

Transcontinental Cargo Freights in China-Europe-China Relations

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In the modern world, in Europe and in Poland, many forms of cooperation between states and enterprises can be observed. Many business entities take a lot of effort to offer the most up-to-date services and to prepare sales and marketing networks ready to win on a competitive market. These processes affect transport market as well.

The article focuses on global transport services, in particular on the competition in international cargo traffic on the China-Europe route. It is presented on the background of the globalization and competitive processes in transport services. The demand for transport services, resulting from rapid growth of China is discussed, with particular interest in two modes of transport: railway and sea. The article considers the conditions for China-Europe rail transport due to the recent initiatives towards building the "Silk Road". It opens new possibilities for rail transport to compete on the China - Europe route, especially considering the factor of time. The conclusions present the guidelines for further development in the area of transport services on the China-Europe route.

Keywords: rail transport, sea transport, competition, globalization.

JEL codes: L92, R41.

1. INTRODUCTION

In the modern world, in Europe and in Poland, many forms of cooperation between states and enterprises can be observed. Many business entities take a lot of effort to offer the most up-to-date products and services and to prepare sales and marketing networks ready to win on competitive market. There can be observed the emergence of global actors and networks of manufacturers who want to win the international competition through efficient and effective transport systems. In this global expansion, the European Union continues to play an important role but on the market we have seen a considerable activity of China's economy for many years. Therefore, the article focuses on global transport services, in particular on the competition in international cargo traffic in China-Europe route.

2. CHALLENGES OF MODERN GLOBALIZATION

Globalization is distinguished as a particular mega trend in the modern world economy. J. Naisbitt (Naisbitt, 2007), while constructing megatrends, stated that many economies have a tendency to develop from the national approach to global economy, and to internationalization. Globalization is a specific, contemporary dimension of the global economy. Our world is becoming one market. The global economy is developing on the basis of liberalization of economic activity, due to the deregulation of national economies and the increasingly limited role of national states. Due to these processes of opening markets, scientific and technological progress, the processes of economic integration of

many regions and states, one can observe the progress of the process of globalization, the processes of greater coordination of economic activity (Kuciński, 2005). Thanks to these processes the production and transaction costs can be minimized, making it easier to access the world market.

Economic integration processes can be particularly noticed within the European Union and its subsequent enlargements in 1973, 1981, 1986, 1995, 2004, 2007 and 2013. According to E. Załoga (Załoga, 2013) these processes intensified the process of globalization.

Transport services play an important role in the process of globalization. With the ever-increasing means of land, air and sea transport, the distance between countries, companies and people is reduced - and the world is getting smaller and smaller. Many world economists indicate that globalization is a close integration of states and people in the world, resulting in huge reductions in transport costs, resulting in the removal of many barriers to the flow of goods, services, capital and knowledge. Due to the globalization caused by technical, social, economic and political forces, it is possible to use the forces of globalization to reduce the barriers to global transport development and the progressive economic expansion. Globalization is conducive to increased inter-branch competition (Rosa, 2013). The distance of thousands of kilometres can be easily covered thanks to transcontinental rail lines, the maritime shipping routes and a dense network of air connections. Globalization fosters the development of the transcontinental infrastructure network, imparts new quality standards in many transport sectors, is the source and driving force of technological progress in transport, creates specific preferences for the desired market structure, leads to the development of modern information systems and contributes to the construction of modern and efficient logistics networks. Globalization and integration contribute to the increased competition and the improvement of free, unrestricted trade (in the world, in Europe and in Poland). These processes cause an increase in demand for long-haul transport services and the need for increased availability of these services.

3. CHINA AS THE "MOTOR" OF THE WORLD ECONOMY

Over the past years, China's economy has developed at a rate of 10-11% of GDP growth per year. However, from 2015 and in 2016, a slowdown in the country's growth rate to 7% of GDP could be observed. The Chinese government is undertaking a great deal of actions to stimulate domestic demand. Among other things, by the end of 2016, there was the reduction of the half of the tax for new cars up to 1.6 engine capacity, as well as there was a launch of many lines of credit for house purchasing - 30% to 25% of their own contribution to high interest mortgages was raised to stimulate demand for housing, especially in small Chinese cities. Banking experts from Stanford Bernstein criticize central Chinese authorities for too late activation of incentives and financial stimulus - both for businesses and individuals.

China's export expansion is an important part of the world trade. By the end of 2016, China's trade in land and sea had a turnover of € 559 billion from Europe (180 billion from Germany), ASEAN (Association of South-East Asian Nations) - € 443 billion, Middle East -257 billion, Africa-192 billion, CIS (Commonwealth of Independent States) - 150 billion USD. In European trade, the share of China's trade with Poland is very small - as shown in Table 1.

Table 1. Imports and Exports of Products between Poland and China (in US \$ billions).

Years	Import to Poland from China	Export from Poland to China
2012	13.7	1.36
2013	14.6	1.60
2014	17.6	1.70
2015	20.5	1.82
2016	19.8	1.54

It is clear from the Table 1 that the Polish economy should pay more attention to boosting exports to China and better balancing the trade with this economic power.

4. TRADE OF CHINA WITH EUROPE

The ongoing processes of economic integration and globalization contribute to the growth of the world trade and to increased competition for entities and countries that play an important role in

the export and import of products and services traded. Changes in the world trade have an impact on changes in demand for transport services as well. The specific volume of demand is related to the preferences of customers to shape the supply of services and, on the other hand, increases the availability of those services. EU countries (28) have the largest share in world foreign trade. The volume of exports and imports of EU countries in the past years was higher than exports and imports of the US. The turnover of the trade of chosen largest participants in the world trade is shown in Table 2.

Table 2. Chosen biggest turnovers in the world trade in the years 2010-2015 (in US \$ billions).

	2010	2014	2015
Export, including:			
EU (28)	1,794	2,010	1,985
China	1,758	2,342	2,275
USA	1,278	1,621	1,505
Japan	770	684	625
South Korea	466	573	527
Russian Federation	401	498	340
Import, including:			
EU (28)	1,790	1,959	1,682
China	1,396	1,959	1,682
USA	1,969	2,413	2,308
Japan	694	822	648
South Korea	425	526	436
Russian Federation	249	308	194

Source: International Trade Statistic 2010-2016, www.wto.org (access 10.02.2017).

The above table clearly shows that the EU was the first to dominate the world's exports of goods with a share from 11.7% to 15.3 in 2014, followed by China with 17.4% in 2015. Stable second / third share in the global trade is taken by the US, whose share has grown from 8.4% in 2010 to 11.5% in 2015. Slightly less than the top of the global exports are Japan, Korea, and Russian Federation with about 2.6-4.8%.

Similar proportions and trends are occurring in world imports, where two countries, the US and China, have a similar share of the world trade in imports - first in 2010 with the US 12.7% and China - 9.0% and in 2015 the US and China has reached 17.3%. The US, China and the EU (28)

have strong economies oriented towards foreign trade; their finances, strategies for opening up their economies to innovative foreign products, participation in world trade organizations allow them to use foreign trade to further systematically develop their economies and to boost these manufacturers whose products are sought for around the world.

5. FROM TRANS-SIBERIAN RAILWAY TO THE „SILK ROAD”

Countries such as China, Korea, Japan and Russia are increasingly involved in the world trade. At the end of the twentieth century, China accounted for around 4% of the global world trade. And in the years 2010-2015 this share increased to about 7%. Much of China's exports and imports are carried out using containers, maritime transport and recently also by using the European and Asian rail network. One of the important components of the international railway network is the Trans-Siberian Railway with a line length of 9,822 km. The scheme of this line is illustrated in Figure 1. Trans-Siberian line was built at the end of the 19th century. It is now fully electrified, with dual track and is fully equipped with modern railway control devices. The line is placed within very difficult terrain conditions and difficult weather conditions. It plays an important role in long-haul passenger and freight traffic. Many authors, including A. Lipińska-Słota (Lipińska-Słota, 2009), emphasize the natural resources of this area (coal, oil, wood and natural gas).

The Trans-Siberian Railway is a natural extension of the second transport corridor in relation to Berlin-Warsaw-Moscow-Nizhny Novgorod and further to Vladivostok, Nachodka, Vostochny and Posiet. This line is the basic component of the railway infrastructure connecting East Asia countries, i.e. Japan, China and Korea to Central and Western Europe. The main advantage of this railway is the significant shortening of delivery time, especially in containers from China, Korea and Japan to customers located in Germany, Poland, Slovakia, Finland and other countries. The delivery time of cargo (including containers) by rail from East Asia to Lodz, Sławków or Hamburg varies from 14 to 20 days. On the other hand, the main disadvantage for senders and receivers is the cost of transporting a container that varies between \$ 9,000 and \$ 10,000 per one 20-foot container (TEU). Much more favourable is the price of sea freight which for one TEU container varies from



Fig. 1. The route of The Trans-Siberian Railway.

Source: <http://www.strangehistory.net/2014/12/08/devil-trans-siberian-railway/> (access: 2017.12.21).

1100 USD to about 1990 USD for one TEU container (Pluciński, 2013 and Grzybowski, 2015). Another disadvantage of the Trans-Syberian Railway is the necessity of reloading containers and other cargo at border stations with the change of track gauge from 1,524 mm to 1,435 mm. The idea of using variable gauge system (for instance SUW 2000 type, developed by Ryszard Suwalski) is more applicable to passenger transport. However, the current transshipment potential of Polish and Belarusian railways on the eastern border of Poland is sufficient. Małaszewicze, Brest, Sławków and other border railway stations are fully prepared for the efficient and rapid reloading of containers for standard gauge platforms and for comprehensive cargo handling in the connections of Europe and East Asia.

6. "SILK ROAD" - A CHANCE TO ACTIVATE LAND TRANSPORT BY RAIL FROM CHINA TO EUROPE

According to the information obtained from DHL's logistics division in Shanghai in 2014, there was a 200% increase in the number of containers transported by the railroad between China and Europe comparing to previous years. It is a very positive signal and it gives hope that such a trend will continue in the years to come. There can also be noticed the fuller utilization of the capacity of the Trans-Siberian Railway. There is an increasing need for a new, so called southern route, connecting the provinces of China: Chengdu,

Wuhan, Zengzhu with Moscow, Małaszewicze, Łódź, Duisburg, Hamburg and other cities. In 2014, several Chinese cities launched connections with Europe from cities such as Chogging, Chengdu, Suzhou - the so-called "western corridor" as a link between China via Kazakhstan, Russia, Belarus and Poland to Germany (see Figure 1). In Poland, the destination stations on this route can be Sławków and Łódź (both as destination stations or hubs for further expedition of cargo in containers).

This "Silk Road" can be beneficial for Polish railway and road carriers, as well as for logistics companies. This new route through Kazakhstan creates many problems at some border stations and due to the dictation of prices by Russian rail for access to Russian railway infrastructure. On the other hand, the financial support provided by Chinese railways and operators at Chinese container terminals is a very positive sign. Financial support from local Chinese governments, favourable loans, financial support for China's container terminals and the growing interest of international financial organizations such as the EIB, EBRD and WB in initiatives for the "Silk Road" contribute to growing opportunities for the development of China's new connection with Central and Western Europe. It is estimated that due to the "Silk Road", Poland can function in the midst of these transformations and processes. Thanks to this combination it will be possible to increase export of Polish products to China; apart from copper from the Lubuskie region, the growth

in the export of food, meat, dairy products and vegetables will be possible. This new route has been promoted by the Chinese administration of president Xi Jinping since 2013. Many Chinese experts define this venture as the "Chinese version

of the Marschal's plan." The authorities of this country have announced the creation of a special "Silk Road Fund" with a capital of about \$ 4 billion (pb.pl). The plans for "Silk Road" are presented in Figure 2.

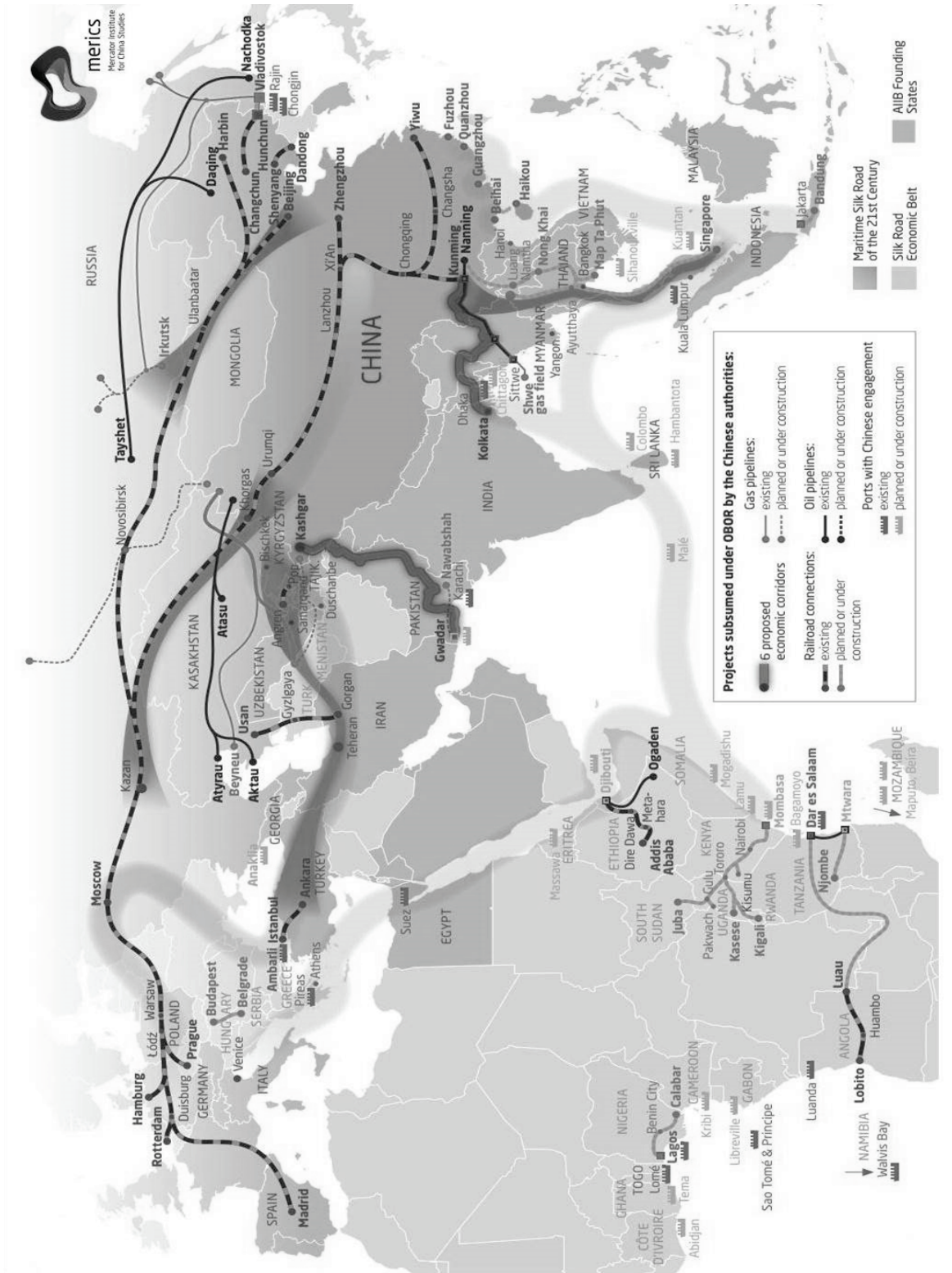


Fig. 2. The plans for "Silk Road" – rail and sea transport. Source: PulsBiznesu: www.pb.pl (Access 2016.11.23).

The route is meant to be an alternative project to the US domination in the world economy. This concept aims to legitimize and facilitate the growth of Chinese influence in transit countries on the way to Western Europe. Also in the western and central provinces of China the route is to be a specific "driving force" for the development of the pro-export activities of many Chinese sub-regions. An additional supplement to this project is the Asian Infrastructure Investment Bank (AIIB) project set up by China with the participation of Poland and other countries.

Polish container hubs may play important role on this route, and particularly two of them:

1. Małaszewicze border terminal and the connection with Łódź Olechów terminal,
2. Broad-gauge line Hrubieszów- Sławków and Sławków terminal.

Nanning through Urumgi, Kazan and Moscow to Lodz, Hamburg, Prague. The sea route (so called Route No. 2) starts from Harbin, then Beijing via Ulaanbaatar, Novosibirsk, Kazan, Moscow and further to Lodz, Prague, Hamburg and Rotterdam. The northern route (no. 1) is similar to the Trans-Siberian Railroad.

7. POLISH LAND TERMINALS IN CARGO FREIGHTS CHINA-EUROPE

The offer of Sławków terminal (near Dąbrowa Górnicza)

Sławków Terminal is located at the end of the broad-gauge rail line (1520 mm). This terminal has perfected for many years its reloading, storage, forwarding, logistics and customs offer. This

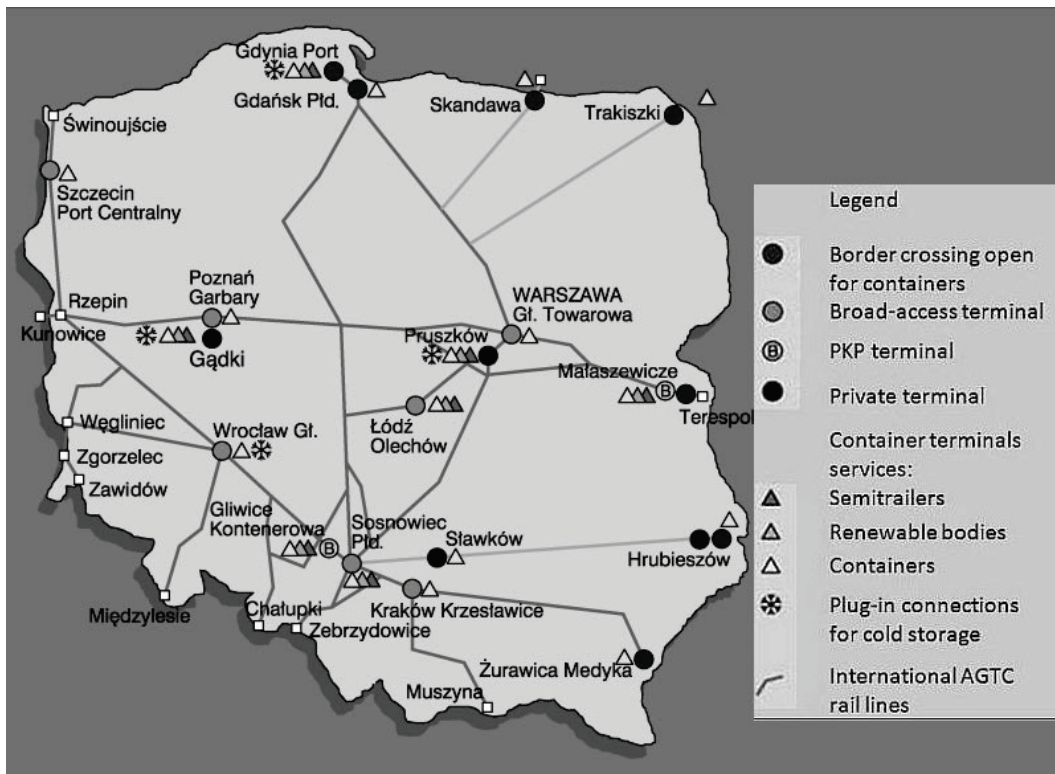


Fig. 3. Map of Polish container terminals.

Source: Transport intermodalny. Raport z pracy metodologicznej. GUS, Warszawa 2016.

Countries that want to support the "Silk Road" include Kazakhstan, Cambodia, Laos, Sri Lanka, Maldives, Poland, Lithuania, Israel, Austria, Greece, Afghanistan, Turkey, Indonesia, Egypt. On this route Poland can serve as the main hub at the western end of the route and the place for transit of Chinese export products to Central and Western Europe. The "Silk Road" route has a land and a sea version. In the land version (so called Route no. 1), the route begins in Zhengzhou, then Yiwu,

terminal can reload semitrailers, swap bodies, bulk cargo (coal, coke, charcoal), salt, grains, metallurgic goods, pig iron, glass, wood, boarded goods, goods packed in big bags. and chemical products.

Sławków Terminal has yearly reloading capacity in containers of 285,000 TEU, 380,000 of metallurgic goods, 200,000 of palletised goods per year, 2 million tons of bulk cargo per year, and other bulk of 365,000 per year. The contractors of

reloading services can weigh the cargo on both truck or rail scales. They can also use the depots of 8,500 square meters, 4,860 square meters and one for 1,760 pallets.

Sławków Terminal has also good conditions for completing direct reload of cargo in 3 relations:

- a. Broad-gauge rail trucks to normal rail trucks,
- b. normal rail trucks – road trucks,
- c. road truck-road truck.

Sławków Terminal has got a good location on the broad-gauge rails and can fulfil the role of reloading, logistics and forwarding hub, and can help in activation of Polish export to the Chinese market.

The offer of Łódź-Olechów terminal

The reloading hub in Łódź serviced by Spedcont has a chance to become an important terminal in Poland that connects far east countries with western Europe (including also the “Silk Road”).

Until recently the company Spedcont from Łódź has been associated only with container reloading. The company spotted the merits and perspectives of intermodal logistics development, and started their own rail connections, becoming an intermodal operator with clearly set development path.

To use its potential in intermodal services, in February of 2017 Spedcont started the rail connection from Łódź terminal to ports of Gdańsk and Gdynia. The terminal has very good conditions for increasing the scale of its activities, and thus the number of connections grows every quarter of the year. Its role is no longer container reloading. Łódź-Olechów has become an important link in the intermodal chain, with ambitions of becoming “the hub” for moving cargo from China and Far East countries to many European countries, and at the same time minimizing the costs of reloading and transport between terminals.

Spedcont’s offer includes:

- Forwarding and transport of goods in rail containers in Poland and internationally,
- Whole-train deliveries of containers from ports to terminals or at the Client’s spur,
- Full reloading services at Łódź terminal,
- Carrying containers from Spedcont terminals by road trucks,
- Transport with the use of Trans-Siberian railway and “Silk Road” in the future,

- Safe spur transport within ports,
- Safe and ecological transport of containers in Poland and abroad,
- Whole-train container shipments from Polish ports to own terminals or the spur of the Client,
- Customs warehouse and storage in Łódź,
- Door-to-door transport of containers by road trucks,
- Customs clearance for export and import,
- Faster and safer service of goods at the customs offices thanks to AEO certificate,
- Other additional services.

Reloading potential of the Spedcont terminal in Łódź is as follows:

Number and lengths of rail tracks: 2 – 1,400 meters

Terminal area: 84,000 square meters

Storage area: 42,800 square meters

Storage capacity: 5,000 TEU, 4 levels

Sorts of UTI for reloading and transport:

Containers, semitrailers, swap bodies

Source: www.spedcont.pl/oferta.html (accessed 22.07.2017).

Spedcont has three reach-stackers for containers, two gantry cranes for containers and a 12-ton cart for reloading empty containers. This terminal has also power outlets for icehouse containers.

The company has recently developed international rail connections to terminal in Piacenza, Italy. The management of Spedcont is counting on developing this cooperation further. Goods from Łódź-Olechów travel also outside of Europe. Spedcont services direct connections with Mongolia, China, Kazakhstan and Uzbekistan.

The offer of reloading hub in Gdańsk

On the seas of the world, the Danish company Maersk Line is increasingly active. In May 2016, at the port of Gdansk S.A., Maersk Elba container ship moored, with the capacity of 13 thousand TEU containers. The ship is 366 meters long and 48 meters wide. These types of ships can sail with cargo to Gdansk once a week.

A.P. Moller–Maersk Group also known as Maersk, is a Danish business conglomerate. It has activities in a variety of business sectors, primarily within the transport and energy sectors. It has currently 6% share in the world transportation of

containers (Kęciek, 2011). Cargos of imports and exports are most often targeted at the Chinese ports of Ningbo, Shanghai and Yantian. On the way to and from Poland, these ships in Europe enter the ports of Le Havre (France), Felixt (England), Zeebrugge (Belgium), Gothenburg (Sweden), Rotterdam (the Netherlands) and Gdansk (Poland).

The Port of Gdansk may also serve as a transshipment hub for smaller ships with transport to Finnish and Russian ports.

The current transshipment capacity of the port of Gdańsk exceeded one million TEU.

Another very big ship on this line is Eleonora Maersk, with the capacity of carrying up to 14,770 containers. It is estimated that the value of containers placed on such vessels may exceed 1 billion Euros (in 2016 the port of Gdansk served 1,299 thousand TEU, the port of Gdynia 612 thousand TEU and the port of Szczecin 90 thousand TEU).

A very important advantage of this type of vessels is the ability to sail at the speed of 27 knots (with the economic speed of 24 knots). These ships are fully automated and the crew is very small, with only 13-20 employees. Despite the wide variety of containers transported by sea (including reefers), it is estimated that container ships, thanks to their large potential, serve around 88-90% of global transcontinental transport. These types of transport units, which are mostly built in Korean and Chinese shipyards, cost about \$ 190 million. DCT Gdansk terminal has numerous connections with Polish terminals such as Polzug-PoznańGądkki, PCC Intermodal - Kutno, Laconia - Warsaw, Spedcont - Łódź, Maersk - Kąty Wrocławskie, Maersk - Sławków, Ost Sped - Szamotuły.

The port complex of the Tri-City ports has a very large trans-shipment potential: apart from the DCT Gdansk terminal, there also operate Baltic Container Terminal Gdynia (BTDG) and Gdynia Container Terminal (GTK). The total capacity of these terminals is expected to be approximately 5 million TEU in 2018. At many European and Polish container terminals attempts are being made to build completely automated terminals where human work will be limited to the minimum required (Krośnicka, 1990) (thanks to complex IT systems). Thanks to this complex computerization the following can be achieved: shorter times of the container ships' stop in ports, increased day-to-day handling capacity, and significant reduction in container handling costs.

8. COMPETITION IN CARGO FREIGHTS BETWEEN RAIL AND SEA TRANSPORT

Transport of international trade cargo between Asian and European countries is subject to competition between modes of transport, which are predestined for long-distance transport. There is a natural predisposition of maritime transport, which due to its main advantages: mass, relatively low operating costs, friendly relations with the environment, wins many competitions with other transport sectors. The current size of ships, their modern technology and relatively small crews result in shipping from China, Korea, Singapore and India to Western and Central Europe being largely done by sea. The only drawback is the relatively long transport time of 30 up to 40 days. An important advantage of this type of transport is the relatively favourable price for container shipping - at some ship owners it is \$ 1,380-1,630 for one TEU container.

Another important operator of long-distance transport of international trade from China to Europe may be the rail transport. Particular interest in this type of transport stems from the idea of the "Silk Road", in which China, Russia, Kazakhstan, Ukraine, Poland and other countries see the opportunity to use the railway and take over part of the cargo from the sea. The trains can use a wide line (1,520 mm) LHS line to Sławków or through a passage in Małaszewicze (on tracks with a clearance of 1,435mm). These transshipments at border stations cause additional costs, increasing transit times. The advantage of the railway is the shorter delivery time of 14-20 days. However, the major disadvantage of this choice is the higher cost of transport, because rail freight is about \$ 9,000 per one TEU container.

China-Europe-China railways have a chance for further development. The current infrastructure on the Trans-Siberian Railway and the new routes of the "Silk Road" offer opportunities for the activation of intermodal transport in transit via Poland and the systematic growth of Polish foreign trade from Poland to China and neighbouring countries. There can be observed a steady increase in traffic between China and Western Europe (which is about 12-15 million TEU), and there can also be observed the demand for transport between Europe and China estimated at about 7-8 million TEU. Further forecasts predict that between 2016 and 2020 they may account for about 30-35% of the total volume of cargo destined for transport in

this route. These sectoral transfers and the greater share of railways in these services should occur due to the construction of modern rail and border infrastructure, favourable rates for access to railway infrastructure, efficient and effective means of railway transport for these services and the implementation of flexible prices, transportation quality and time according to the actual demand on the market.

9. CONCLUSIONS

The considerations contained in this article lead to the following conclusions:

1. Efficient and effective transport plays a very important role in the processes of globalization, integration and trade. These processes are conducive to increased inter-industry competition.
2. China, next to the EU (28), is a driving force in the world economy. China's turnover with Europe in 2016 was \$ 3,899 billion, with Poland constituting only \$ 21.4 billion.
3. Polish enterprises, trade organizations and the government of the Republic of Poland should take special care to increase their exports of products and services to China through terminals in Gdańsk, Małaszewicze, Łódź and Sławków in order to better balance trade between China and Poland.
4. Land terminals in Małaszewicze, Sławków, Łódź and Gdańsk may contribute to the increase in Poland-China trade and have a role of reloading-logistics hub on the route of "Silk Road".
5. China's initial contribution to investment in the "Silk Road" is about \$ 40 billion in capital, and the creation of Asian Infrastructure Investment Bank (AIIB) - an initiative that was joined by Poland and many Asian and European countries.

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