping and urban development.

Take an area for example. In 2016, the "Contemporary Logistics in China" written by Chinese writer Li Lanbing appeared. Literary works mainly talk about the development of logistics in Beijing, Tianjin and Hebei. Beijing-Tianjin-Hebei region has a large scale of economy and developed open economic system, which has generated huge logistics demand and formed a highly developed logistics industry.

The coordinated development strategy will provide an excellent opportunity for the logistics development of the region, and have a far-reaching impact on the development of other regions.

### 2.3. Relationship between Shipping Center and Cities

The relevant literature is not quite a lot. There is the one called “Journal of Transport Geography” written by Jason Monios, RickardBergqvist, JohanWoxenius. It confirmed the role of freight distribution in defining the port-city relationship.

This port-centric city has two conclusions. First, it needs to coordinate its logistics from a regional perspective and determine which activities belong to the vicinity of the port, rather than competing with the inland areas where there is a better location. Secondly, Port-centered logistics needs to be better integrated with urban freight transport and urban logistics.

It is precisely because there are not many literary works to do related research, and it is also the reason why I want to use the synergistic development of these two as the research topic.

### 3. Impact of Shipping Centers on the Development of Cities of Excellence

#### 3.1. Indicators of Cities of Excellence

##### 3.1.1. GDP

From the perspective of GDP indicators, GDP growth can promote urban economic growth. The high economic level of the city can reflect the development capacity of the city from the side. It can be seen that the economic capacity of a city is one of the main criteria for assessing a city.

Whether a country or region's economy is in a period of growth or recession, it can be observed from this change in the number that when the GDP growth figure is positive, it shows that the region's economy is in an expansion phase; conversely, if it is in a negative number, it means that The region's economy has entered a period of recession. (George Grekousis, Stelios Gialis, 2019)

##### 3.1.2. Population

"In November 2014, the State Council of China issued a notice on "adjusting the standard of city size division", which stipulates that cities with a permanent population of 1 million to 5 million in urban areas are large cities, and cities with a resident population of 3 to 5 million are I. Large cities with a resident population of 1 to 3 million are large cities of type ii." (Notice of the State Council on Adjusting the Standards for Dividing Urban Size)

As a big city, the population is the most intuitive indicator of the size of the city. It can also be said that it is precisely because of the influence of the city that it has attracted a large number of people to gather in the city, and the urban population base has become larger. In order to make the city's living traffic function properly, how to solve the optimization problem is very important. The large population is also one of the important indicators of a city of excellence.

### 3.1.3. Education

The famous American economist Schultz believes that human capital is an important factor of production. The development of education has enabled the city to maintain abundant human capital, accumulate rich production factors for the city, effectively increase labor productivity and boost economic growth.

Urban culture is the root and soul of the city and the source of power for urban development. Urban culture is an important factor in determining whether a city is great, energetic, and attractive. The overall quality of citizens' knowledge, ability, experience, moral quality and dedication is the main source of spiritual power and intellectual support for urban development, which will determine the level and speed of a city's development. (Huang Yuexi, He Zhongzhong, 2017)

### 3.1.4. Medical Service

As a basic service of a city of excellence, how to develop medical services faster and better is very important for the city to be built and developed.

Medical technology is the inner core of medical quality. Attention should be paid to medical technology innovation, continuous introduction and development of new

methods of diagnosis and treatment, and the development of technological innovation as an important means to improve the quality of hospital medical technology.

Building a medical and health service system that matches the global city, forming a medical center city with global influence, and achieving a healthy city goal is not only a basic support for global urban construction, but also an important means to enhance the well-being of the general public. Functional strategic initiatives.

### 3.1.5.Competitive Advantage

Urban competitiveness is the ability of a city to produce goods, create wealth and provide services to meet the needs of regional, national or international markets, as well as to improve net income, improve the quality of life, and promote sustainable social development. It comprehensively reflects the city's production capacity, quality of life, overall social progress and its external influence. (Lin Yaoqian, 2006)

The ranking of cities of excellence, the top cities and the relatively backward cities, have many advantages. In terms of urban competitiveness, it is precisely because of the better competitiveness of the city of excellence that makes it stand out among many cities and the economy is developing rapidly.

### 3.2.Sample of Shipping Centers

With the port throughput of 2018 as the ranking standard, you can get the following form.

Table 1 - Rank of the Top 20 Container Ports in the World in 2018

Ranking	Port	Million TEU in 2018	Million TEU in 2017	Increase(%)
1(1)	Shanghai	42.01	40.23	4.42
2(2)	Singapore	36.60	33.67	8.70
3(4)	Ningbo	26.35	24.61	7.07
4(3)	Shenzhen	25.74	25.21	2.10
5(7)	Guangzhou	21.92	20.37	7.61
6(6)	Busan	21.59	20.49	5.38
7(5)	Hong Kong	19.59	20.77	-5.68
8(8)	Qingdao	19.30	18.30	5.46
9(10)	Tianjin	16.00	15.07	6.17
10(9)	Dubai	14.95	15.40	-2.90
11(11)	Rotterdam	14.51	13.73	5.70
12(12)	Klang	12.03	11.98	2.80
13(13)	Antwerp	11.10	10.45	6.20
14(14)	Xiamen	10.70	10.38	3.10
15(15)	Gaoxiong	10.45	10.27	1.70
16(16)	Dalian	9.77	9.71	0.60
17(17)	Los Angeles	9.46	9.34	7.00
18(19)	TANJUNG PELEPAS	8.79	8.26	-1.0
19(18)	Hamburg	8.73	8.80	3.70
20(20)	LAEM CHABANG	7.96	7.78	

Source: [http://www.sohu.com/a/308303620\\_99998865](http://www.sohu.com/a/308303620_99998865)

(The data in parentheses is ranked in 2017.)

Judging from the port throughput in 2017 and 2018, there is no big difference in the two-year ranking, and there is evidence based on the objectivity of the sample

selection.

Five cities including Shanghai, Singapore, Busan, Hong Kong and Dubai were selected as samples for discussion.

### 3.3.Indicator Analysis

#### 3.3.1.GDP

Table 2 - Global Urban GDP of Port in 2018

City	GDP(billion US dollars)
Shanghai	41.50
Hong Kong	36.43
Singapore	29.69
Dubai	10.84
Busan	7.99

Source: <http://www.chinairn.com/news/20181112/14104344.shtml>

[https://www.sohu.com/a/231782917\\_762770](https://www.sohu.com/a/231782917_762770)

<http://www.mofcom.gov.cn/article/i/jyj1/k/201903/20190302847145.shtml>

From the selected five samples, Shanghai, Hong Kong and Singapore have average urban GDP, while in comparison, Dubai and Busan are relatively weak.

GDP can reflect the city's approximate trade value in import and export trade, reflecting the economic strength in the shipping market. The GDP of a port city as a shipping center will increase due to the operation of the port; in turn, the city's GDP will bring economic support to the port's construction and development. Shanghai,

Hong Kong and Singapore are excellent cities.

### 3.3.2. Population

The largest city does not only mean that the city has a large area and a large population, but a city with comprehensive strengths such as economy, science and technology, culture and education. New York, Tokyo, Los Angeles, etc., which we are familiar with, are among the top ten cities in the world. With the rapid development of China, Beijing and Shanghai have also been selected.

Table 3 - The World's 10 Largest Cities Ranking

Ranking	City	Area (kilometers <sup>2</sup> )	Population (,000)
1	Shanghai	6340	24,197
2	Hong Kong	1106.3	7,409
3	Singapore	719.1	5,607
4	Busan	769.8	3,447
5	Dubai	4,114	3,136

Source: [http://www.sohu.com/a/273829565\\_782446](http://www.sohu.com/a/273829565_782446)

The population of the cities in the five shipping centers of the sample was ranked. It is not difficult to see from the ranking that the population of Shanghai is the highest among the five cities, and is nearly three times the number of the second Hong Kong population. The population of the remaining four cities is not much different.

See the size of the city from the city's footprint. Shanghai is still the first place, compared to the population density is not very high. Dubai has a relatively large urban area, but its urban population is not high. It is the city with the smallest population density among the five countries.

The number of urban population can reflect the prosperity of the city from the side, and because the city is developing well, it can attract more talents to develop and settle in the city. Shanghai, Hong Kong and Singapore serve as shipping centers and are also cities of excellence.

### 3.3.3. Education

The number of universities in the city is used here as an indicator to explore the level of urban education.

Table 4 - The Number of Universities in the City

Ranking	City	Number of Universities
1	Shanghai	49
2	Busan	18
3	Dubai	16
4	Hong Kong	8
5	Singapore	6

Source:

<https://baijiahao.baidu.com/s?id=1611027353923727965&wfr=spider&for=pc>

<https://www.17liuxue.com/uni/index-a13-g6.html>

<https://www.languagecourse.net/zh/gaoxiao-busan>

<https://www.languagecourse.net/zh/gaoxiao-dubai>

<https://www.languagecourse.net/zh/gaoxiao--singapore>

According to the number of universities in the cities where the five shipping centers are selected, the number of universities in Shanghai is the highest among the five sample cities. In comparison, the number of universities in the other four cities is

small.

From the analysis of the number of universities in the city, the number of universities is a reflection of the level of education in the city, and the number of universities is determined by the size of the city. Singapore and Dubai are relatively small in size, but the quality of cities owned by cities is generally high.

#### 3.3.4. Medical Service

According to Deutsche Bank's market research report, the cities with the highest quality of life in the world are mainly concentrated in Australia and New Zealand. The survey indicators of Deutsche Bank are mainly the quality of medical insurance, the cost of consumer goods, and the affordability of housing in major cities.

The data shows that the cities with the best quality of life are mainly located in Europe. <https://www.cn-healthcare.com/article/20180606/content-504218.html>

Table 5 - 2018 Global Medical Quality Ranking

22	Singapore
25	South Korea
48	China
/	Hong Kong
/	Dubai

Source: [https://tieba.baidu.com/p/5733926037?red\\_tag=0387980810](https://tieba.baidu.com/p/5733926037?red_tag=0387980810)

Health care reflects the level of medical science in the city and guarantees the health and safety of the urban population.

The ranking is only the top 60 in the world, of which Hong Kong and Dubai in China are not shown in the rankings.

In the overall medical status rankings of the countries where the selected five sample shipping centers are located, it can be seen that Singapore has the highest level of medical services. South Korea, where Busan is located, also has better medical services, and China, where Shanghai is located, also has good medical services.

As a city of excellence, having a good medical service is to protect the rights of residents. Not all of the sample shipping centers have good medical services.

### 3.3.5.Competitive Advantage

On October 30, 2017, the Global Urban Competitiveness Report “2017-2018: Housing Price, Changing the Urban World, released at the Global Urban Competitiveness Forum and Conference”, measured the global density index and economic growth indicators. The competitiveness index of 1,007 cities; and the sustainable competitiveness index of 1,035 cities in the world is measured from human capital potential, economic vitality, technological innovation, social inclusion, ecological environment, business environment, infrastructure, and global connections.

Table 6 - Global City Competitiveness Report 2017-2018

City	Economic Competitiveness	Ranking	Sustainable Competitiveness	Ranking
Singapore	0.9708	3	0.7082	5
Hong Kong	0.8873	12	0.6581	13
Shanghai	0.8346	14	0.6110	27
Dubai	0.6701	67	0.4982	71

Busan	0.5336	176	0.4570	110
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Source: China Urban Science and Technology Innovation Development Report, 2017

<http://www.nbd.com.cn/articles/2017-10-30/1157325.html>

In the competitiveness ranking, it is analyzed from economic competitiveness and sustainable competitiveness.

As the third city with economic competitiveness, Singapore has a relatively high sustainable ranking. Hong Kong and Shanghai have relatively high economic competitiveness, but Shanghai's sustainable competitiveness is relatively weak. Dubai and Busan are less competitive.

The top three Singapore, Shanghai and Hong Kong are cities of excellence. As one of the important indicators of a city of excellence, urban competitiveness is the focus of major cities in building and developing.

### 3.4.Discussion

From the selected five sample shipping centers, it is not difficult to see the corresponding indicators of the superior cities. The shipping center cities such as Shanghai, Singapore and Hong Kong are also excellent cities. While Busan and Dubai are world-famous shipping centers, they are not able to meet the standards of the Center of Excellence.

From the relationship between the GDP and the shipping center of the city of excellence, the higher the GDP, the higher the gross national product of the corresponding city and the better the level of economic development. As a city with good economic development, it can attract more cargo owners to load and unload

goods for the shipping center.

The city of excellence with a high population reflects the city's potential and develops rapidly, attracting many residents to settle in the city. More and more referrals promote the development of the city and promote the development of shipping centers.

As the most basic medical service guarantee for urban residents, it is precisely because of the good medical services that the public's health can be better guaranteed. At the same time, it can also reflect the development level of the city, and serve the shipping center to build faster and better.

Urban competitiveness is a visual indicator of the city's potential. Excellent cities have good city competitiveness and have outstanding capabilities across the country and around the world. Because the city has great potential, the owner will choose the city as the loading and unloading port for transporting goods, which is conducive to the development of shipping cities.

From the GDP, population, education, medical service and competitive advantage of the cities of excellence, we can easily find the correlation from cities of excellence to shipping centers. As the backbone of the shipping industry, the shipping center plays a decisive role in the development of the city where it is located. The most immediate is the economic impact. The economic impact of port economy on the city is not only the survival and development of port-related enterprises through the benefits of port enterprises, but also the impact of the construction and operation of port enterprises on the construction and economic development of the city, as well as the natural resources and ecological environment of the region. The construction of port is not only helpful to the development of city's industry and service industry, but also necessary to attract foreign capital, improve employment and increase residents' income.

According to the proportion of analysis, there is still a large part of the shipping center are also a city of excellence. It is concluded that the shipping center may also be a city of excellence, but not all shipping centers are cities of excellence.

#### 4.Impact of Excellence Cities on the Construction of Shipping Centers

##### 4.1.Indicators of Shipping Centers

###### 4.1.1.Throughput

Port throughput is an important quantitative indicator reflecting the results of port production and operation activities. The composition, quantitative composition and physical classification of port throughput are the most direct reflections of the status, role and impact of ports in international and inter-regional water transport chains. It is also a quantitative reference for measuring the construction and development of countries, regions and cities. ( Li Dan , 2018)

Port throughput can be divided into cargo throughput and passenger throughput by major categories.

###### 4.1.2.Number of Routes

Liner companies with large vessels tend to prefer ports with more concentrated and more radiant containers to ensure the container volume and economic benefits of single voyages.

This also means that the port must have sufficient local sources of goods and transit sources to support large container ships, and to ensure the effective operation of the collection and distribution system. In ports with insufficient capacity in this respect, it is difficult to get the favor of liner companies.

#### 4.1.3.Capacity for Innovation

Under the challenge of the port industry facing a more fiercely competitive international market environment, shipping centers should strive to improve their technological innovation capabilities. Scientifically and accurately evaluating the technological innovation capability of the port industry and providing scientific countermeasures and suggestions for the scientific and technological innovation of port enterprises are of great significance for promoting the development of the port industry.

Capacity for Innovation was selected as an indicator for judging the scientific and technological innovation of shipping centers. It is to use quantitative methods to express the number of innovations that ports have actually recognized in development and construction, thus reflecting the innovation capability of the port itself.

#### 4.1.4. The Proportion of the Tertiary Industry

As an important sector of the national economy, the tertiary industry has a strong pulling effect on economic development.

The tertiary industry refers to other industries in the national economy except the

primary industry (agriculture) and the secondary industry (industrial and construction industries) whose development level is an important indicator for measuring the degree of socialization of production and the level of development of the market economy.

The development of the tertiary industry is the "immediate task" of China's economic development, and fully understanding the important role of the tertiary industry in the national economy is the premise and basis for effective measures. (Ju Kaola, 2018)

#### 4.2. Sample of Cities of Excellence

The following table is available from the 2018 Global City Index report.

Table 7 - Global City Index Ranking and Score in 2017 and 2018

Ranking in 2018	Ranking in 2017	City	Score
1	1	New York	62.0
2	2	London	60.1
3	3	Paris	53.2
4	4	Tokyo	47.2
5	5	Hong Kong	44.9
6	8	Los Angeles	38.3
7	6	Singapore	37.8
8	7	Chicago	36.3
9	9	Beijing	35.4
10	11	Brussels	34.3
11	10	Washington D.C.	34.2
12	12	Seoul	33.6
13	13	Madeline	33.2

14	18	Moscow	32.7
15	17	Sydney	32.5
16	14	Berlin	32.1
17	15	Melbourne	31.9
18	16	Toronto	31.7
19	19	Shanghai	31.2
20	23	San Francisco	29.5

Source: 2018 Global City Index Report, [http://www.sohu.com/a/273913819\\_263856](http://www.sohu.com/a/273913819_263856)

As can be seen from the rankings, the rankings of the cities of excellence in 2017 and 2018 are not much different. The degree of excellence of the city is relatively stable and has certain reference value.

From the above 20 cities, New York, Tokyo, Hong Kong, Singapore, and Shanghai were randomly selected as sample cities for research and analysis.

#### 4.3.Indicator Analysis

##### 4.3.1.Throughput

Table 8 - Global Port Container Throughput in 2018

Ranking	Shipping Center	Million TEU in 2018
1	Shanghai	42.01
2	Singapore	36.60
7	Hong Kong	19.59
	New York	6.74
	Tokyo	5.05

Source:

<http://www.gzport.gov.cn/gzsgwj/hyxw/201904/8afde6fc81714ad59289632999ba5c3f.shtml>

From the table we can get:

Among the five sample cities selected for the shipping center's throughput indicators, Shanghai Port ranked first with absolute advantage, and Singapore Port and Hong Kong Port were in the top ten. In contrast, the throughput of New York Harbor and Tokyo Port is very small and cannot be called an international shipping center.

#### 4.3.2. Number of Routes

Four members of the Ocean Alliance - COSCON, CMA CGM, Evergreen Marine and OOCL released their 2019 route products.

##### 1. 7 trips to and from North-West Europe

Among the 7 Asian routes to and from Northwest Europe, 2 routes are in Hong Kong, 5 routes are in Singapore, 5 routes are in Shanghai.

##### 2. 5 Asian to Mediterranean routes

Among the 5 Asian-to-Mediterranean routes, 1 is in Hong Kong, 3 are in Singapore, 5 are in Shanghai.

##### 3. 19 trans-Pacific routes

Among the 8 Asian-to-US Southwest routes, 2 are in New York, 1 is in Tokyo, 3 are in Hong Kong, 1 is in Singapore, 3 are in Shanghai.

4. 4 Asian to and from the Northwest route

Among the 4 Asian-to-US Northwest routes, 1 is in Tokyo, 2 are in Hong Kong, 3 is in Shanghai.

5. 7 Asian to and from the US East Coast route

Among the 7 Asian to American and US Gulf routes, 5 are in New York, 4 are in Hong Kong, 2 are in Singapore, 5 are in Shanghai.

6. 2 transatlantic routes

Among the 2 transatlantic routes, 2 are in New York.

7. 4 Asia to and from the Middle East route

Among the 4 Asian routes to and from the Middle East, 3 are anchored in Shanghai, 3 are in Singapore, 2 are in Hong Kong.

8. 2 Far East to and from Red Sea routes

Among the 2 Far East to the Red Sea route, 1 is anchored in Shanghai, 2 are in Singapore.

Table 9 - Number of Routes for Shipping Centers

Shipping Center	Number of Routes
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Shanghai	25
Singapore	16
Hong Kong	14
New York	9
Tokyo	2

Source: [https://tieba.baidu.com/p/6010831831?red\\_tag=2953596087](https://tieba.baidu.com/p/6010831831?red_tag=2953596087)

According to the above statistics, Shanghai Port is the international shipping center. It is the port of call for shipping companies to choose the most. The Singapore Port and Hong Kong Port also have more than 10 routes. And relatively few routes choose New York Harbor and Tokyo Port.

Among the number of ports selected for the route, Shanghai, Singapore and Hong Kong have enough shipping centers, while New York and Tokyo are relatively weak.

From the statistics of the ports on the above routes, when choosing the port of call, the route tends to choose New York, Tokyo, Hong Kong, Singapore and Shanghai. These ports happen to be located in cities of excellence. As a world-class city of excellence, it is also the port of choice for the route. It must be said that it is the image of a city of excellence, which makes the corresponding port more selected by the shipping company as a port for loading and unloading goods.

#### 4.3.3.Capacity for Innovation

Innovation is the key factor to maintain the international competitiveness of the port center city. As the continuous innovation of technology brings about the continuous progress of the city, it attracts more merchants and is closely related to the development of the international shipping center. The innovation capability of port

central cities is based on the evaluation of science and technology innovation capability of these cities. Patents, papers and conference papers are used to measure the city's technological innovation capability. (Omid Aliasghar, Elizabeth L.Rose, Sylvie Chetty, 2016)

Chart 1 - The cumulative number of PCT patent applications (2004.1-2015.12)

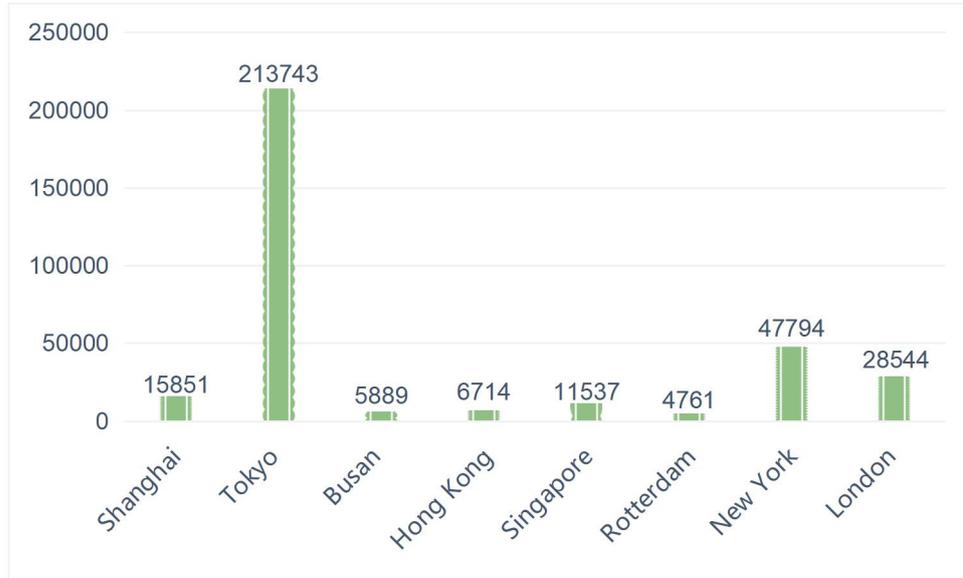


Chart 2 - Annual compound growth rate of PCT patent applications (2004-2014)

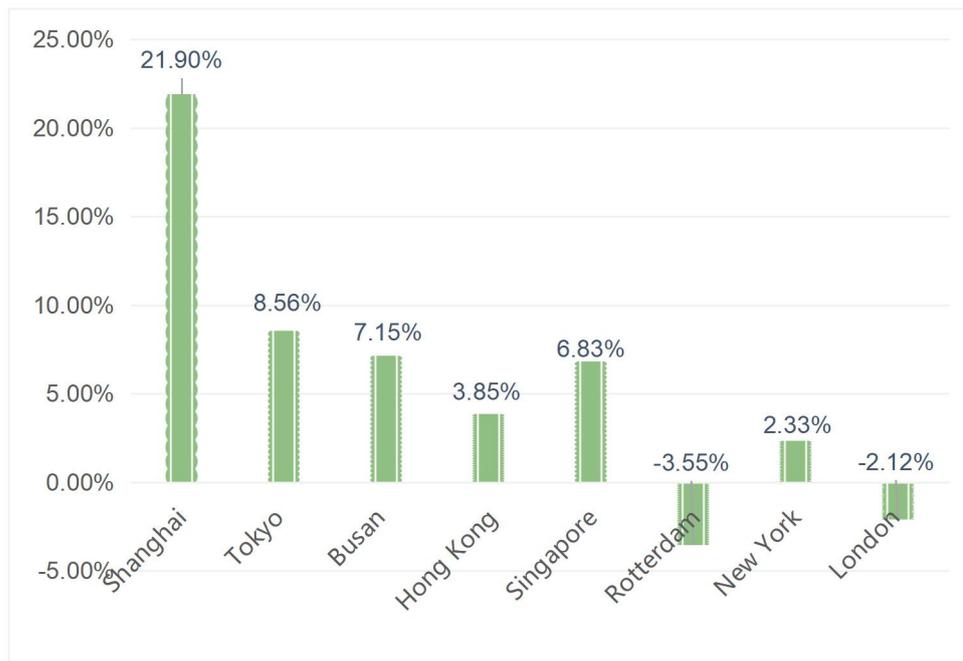


Table 10 - Number of PCT patent applications during 2004 to 2016

Shipping Center	Number of Applications	Growth Rate of Applications (%)
Tokyo	213,743	8.56
New York	47,794	2.33
Shanghai	15,851	21.9
Singapore	11,537	6.83
Hong Kong	6,714	3.85

From the selected five samples, the growth rate of patents is positive, showing that their number of patents is increasing every year. The fastest growth rate is in Shanghai, and the rates in Hong Kong and New York are relatively slow.

Tokyo has the largest number of patent applications in 12 years, five times as many as the second place in New York. Prove that it has played a very good leading role in the field of technological development.

Looking at world-class cities, I found an interesting phenomenon:

Cities with a certain number of invention patents are port cities, of which Tokyo has the largest number of invention patents, and Shanghai is the city with the largest growth rate. Explain that the city of excellence is actively developing technology, and it can also reflect their contribution to the construction of the port.

#### 4.3.4. The Proportion of the Tertiary Industry

The statistics of the three major industries in the country in 2012 where the city is located are counted as follows:

Table 11 - The Proportion of the Three Major Industries in Each City in 2012

Ranking	Country	Proportion of the Primary Industry (%)	Proportion of the Secondary Industry (%)	Proportion of the Tertiary Industry (%)
1	America	1.20	19.10	79.70
7	Japan	1.20	27.50	71.40
18	China	10.10	45.30	44.60
/	Singapore	/	/	73.30
	(Hong Kong)	0.00	6.00	94.00
	(Shanghai)	0.64	39.63	60.00

Source: [http://www.360doc.com/content/18/0610/16/8527076\\_761196843.shtml](http://www.360doc.com/content/18/0610/16/8527076_761196843.shtml)  
[http://www.gdstats.gov.cn/tjzl/tjfx/201602/t20160229\\_324604.html](http://www.gdstats.gov.cn/tjzl/tjfx/201602/t20160229_324604.html)  
[http://www.360doc.com/content/18/0610/16/8527076\\_761196812.shtml](http://www.360doc.com/content/18/0610/16/8527076_761196812.shtml)

In the sample selection, Hong Kong and Shanghai are both Chinese cities. Compare first between countries and then between Chinese cities.

From the perspective of the proportion of the tertiary industry, all the cities have reached the average level. But the tertiary industry in Shanghai and Japan has a relatively small proportion of GDP. As a regional perspective, Hong Kong's tertiary industry is almost the total output of the entire city's GDP, which is supporting the development of the city.

Through the analysis of various trend factors, the continuous increase of the proportion of the tertiary industry will be a trend, and its leading role will be further revealed. It will be normal for the service industry to surpass the manufacturing industry as the main driving force for economic growth. This means that the domestic economy is shifting from the original industrial-led economy to a service-oriented economy. This trend will have far-reaching and lasting impact on economic growth,

employment and all aspects.

#### 4.4. Discussion

From the analysis of the indicators of the selected sample cities to the shipping center, not all the excellent cities are famous shipping centers. In the ranking of cities of excellence, in addition to the five selected cities are coastal port cities, there is no inland city. For example, in Paris, Beijing and other cities, there are no big ports in the city, and it is not a shipping center.

Among the major research and analysis cities, Shanghai, Singapore, and Hong Kong can be regarded as shipping centers, and their influence has a large proportion in the shipping industry.

From the perspective of the relationship between the throughput of the shipping center and the city of excellence, the large throughput is a direct indication of the good operation of the shipping center. The large total throughput is a proof of the good development of the shipping industry. More and more cargo owners choose the shipping center as a port for loading and unloading goods, and building and developing the economic development of the city is conducive to promoting faster and better construction of the city.

And more and more goods choose the corresponding shipping center to load and unload the goods, the shipping company will also plan the route because of the density of customers. In the port of call of the main route, the port with more routes is often the world famous shipping center. And this can also promote the development of the city.

The development of the city cannot be separated from the advancement of science and technology. From the capacity of innovation, the city can intuitively reflect the technological innovation made by the city for development. It can also reflect the corresponding scientific and technological development of the shipping center.

As the service industry, the tertiary industry accounts for a higher proportion of urban GDP, which proves that the proportion of the first and second industries in the city is relatively low. Prove that the city's service-oriented industry is developing better, such as cargo transportation. The shipping center is a more important part of the cargo transportation service. The high proportion of the tertiary industry reflects the perfect development of the shipping center.

From the throughput, number of routes, capacity for innovation and the proportion of the tertiary industry of the shipping center, we can easily find the correlation from shipping centers to cities of excellence. Cities of excellent are a strong backup in the development of shipping centers. The city's good geographical environment, economic foundation, medical service and scientific and technological development are all contributing to the development of the shipping center. The influence of the city promotes the operation of the shipping center.

The above analysis is not difficult to conclude: a city of excellence may be a shipping center, but not all the cities of excellence can be the shipping centers.

## 5. Conclusion

From the above research on shipping centers and cities of excellence:

Some shipping centers can also be cities of excellence, but not all shipping centers are

cities of excellence;

In the same way, some cities of excellence can also be shipping centers, but not all cities of excellence are shipping centers.

Shipping center is the carrier of city related industries and an important factor for the development of city economy. It can not only provide convenience for city logistics through the formation of comprehensive transportation mode, but also promote the development of city through port-vicinity industry, commerce, tourism and other industries.

In the current environment where the shipping market is slowly recovering, the challenges and opportunities for shipping centers are becoming increasingly apparent, and the role of ports is becoming more and more important in urban development. This tests how the city itself finds a balance between the two roles and better develops.

We must think about how to better and better promote the coordinated development of the two, and make adjustments to the actual situation of different ports, and establish a reasonable and effective scale of development, so that the city of excellence can be better coordinated development as a shipping center.

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