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## Forwarders' perceptions of the Silk Route: The case of Finland

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### Abstract

The Silk Route is an emerging transportation initiative that aims to connect Europe and Asia by rail link–landbridge. This study investigates freight forwarders' perceptions of potential benefits for Finland from developing Silk-Route-based transportation solutions. Ten semi-structured interviews with eight freight forwarding and carrier companies in Finland, Russia, Kazakhstan, and China were conducted. The study findings show that there is a demand to transport cargo via the landbridge between China and Europe. Block trains have been running from Germany and Finland to China, suggesting that there is a demand as well as a potential for developing this route. Despite the challenge of a relatively small economy, there is potential for Finland to benefit by its engagement in the Silk Route. A Scandinavian hub in Finland would ensure sufficient volumes to fill block trains, which is the only profitable option for long-distance railway transportation.

**Keywords:** Silk Route; Eurasian rail transportation; Finland; container; rail; block train; landbridge

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## **1. Introduction**

In recent years, a number of block trains have been put into operation on the China–Europe route, such as DB Schenker's block trains running weekly from Duisburg and Hamburg to China (TEL, 2016). Chinese, Mongolian, Kazakh, Russian, Belarusian, Polish and German operators are involved in those operations where the distance varies between 10,000 and 12,000 km and is accomplished within 16–19 days (DB Schenker, 2016). Despite the potential, currently only 1–2% of total trade between China and Europe is done via all rail corridors (Panova, 2016). However, Hilletoft et al. (2007) claimed that in the 1990s, the Northern corridor connecting Europe to China via Russia carried 11% of all volumes of goods transported in that direction. Consequently, many studies have been investigating the reasons for this reduction as well as opportunities to increase the volume. Wang and Yeo (2016) have identified several main factors being considered by logistics companies using the corridor, including total cost, reliability, transportation capability, total time and security. Other studies have focused on the competition between different transportation modes, e.g. landbridge connections in comparison to maritime transportation (Hilletoft et al., 2007; Rodemann and Templar, 2014). Regmi and Hanaoka (2012) summarized the literature related to the assessment of transport corridors and identified a vast variety of methods. However, the assessment of transport corridors is tied mainly to time-cost-distance evaluations (ibid). Reliability is considered the most important factor by Jun and Yanyi (2012), Regmi and Hanaoka (2012), and Peyrouse and Raballand (2016). Furthermore, flexibility, infrastructure development, and quality of service are of importance as well (Regmi and Hanaoka, 2012). The authors also discussed environmental impacts, customer clearance, cross-bordering procedures, and mutual relations between stakeholders as influential factors related to the efficiency of a transport corridor (ibid).

During recent years, it has been common to hear about new railway routes and connections between China and different European countries (Smith, 2017). For example, the Chinese inland city of Yiwu has railway freight connections with Madrid in Spain, London in the UK, and with some Polish, German, and Czech cities as well. Volumes began at a low level; however, during 2017 growth rates have been significant, and border-crossing capacity to Central Europe has been questioned (between 1520 vs 1435 systems; UTLC, 2017). Overall, the main line of landbridge connection between Asia and Europe, the Russian Trans-Siberian Railway (TSR), is currently handling around 2 million Twenty Equivalent Units (TEUs), of which 750,000 TEUs are international transports (RZD, 2015). The TSR serves most of the competing routes such as the Kazakh, Mongolian, and Chinese (directly to the north) and reaching China through Russia's eastern edge at Vladivostok (final leg by sea vessel). Volumes are already rather large-scale on the TSR, and new emerging routes like the one through Kazakhstan ease the scarce capacity needed at the main line (as the Kazakh route uses only a small part of it). However, one should keep in mind that Chinese government programs subsidize railway freight traffic destined for Europe nowadays, but the long-term aim is to be a self-financing service (Smith, 2017; United Nations, 2016).

According to Fedorenko (2013), most of the initiatives to revive the Silk Route converge on building and upgrading infrastructure and simplifying and standardizing cross-border procedures. In addition, initiatives should decrease transportation costs and lead times by utilizing the latest technologies and constructing modern high-speed routes (ibid). However, the countries involved have different visions. Apart from having a strategic geographic location for land-based importing from Asia, Finland also has well-developed ports and rail-related infrastructure. These facts have led to the assumption that the country could be seen as a competitive origin/destination/transit country for the Silk Route. Arriving cargo can be transported further to Northern and Central Europe or elsewhere if needed. However, well-developed infrastructure is only one of the prerequisites required for successful intermodal transportation involving rail. The functionality of an international rail connection depends on the actions and attitudes of a large variety of actors, such as regulatory authorities, terminal operators, freight forwarders and transport operators. This paper takes the perspectives of freight forwarders and investigates their perceptions of the potential benefits for Finland related to the development of Silk-Route-based transportation solutions.

This manuscript is structured as follows: the research methodology is introduced in Section 2. Thereafter, in Section 3 we present a frame of reference, which is a combination of the literature review and semi-structured interviews that were conducted. The research is concluded in Section 4, where future directions for new studies are also presented.

## 2. Research approach

Data for this study were collected mainly through face-to-face semi-structured interviews, where questions were formulated based on findings from a preliminary literature study. A semi-structured interview was chosen as the appropriate method to explore the issues, as it not only contains a preformulated list of themes to be discussed but also allows interviewees to introduce new issues and the interviewer to follow up on topics (Saunders et al., 2009). The interview questions were combined into the following themes: overall opinion of the Silk Route initiative; the current state of affairs and the potential for rail transportation via Kazakhstan; Finland's potential to benefit from it; influential factors for choosing a transportation solution; clients and demand; and political and economic aspects. All the interviewees were contacted in advance via e-mail and were provided with the purpose of the research and the themes to be discussed. Additional information and clarifications were obtained by following up phone and e-mail conversations. A judgmental sampling technique was combined with snowball sampling. Judgmental sampling refers to selecting a case or cases for interviews based on the researcher's own judgments and professional opinion. After contacting a reachable case, his or her network is used for identifying other relevant cases. These interviews were of crucial importance for understanding of the cases and were done primarily to draw conclusions from their assessment and to analytically generalize; not to statistically generalize (Yin, 2003) what would not be appropriate based only on 10 interviews.

The criteria for the selection of the interviewees were the following: representatives of logistics companies engaged in container rail transportation in the regions of interest (China, Kazakhstan, Russia, and Finland); and holding a managerial position and having experience in the field of rail cargo transportation and/or international rail freight forwarding. The response rate was 67% and resulted in reaching experts from all countries of interest with a total number of ten interviewees from eight companies. For the most part, the companies' interviewees were specialized only in rail transportation. However, the larger companies have a broad network of subcontractors, and with their help, they are able to provide a wide range of transportation services. Some of them have rail operations between China and Europe; some are considering possibilities to enter the market, while others have no current interest in the discussed transportation route because of strategic or other reasons. Due to the confidentiality agreement, the names of the companies and the interviewees cannot be disclosed; therefore, only their positions are listed in Table 1.

Table 1. Interviewed companies

Date	Company	Country	Interview duration	Position of the interviewee
17.05.2016	Company 1	Russia	40 min	Director
17.05.2016	Company 2	Russia	24 min	Branch, head of department
19.05.2016	Company 3	Finland	40 min	Deputy general director
31.05.2016	Company 4	Finland	35 min	Manager
09.06.2016	Company 5	Russia	1 h 33 min	Deputy director
14.06.2016	Company 2	Russia	23 min	HQ, head of department
15.06.2016	Company 6	Russia	34 min	Deputy head of department
20.06.2016	Company 7	China	Via e-mail	Director of department
23.06.2016	Company 5	Finland	21 min	Key manager
28.06.2016	Company 8	Kazakhstan	Via e-mail	General Manager

The interview findings show the forwarders' perceptions of the Silk Route perspective within the identified topics, but they also contain additional comments that go beyond the scope of the interview.

## 3. Frame of reference

### 3.1. Trade as a trigger for transport flows

In recent decades, the worldwide trends of market globalization, industrialization, and the rise of entrepreneurship have boosted international business and trade (EY megatrends report, 2014). First, increasing digitization and ease of communication has led to the geographic distribution of production (Karluk and Karaman, 2014). Companies have been continuously allocating manufacturing activities in countries with low labor costs, aiming to gain location advantages, often in Asia and particularly in China (Dunning, 1988). Eaton and Kortum (2002) named attractive taxation terms, access to new markets, human resources, and relatively low

construction costs as reasons for the internationalization to Asian countries. Second, China is the second-largest economy in the world and a huge marketplace for distributing goods (World Bank, 2016a). Adams et al. (2006) reported that Chinese exporting has been growing rapidly, with the fastest growth noted for high-tech products. According to these authors, traditional exports (textiles, clothing, and customer goods) have remained significant in terms of value. In contrast, the biggest consumer markets are located in Europe and the Americas (World Bank, 2016b). The shift towards a globalized world requires better connectivity.

### 3.2. Transportation as a tool for international trade

Trade can be seen as a motivation for transportation development and, likewise, transportation facilitates international trade (Krugman, 1979; Eaton and Kortum, 2002). The first major routes from Asia to Europe were developed when Europeans discovered Chinese silk and Indian spices – these routes are known respectively as the Silk Route and the Spice Route. Both appeared to be a powerful motivation for the development of political and economic relationships among countries and civilizations, facilitating the exchange of goods, cultures, knowledge and skills (Karluk and Karaman, 2014).

Nowadays, the vast majority of dry cargo is containerized and transported by a combination of different modes of transport, i.e. intermodal transportation. According to Hilmola (2017), intermodalism should be seen as a general philosophy rather than as only hinterland transportation to replace roads with rail transports. Reduced energy consumption, optimization of the utilization of the main strengths of different modes, reduced congestion on road networks, and low environmental impacts (Woxenius, 1998; Kreutzerberger et al., 2003) are considered the advantages of intermodal (road–rail) transport. However, the main disadvantages would be low reliability, the difficulties of monitoring, and the complexity of the chain (European Commission, 2000). Different transportation modes have different target customers and specific advantages and disadvantages. The choice between various modes is dependent on many factors, which are summarized in Table 2.

Table 2. Factors influencing transportation mode choice (summarized from Jun and Yanyi (2012), Regmi and Hanaoka (2013), Peyrouse and Raballand (2016), Hilletoft et al. (2007), Wang and Yeo 2016)

Source of data	Identified factors
Academic literature	Time; cost/price ratio; capacity; reliability; safety; capability; security; volume; level of service; type of cargo; risks; distance/geography; flexibility; level of infrastructure development; environmental impact; cross-border procedures; mutual relations between stakeholders; tariffs; currency fluctuation; predictability
Empirical investigation	PR & marketing; rate of strikes

Cargo transportation is grounded on two bases: infrastructure and service. The construction of infrastructure is an essential part of strategies and projects initiated by countries and international organizations aiming to support and facilitate trade (Fedorenko, 2013). The Chinese State Bank has invested over 250 billion USD in rail infrastructure in the frame of One Belt, One Route (OBOR) projects and is negotiating investments of over 160 billion USD for constructing over 5000 km of rail tracks in more than 20 countries (Djankov and Miner, 2016). The State Program for Accelerated Industrial and Innovative Development of Kazakhstan for 2010-2014 identifies the modernization of rail infrastructure and building new rail tracks and terminals as strategic goals (Karluk and Karaman, 2014). In addition, in the frame of the Transport Corridor Europe Caucasus Asia (TRACECA) initiative, financed mainly by the European Commission, numerous infrastructure projects have been identified and invested in (TRACECA, 2012). A second but no less significant component of transportation is forwarding service (Jun and Yanyi, 2012; Regmi and Hanaoka, 2012; Peyrouse and Raballand, 2016). The freight forwarder is an intermediary between cargo owners and a carrier that has an ability to transport goods either by its own means or using a contractor's facilities (Saeed, 2013). Diener (2015) emphasized that the legal issues are more complicated to solve than constructing physical infrastructure is. Bonacich and Hamilton (2011) identified that the logistic providers have one of the key roles in international cargo transportation. Similarly, Regmi and Hanaoka (2012) concluded that the key factor for successful transportation-route performance is cooperation between service providers/freight forwarders and clients.

### 3.3. Landbridge

Lately there has been growing interest in improving landbridge connectivity between China and Europe to support Eurasian trade (Jun and Yanyi, 2012; Fallon, 2015; Fedorenko, 2013; Karluk and Karaman, 2014). Qi and Wang (1991) defined the term landbridge as “transportation from one seaport to another by railway

across continents”. A landbridge consists of rail corridors that are shorter rail sections (Rodemann and Templar, 2014). A transport corridor is defined as a route that is suitable for cargo and passenger transportation and connecting different countries (Regmi and Hanaoka, 2012). There are two main landbridges between Europe and Asia, namely the North American and the Eurasian landbridges (Qi and Wang, 1991; Hilletoft et al., 2007). Qi and Wang (1991) pointed out that the obvious advantages of the Eurasian landbridge compared to the North American landbridge are shorter distance and travel time; however, Hilletoft et al. (2007) emphasized that the latter provides significantly more efficient services. Eurasian rail transportation is executed in the form of block trains with a capacity of approximately 90 TEU, and it has a medium cost/time ratio (Rodemann and Templar, 2014). Rail transportation is suitable for long distances, but it is highly dependent on infrastructure that is expensive to build and maintain (Viohl, 2015). The average speed of block trains is much faster than sea transportation (Hilletoft et al., 2007), and in recent years, a number of fast block trains have been put into operation. DB Schenker together with TEL and RZD provide four block trains weekly from Duisburg to China and three trains weekly from Hamburg to China (TEL, 2016).

Recently, significant attention has been drawn to the OBOR initiative financed by the Asian Infrastructure Investment Bank. The initiative encompasses more than 60 countries in Eurasia and Africa and includes five separate projects dedicated to connecting China with other countries. The projects are represented by landbridge and sea connections. The landbridge corridors are respectively: (1) a rail corridor from China to Europe via Kazakhstan and Russia, (2) a rail corridor from China to the Middle East via Central Asia, and (3) a link between China, Southeast Asia, South Asia, and the Indian Ocean. The other part of the initiative focuses on maritime transportation and is represented by (4) a maritime connection between China and Europe via the South China Sea and Indian Ocean and (5) a maritime connection between China and the South Pacific Ocean via the South China Sea (Belt and Road Summit, 2016). The focus of the current manuscript is on the Silk Route – part (1) of OBOR. The OBOR initiative is a relatively new phenomenon that was first proclaimed in September 2013 (Karluk and Karaman, 2014).

### *3.4. Finland as a part of the Silk Route*

The geographic location of origin and destination points often predefines routes for the transportation of cargo. Rail transport is well suited for the transportation of goods from Central Finland to Central Asia or the Central and Northern provinces of China (inland areas remote from seas). Finland is located on the North European peninsula, which means that the country is not geographically optimal for the transit of goods transported by rail and designated for farther destinations in Central Europe or elsewhere. In addition to its geographic location, high costs make Finland less competitive for transit transportation. The fewer countries that are engaged in transportation, the more economical the transportation is, with fewer tariffs to be paid. Aside from being the least costly form of transportation due to large volume, the sea is also a neutral territory. In addition, interviewees mentioned the rate of strikes in Finland, which is statistically high, as an unfavorable factor for any type of transportation accomplished with Finland’s participation. The example given was the precedent that occurred in 2012 when strikes in Finnish ports led to broken commitments. Since then, retail in Finland has decreased significantly because clients switched to alternative transportation solutions via ports of the Baltics and St. Petersburg. Lack of information among customers about alternative transportation solutions via Finland was also reported. For example, information about port of Riga constantly flashes in the news, but there is not much information of this type about Finnish ports. In other words, active promotion is needed.

Conversely, the location is favorable if Finland is considered a Scandinavian hub. The initiative for making Finland a Scandinavian hub has been facilitated by business players, and the discussion has been carried forward on the level of the Ministry of Transport, the Finnish Transportation Agency, the Finland Chamber of Commerce, their colleagues in Sweden and Norway, and Finnish and Russian customs. In view of this, its geographic location is attractive yet the idea is challenging, which refers mainly to low volumes of cargo. As for Finland itself, an adverse condition is that Finnish railways have “restrictive” policies for the consolidation of cargo – tariffs for transporting single containers within the country from remote areas are very high. Further, the fact remains that shipping cargo from/to Norway or Sweden via Finland is simply more expensive than direct transportation via deep sea. Therefore, the first question to answer is whether to transport via Finland or not.

### *3.5. Influential factors related to choice of transportation mode*

Transporting goods between Finland and China is done by sea, rail, or air. Time and monetary turnover are seen as the most important factors affecting decisions about one or another mode of transport. Trains are a favorable

choice for certain clients, as they ensure faster monetary turnover. Chinese consigners have an interest in Eurasian train transportation because of strict transportation times, and they assess cargo train transportation as reliable in this sense. However, higher speeds generate higher costs, and not all clients are willing to pay extra. Security and reliability are competitive characteristics of rail transportation: clients want to be sure about arrival times of their cargos in order to plan their own businesses and projects. Finnish clients used to be concerned more about security and reliability than about costs; however, the situation has changed since the overall financial downturn.

The environmental aspects of transportation are treated very differently among companies' interviewees. Approximately half of the interviewees reported that clients are not concerned about "green" aspects of transportation or are not aware of the environmental impacts. The others emphasized that a "green" aspect of transportation is not a single characteristic that influences a choice of transportation solutions and is usually not the first consideration. Nowadays, environmental aspects do not carry more weight than transportation costs and speed. If road transportation costs are 10–15% less than a "greener" alternative, the decision is likely to be made in favor of the less expensive solution, as some interviewees commented. However, the European Commission has run two rounds of their Marco Polo program supporting "green" transportation (executed in 2003–2006 and 2007–2013). The Marco Polo initiative aims to support European companies willing to shift freight from roads to "greener" modes in order to reduce emissions, and rail transportation by definition is relatively "green". It has been suggested that regulating "green" aspects through legislation might be more powerful, for example, by introducing a tax. In addition, the concern about the environment appeared to be more "European"; however, an interviewee conveyed the hope that the East will catch up in the future and that companies and clients alike will be more interested in the well-being of the planet.

### *3.6. Competition*

Different transportation routes connect Europe and Asia. As for railway connection, Trans-Siberian railway has a potential to increase transportation throughput (Panova, 2016). However, poor connectivity with Chinese railway network negatively affect Trans-Siberian railway attractiveness (Hilletoft et al., 2007). Decrease of costs and transportation time might change the situation. Tavasszy et al. (2011) state that development of Eurasian landbridge together with enhancing capacity of Panama and Suez Canal water channels will increase and reshape international trade. The transportation via Suez Canal has been and is likely to remain the cheapest alternative (Verny and Grigentin, 2009; Tavasszy et al., 2011; Bulis and Skapars, 2014). The Northern Sea Route is seen to be a viable solution. However, the transportation on the route depends on the uncontrollable weather condition (Verny and Grigentin, 2009). Silk Route is perceived as an emerging opportunity to engage in new for Finland type of transportation and to open up new trade opportunities.

It is very hard to compete with maritime transportation due to cost differences and for geographic reasons. Even though direct competition has not been reported from the interviewees, it is likely that some cargo flows might be overtaken by rail. The facts are that sea transportation is at least twice as cheap as rail transportation, and both Finland and China have developed shorelines with international ports. The only factors named by the companies as possible reasons for clients to prefer rail transportation were speed and the high quality of service. If a customer is concerned about time and quality of services (for example, high-value or seasonal goods), then rail can compete with maritime transport. In reality, those factors are usually not enough to convince a client to switch to a faster (and more expensive) mode of transportation. At the same time, it has been mentioned that there are few companies on the market that are at all capable of providing international landbridge container-transportation service, and the prospects for this solution depend strongly on their interests and strategic plans.

Growing competition with road transportation for long distances was observed among companies. Interviewees assume that trucking was more significantly affected than rail transportation by the crisis and the sanctions policy. This is because dairy goods, for example, are transported mostly by road. Truckers are ready to offer very low prices, and they are free to decide on prices, while rail pricing depends on tariffs and is less flexible. While road transportation was previously used for distances of about 400 km, nowadays distances of 2000–3000 km can be accomplished by trucks. These distances do not reach from Finland to China, but they do reach Kazakhstan. Although the prices are higher compared to rail transportation, clients are ready to pay extra for delivery and distribution as one service. Further, trucks can be ordered as simply as a taxi, which means that road transportation is very customer oriented and flexible.

Competition between seaports also has a place when it comes to transit transportation. The ports of St. Petersburg have recently invested in development and have reached a European level of service with competitive prices. The ports of the Baltic States are actively promoted and remain an economical alternative. Finnish ports have well-developed infrastructure, but the pricing is comparatively high.

### *3.7. Formation of block trains*

Rail cargo transportation for long distances only makes sense when a block train is formed. Otherwise, the benefits of speed and tariffs are lost. There are two common solutions – dispatching a fully loaded train or dispatching a partly loaded train with additional loading on the way. Block trains are sent either regularly or based on the accumulation of cargo. Regular shipments are more favorable for clients since they can plan their projects and production accordingly. Moreover, the more frequently the trains are sent, the more loyal the clients are; if a client is late for one train, he or she may not be willing to wait a long time for the next available train. The goal is to have a balanced flow on the route, but in practice, trains are loaded only in one direction. For example, there are trains sent only from Europe to China, where the cargo is distributed and empty or loaded containers are returned to the Russian territory by cargo consignees. This solution is caused by a ubiquitously existing problem – a mismatch between the destination point of incoming cargo and the loading point of sufficient backloads. Due to peculiarities of China's development (a vast and undeveloped interior and well-developed narrow coastal areas), the loading point in China is often located near a coastline, which de facto determines the transportation to be maritime. However, a newly constructed inland international hub in Zhengzhou, China, has a potential backload to form block trains destined for Finland. This is a noticeable result of Chinese policy shifting manufacturing inland. Nonetheless, interviewees reported that the shift is not noticeable for them yet. The companies have the same interests as their clients, and the latter have not made any significant changes in their inquiries.

The interviewees also discussed alternative and/or creative solutions for possible needs. For example, a company provides an attractive rail transport solution in terms of speed and cost from China to Moscow, which might align with an expensive section of rail transportation further to Finland. In addition, another company that is handling a train from Finland to China believes that there is a possibility to start another half-empty train and actively promote it. The company receives inquiries to book a place for a few containers in the train currently formed for industrial goods (between Finland and China). There has been an example of such a service on the route from Riga to Tashkent, which had a certain demand. The train had loads of 2 TEUs per each 80-foot platform that, in addition to existing constant flow, allowed having 30 vacant places (30 TEUs) for smaller clients. The train had no fixed schedule and was sent when enough cargo had been accumulated. However, working with many clients increases the risk of delays and client dissatisfaction. Many interviewees were in agreement regarding the preference to work with a terminal or a hub that would consolidate cargo and deal with smaller consignors. There are a number of solutions to make train transportation on the discussed route viable, yet everything depends on the demand.

### *3.8. Clients and demand*

In Finland, international rail container flow has been increasing in recent years. Almost all the interviewees indicated a steady flow of inquiries from clients for cargo rail transportation in the Eurasian direction; the same was reported regarding transportation between Finland and China. However, it is not always possible to satisfy the demand. First, cargo volumes in Finland are generally not sufficient for the formation of block trains. Rail transportation of low volume can only be accomplished as a single dispatch, which is not profitable. In other words, there is no possibility of providing fast rail service at an attractive price for low volumes. Furthermore, this kind of transportation is already comparable to maritime transportation in terms of time. Even the largest retailers in Finland can assure only volumes of 20 TEUs as a maximum; to form a block train, at least 80 TEUs are required. However, the companies reported that the basic market information is in demand. In addition, business players should initiate a dialogue with larger Finnish industries in order to understand the volumes and potential growth. A sales approach to Finnish manufacturers of fuel, metal, paper, pulp, and other products was suggested as a viable tool to understand potential volumes and needs and to change shippers' opinions about rail transportation to be more positive. In the end, the simple idea of proactive cooperation with potential shippers and producers was mentioned as a golden rule on the way to successful cooperation.

Certain types of cargo are more suitable for rail transport than others, and these are usually high-volume and low-value goods with some exceptions. Cargo suitable for rail transportation from Finland to China or

Kazakhstan falls into the categories of paper and forestry products, lumber, raw materials, machinery, semi-industrial and industrial goods, and frozen seafood. There used to be a flow of medical equipment from the United States transported via the port of Helsinki destined for Asian countries. However, the interviewee was not aware of the reasons for ending the use of this route, either due to the lack of volume or because the client found a better alternative route. The Chinese mining industry might also be interested in mine equipment and mine crushers produced in Finland since mines are located in Northern China, which makes rail transportation geographically convenient. Possible loads for block trains going in the opposite direction fall into the categories of consumer goods, high-value products, electronics, high-quality textiles, and porcelain.

The volumes of cargo transported via or to Kazakhstan have been increasing yearly. An example is the transportation of paper products from Finland to China. Pulp has gained popularity in Western China, as plants have opened to process it. Earlier, this cargo was delivered to China from Finland by sea to the port of Ningbo, and then throughout the whole country by rail in gondola cars. Another example is a state program in Kazakhstan that provides financial support to educational organizations for purchasing high-quality products. Among others, this program has facilitated the purchasing of Finnish paper. Demand has a seasonal character, and the flow depends on weather conditions, the fluctuation of currency, and the fact that modern educational tools (tablets, e-books, and similar electronic products) have steadily become substitutes for traditional print textbooks. However, the volume is sufficient for considering rail transportation in one form or another.

According to one interviewee, in the first five months of 2016, 231 block trains were sent on the Dostyk-Brest route, which is 125 trains more than during the same period of the previous year; on the way back, 110 trains were sent, which is 84 trains more, respectively. Moreover, from May 2015 to the moment when the study began, a total of seven block trains with industrial goods were sent on the Joensuu (Finland)-Korla (China) or the Joensuu-Akesu (China) routes.

### *3.9. Political and economic issues*

Political and financial crises in recent years have certainly affected many businesses negatively, and overall volumes of transported cargo have decreased. However, the companies' interviewees reported mainly that the influence of sanctions was insignificant (embargos on certain food products and consequent political tension and economic recession). Little or no influence can be explained mainly by the type of cargo transported in containers, which was for the most part unaffected by sanctions. Yet the market situation has changed and, inevitably, so has the transportation business. The loss of medical equipment cargo transported from the US via Helsinki to Asian countries was explained by sanctions as a most probable reason. Conversely, another company took advantage of this situation and introduced China-Europe rail transportation as they saw the potential in it in the prevalent situation. Apart from this, the paper production industry market has changed. For example, one company noticed that clients attempted to maintain cooperation with the Finnish paper industry in the first year of sanctions, knowing the quality of its products. However, after one year of sanctions, clients became "blind" to quality as it became completely unprofitable to purchase Finnish paper due to the high prices in the local currency. These clients had to switch to Chinese products available at lower prices.

It has been noted by the interviewees that the Silk Route is a topic of high political interest in China and Kazakhstan, and both countries have been promoting landbridge transportation. One of the interviewees from China has reported the state's influence on rail tariffs, and other interviewees consider the rail tariffs in China to be high. Moreover, it has been mentioned that China's tariff policy is not transparent, and the situation is similar in Kazakhstan. One of the interviewees shared the perception that a better request receives a better rate when requested from Chinese or Kazakh colleagues. Further, the tariffs are changing relatively quickly, which makes planning and negotiating with clients both complicated and uncertain.

## **4. Conclusions**

The purpose of this paper was to investigate freight forwarders' perceptions of the potential benefits of developing Silk-Route-based transportation solutions for Finland. Business players involved investigate opportunities to operate on the Silk Route since there are block trains that operate on the route already. The main route is between China and Belarus (further towards Europe), and many Chinese companies have been established to serve the business. There is also a train connecting China and Finland, as Finland has been proactive in its engagement in this initiative. The interviewees from other countries showed limited interest in



the route in the context of Finland's engagement. However, an interest in learning more about opportunities and potential demand was expressed by almost all the participants.

The main advantages of the route are faster connections and the potential for higher levels of service. Finnish representatives have noted their readiness to offer their own facilities and expertise. However, the interviewees from Russia, Kazakhstan and China have shown little awareness about the possibilities of collaborating with Finland. Moreover, the Finnish interviewees themselves reported a lack of complete information about the possibilities of Finnish industry players in terms of potential production volumes. Interviewees are willing to learn more about Finnish and Scandinavian industry players' volumes suitable for Eurasian rail transportation. The research also opened up the question of the possibility of consolidating cargo flows in Finland from Northern European countries. Conversely, industry players do not possess full and accurate information about the possibilities of the transportation market, and that is where the marketing of transportation solutions would have been useful. In addition, the majority of the participants have validated the constant or growing interest from the clients' side. This research can be seen as an impetus to initiate a dialogue between business players in different countries with the aim of cooperating to develop Silk Route transportation solutions with the participation of Finland. It is a matter of future research to examine this stated development – at the moment in Finland, there exist at least three different commercial consortiums developing Chinese rail-based container transportation alternatives. These parties could be competing with each other or, later on, even collaborating. The rewards are now so high that different alternatives and routes are competing with each other.

Finally, in November 2017 container train from Kouvola (Finland) via Russia and Kazakhstan to Xi'an (China) with 40 TEU of cargo produced in Finland was sent. The trains are planned to be sent weekly from China to Finland, and frequently from Finland to China (Xinhua Net, 2017). This is a good evidence of potential for Finland to be engaged in the Silk Route transportation.

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## 5. References

- Adams, F.G., Gangnes, B. and Shachmurove, Y., 2006. Why is China so competitive? Measuring and explaining China's competitiveness. *The World Economy*, 29(2), pp.95-122.
- Belt and Road Summit. 2016. Belt and Road Summit. Event Booklet [online]. Available at: [http://www.beltandroadsummit.hk/pdf/Belt\\_and\\_Road\\_Summit\\_2016\\_Event\\_Booklet.pdf](http://www.beltandroadsummit.hk/pdf/Belt_and_Road_Summit_2016_Event_Booklet.pdf) [Accessed 17 July 2016].
- Bonacich, E. & Hamilton, G.G. 2011. *Global Logistics, Global Labor. The Market Makers: How Retailers Are Reshaping the Global Economy*. Oxford University Press. pp.211230.
- Bulis, A. & Skapars, R. 2014. Development of "New Silk Road" Northern Branch through Seaport of Riga in Latvia. *Procedia-Social and Behavioral Sciences*, 150, pp.1222-1229.
- DB Schenker. 2016. Eurasian landbridge [online]. Available at: [http://www.dbschenker.com/file/log-us-en/7284258/T-9Tbwi9UNbtfOnIEV\\_2RaN\\_q7s/6298838/data/td-eurasian-land-bridge-en.pdf](http://www.dbschenker.com/file/log-us-en/7284258/T-9Tbwi9UNbtfOnIEV_2RaN_q7s/6298838/data/td-eurasian-land-bridge-en.pdf) [Accessed 7 April 2016].
- Djankov, S. and Miner, S. eds., 2016. *China's Belt and Road Initiative: motives, scope, and challenges*. Peterson Institute for International Economics.
- Diener, A.C. 2015. Parsing mobilities in Central Eurasia: border management and New Silk Roads. *Eurasian Geography and Economics*, 56(4), pp.376-404.
- Dunning, J.H., 1988. The eclectic paradigm of international production: A restatement and some possible extensions. *Journal of international business studies*, pp.1-31.
- Eaton, J. and Kortum, S., 2002. Technology, geography, and trade. *Econometrica*, 70(5), pp.1741-1779.
- European Commission. 2000/b. IMPULSE – Interoperable Modular Pilot plants Underlying the Logistic Systems in Europe, Transport RTD Programme of the 4th Framework Programme.
- EY megatrends report. 2014. Megatrends 2015. Making sense of a world in motion [online]. Available at: [http://www.ey.com/Publication/vwLUAssets/ey-megatrends-report-2015/\\$FILE/ey-megatrends-report-2015.pdf](http://www.ey.com/Publication/vwLUAssets/ey-megatrends-report-2015/$FILE/ey-megatrends-report-2015.pdf) [Accessed 6 April 2016].
- Fallon, T., 2015. The new silk road: Xi Jinping's grand strategy for Eurasia. *American Foreign Policy Interests*, 37(3), pp.140-147.
- Fedorenko, V., 2013. *The new silk road initiatives in Central Asia (Vol. 10)*. Washington, DC: Rethink Institute.
- Hamilton, G.G., Senauer, B. and Petrovic, M. eds., 2011. *The market makers: How retailers are reshaping the global economy*. Oxford University Press.
- Hilletoft, P., Lorentz, H., Savolainen, V.V., Hilmola, O.P. and Ivanova, O., 2007. Using Eurasian landbridge in logistics operations: building knowledge through case studies. *World Review of Intermodal Transportation Research*, 1(2), pp.183-201.
- Hilmola, O.-P. (2017). Transport Modes and Intermodality, Chapter in *Encyclopedia of Maritime and Offshore Engineering*. John Wiley & Sons, Ltd.
- Jun, L. and Yanyi, C., 2012. Research on mode selection of freight transport based on risk preference theory. *International Journal of Advancements in Computing Technology*, 4(16), pp.138-146.

- Karluk, S.R. and Karaman, S.C., 2014. Bridging civilizations from Asia to Europe: The silk road. *Chinese Business Review*, 13(12), pp.730-739.
- Kreutzberger, E., Macharis, C., Vereecken, L. and Woxenius, J., 2003, June. Is intermodal freight transport more environmentally friendly than all-road freight transport? A review. In *nectar conference* (No. 7, pp. 13-15).
- Krugman, P., 1979. A model of balance-of-payments crises. *Journal of money, credit and banking*, 11(3), pp.311-325.
- Panova, Y., 2016. Public-private partnership investments in dry ports–Russian logistics markets and risks. *Acta Universitatis Lappeenrantaensis*.
- Peyrouse, S. and Raballand, G., 2015. Central Asia: the new Silk Road initiative’s questionable economic rationality. *Eurasian Geography and Economics*, 56(4), pp.405-420.
- Qi, Y. and Wang, Y., 1991. Analysis of land bridge transportation. *Chinese Geographical Science*, 1(4), pp.337-346.
- Regmi, M.B. and Hanaoka, S., 2012. Assessment of intermodal transport corridors: Cases from North-East and Central Asia. *Research in Transportation Business & Management*, 5, pp.27-37.
- Rodemann, H. and Templar, S., 2014. The enablers and inhibitors of intermodal rail freight between Asia and Europe. *Journal of Rail Transport Planning & Management*, 4(3), pp.70-86.
- RZD. 2015. “Our goal is to make freight transport by the Trans-Siberian route reliable, fast and cheap”, says Belozarov [online]. Available at: [http://eng.rzd.ru/newse/public/en?STRUCTURE\\_ID=15&layer\\_id=4839&refererPageId=4146&refererLayerId=3920&id=106737](http://eng.rzd.ru/newse/public/en?STRUCTURE_ID=15&layer_id=4839&refererPageId=4146&refererLayerId=3920&id=106737) [Accessed 12 September 2017].
- Saeed, N., 2013. Cooperation among freight forwarders: Mode choice and intermodal freight transport. *Research in Transportation Economics*, 42(1), pp.77-86.
- Saunders, M.L. and Thornhill, P., A., 2009. *Research Methods for Business Students*, Harlow: Financial Times.
- Southworth, F. and Peterson, B.E., 2000. Intermodal and international freight network modeling. *Transportation Research Part C: Emerging Technologies*, 8(1), pp.147-166.
- Smith, K. 2017. China-Europe rail freight continues to soar. *International Railway Journal*, [online]. Available at: <http://www.railjournal.com/index.php/freight/china-europe-rail-freight-continues-to-soar.html> [Accessed 12 September 2017].
- Tavasszy, L., Minderhoud, M., Perrin, J.F. and Notteboom, T., 2011. A strategic network choice model for global container flows: specification, estimation and application. *Journal of Transport Geography*, 19(6), pp.1163-1172.
- TEL. 2016. News [online]. Available at <http://www.trans-eurasia-logistics.com/news/> [Accessed 7 April 2016].
- TRACECA. 2012. TRACECA Member Countries [online]. Available at <http://www.traceca-org.org/en/countries/> [Accessed 26 July 2016].
- Tulli. 2016. Aikasarjat [online]. Available at: [http://www.tulli.fi/fi/suomen\\_tulli/ulkomaankauppatilastot/tilastoja/aikasarja/](http://www.tulli.fi/fi/suomen_tulli/ulkomaankauppatilastot/tilastoja/aikasarja/) [Accessed 30 August 2016]
- United Nations. 2016. Review of Maritime Transport. UNCTAD, Geneva.
- UTLC. 2017. UTLC volumes in January-August top 101,000 TEU, up 87%. JSC United Transport and Logistics Company, [online]. [Accessed 12 September 2017]
- Verny, J. & Grigentin, C. 2009. Container shipping on the northern sea route. *International Journal of Production Economics*, 122(1), pp.107-117.
- Viohl, B., 2015. Informal document WP.5/GE.2 (2015) No. 1. Euro Asian Transport Links. Transport flows and non-physical barriers. Economic Commission for Europe. Transmitted by the Organization for Security and Co-operation in Europe (OSCE).
- Wang, Y. and Yeo, G.T., 2016. A Study on International Multimodal Transport Networks from Korea to Central Asia: Focus on Secondhand Vehicles. *The Asian Journal of Shipping and Logistics*, 32(1), pp.41-47.
- World Bank. 2016a. Country profile [online]. Available at: <http://wits.worldbank.org/CountryProfile/en/country/CHN/startyear/2010/endyear/2014/tradeFlow/Export/indicator/XPRT-TRD-VL/partner/WLD/product/Total> [Accessed 28 April 2016].
- World Bank. 2016b. Country profile [online]. Available at: <http://wits.worldbank.org/CountryProfile/en/Country/CHN/Year/2014/Summarytext> [Accessed 28 April 2016].
- Woxenius, J. 1998. Intermodal Transshipment Technologies – An Overview, Detached appendix to the Doctoral Thesis Development of Small-scale Intermodal Freight Transportation in a Systems Context, Department of Transportation and Logistics, Chalmers University of Technology, Göteborg.
- Xinhua Net. 2017. Feature: Cargo railway inking Finland and China opens [online]. Available at: [http://news.xinhuanet.com/english/2017-11/11/c\\_136743619.htm](http://news.xinhuanet.com/english/2017-11/11/c_136743619.htm) [Accessed 20 November 2017].
- Yin, R.K. 2003. *Case study research: design and methods*, Thousand Oaks, CA.