

CONTAINER SILK ROAD: OPTIMISATION OF THE TRANSIT CORRIDOR

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ABSTRACT

The article analyzes the economic potential of transit transportation China–Russia–EU, the need of active state investment support for its development, modernization of transport infrastructure, primarily the border and terminal infrastructure, which will increase the transit capacity of railways and the active involvement of Russian regions in transportation. The authors advocate a comprehensive supranational approach that takes into account the interests of all

participating countries and unites various railway systems, including transformations related to harmonization of rules, customs principles and tariffs. First of all, it concerns unification of norms and development of a single standard for container transportation, which will make it possible to significantly simplify and reduce the cost of operations, as well as to move to more efficient intermodal technologies, and turn a set of routes into a single transit and logistics corridor.

Keywords: transport corridor, Eurasia, container transportation, railway, Silk Road.

I.

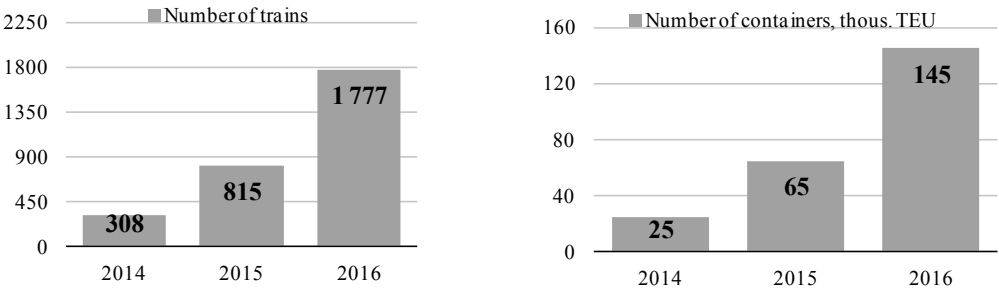
«The modern Silk Road cannot be only Chinese», said Emmanuel Macron, speaking on January 8, 2018 at a press conference in Xi'an, the starting point of the trade caravans of the ancient Silk Road. This short phrase of the French president reflected the whole range of feelings of European leaders about the Xi Jinping's «One Belt One Road» initiative – both hope and willingness to cooperate, and cautiousness. An ambitious project involving the creation of seven transport arteries between the PRC and key Eurasian regions was launched in 2013, and already in October 2017 it became a program for the Chinese Communist Party. Under the banner of a new political and economic doctrine, the Chinese have invested billions of dollars in infrastructure projects throughout Eurasia and intend to continue what they have started.

The strategy «One Belt One Road» is gradually becoming a kind of a springboard for Chinese construction and logistics companies. Investments through Eximbank, the Asian Bank for Infrastructure Investments and other financial structures related to the PRC government provide ready-made contracts to Chinese firms on a non-competitive basis throughout the world. In the last few years, a similar process has intensified in the EU's influence zone – Chinese companies, for example, build railway lines in Serbia and lease the Greek port of Piraeus. This port enjoying a favorable location relative to Suez, thanks to Chinese investments can become a serious competitor to recognized leaders – Rotterdam, Antwerp, Hamburg, which cannot but disturb European countries. They would prefer balanced solutions.

One of such solutions over the past five years has become the transcontinental railway route China–Russia–Europe: since 2013, the volume of container shipments between the PRC and the European Union has increased 10-fold and continues to grow at the same rate. Initially launched for a one-way export route from China, the route drew the attention of European shippers who began to load Chinese trains on their way back.

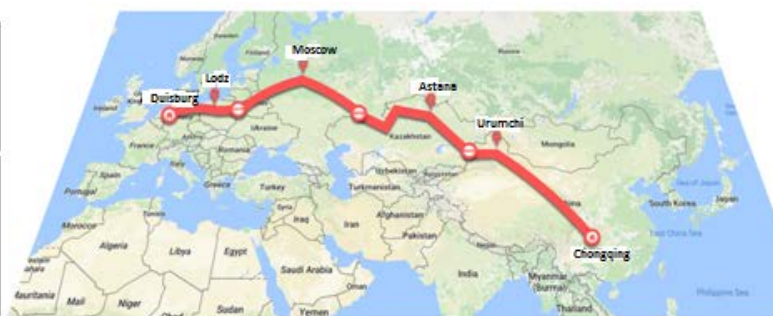
Most of transportation is carried out along the so-called Northern Corridor, passing through the territory of Russia. Thanks to the successful location of the railway infrastructure – the Trans-Siberian and Baikal-Amur Mainlines – it is possible to significantly increase transit and this increase in volumes can become a powerful stimulus for development of the regions of the country both at the expense of receiving revenues from servicing the railway lines and at the expense of potential expansion of own exports.

However, the future of the direction China–Russia–EU raises questions. A number of authors [5, 13] express serious doubts that rail container transportation through Russia will be able to compete with traditional sea routes and provide the same growth rates as in the last five years. The unavailability of the transport infrastructure of the EEA countries, the imbalance of trade flows, and the financial dependence of operators on Chinese subsidies are key problems that in the long run can slow or stop the growth of container shipments. Their solution is a priority for Russia, if it counts on the leading role in the organization of transit traffic. The benefits of participation in the project «One Belt One Road» – development of the regions of



Pic. 1. Development of rail container transportation between China and the European Union (data Roland Berger).





Pic. 2. Trade structure.

Siberia and the Far East, the strengthening of foreign trade relations with the PRC and the EU are the main strategic goals for the Russian Federation, therefore in this situation it makes sense at the state level to support container initiatives.

Within the framework of the specified goals and objectives, the authors analyzed the international transit in 2013–2016 using statistical data of customs authorities, JSC Russian Railways, and evaluations of the experts in that field, which helped to determine the competitive niche of the route, the main problems and possible solutions.

Objective. The objective of the authors is to assess container Silk Road capacity and to consider measures of optimisation of the transit corridor.

Methods. The authors use general scientific methods, comparative analysis, statistical method, scientific description.

II.

Despite the fact that the development of transcontinental container transportation is rightly associated with the Chinese initiative, pioneer role in the launch of container trains on the route China–Europe belongs to the company Hewlett Packard. In 2011, two years before the launch of the «One Belt One Road» initiative, HP organized a weekly electronic shipment from its plant in Chongqing to German Duisburg. Today, this route is followed by more than 50 trains a week.

The development of new railways successfully coincided with structural changes in the Chinese economy. Over the past decades, the eastern regions of China by economic development and living standards have gone far ahead of the rest of China; many enterprises (Unilever, HP) against this background began to move to the remote areas from the coast western areas, where workers still agree on low wages. As a result, new fast-growing centers appeared in the west of the country, for example, Chongqing, Chengdu, Shenyang, where appeared large industrial shippers – producers of electronics, automotive parts, pharmaceuticals and other categories of goods destined for the European consumer. A significant part of the suppliers prefer to send the goods immediately to Europe from the nearest railway station, and not along the traditional sea route – after all the ports of the East China Sea are located 2000 kilometers to the east.

A decade ago, the alignment of forces in the PRC–EU transport market was stable and simple – most of the cargo was packed into sea containers, and a small part of expensive and urgent shipments

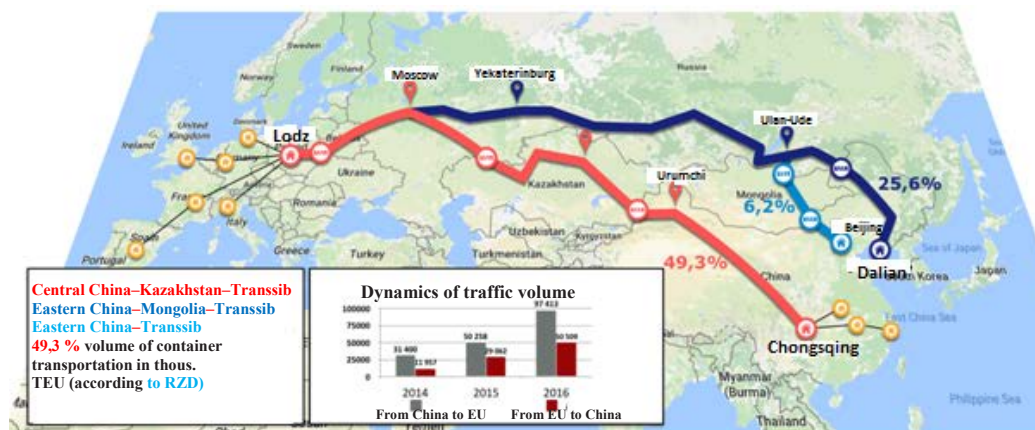
was transported by air. However, with the launch of regular rail traffic, the situation has changed – rail container operators managed to occupy the «golden mean» between sea and aviation analogues in terms of price-time ratio (see Pic. 4). Nevertheless, the railway routes in terms of scale and capacity are not comparable with the sea ones: despite the positive dynamics, railways will not be able to impose serious competition on cheap sea container ships. According to Roland Berger, the share of rail traffic in trade between the EU and the PRC in 2016 was 1,2 %, and the most favorable forecast assumes an increase to 2,5 % by 2027. Why, in this case, is it worth talking about the high potential of transcontinental container transportation?

Railway container operators managed to find their own niche – products with high added value. In 2016, the total volume of trade between the PRC and the EU amounted to 110 million tons in physical volume and 515 billion euros in monetary terms. Except for the crisis periods, the flow of goods in this direction has steadily increased – in 2007, similar indicators were 101 million tons and 354 billion euros¹. As it is easy to see, if the trade in value of goods has grown significantly, then by weight of cargo it has remained almost unchanged. We can connect this trend with the increase in the share of goods with high added value in trade.

It is that the producers of such products that represent the main customer base of railway operators, which they managed to accumulate due to a gradual decrease in the delivery time and transportation rates. Sea freight still offers a much more favorable tariff (1,5–2 times cheaper than railway competitors), but for the consignor, the importance is not so much the value of the tariff as the indicator of the total transportation costs. The fact is that in total transport costs, in addition to the cost of delivery, the working capital is taken into account, which is «frozen» in the operational cycle. Railway routes allow to reduce this cycle by 16–25 days.

We can conclude that it is more profitable for producers of some goods (for example, smartphones) to send them along a more expensive but a faster route, since the working capital costs (a kind of interpretation of the alternative cost) exceed the transportation tariff itself. To such goods we include electronics, medicine, cars and car parts, clothing, luxury goods, some food. It is curious that the routes originally intended only for shipments to the European Union gradually began

¹ World Bank data; last accessed 03.06.2017.



Pic. 3. Dynamics of traffic volume, thous. TEU.

to be filled with these goods in the opposite direction. BMW uses them to send the most sophisticated automotive parts manufactured in Germany to the plant in Shenyang for the final assembly; Polish farmers, seven years ago, who did not have access to the Chinese market, thanks to new routes annually export food products to China for \$100 million.

Thus, railway container operators have taken a small but very promising niche in trade between China and the European Union, the volume of which already exceeds \$1,5 billion a day.

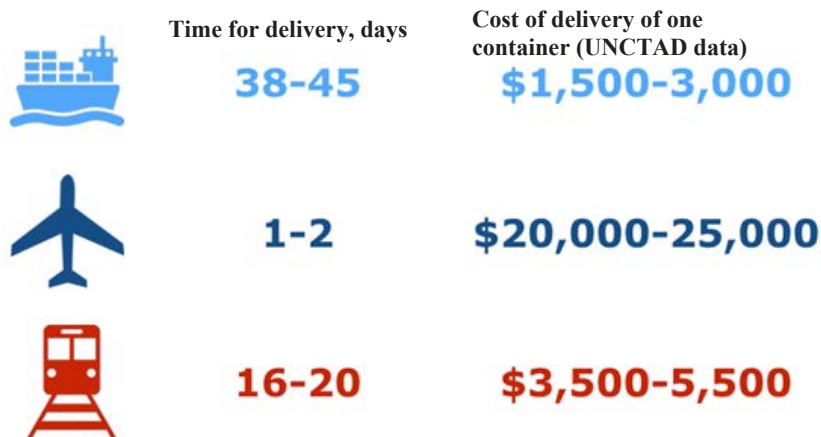
III.

However, on the way to sustainable development of rail container transportation there are several significant obstacles, and in the coming years their role will only increase. The first and most tangible for end customers is the fact that the railway infrastructure gradually ceases to cope with the growing flows of cargo.

The northern corridor can be visually divided into four main routes: 1) «Kazakh» through Dostyk/ Khorgos and the European part of Transsib; 2) the route through the border point of Zabaikalsk, connecting Russia and China directly; 3) Far East through the ports in Nakhodka and Vostochny, accepting containerized cargo from Chinese ports; 4) «Mongolian» route through Ulan-Bator and the border point Naushki.

The Trans-Siberian Railway is involved in all four routes. Many sections of the Trans-Siberian Railway, especially in its eastern part, have been operating at the capacity limit for several years. The presence of multiple sections with single-track traffic, speed limits, constant delays and breakdowns demonstrates that the technical condition of the Transsib and BAM does not correspond to the ambitious tasks assigned to them. The inaction of the Russian Federation against the backdrop of Kazakhstan's active implementation of such large infrastructure projects as the dry port of Khorgos and the Khorgos–Zhetygen railway branch provided long-term leadership of the southern route and cut off the eastern regions of the Russian Federation from a large share of container trains. Already today, Kazakhstan accounts for more than 40 % of the total transport volume of the Northern Corridor [5]. Thus, the idea of a new Silk Road as a trigger for development of the Far East can be brought to nothing.

According to a survey of employees of container operators, the main problem of the corridor is customs delays. Despite several successful measures that helped reduce the time for customs processing – establishment of the Customs Union and the EAEC, the partial introduction of a single SIM/SMGS consignment



Pic. 4. Comparison of the methods of sending one container from Chongqing to Western Europe.



note and electronic document management, this problem cannot be considered as solved. Many checkpoints are not automated, instead of using X-ray inspection systems that do not require stopping the train, the containers are unloaded and opened for inspection. Constant long hours (often – many days) delays do not allow operators to provide the most important for shippers – reliability and predictability of deliveries.

To simplify and accelerate customs procedures, both modern technical equipment of border crossings and a change in the regulatory framework are necessary. The key changes in this area are achievement of the principle of a single stop (now the trains at the border checkpoints are checked at two customs points namely in the country of departure and in the country of entry), harmonization of the requirements of the national customs departments, widespread introduction of paperless electronic document management, general reduction in the number of required documents.

The problems of border crossings are not limited to customs clearance. On the way from China to Europe, it is necessary to change the track twice – and if this problem was partially resolved at the border of Kazakhstan and China due to the launch of the largest dry port in Khorgos, then at other border points, delays and downtimes are only growing. For example, in August–September 2017, the waiting time at the transition to Brest–Mafaszewicze reached 6 days [11]. The Belarusian Brest is the actual single major gauge change point between the EU and the 1520 system; with the growth of traffic, new points, alternative to Brest, will be needed. Already today, the market suggests possible solutions – some operators prefer to send cargo to the Baltic ports, where they are delivered to Hamburg via ferries.

In addition to infrastructure problems, there is a second and no less significant obstacle – load imbalance. European shippers, although they are developing new corridors, still do not hold out to their Chinese counterparts. As a result, from Europe to the PRC, there are about half as many containers as in the opposite direction [6], which makes it impossible for operators to fix routes and reduce transportation costs. This economic dependence on the PRC does not end: the Chinese government set a task until 2020 to achieve the annual dispatch of 5000 container trains. To implement this plan, regional administrations impose indirect subsidies (according to some estimates, up to 50 % of all operator costs [9]).

One of the possible ways of further development of transport is the transition to composed routes. Today containers are mostly delivered by direct trains from point A to point B, but at long distances (more than 11 thousand km) from the point of view of occupancy they are not effective enough. Large operators can split routes into shorter ones and overload containers in intermodal terminals. Such an approach will allow both to reduce the load on the railway mains and reduce the cost of empty transit: trains will be sent less often, but more efficiently filled. The potential of using reloading points to stimulate and optimize railway routes is confirmed both by foreign [8] and domestic [7] studies. However, effective inter-modal routes require modern intermodal terminals that have sufficient capacity and are capable of providing operational overload and reconfiguration of trains.

In Russia such terminals, except Moscow and St. Petersburg, along the Silk Road are absent. Especially perspective point for construction of the terminal and the transshipment point is Yekaterinburg, located at the fork of many container routes. Until now, there are transport chains through which containers follow from China via Yekaterinburg to Moscow, and then return back to the Urals. Intermodal terminals, or rather, their coordinated construction in the Russian regions and the use of a flexible route grid, will be able to solve the problem of back loading. A huge number of transit container trains pass by large industrial centers (the Volga region, Western Siberia), which can load them on their way back to China. The products of the Russian chemical and agricultural industry enjoy an increasing demand in China and can be transported along existing container routes. This requires direct investment in the regional terminal infrastructure.

The experience of recent years confirms that rail container transportations are particularly effective in the composition of intermodal logistics chains, «door-to-door» deliveries. In the case of the Silk Road, we are talking about combining in one route regular railway voyages and short road transportation of the «first and last mile» between the terminal and the terminal with possible inclusion of the ferry line in the chain. Such a combined service is the most profitable for container operators and is convenient for regions remote from the sea coast.

Nevertheless, within the framework of such land chains, ISO-containers, designed and intended for maritime transport, are still mainly used. Because of their high mass, as well as the inability to reload between the truck and the railway platform, operators can incur high costs and lose a large amount of payload that could be transported by means of special intermodal containers. These are the loading units common in the European Union, standardized by the International Union of Railways (UIC) – swap containers and container-trailers. Their use on the routes China–Europe, impossible today due to regulatory constraints, will attract new customers. Moreover, the use of container-trailers and swap containers, due to the saving of time for overload, will help to relieve pressure on the gauge change points and increase the speed of trains.

However, European standards are not adopted on the territory of the Customs Union, and tariffs do not provide for transportation of container-trailers and swaps. Participating countries need to develop a single supranational standard for transportation along the corridor, which specifies the length of the train, size, tariffs, types of containers, customs clearance and other rules that differ in different railway systems and impede the harmonious development of transportation. It is worth paying attention to successful foreign practices both in the EU (the launch of integrated RFC freight corridors) and near neighbors. For example, the conclusion of framework agreements between customs authorities, railway owners and the largest operators of Lithuania, Belarus and the Ukraine ensured the successful launch of the Viking train with a through tariff, adapted for sending out the container-trailers and swap containers.

Conclusions. The research confirms the high economic potential of the route China–Russia–EU, which, nevertheless, may be missed in the absence of state investment support. Part of the investment consequences of inaction can already be observed

at the example of rivalry between Kazakhstan and the Far East routes, while the first route is convincingly winning. At this point transit growth is a successful combination of initiatives of economic belt of the Silk Road and the EAEC, but without greater efforts it is unlikely to achieve further development of the rail corridor.

In this situation, it makes sense for Russia to focus its efforts on modernization of transport infrastructure, especially the border and the terminal facilities, which will increase the capacity of main lines and the active involvement of Russian regions in transportation; otherwise we will remain an ordinary participant in transshipment of containers between China and the European Union.

In addition, a comprehensive supranational approach is required that takes into account the interests of all participating countries and links together different railway systems. We are talking about the reforms connected with harmonization of rules, customs principles and tariffs. In recent years, the first important steps in this direction have been made, but we need to continue to work towards the unification of standards and the development of a single standard container traffic, which will significantly simplify and reduce the cost of operations, as well as towards more efficient intermodal technologies. Only with the help of such measures a set of disparate routes can be transformed into a transport corridor – with single approved rules.

REFERENCES

1. Alklychev, A. M. [et al]. Trans-Asian Transport Corridors and Development of the Transport System of Russia [Transaziatskie transportnie koridory i razvitiye transportnoi sistemy Rossii]. Regionalnye problemy preobrazovaniya ekonomiki, 2010, Iss. 3, pp. 55–63.
2. Podberyozkina, O. A. Transport corridors in Russian integration projects (using the example of the EAEU) [Transportnye koridory v rossiiskih integratsionnykh proektakh (na primere EAES)]. Vestnik MGIMO, 2015, Iss. 1, pp. 57–65.
3. Podberyozkin, A. I., Borishpolets, K. P., Podberyozkina, O. A. Eurasia and Russia. Moscow, MGIMO-University, 2013, 1070 p.
4. Turaeva, M. O. Transport infrastructure of Central Asian countries in the conditions of modern regionalization: Report [Transportnaya infrastruktura stran Tsentralnoi Azii v usloviyah sovremennoi regionalizatsioi: doklad]. Moscow: Institute of Economics, Russian Academy of Sciences, 2014, 62 p. [Electronic resource]: http://www.imepi-eurasia.ru/baner/Turaeva_paper_2014.pdf. Last accessed 15.03.2018.
5. Zuenko, I., Zuban, S. Transcontinental Transit Asia-Europe [Transkontinentalniy transit Aziya-Evropa]. Mirovaya ekonomika i mezhdunarodnye otnosheniya, 2016, Iss. 7, p. 70.
6. Roland Berger for UIC. Eurasian rail corridors: what opportunities for freight stakeholders? The website of the International Union of Railways, 2017. [Electronic resource]: https://uic.org/IMG/pdf/corridors_exe_sum2017_web.pdf/. Last accessed 06.11.2017.
7. Kuzmin, D. Organization of a regional network of piggyback terminals [Organizatsiya regionalnoi seti kontreilernykh terminalov]. Deposited manuscript, 2015. [Electronic resource]: http://miit.ru/content/Disent.pdf?id_wm=741187. Last accessed 06.11.2017.
8. DIOMIS for UIC. Improving the use of available train length. The website of the International Union of Railways, 2006. [Electronic resource]: <https://diomis.uic.org/spip.php?article11>. Last accessed 06.11.2017.
9. Zuenko, I. Why China subsidizes rail transportation through Russia and Kazakhstan [Zachem Kitai subsidiruet zh/d perrevozki cherez Rossiyu i Kazakhstan]. Carnegie.ru website. 2016. [Electronic resource]: <http://carnegie.ru/commentary/64467>. Last accessed 06.11.2017.
10. Islam, D. M. Z. [et al]. The potential of alternative rail freight transport corridors between Central Europe and China. Transport Problems, 2013, Vol. 8, No. 4, pp. 45–57.
11. Pletnev, S. Brest of stumbling [Brest pretknoveniya]. [Electronic resource]: <http://www.gudok.ru/1520/newspaper/detail.php?ID=1384572>. Last accessed 06.11.2017.
12. Ordabaev, A. K. The geopolitics of transport corridors in Central Asia [Geopolitika transportnykh koridorov v Tsentralnoi Azii]. Astana-Almaty, 2015, 52 p. [Electronic resource]: http://iwep.kz/files/attachments/article/2015-05-12/geopolitika_tk.pdf. Last accessed 15.03.2018
13. Gabuev, A. Silk Road to Nowhere [Shelkovyi put' v nikuda]. Vedomosti, May 14, 2017 [Electronic resource]: <https://www.vedomosti.ru/opinion/articles/2017/05/15/689763-shelkovii-put/>. Last accessed 6.11.2017.
14. Economic Commission for Europe – Inland Transport Committee. Transport links between Europe and Asia, new challenges, 2013. [Electronic resource]: https://www.unece.org/fileadmin/DAM/trans/doc/2013/wp5/wp5-eatl/EATL_8th_session_InfDoc1e.pdf. Last accessed 06.11.2017.
15. Shepard, W. How Those China-Europe 'Silk Road' Trains First Began, 2016. [Electronic resource]: <https://www.forbes.com/sites/wadeshepard/2016/06/29/the-story-of-how-those-china-europe-silk-road-trains-first-began/>. Last accessed 06.11.2017.
16. 瓦丁. 欧盟、俄罗斯与中国交通运输模式新进展研究: dis. – 兰州交通大学, 2014.
17. Panova, Y. Potential of connecting Eurasia through Trans-Siberian railway. International Journal of Shipping and Transport Logistics, 2011, Vol. 3, No. 2, pp. 227–244.
18. Suocheng, D. [et al]. Resources, environment and economic patterns and sustainable development modes of the Silk Road Economic Belt. Journal of resources and ecology, 2015, Vol. 6, No. 2, pp. 65–72.
19. Wang, C. Changing International System Structures and the Belt and Road Initiative. Rethinking the Silk Road. Palgrave Macmillan, Singapore, 2018, pp. 269–279.

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