AN ANALYSIS OF THE COMPETITIVE POSITION OF THE EURASIAN LAND BRIDGE, CHINA TO GERMANY

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Introduction: The 'One Belt, One Road' Strategy

The 'One Belt, One Road' strategy is the major strategic decision which was developed by the Central Committee of the Communist Party of China (CPC) led by Xi Jinping in response to global trade developments. This strategy has been included in the Chinese government's 'Annual Work Report', as an important strategy (Yuan, 2014). From 2013, China established the 'One Belt, One Road' strategy, and proposed actions outlined on jointly building a Silk Road Economic Belt and 21st-Century Maritime Silk Road which was published in 2015 (Zou et al, 2015). The Silk Road Economic Belt begins in China and passes through five Central Asian countries, Russia, Western Europe and regions along the Mediterranean. The Maritime Silk Road begins in China's coastal areas, follows three routes and covers more ports and countries:

1. Pacific line: starts from the eastern coast of China to reach Japan and Korea, and 11 Southeast Asian countries including the Philippines, Indonesia and Thailand.
2. Indian Ocean line: start from the east coast of China, and reaches India, Pakistan and the east coast of Africa through the Strait of Malacca, and then goes into the Persian Gulf via the Strait of Hormuz.
3. Atlantic line: starts from the east coast of China into the Indian Ocean, and reaches European countries after entering the Mediterranean via Ba bel-Mandab and the Suez Canal.

An additional line, the South Pacific line is also being developed.

The implementation and construction of the 'One Belt, One Road' corridor is a long-term, systematic project, covering around 46 million people (Zhang, 2015). The strategy involves both domestic and foreign territories, and it is a mutually open strategy that connects domestic areas with foreign areas through modern transport and information networks. The implementation of the 'One Belt, One Road' strategy is intended to break the separation of land and sea transport, and promote integration, forming a more coherent economic whole. (Chen, 2015).

Methodology

The statistical, quantitative data was derived from two sources: directly from COSCO and China Shipping and indirectly from other published sources. COSCO and China Shipping are the two largest shipping companies in China, and the shipping and inland transport costs were extracted from the ocean freight rate tables and trailer rate tables found on the official websites of these companies. The railway freight rates were obtained from the official site of China National Railways as the 'State Council of China' has interpreted the 'One Belt, One Road' Strategy in detail. Other empirical data came from research reports and publications. The data for charges for various ports and transfer stations were obtained from forwarding companies and their cargo accounts settlement systems. Additional quantitative data was derived from two sources, primary data from interviews, a case study, and questionnaires, and unstructured field observations focused on the multimodal transport of freight between China and Germany.

The qualitative data include both categorical data and sequential data in the form of text-described data presenting both general and specific categories. This data could not be quantified but only considered and discussed.

Analysis: The export of auto parts from China

In recent years, China's auto parts industry has undergone rapid development. According to Commerce Department statistics, the sales revenue of auto part enterprises has an average annual growth of 36.8%. In the past 15 years, the export volumes of the Chinese auto parts sector have had an annual growth rate of around 30%. The United States, Japan, European Union and other car producing countries are major importers of automotive parts, e.g. chassis, bumpers, wiring looms, glass, brakes, clutches, radiators, exhausts and silencers sourced from China.

Case Study 1: Changchun Automobile Company

Changchun Automobile Company is a big customer of container shipping companies, exporting automobile parts to Volkswagen in Germany. The main multimodal transport route has been through Port of Dalian as the primaru port of export from the northeastern region of China to Europe. Northeast China has four major ports: Dalian, Jinzhou, Bayuquan and Dandong. The route from Dalian Port, the starting point, proceeds from Liaoning Province to Europe via Southeast Asian countries, the ports of the Mediterranean and on to Europe. This is a convenient, economic and efficient sea transport corridor from northeast China to Europe.

By 2015, China had established a rail transport route from northeast China to the EU, so that the goods from northeast China can reach Europe via the land-bridge which has two variants: "Northeast China - Manzhouli - Russia - Europe" and "Northeast China - Inner Mongolia - Mongolia - Europe". The route from Northeast of China to Europe through Mongolia has attracted considerable high value-added products business. Currently, the export volume of goods via Manzhouli account for more than half of the export volumes for local goods. The manager of the international cooperation department of the 'Port of Bayuquan Group Co., Ltd identified the Great Wall Motor Co., Samsung, LG, and Adidas as examples of companies who choose to use the China Railways express route from northeast China to Europe. In addition, the route from northeast China to Europe through Mongolia is an important route which transports ores and agricultural products. Routes and multimodal combinations are shown in Table 1.

All rail	All rail via Manzhouli and Moscow
Multimodal	Rail-Ferry-Sea-Road via Port of Dandong
	Rail-Ferry-Sea-Road via Port of Jinzhou
	Rail-Ferry-Sea-Road via Port of Bayuquan

Table 1 Multimodal transport modes from Changchun to Wolfsburg (Authors, 2017)

One of the automobile manufacturers is based in Chang Chun City, Jilin Province and has an enterprise's special service railway. For the China-Europe railway, therefore, containerised goods can be transported directly from the production facility to the Harbin Railway Station where the China-Europe railway begins. Beijing Changjiu International Logistics Co., Ltd., UTi Worldwide (UTIW), the Port of Dalian (PDA) and the Harbin Railway Bureau (HRB) work together to offer the Harbin-European freight train service. With advantages such as a shorter distance, faster speeds and lower costs, the Harbin-Europe railway route has attracted attention from outside China. Companies in the Hamburg area and the Bavaria and Lower Saxony state governments all want to cooperate with the Harbin Railway Company. Railway operators in countries such as France and Switzerland also have expressed their willingness to cooperate in the European part of the Harbin-Europe railway route. Transport by railway is normally less expensive than transport by road, but with extra transhipment costs caused by changing the transport mode.

Routeing Via Port of Bayuquan

The Port of Bayuquan is located at the junction of the Bohai economic circle and the Northeast Economic Zone. It is the nearest sea outlet from the three north-eastern provinces with very obvious geographical advantages. The company is also one of the most convenient sea outlets in Northeast China and one of the 20 major ports of coastal China. In 2012, the handling capacity of the Port of Bayuquan reached 301 million tons, becoming the ninth largest port in China; containers totalled 4.81 million TEU; sea and railway transport volumes ranked second in the country, only behind the volumes

through Dalian Port. Existing domestic trade container lines cover 30 major ports in China's coastal areas.

The time delays caused by changing the transport mode during the transit process of the products takes up 3% of the total transport time. Because the times for container handling in port, shipping schedules and Container Yard closing time are different, and with these time periods offering high flexibility, so the transfer time is not counted in the total transport time. The cost generated in the transfer phase accounts for 27-30% of the total transport cost. In particular, there are documentation fees, customs charges, security costs as well as costs charged by THD or shipping companies at export ports. Because the cost of railway transport for the automobile manufacturer in Changchun to the Port of Bayuquan is slightly lower than the road transport cost and the automobile manufacturer in Changchun has its own railway line, transporting products to the Port of Bayuquan by rail is the best choice.

This route begins at the automobile manufacturer in Changchun, using containers of different sizes (i.e., 20 foot TEU or 40 foot High Cube) according to the types and amounts of goods. The shipping company generally charges for moving a container through a container yard to the factory. Usually, when a factory applies for moving containers through this route, the shipping company will charge $18 per TEU as the modal change cost. Since domestic ferry transport is often used in China, the cost generated at the first transit node is not very high. Compared with neighbouring ports, the road transport costs for the Port of Bayuquan are relatively low, making this route the best of all. In the meantime, the trains from the northeast railway freight station to the Port of Bayuquan and ships to Dalian Port are the most frequent. Because hardware facilities at the Port of Bayuquan are good its handling efficiency is the highest. Therefore, the time and cost of transit shipment are the lowest. Goods from the automobile manufacturer in Changchun can be transported to Port of Bayuquan through road and railway transport. Due to the long distance of transport, the cost of freight transport of railway is obviously lower than that of road transport. And the automobile manufacturer in Changchun has its own railway lines, so customers are more willing to choose rail transport to transport the goods from the factory to the Port of Bayuquan.

Routeing Via the Port of Dandong

Dandong Port is located in the centre of the Northeast Asian economic circle and the east of Bohai economic zone, which is the northernmost international trading port on the Chinese coastline. Moreover, it is the most convenient logistics channel linking Russia, Mongolia, South Korea and Japan. Dandong port accommodates 10,000 TEU container ships, and 70,000 dwt bulk grain vessels.

The cost of road transport from Changchun to the port of Dandong is very high. The land transport cost of 20 foot containers is higher than the cost of sea transport from the port of Dalian to port of Hamburg. This route is also the most expensive of all multimodal transport routes. However, the rail transport cost to Dandong port is $220 per TEU lower than the road transport cost. Besides, because the infrastructure in Dandong port is rather poor, the transit time to Dandong port is relatively long and reaches 20 hours.

Since the handling capacity of containers in the Dandong Port is lower than other northeast ports, the price of railway and road transport is relatively higher because the port does not have return goods. However, due to the relatively low handling capacity of Dandong Port, the container transport is therefore seldom delayed. The Port of Dandong has been growing rapidly over the past few years thanks to the Port of Dalian’s investment, but shippers sometimes hesitate about selecting the Port of Dandong due to disorganised operations, aging storage yards and insufficient space resulting from growing amounts and types of goods. These problems have significantly affected the Port of Dandong’s loading efficiency and its distribution capacity.

Routeing Via the Port of Jinzhou

The Port of Jinzhou is the only fully open international port on the 400 km in the northwest of the Bohai coastline, and is also hub port developed by Liaoning province in the northern region. Located in the northwest of the Bohai Sea, Jinzhou Port is the most convenient access point for Northeast Asia. Although located in the north, winters there are cold but the sea is not frozen. The effective operating time is 365 days each year. With a number of container liner routes opened by shipping companies, the port of Jinzhou has become the main port linking the north and south. Domestic and foreign trade line

networks closely cover the south China coupled with Huangpu Port in Guangdong, and coastal areas of the southwest and east China with Port of Shanghai as the centre.

The transport costs on this route are between the transport costs of the other two multimodal transport routes. And the total transport time is almost the same as that of transiting via Dandong port. Because there are plenty of return loads in Jinzhou, the road transport cost at Jinzhou port is only $100 per TEU higher than the railway transport cost. Although the time of the road transport is 1-2 hours less than that by rail, the 1-2 hours can be ignored in the total transport time.

The transit time and cost of this route is basically the same as via the Port of Dandong. The main business of Port of Jinzhou is the transport of bulk goods e.g. grain and bagged fertilizer, The Port of Jinzhou is also an important coal feeder port. Container transport development at the Port of Jinzhou is slow, and at present, there are only 4 container ship berths resulting in frequent delays.

Land bridge
In 2015, the Changchun - Manchuria - Germany International Freight Train was formally launched, which on leaving Manchuria port, passes through Russia, Belarus, and Poland. At present, the import of goods mainly include auto parts, and export goods are auto parts and wood, electronic products and so on. In proximity to the freight line, there are assembly centres for Volkswagen, Audi, BMW and Tesla are planning to build an electric car battery factory nearby , to form a stable manufacturing base. During the test run of Changchun - Manchuria - Germany International Freight Train, the transport time was 18 days, saving 35 days against sea transport. After the formal operation of the Changchun - Manchuria - Germany International Freight Train, the achievable single-direction operation time is around 11 days. Thus international railway container transport between China and Europe, with the advantages of fast transit, and better environmental performance, is an important supplement to sea and air options, the price is about 1/5 of the air, and the running time is about 1/4 of the sea freight. This line has great advantages in time and cost. Although the railway transport costs reach $6000/TEU, at present, China Railway Administration has given the line a 25% tariff concession so that it makes the central line attractive for high value goods. The Harbin - Europe Railway route in north-east China is still young and remains in the stage of trial operations. Nonetheless, the data analysis shows that this route has obvious advantages in terms of time and cost. The freight cost has reached $6000/TEU due to a lack of goods from Europe to north-eastern China. But this cost will decrease significantly with the steady development of this route and an improving trade balance between Europe and China.

In Case 1, the multimodal route via the Port of Bayuquan is the preferred route. Sea transport requires 30-35 days, has the lowest freight cost and the largest volume of goods. In addition, the interest on the capital value during transport also is a consideration of both shippers and buyers. If the value of goods in a container is $US 5 million, the interest added by the one extra month required for sea transport is $US 4,000-5,000. For example, the interest on capital plus the sea transport cost plus the railway-ship multimodal or trucking cost totals $US 6,000 - 7,000. Automotive parts are high-value goods. From this perspective, therefore, selecting the Harbin-Europe Railway route rather than sea transport is more cost-efficient for such goods overall. Broadly, the shipper should select this China-Europe Railway route if the shipment value exceeds $US 2 million; air freight if the containerised goods value exceeds $US 10 million, and sea transport if the goods value is lower than $US 2 million.

Case Study 2: Nanjing City Logistics Park
In 2013, an automobile and automotive parts logistics park was opened in Nanjing City, Jiangsu Province. The parts warehouses account for one third of the entire park by storage area. The newly built automotive parts logistics park includes a container storage yard of about two hectares in area. Automotive parts are goods characterised by small dimensions, low weight and high value. For these goods, shippers want to select a transport route with a low freight cost and fast time. Sea transport tends to be selected for automotive parts transported from Nanjing to Europe. China Railway Company has been operating the Zhengzhou to Germany railway route since the Chinese government announced One Belt - One Road strategy. The freight train leaves Zhengzhou for Europe twice a week, namely, on Wednesdays and Fridays. Moreover, the return freight train service has also been launched: trains start off twice per month, namely, on the 15th and 30th days of the month. This implies up to 2 weeks of dead-time while a train

load is accumulated. In order to increase the amounts of goods from Europe, China Railway Company is setting up branches in such cities as Shenzhen, Guangzhou, Shanghai, Ningbo, Beijing, Tianjin, Qingdao and Dalian, thereby providing services such as the less-container-load (LCL) service and fast distribution for return freight trains.

All rail	All rail via Zhengzhou and Alashankou
Multimodal or Intermodal	Road-Ferry-Sea-Road via Port of Shanghai
	Road-Sea-Road via Port of Shanghai
	Road-Rail-Sea-Road via Port of Ningbo
	Road-Sea-Road via Port of Ningbo

Table 2: Multimodal transport routes from Nanjing to Wolfsburg (Authors, 2017)

From Table 2, the sea transport routes include Shanghai - Hamburg and Ningbo - Hamburg. Goods are transported by truck, train and container barge to the Port of Shanghai from Nanjing. The preferred method involves trucking goods to Nanjing Railway Station and the Port of Nanjing or trucking them directly to the port of Shanghai or Ningbo. The first ever Zhengzhou-Europe freight train began operating on July 18, 2013, indicating that China has built an international railway which connects it with other parts of the world. In other words, a New Silk Road between China and Europe has been built. Goods can be transported by rail from Nanjing to Zhengzhou where the China-Europe Railway route begins.

Via Port of Shanghai

Located at the Yangtze River Delta, the Port of Shanghai is in the centre of China's 18,000-kilometer coastline. As China's primary port, Shanghai is critical for China's opening up and participating in international economic activities. This port accounts for 99% of goods exported from and imported into Shanghai and about 20% of the total amount of foreign-trade goods handled by China's ports. From Nanjing to Shanghai, ferry transport has the lowest transport cost, but the longest transport duration. Due to narrowing of the navigation channels of the Yangtze River during the low water season in winter, ferry transport is the least reliable means. Nanjing to Shanghai port via road transport is also possible. As certain handling charges will be generated for container transport through road and railway, road transport is therefore generally cheaper and more flexible than railway transport if the transport distance is less than 500 km.

Intermodal transfer costs generated by the foregoing two transport routes account for 30% of total transport costs. Of the two transport routes, the cost of road transport is $US 300 / TEU more than that of the ferry transport. For nearly the same distance, ferry transport will be one day longer than road transport. However, in comparison with a total transport time of 28-30 days, one-day diffreence can be ignored.

Via Port of Ningbo

The port of Ningbo is the starting point of the Maritime Silk Road of ancient China. As a multi-functional and comprehensive modern deep water big port integrating inland port and seaport into one body, the port of Ningbo is open to navigation with over 600 ports of more than 100 countries and regions in the world. The cargo handling capacity of the port of Ningbo was up to 809 million tonnes in 2013, higher than that of Shanghai, ranking it first in the world. Due to its geographical location, internally, the port of Ningbo can not only be connected with various coastal ports, but it also directly covers East China and the economically developed Yangtze river basin by way of river-sea combined transport and sea-railway combined transport; externally, it directly faces East Asia and the whole Pacific Rim, thus becoming an ideal distributing centre for the coastal area of China to radiate towards port in America, Oceania and South America by sea.

The reason why ferry transport is not included in the transport modal mix of Nanjing to Ningbo is that both the transport time and distance by ferry is far beyond other transport modes. Analysis of geographical location shows that the price of both railway and road transport is relatively high, for the

distance from Nanjing to Ningbo is longer than that from Nanjing to Shanghai. The sequence for most of the liner companies to berth at ports in the Yangtze river basin is to berth at Shanghai and then Ningbo. Therefore, the overall transport time for berthing at Ningbo is two days less than that of berthing at Shanghai.

The total transport cost of the two multimodal transport routes via Ningbo Port is almost the same. As the transfer cost of the first route is more than that of the second route, plus that the distance from Nanjing to Ningbo is not very long, therefore, the road freight and railway freight are almost the same. From the perspective of transport time, transport of cargoes directly from Nanjing to Shanghai port by road is the preferred route. As one transfer node is removed on this route, the transport risk is also mitigated accordingly.

Land bridge

The Zhengzhou - Europe Railway route runs for 10,214 km, starting from Zhengzhou, proceeding via the Alataw Pass in Xinjiang Uygur Autonomous Region, then going via Kazakhstan, Russia, the Republic of Belarus and Poland, and eventually arriving in Hamburg. The whole journey takes between 11 and 15 days, which is around 10-20 days shorter than by sea transport depending on the shipping service, and it can save 80% in comparison to air transport. Apart from the Zhengzhou - Europe rail route, Zhengzhou also opened two other rail routes with regular services in 2015: Zhengzhou to Almaty, the biggest city in Kazakhstan, and Zhengzhou to Moscow. The Zhengzhou - Europe Railway route also opened a southern Europe route via Central Asia and Turkey to Luxembourg in 2016.

The source of goods for the Zhengzhou - Europe block train covers the majority of provinces and municipalities directly under the central government of China. The cargo types include traditional light textiles, automotive parts, engineering machinery, medical equipment and other industrial products as well as such electronic products such as laptops, mobile hard disk drive etc. The scope of goods consolidation covered South Korea for the first time with the No. 24 train opened by the Zhengzhou - Europe Railway route in April 2015. Cargoes from South Korea are transported to the railway transfer station of Zhengzhou via the port of Lianyungang and then to Europe via the Alataw Pass. Successful testing of the transit shipment of Zhengzhou - Europe Railway route has created a solid foundation for Zhengzhou international inland port to establish the multimodal transport business channel of sea transport, railway transport, air transport and road transport. This has also provided a guarantee for the Zhengzhou - Europe Railway route to attract cargo from Japan, South Korea, Southeast Asian region and Taiwan destined for Central Asia, West Asia and Europe on a weekly basis.

The Zhengzhou-Europe Railway route has typically saved 10 days transport time in comparison with multimodal transport based on sea transport. However, the cost of this route is 3-4 times sea transport. High transport costs are the main reason restricting development of this route. To capture more cargo, however, local governments in various provinces of China have started a “price war” as a bargaining tool. For example, one of the purposes for Chongqing to open the Chongqing - Europe Railway route is to increase its attraction to HP, Acer and other laptop producers. In the second year of operating the Central-Europe block train, the gross exports of Chongqing reached $US 53.2 billion, increasing by 82.2% on year-on-year basis. To take the new Chengdu-Europe Railway route as another example: this rail route handled local products with a total value of $US 300 million and products with value of $US 200 million exported by other provinces to Europe in 2014. The Zhengzhou - Europe Railway routes had the highest operating train numbers among all China-Europe Railway routes in 2016 and its cargo weight, cargo value and overall influence also rank top amongst China - Europe Railway routes. The Government freight allowance is also a special prerequisite for Zhengzhou-Europe Railway route to implement regular operations. The government grants a subsidy of 15-25% freight rate in accordance with the cargo quantities of the shipper.

There are two types of cargoes in Nanjing automobile parts logistic park. One is the spare and accessory parts to be supplied to European automobile manufacturers for production purposes; the other one is the spare and accessory parts to be supplied to European automobile parts market for retail purposes. For the first category, total transport time is the most important to the manufacturers, for the manufacturers have to reduce the inventory cost. Hence, the transport route using the Central-

Europe block train is more suitable to European automobile manufacturers. For the second category, reduction of the transport cost is the principal factor to be considered by the retail dealer. Therefore, sea transport is more suitable as the retail dealer can gain more benefits by reducing the storage costs during transport. Furthermore, the sea transport cost is much lower than that of road and land bridge transport.

Analysis

In the first case, the northeast of China auto parts multimodal transport case was introduced. The northeast of China inland waterway transport is not developed, so the choice of road transport and rail transport become especially important. Dalian is the only major container export port in the northeast of China, and all goods need transporting by a variety of transport combinations and methods to here, including ferry transport via the ports of Jinzhou, Dandong and Bayuquan.

Although the distance from Dalian to these three ports is very similar, there are differences in loading and unloading efficiency, information transmission speed and density of departures. The optimal choice is transport through the port of Bayuquan. For land-bridge transport from north-eastern China to Europe, because the northeast China central railway trains have been running for just a year, many countries customs clearance speeds are slow, coupled with high transport costs, many cargo owners are not, therefore, willing to choose this route. But for those goods with high value, land-bridge transport has big advantages if costs and interest on capital are included. In the second case, due to the rapid development of inland water transport using the Yangtze River and its low cost, many retailers are willing to choose sea transport in order to reduce stock. For those manufacturers, reducing the storage cost is very important. And the multimodal transport model using China - Europe trains along the Yangtze River is developing quickly. Thus manufacturers are willing to choose the land-bridge option which takes significantly less time than shipping.

Transport distance

The transport distance means the total length of the route from the starting point to the terminal. The transport route is always different according to the different transport means. Usually, a longer transport distance requires longer transport time as well as more transport cost. According to the “One Belt - One Road” strategy, the construction of the land-bridge transport route on the Silk Road economic belt mainly relies on three Eurasian land bridges, which represents full utilisation of the existing infrastructures for transport.

Transport cost

The multimodal transport process will generate multiple transport costs, such as: fixed transport costs, labour costs, fuel charges, handling charges and so on. However, the most influential part is the fixed transport cost which is divided into the fixed sea transport cost, fixed railway transport cost, fixed road transport cost and fixed air transport cost. The fixed costs are inescapable under normal conditions. Although multimodal transport theoretically uses a single rate, multimodal transport operators need to think about inescapable transport costs of the various modes when deciding on the route, thus maximising their benefit. Meanwhile, there are many countries with different transport cost structures along the Silk Road. It is therefore necessary to make section-by-section calculations of the transport costs, which will thus be more consistent with actual conditions.

Customs clearance

According to the statistics of China’s Ministry of Commerce, handling processes at ports accounted for around 10-20% of the total transport time through the land-bridge transport before the development of “One Belt and One Road” strategy. Document and customs inspections account for 60% of the delay while the transfer of transport mode accounts for 40%. In 2015, customs clearance integration of the regions along the Silk Road economic belt in China was launched officially. Since then customs procedures in China has followed a uniform standard, which will eliminate 20-30% of the clearance

cost. This has played an important role in promoting the interconnection of the countries and regions along the "One Belt and One Road" route.

Nodes
Transfer means changing from one transport mode to another mode. Usually, the transfer process will inevitably involve unloading and reloading of the container. During this process, the transport distance and especially the operating time of the node, as well as the waiting time, will affect the working performance. The main variations here are the transport time and transport cost. Because the reloading process will be influenced by resource allocation at the transfer station, weather conditions, transfer efficiency and other factors, the reloading time has considerable uncertainty. In the multimodal transport processes, the containers can be transferred easily and rapidly, and this has a direct impact on the time and cost of the multimodal transport chain.

Port throughput
Here, panel data embraces a range of inputs including transport and cargo-handling parameters, and demand drivers such as regional GDP and GDP per head. Transport nodes include container yards, freight train stations and ports. Taking Shanghai port as an example, the throughput of the port is mainly related to the city GDP, industrial structure, transport development policy and so on. Regions with higher economic output will have greater cargo volumes and greater demand for transport through the port. Economically developed areas have greater demand for consumer goods because of the higher income levels of local residents. The changes of traffic volume of other transport nodes will also affect the throughput of ports indirectly. The five-year data shows the impact of the city GDP and supply and demand of shipping markets on the throughput of Shanghai port.

GDP has a positive correlation with the throughput of the port, the city GDP has a great impact on its foreign trade, and the foreign trade volume of a city directly reflects the throughput of the port. Besides, Shanghai import and export trade is basically realized by sea transport, therefore, the total import and export volume is positively related to the throughput of the port. In recent years, as the number of container ships keeps increasing and the size of the ships keeps expanding, the container ships cannot be fully loaded. Therefore, as wharf construction cannot catch up with the growth rate of the container ships, the supply of transport is negatively correlated to the throughput of the port. This works in favour of the development of the landbridge routes.

Conclusion
This paper takes the modern Silk Road as the study area, considers the background of the One Belt - One Road strategy, constructs container multimodal transport model and networks, studies the transport routes along One Belt and One Road strategy, and adopts two real cases in order to make analysis close to reality. The main focus of this paper includes:

- The background to the One Belt - One Road strategy. The paper analyses the Silk Road's multimodal transport systematically; it summarises the characteristics of the route for land-bridge transport and sea transport, highlights the characteristics of the Silk Road's multimodal transport and analyses the main factors which influence multimodal transport against the background of the One Belt - One Road strategy.
- An analysis of the transport process, taking characteristics of land-bridge transport and sea transport into consideration. The paper is structured around an established cost model based on transport cost, time and distance respectively according to real cases. The transport node change is also considered.

The One Belt and One Road strategy is not an entity or a mechanism, in fact, the development of the strategy tends to form an open system. The development of the strategy needs the common effort of the economic, trade, policy and geographical environment. On the one hand, the construction of the One Belt and One Road strategy involves a number of countries. So, the national economy, transport and international policy will play a key role in the strategic development. On the other hand, transport is only a part of the strategy, and the development of the strategy must be consistent with the overall interests of some countries. Thus, the One Belt - One Road strategy is extremely complex, having a variety of impacts on the development of trans-continental container transport. The development of the

One Belt - One Road strategy cannot do without international trade as a precondition, or the building of transport routes or transport corridors which in turn need enough cargo to justify investment. Although the Silk Road has existed for a long time, historically the goods were exported to Europe mostly by sea transport due to the slow development of land transport options and especially the low cost of sea transport compared with the land-bridge option. Sea routes have become ever more competitive with the development of larger ships. Under competitive pressure, land bridge transport needs to improve its operating speeds, its custom clearance processes, and its transport efficiency. Land bridge transport also needs active cooperation from those ports on its transport routes, co-developing the multimodal transport system.

Since the One Belt - One Road strategy covers Asia, Europe and, indirectly, Africa, long transport distances lead to significant differences between routes in terms of transport time and costs. Moreover, every transport route or mode has its advantages and disadvantages Accordingly, various transport routes and modes are highly interchangeable with each other. Shippers may transport their goods to Europe either by sea transport or via the land bridge transport or by land bridge in combination with sea transport. Road transport has obvious time advantages, while maritime shipping has freight-cost advantages. Shippers select transport routes according to the characteristics of their goods (e.g., size, weight and value) and the consignees' requirements. Multiple transport modes and routes are available to any node of the transport network; the entire transport process is finished by selecting transport modes according to the nodes. Some of these transport routes come with insignificant differences in terms of transport time and costs, leading to high levels of switching between them.

Regarding multimodal container transport, transport time and costs are the primary measures for determining whether a certain path is the best one. When it comes to the determinants of transport time and costs, road infrastructure, customs clearance efficiency at the port and the unloading/reloading efficiency at the node, in addition to transport distances and rates, will affect both of them. Sino-European land bridge transport has received more support and policy incentives from the governments, leading to lower transport costs and hence affecting transport routes selection. Since it is still in its early stage of development, the China-Europe Railway route still has problems, such as incomplete transport infrastructure and support services along the route, cumbersome customs clearance, insufficient supply-demand matching, high overall transport cost and, in China, unfettered competition. For these problems to be solved, it is urgently necessary for the governments to enhance overall planning and coordination in order to promote the healthy development of the freight train service. To this end, the National Development and Reform Commission and China Railways are working with relevant government agencies/departments and local governments to steadily promote the China-Europe Railway service in a co-ordinated manner.

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