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ИНТЕЛЛЕКТУАЛЬНЫЕ И ЦИФРОВЫЕ РЕШЕНИЯ И ПРАКТИКА

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Potential for the Development of International Transport Corridors in Current Market Conditions

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ABSTRACT This research is devoted to the prospects for the development of international transport corridors (ITC) through the prism of the dynamics of market forces in the transport industry and world trade.

International logistics is currently undergoing a global transformation, and therefore the effective use by Russia of its transport potential is still the most urgent and practical task. In this regard, this research is focused on internal and external factors that influence the realization of this potential.

The research presents the factors that contributed in retrospect for more than 10 years to the dynamic development of freight transportation through the ITC "East – West". Additionally, the impact of exogenous factors such as epidemiological restrictions on a global scale and economic sanctions against Russia on the logistics of container transportation in recent years is considered in more detail.

On the basis of a retrospective analysis of the development of cargo transportation through the ITC "East – West" generalized conditions are formulated that allow to assess the potential for the development of transport cargo flows on other key ITC.

An analysis of the current dynamics and problems of the development of transportation along the corridors East – West, Northern Sea Route and North-South is carried out. Further prospects for their increase from the point of view of transport marketing is provided.

Among the conclusions, the importance of developing and expanding the infrastructure of the ITC "East – West", as well as proposals for the intensification of cargo transportation through other ITC, is highlighted.

KEYWORDS: international transport corridors; ITC "East – West"; ITC "North – South Corridor"; ITC "Northern Sea Route"; the impact of the COVID-19 pandemic on logistics; conditions for the successful development of international logistics; problems of development of international transport corridors; development of international container transportation; traffic statistics on international transport corridors; and development of international trade.

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Научная статья

Потенциал развития международных транспортных коридоров в текущих рыночных условиях

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АННОТАЦИЯ Исследование посвящено перспективам развития международных транспортных коридоров (МТК) через призму динамики рыночных сил в транспортной отрасли и мировой торговли.

Поскольку в свете глобальных трансформаций в международной логистике последних лет наиболее актуальной и практической задачей продолжает оставаться получение Россией максимальных выгод от своего транспортно-географического положения, основное внимание уделено внутренним и внешним факторам, оказывающим влияние на реализацию этого потенциала.

Представлены факторы, способствовавшие в ретроспективе более 10 лет динамичному развитию грузоперевозок по МТК «Восток – Запад». Более подробно рассмотрено влияние на логистику контейнерных перевозок последних лет последствий таких экзогенных факторов, как эпидемиологические ограничения в мировом масштабе и экономические санкции в отношении России.

На основе данного анализа сформулированы обобщенные условия, позволяющие оценить потенциал дальнейшего увеличения транспортных грузопотоков по другим МТК.

Произведена оценка текущей динамики и проблематики перевозок по коридорам «Восток – Запад», «Северный морской путь» и «Север – Юг», а также оценка дальнейших перспектив их увеличения с точки зрения транспортного маркетинга.

В числе выводов обозначена важность развития и расширения инфраструктуры МТК «Восток – Запад», приведены предложения по интенсификации грузоперевозок через другие МТК.

КЛЮЧЕВЫЕ СЛОВА: международные транспортные коридоры; МТК «Восток – Запад»; МТК «Север – Юг»; МТК «Северный морской путь»; влияние пандемии COVID-19 на логистику; условия успешного развития международной логистики; проблематика развития международных транспортных коридоров; развитие международных контейнерных перевозок; статистика перевозок по международным транспортным коридорам; развитие международной торговли

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INTRODUCTION

This research is devoted to the prospects for the development of international transport corridors (ITC) through the prism of the dynamics of market forces in the transport industry and world trade.

Since, in the light of global transformations in international logistics in recent years, the most relevant and practical task is to maximise the benefits of Russia's transport and geographical position, the main focus is made on internal and external factors that influence the realisation of this potential.

Due to the fact that international trade is mainly carried out in large-capacity containers as the most technologically advanced mode of transport, the data and conclusions are presented in the context of the development of multimodal container transport.

As per the generally adopted classification[1] the main international corridors passing through the territory of Russia are as follows (*Fig. 1*):

- North – South Corridor (Eastern Branch, Western Branch and Trans-Caspian Route);
- East –West Corridor (North Eurasian Route and Central Eurasian Route);
- Northern Sea Route Corridor.

Analysing the development potential of these corridors is impossible without understanding the reasons that, to a greater or lesser extent, allow the development of cargo turnover on a large scale.

Further, by the example of retrospective analysis of traffic through the East – West ITC, the key factors that make it possible to assess the potential for prospective development of international transport routes have been formulated.

JUSTIFICATION OF THE METHODOLOGY FOR THE ASSESSMENT OF THE TRANSPORT CORRIDORS POTENTIAL

"East – West" ITC should be subdivided into two routes:

- The Northern Eurasian Route is a route along the Trans-Siberian Railway, starting from ports and border crossings in the Primorsky Krai, the main border crossings at present being Zabaikalsk – Manchuria and Zamyn – Uud – Erlian (Mongolian Railway border crossing with Chinese railways) and proceeding first of all to Brestskaya border crossing Nauskhi of Russian railways. railway) with Chinese railways, cargo flows through which further go through the Naushki border crossing of Russian railways) and the following first of all to the Brest – Malaszewicz border crossing on the border of Poland and Belarus;
- Central Eurasian Route — the route through Kazakhstan via the Dostyk – Alashankou and Altynkol – Khorgos border crossings with China and onwards to the Brest – Malaszewicz border crossing.

There are also alternative branches to the west through which shipments can be made, such as routes through other border crossings in Belarus, ports in

[1] Federal target subprogramme 'International Transport Corridors'. URL: https://fcp.economy.gov.ru/ext/11/3.htm

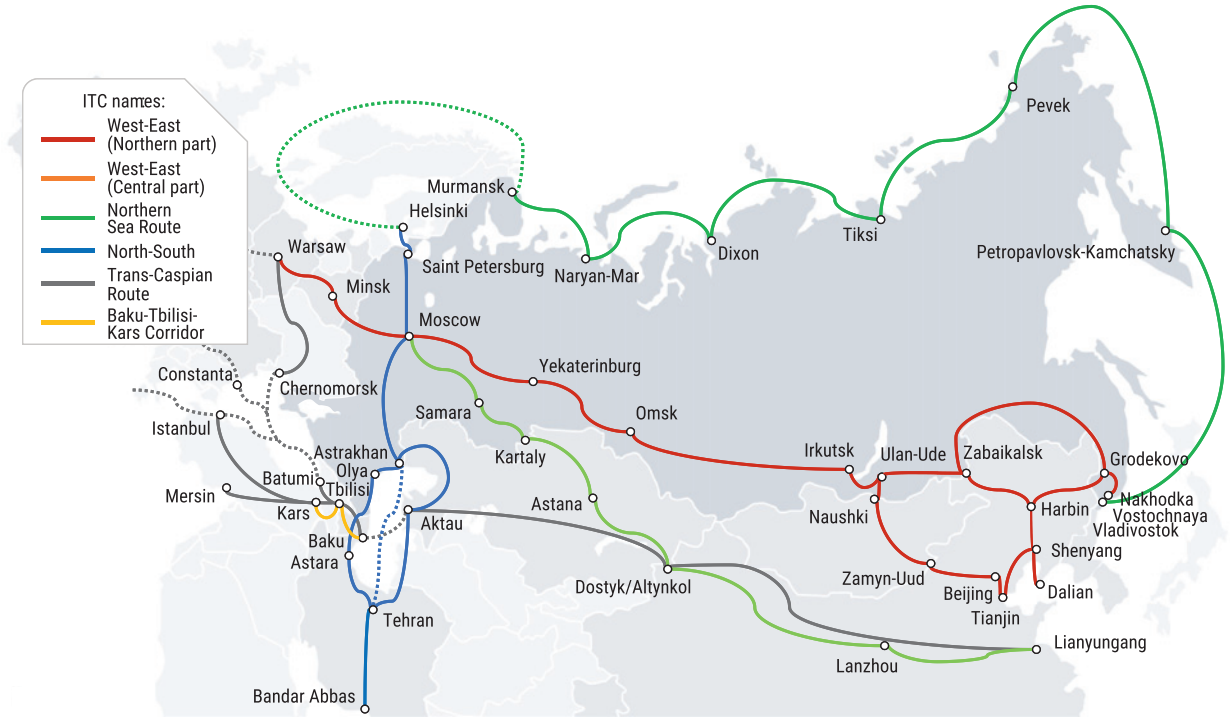

Fig. 1. Main international transport corridors across Eurasia[2]

Saint Petersburg, and border crossings in Kaliningrad Region.

The first important milestone in the development of the East – West Corridor, namely its Central Eurasian route, was the cancellation of customs procedures at the borders of Russia, Kazakhstan and Belarus in 2011, which subsequently increased the speed of delivery of goods between Europe and China and reduced the cost of paperwork[3]. In addition, the use of the unified CIM/SMGS consignment note was gaining popularity during this period[4].

The second key development was the launch in 2012 by Chinese provinces of subsidies for rail transport through land border crossings, thereby making it more attractive to China's central and northeastern provinces compared to multimodal transport through Pacific ports[5].

The third milestone in the development of the East – West corridor was the establishment of a single logistics operator, OTLK ERA, JSC (formerly OTLK, JSC), at the end of 2014 and the systematic development of Kazakhstan's border crossing infrastructure, in particular, the commissioning of the large dry port KTZE – Khorgos Gateway and the Altynkol – Khorgos border crossing in 2015[6].

Transportation on the route operated by OTLK ERA is also subject to a discount to the tariff of three railway administrations (Russia, Belarus and Kazakhstan), which has made it possible to stimulate the growth of traffic volumes since the launch of the operator.

In aggregate, the above non-market support mechanisms have contributed to a 14.3-fold increase in transit volumes of Europe – East Asia – Europe via the Central Eurasian route from 2014 to 2019, from 21,000 twenty-foot equivalent containers (TEUs) to 305,000 TEUs.

Notably, even with subsidies from the Chinese provinces, the lack of a significant financial incentive similar to that in place for OTLK ERA transports and the nominated single transport organiser, as well as the slower speed of cargo (for 2022 in average, 5–6 days

[2] The graphic representation was generated by the author on the basis of public sources.
[3] Decree of the President of the Russian Federation dated 01.07.2011 No. 880 'On Cancellation of the Agreed Types of Control on the State Border of the Russian Federation with the Republic of Belarus and the Republic of Kazakhstan' // Rossiyskaya Gazeta. 12.07.2011.
[4] Viksne D. Document for two systems // Gudok. 20.07.2011. URL: https://gudok.ru/newspaper/?ID=690683
[5] Stimulating Export Railway Transport in China: Results and Prospects: An Information and Analytical Review // Eurasian Rail Alliance Index. URL: https://index1520.com/upload/medialibrary/7b0/9576l2q9fz9dwfktahjrdm370w142dh9/ERAI-Subsidies-RU.pdf
[6] Tonkonog O. The Way the Largest Dry Port in Central Asia Works // Sputnik News Network Agency. Kazakhstan. 01.10.2020. URL: https://ru.sputnik.kz/20201001/krupneyshiy-sukhoy-port-15108603.html

via Dostyk –Altynkol border crossings to the border of Poland and Belarus versus 8–10 days on the same route via Zabaikalsk) became one of the reasons for relatively low dynamics of transit volumes development between Europe and East Asian countries via the infrastructure of the Northern Eurasian route.

The growth of overland transport volumes along the East – West ITC in 2016-2019 occurred under the following circumstances:

- practically unchanged level of sea freight rates (in the range of $2,000 per FEU on the Rotterdam – Shanghai – Rotterdam route[7]);
- growth of sea freight volumes on the Europe – East Asia – Europe Route[8];
- an increase in the share of containerised shipments within the PRC from 4.5–9.0% in 2016 to 5.1–10.3% in 2019 (estimate based on data from the State Statistical Office of the PRC in terms of 10–20 tonnes/DFE[9]);
- overall growth in the volume of trade between the countries of these regions[10].

The growth of East-West ITC traffic volumes in 2020–2021 should be considered separately due to the specific conditions of the COVID-19 pandemic, which caused trade restrictions and changes in transport logistics.

The impact of the epidemiological restrictions in the first half of 2020 was a decrease in global trade volumes, a decrease in shipping orders, a disruption of international logistics chains, and an accumulation of empty containers in Europe and North America.

In the second half of 2020, governments, particularly in China, began to gradually ease quarantine restrictions, which led to an explosive growth in demand for maritime transport (according to LLI Consulting, 10 times more than in the first half of 2020[11]).

Against this background and the shortage of empty containers for loading in China (in December 2020, the FEU availability index in the port of Shanghai CAx decreased to 0.02 points[12], which indicates an acute shortage of containers and a predominance of shipments from the port over arriving containers), which had by then accumulated in large volumes in North America and elsewhere. International shipping lines have had to include their freight rates in the cost of redeploying empty containers and even the production of new containers in China (in the first half of 2021 alone, the production of new containers surpassed that of the whole of 2020[13]) to ensure the export of cargo out of the country. In this regard, the January 2021 global container index (WCI) has doubled by November 2020[14].

From the second half of 2021, the situation was exacerbated by the increased imbalance of trade flows between Europe and Asia against the background of a faster recovery of the Chinese economy from the crisis associated with the COVID-199 pandemic, which led to a significant utilisation of sea container terminals in Europe (at the end of 2021, the utilisation index of sea container terminals in Europe doubled compared to the end of 2020[15]).

The above factors caused a partial shift of cargo flows in 2020–2021 from sea transport in favour of transit railway services within Russia — transit through the Russian Railways network in 2021 for the first time exceeded 1 million TEUs[16], showing growth of 34.4 % compared to 2020, while traffic on all routes of the East-West ITC corridor increased by 2.3 times by the pre-pandemic year 2019 (*Fig. 2*).

However, against the background of a slowdown in global trade in 2022[17], as well as port offloading and increased maritime turnover, freight rates

[7] World Container Index assessed by Drewry // infogram. URL: https://infogram.com/world-container-index-1h17493095xl4zj
[8] Transport, Postal and Telecommunication Services. Freight Traffic // National Data. National Bureau of Statistics of China. URL: https://data.stats.gov.cn/english/easyquery.htm?cn=C01
[9] Volume of containers transported to/from main ports — quarterly data (2015–2016) // Eurostat. URL: https://ec.europa.eu/eurostat/databrowser/view/MAR_GO_QM_C2016/default/table?lang=en
[10] EU trade since 1988 by HS2-4-6 and CN8 (former content) // Eurostat. URL: https://ec.europa.eu/eurostat/databrowser/product/view/ds-045409?category=ext_go.ext_go_detail
[11] LLI Consulting. Volume of orders // infogram URL: https://infogram.com/lloyds_list
[12] Container Availability Index // Container xChange URL: https://www.container-xchange.com/features/cax/
[13] Containers are being built at a record pace. It's still not enough // Freight Waves. 27.07.2021. URL: https://www.freightwaves.com/news/containers-are-being-built-at-a-record-pace-its-still-not-enough
[14] World Container Index // Drewry. URL: https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry
[15] Port congestion in key Europe, US gateways continues to deteriorate: Sea-Intelligence // S&P Global. Commodity Insights. 12.01.2022. URL: https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/shipping/011222-port-congestion-in-key-europe-us-gateways-continues-to-deteriorate-sea-intelligence
[16] Russian Railways summed up the results of their operation for 2021 // The Federal Railway Transport Agency. 15.03.2022. URL: https://rlw.gov.ru/press/document/11871
[17] Global container trade volumes 2017–2024 // infogram. URL: https://infogram.com/container-trade-volumes-1hnp27nljyoy4gq

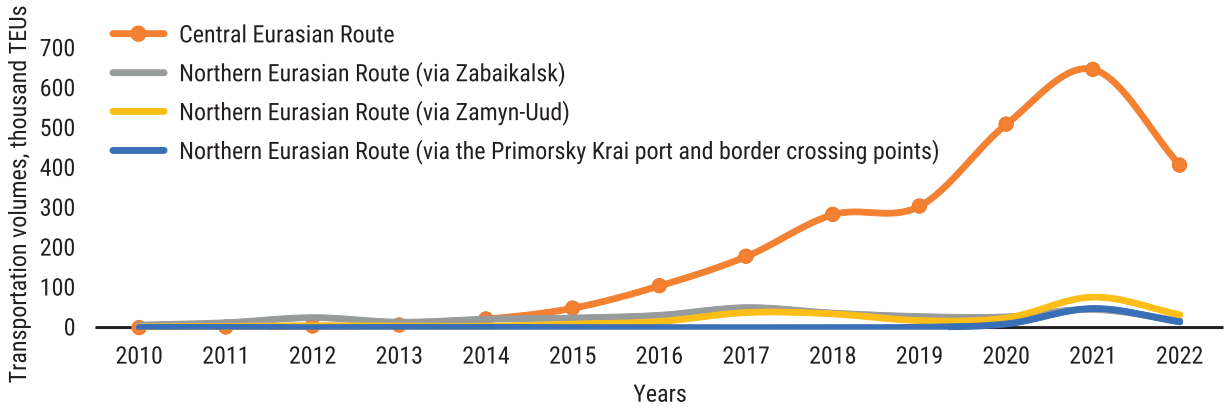

Fig. 2. The volume of traffic on the routes and branches of the East – West Corridor between Europe and East Asia in 2010–2022[18]

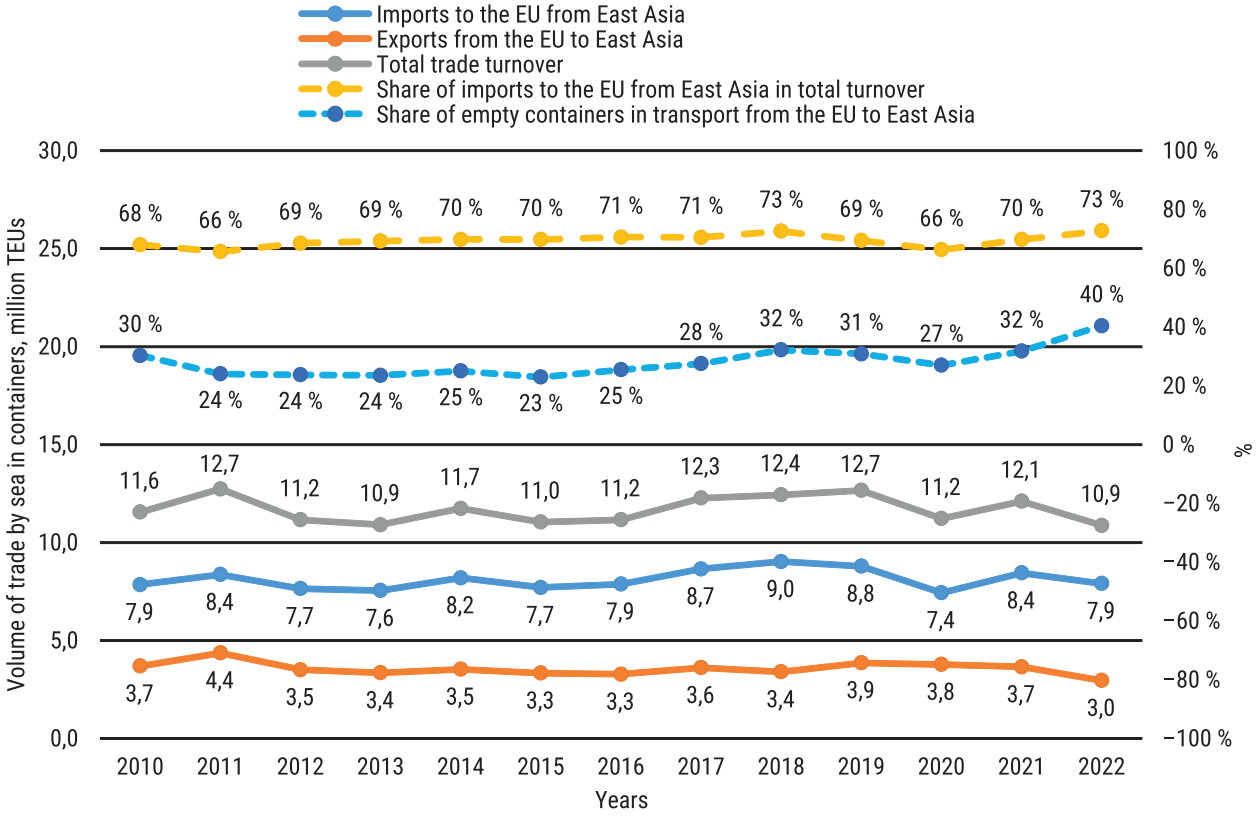

Fig. 3. The volume of loaded containers transported by sea in Europe and East Asia in 2010–2022, with indicators on the ratio of imports in trade and the share of empty container adjustments[19]

declined from the beginning of 2022 and actually reached their historical average level by the end of the year[15].

For this reason, as well as sanctions restrictions against Russia in 2022, international freight forwarders again began to favour maritime transport along the China – Europe – China route, and transit volumes along the East – West ITC decreased.

These developments illustrate to a greater extent the transport market environment, which is derived from trade between Europe and East Asia.

An important feature of trade between the two regions over the last decade has been the lack of balance in cargo flows in terms of logistics — the volume of East Asian exports by sea has been 2–3 times higher than European exports to the region since at least 2010 (*Fig. 3*).

[18] The graphic representation was formed by the author on the basis of data of Russian Railways, JSC and other public sources.
[19] The graphic representation was created by the author on the basis of Eurostat data.

This imbalance forces logistics companies to send empty containers from Europe by sea back to East Asia — the share of such shipments is around 30 per cent, with the share reaching 40 per cent in 2022[9].

In rail transport there is also an imbalance of cargo flows and redeployment of empty containers, but the share of empty containers in the container traffic from Europe to East Asia from 2020 to 2022 did not exceed 15 %, and in the first half of 2023 there were no shipments of empty containers (including due to sanctions restrictions).

The imbalance of cargo flows is not an obstacle to dynamic trade between the two regions, possibly due to low freight rates for empty container relocation, as well as a generally low transport component in the price of shipped products on at least one side of the trade.

A rather low transport component in the price of products is characteristic of exports from East Asia to Europe — at least 50 % of these shipments are such high-value cargoes as electrical machinery and equipment, engines, power plants, plastics, petroleum products, ferrous metal products, chemicals, cars, furniture, etc. The share of high value-added products in exports from Europe to East Asia is about 20 %[20].

From the presented analysis, it is possible to summarise at least the following conditions for the successful development of international transport corridors:

1) the sufficiency of infrastructure and quality of service on the route, including technical and technological capabilities for the transport of certain nomenclatures of goods;

2) the availability of harmonised legislation and absence of unproductive transactions in trade between countries, the number of which can be reduced both by simple cancellation and their digitalisation and automation;

3) a price level satisfactory to the participants of the transport process, which can also be achieved through non-market mechanisms;

4) conditions of balance of counter cargo flows on the basis of logistic principles (minimum empty equipment adjustments), otherwise the costs of empty equipment adjustments should be not very noticeable in the price of goods or satisfy their buyers (also related to the previous point);

5) the availability of large volumes of cargo base and prerequisites for trade turnover between trading states, which is a consequence of a wide list of factors of both geopolitical, economic and cultural nature;

6) the availability of a nominated transport organiser (it can be assumed that this is not a mandatory condition, however, when developing new interstate routes in conditions of uncertainty, participants of the transport process first of all turn to 'official' providers of services).

THE RESULTS OF TRANSPORT CORRIDOR POTENTIAL ASSESSMENT

Let's consider the development potential of each ITC through the prism of these conditions.

The freight base for rail transport in transit through Russia between East Asia and Europe will remain significant in the long term, and the development of such traffic will be subject to a number of risks and factors that are difficult to predict.

The key one will be the reduction of subsidies for freight transport to Europe by Chinese provinces and, according to some sources, the complete abandonment of this mechanism by the end of 2023[21].

The long-term operation of the subsidy mechanism has led to the formation of a stable pool of railway transport customers for whom the price of transportation is less important and the stability and speed of freight movement is a priority5. For this reason, the reduction of financial incentives will lead to the fact that land transit will be carried out along the most optimal route in terms of quality and price, for which the Central Eurasian route has the greatest claim (of course, within the limits of capacity). At the same time, railways will mainly transport cargoes that are least sensitive to the growth of transport costs (high value-added products) and most susceptible to the negative impact of natural factors when transported by sea (sea air and high ocean humidity).

In particular, such cargo will be automobiles and components for them, the growth of shipments from China to Europe in the first half of 2023 was about +60 % compared to the second half of 2022 or 2.5 times compared to the first half of 2022, which reflects the long-term trend of expansion of the Chinese automotive industry in the European market.

Despite this and the growth in world trade projected by many international organisations for 2024[22], the

[20] EU trade since 1988 by HS2-4-6 and CN8 (former content) // Eurostat URL: https://ec.europa.eu/eurostat/databrowser/product/view/ds-045409?category=ext_go.ext_go_detail

[21] Sam Whelan. It'll be 'quality not quantity' on China-Europe rail services as subsidies fade // The Loadstar. 20.12.2021. URL: https://theloadstar.com/itll-be-quality-not-quantity-on-china-europe-rail-services-as-subsidies-fade/#:~:text=He%20told%20The%20Loadstar%3A%20"China's,at%20a%20much%20lower%20level

[22] The global recovery is slowing amid widening divergences among economic sectors and regions // International Monetary Fund. URL: https://www.imf.org/en/Publications/WEO/Issues/2023/07/10/world-economic-outlook-update-july-2023

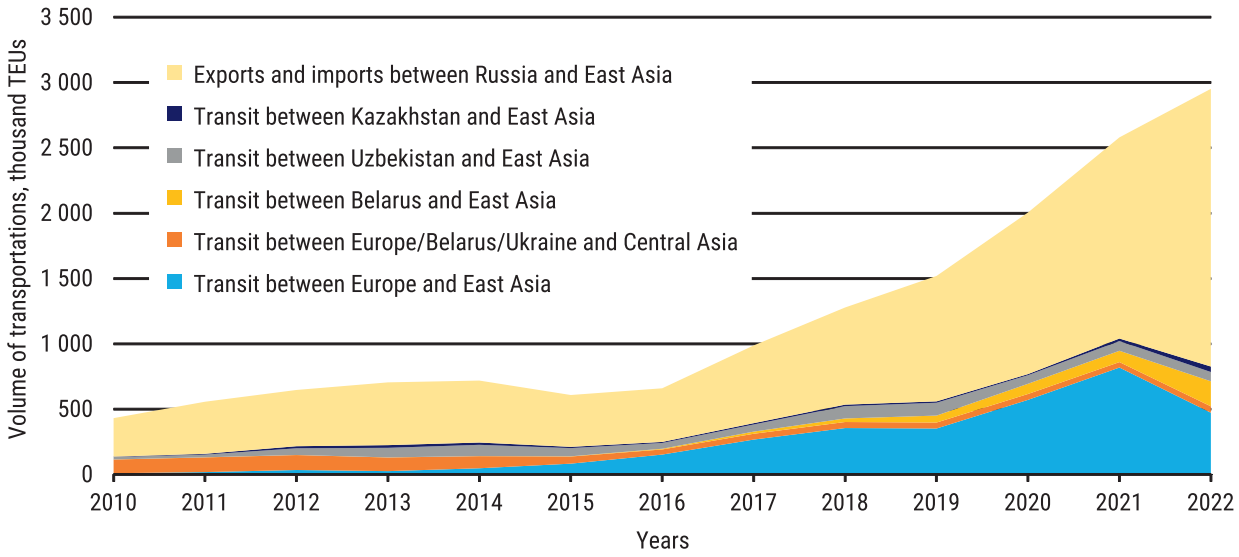

Fig. 4. Volume of East – West ITC traffic by main cargo flows[23]

risks for the development of trade between East Asia and Europe will remain, on the one hand, the reduction of effective demand in Europe and the reduction of economic and production potential of the region due to high energy prices (according to Bloomberg forecasts, the decline in EU GDP could be up to 5 per cent in 2024[24]), which will aggravate the situation with the imbalance of trade relations and rising transport costs, on the other hand — the slowdown of China's economy (according to the International Monetary Fund from 5.3 % in 2023 to 4.5 % in 2024).

Lack of prerequisites to increase freight rates to favourable rates for rail transport against the background of increasing capacity of the global maritime fleet[25] will also be a barrier to continued strong growth in East-West ITC traffic until 2021.

In this regard, the potential for further growth of transit between East Asia and Europe is extremely low, unless any of the parties to the transport process will not undertake radical non-market mechanisms to stimulate these transportations.

As a matter of fact, in the first half of 2023, the Russian operator business records a reduction in demand and traffic on the East – West ITC between the two macro-regions.

This, in turn, forces transport market players, including with the support of the Government of the Russian Federation, to look for alternative opportunities for the development of interstate transport.

At present, it is possible to group two visible vectors of endeavours:

- increasing the connectivity of Eurasian states to enhance trade across the mainland;
- development of transport services via ITC, independent from the transport infrastructure of 'Western' countries.

Thus, the lost traffic volumes on the East Asia – Europe – East Asia route were partially replaced by Belarus – East Asia traffic, and the East – West ITC infrastructure became more utilised for increased exports and imports between Russia and China (mainly through ports in the Primorsky Krai). The total volume of traffic along the corridor, irrespective of Russian restrictions, increased by 31 % in 2022 compared to 2021, when transit volumes between Europe and Asia were at their highest level ever (*Fig. 4*).

Given that the European market for Russian producers has closed due to sanctions, there are currently no other options for the use of this corridor, the volume of traffic along this corridor will continue to depend on the capabilities of the Eastern polygon infrastructure and the priorities of Russian Railways, JSC and the Government of the Russian Federation in the passage of certain nomenclature groups of cargo.

It should be noted that the volume of shipments from Belarus will also depend not only on the country's domestic production and the market potential for the sale of its products in East Asia, but also on the volumes

[23] The graphic representation was formed by the author on the basis of data of Russian Railways, JSC and other public sources
[24] Bloomberg warned of a 'painful reckoning' for the EU economy // RBC. Economics. 07.08.2023. URL: https://www.rbc.ru/economics/07/08/2023/64d07eec9a79476353fd865a
[25] Drewry reports 6 million TEU of surplus containers // Container News. 14.07.2022. URL: https://container-news.com/drewry-reports-6-million-teu-of-surplus-containers/

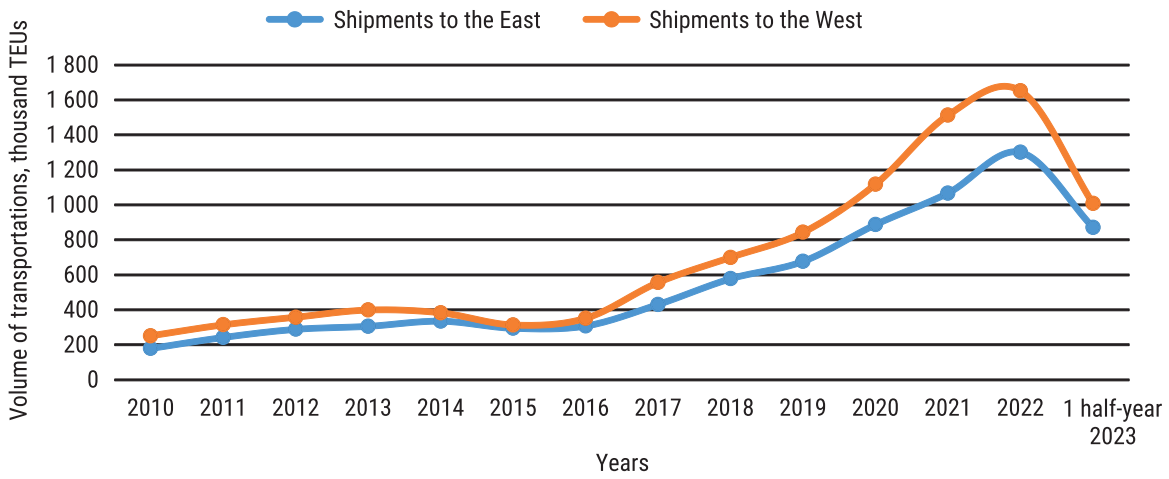

Fig. 5. East – West ITC shipments by direction (export, import and transit)[26]

of shipments agreed with the Russian side along the East – West ITC.

Despite the seemingly inexhaustible in the near future potential for increasing trade and transport volumes between Russia and China (potential growth by 2030 more than 2 times by 2022 in monetary terms [1]), the further development of container cargo traffic along the ITC 'East – West', in addition to expanding the capacity of the infrastructure of Russian Railways, JSC, will be affected by the following circumstances and risks:

- potential reduction of transport subsidies by Chinese provinces, which currently also applies to imports into Russia;
- weak ruble exchange rate, which makes imported goods less affordable for the country's population and, consequently, reduces demand for them;
- falling incomes of the population inside the country, which is a risk for further dynamic increase in sales of imported products (nevertheless, even in the conservative scenario of the Ministry of Economic Development's forecast for 2024, real disposable incomes of the population are growing[27], International agencies are also optimistic about Russia's economic growth prospects[28]);
- as previously mentioned, the decrease in the pace of China's development;
- increased transport costs due to the accumulation of equipment in the western regions of Russia, its local deficit in the east of the country and the need for empty adjustments, which is a consequence of imbalance of counter container flows (*Fig. 5*).

The problem of imbalance of counter cargo flows has become so urgent that Russian Railways, JSC has been forced since October this year to apply non-discriminatory access rules to westbound traffic, which previously applied only to eastbound traffic.

Against the background of the limited infrastructure of the Eastern polygon of Russian Railways, JSC, the development of the Northern Sea Route corridor, which is an alternative route to East Asia from the northern and central regions of Russia, could help resolve this problem.

The volume of container cargoes switched from Russia to China from other routes to deliveries via the Northern Sea Route only today amounts to about 280,000 TEUs or 4.1 million tonnes (primarily of enterprises of central and northern regions of Russia gravitating to the route) and the same scope of imports from China.

However, having a huge potential for filling the route with cargo from trade between Russia and China, the successful development of the Northern Sea Route ITC currently faces a number of obstacles in terms of the previously mentioned conditions.

The most critical is the weak technical and technological equipment of the route [2] and the impossibility of year-round navigation[29]. This results in insufficient quality of service and high cost of services, which will nevertheless be levelled out as Russia im-

[26] The graphic representation was formed by the author on the basis of data of Russian Railways, JSC and other public sources.
[27] Forecast of Social-Economic Development of the Russian Federation for 2024 and the Planned Period of 2025 and 2026 // Ministry of Economic Development of the Russian Federation. URL: https://www.economy.gov.ru/material/directions/makroec/prognozy_socialno_ekonomicheskogo_razvitiya/prognoz_socialno_ekonomicheskogo_razvitiya_rf_na_2024_god_i_na_planovyy_period_2025_i_2026_godov.html
[28] The global recovery is slowing amid widening divergences among economic sectors and regions // International Monetary Fund. URL: https://www.imf.org/en/Publications/WEO/Issues/2023/07/10/world-economic-outlook-update-july-2023
[29] Mikhailov A. In 2024 Navigation on the Northern Sea Route Will Become Year-Round // Rossiyskaya Gazeta. Economy. 17.06.2022. URL: https://rg.ru/2022/06/17/reg-szfo/v-2024-godu-sudohodstvo-na-severnom-morskom-puti-stanet-kruglogodichnym.html

plements its measures[30] and the States concerned, especially China.

At present, in the absence of non-market support mechanisms, the rate for transporting one universal large-capacity container via the Northern Sea Route exceeds the rate for a similar route via the East-West ITC by 2–2.5 times, which is a significant transport component in the price for such products as lumber and paper — the main cargo base of north-west Russia.

The solution would be to develop imports of expensive high-tech products from East Asia via the Northern Sea Route. This would allow maritime transport operators to balance their economies by shifting the cost of freight from the direction where the most sensitive to high transport costs commodity nomenclature is travelling to the direction where the cargoes are less sensitive to this, similar to the way it is currently arranged for maritime transport in communication between Europe and China (the freight rate for sending a container from Europe to China is on average 2–3 times lower than sending a container from China to Europe7). It can be assumed that companies from China are now operating under a similar scheme, setting up regular shipments of products via the Northern Sea Route[31].

Ultimately, an increase in shipments along this route will be possible after the task of reducing the cost of the sea shoulder (the share of expenses for maritime transport services along the Northern Sea Route in the comprehensive rate of the container operator is about 70–80 %) and, as a consequence, the rates of transport companies is solved.

The prospects of the North – South ITC with three routes — Western, Trans-Caspian and Eastern, to which a lot of attention has been paid recently, seem interesting.

This corridor passes through the territory of several countries (Azerbaijan, Kazakhstan, Turkmenistan, and Iran), is connected with two international corridors (Baku – Tbilisi – Kars and TRACECA), and also has access to maritime trade routes communicating with the Persian Gulf countries and India.

The western route through the Samur border crossing is the most heavily loaded at the moment, the share of its traffic in 2022 was about 85 % of all traffic along the North – South ITC, and due to a two-fold increase in volumes in January-September 2023 compared to the same period last year it reached 91 %.

The cargo base for the route is primarily the traffic in communication of Azerbaijan, Georgia and Iran with Russia and Belarus — the share of these container flows is about 95 %.

At the same time, the volume in communication with Iran is small, which can be explained by the lack of direct railway communication on the Astara (Azerbaijan) — Resht (Iran) section and the need to use road transport services.

An additional volume for the route is cargo flows between Russia and Turkey together with other countries, which follow the corridor 'Baku – Tbilisi – Kars' and TRACECA, namely through the port of Poti. Their share is the remaining 5 per cent.

It is important to note that the volume of trade of Russia and Belarus with Azerbaijan and Georgia is unbalanced for operators — only 2 % of containers can be filled with cargo, while the remaining 98 % are empty. The return of empty containers is included in the complex rate of operators for Russian companies, which allows sending expensive cargoes such as chemicals and ferrous metals, but affects the low dynamics of transportations of other nomenclature groups of cargoes and volumes of trade in containers.

In this regard, until the Astara – Resht section is commissioned, traffic volumes along the route will directly depend on containerised trade volumes between Russia and Belarus with Azerbaijan and Georgia.

The increase in traffic volumes via the Trans-Caspian and Eastern routes is developing at a slower pace due to both unprepared infrastructure32 and insufficient volume of counter cargo traffic, which does not allow for the formation of optimal logistics for operators.

The Trans-Caspian route appears to be the most optimal for the development of trade turnover between Russia and Iran, as it contains a small number of transport modalities, as evidenced by the steady increase in trade turnover along this route. Nevertheless, trade is not balanced — about 65 % of containers from Iran arriving via the Trans-Caspian route are empty.

While Russian enterprises have the potential to develop the Iranian market, shipments from this country to Russia are currently limited due to the incompatibility of the structure of the production forces of the two countries.

The main export items of both Russia and Iran are expensive but medium-sized products, including oil products, ferrous metals, plastics and products made of them. The orientation of the two countries towards supplies to East Asian countries, primarily China, has its imprint. Iran's industrial base allows it to ship small volumes of consumer goods, cars, chemical products

[30] The Order of the Government of the Russian Federation No. 2115-r dated 01.08.2022 'On Approval of the Northern Sea Route Development Plan for the Period until 2035 (as amended and supplemented).
[31] Telephones and Cars from China Travelled along the Northern Sea Route // Dvina-Inform. 01.10.2023. URL: https://www.dvinainform.ru/economy/2023/10/01/71520.html

and construction cargoes that are in demand in the Russian market. However, Russia's supply of such goods, both from its own industry and at the expense of China, does not allow for intensive development of counter trade[32].

A similar situation has also developed in transportations along the Eastern route through the Sarakhs border crossing.

When exporting in the direction of the Turkmen railway, having no return load, operators have to include in the rate the redeployment of empty fitting wagons, mainly to Kazakhstan for further shipment of containers along the Central Eurasian route of ITC 'East – West' with imports to the central regions of Russia. The cost of railway tariff for the specified empty wagon delivery by foreign railways is up to 30–40 % of the comprehensive export rate for Russian companies.

Significant growth in the volume of container transportations through the ITC 'North – South' is still observed and is caused, at least, by compliance with a number of previously noted necessary conditions:

1) ongoing work to eliminate transactions and the introduction of non-market mechanisms to stimulate transport volumes[33];

2) the availability of a major transport organiser on the route with a well-known 'brand', such as Russian Railways Logistics, JSC, and, in the future, the creation of a single operator[34].

The government's attention to the project's development and its political support play an important role.

Russia's trade imbalances with Azerbaijan, Georgia, Turkmenistan and Iran will be inevitable in the near future due to the fact that their economies are not comparable to Russia's industrial potential (*Fig. 6*).

In this regard, only a highly developed economy with a large market and industrial potential can be the most likely Russian trading partner capable of filling the North-South ITC infrastructure with the required amount of cargo. And India is such a partner.

More than 40 % of exported (in monetary terms) goods from India are containerised and potentially in demand in Russia, as evidenced by the overall trade structure of the two countries (*Table*).

At the moment, the volume of mutual trade between the two countries in containers is not at the highest levels — imports of containerised cargo account for less

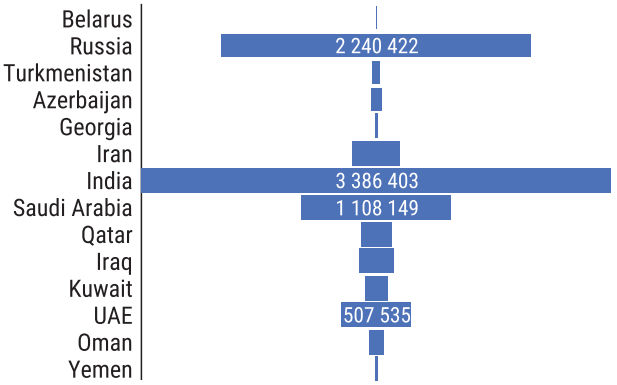

Fig. 6. Comparison of GDP of countries potentially traded using the North – South ITC in USD[35]

than 1 % of Russia's total imports, and exports to India from Russia just over 2 % of the country's exports. Nowadays, shipments mainly take place via the Southern Sea Route through the Suez Canal using the ports of Saint Petersburg and Novorossiysk and to a small extent through the ports of the Primorsky Krai.

Looking at the trade structure as a whole, Russia ranked 5th in India's imports at the end of 2022 with a share of less than 6 % (energy accounted for 84 % of all imports if this item is excluded — 26th and about 1 %), and 36th in exports and less than 1 %[32].

Therefore, the new shorter multimodal container route and the reduction of the transport component in the final price of the products of the two countries can become a significant factor in increasing trade.

A positive circumstance is the interest of the Indian business community in developing trade through the North-South ITC. In addition, India is interested in developing transit flows along the corridor towards Europe. The main focus is on the route using the port of Chabahar, which is the only deep-water port in Iran[36]. In addition to solving the tasks of creating acceptable price conditions and removing infrastructure barriers to the development of transit to Europe from India, there is a high probability of low volumes of counter cargo traffic from Europe to India against the backdrop of sanctions against Russia, which will only exacerbate the current unfavourable situation for operators with a surplus of equipment in the western part of Russia.

[32] Trade Map. URL: https://www.trademap.org/Index.aspx
[33] *Lobko V.* Through Service and Through Tariff. From 2023, Container Transportations along the North-South Corridor Will Become Even More Favourable for Consignors // Gudok. 30.11.2022. URL: https://www.gudok.ru/content/freighttrans/1621132/
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[35] GDP — Gross Domestic Product // countryeconomy.com URL: https://countryeconomy.com/gdp
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Table

Structure of Russia's Imports and India's Exports in Monetary Terms[32]

List of items	Russia's imports from all countries (2021), %	Exports to all countries from India (1 half-year 2023), %
Machinery and mechanical equipment	19	6
Electrical machinery and equipment	13	7
Transport vehicles	9	5
Pharmaceuticals	5	5
Plastics and plastics products	4	2
Optical and measuring instruments	3	1
Iron or steel products	2	2
Organic chemicals	2	5
Furniture and accessories	1	1
Rubber and rubber products	2	1
Essential oils and rubbers, perfumes	1	1
Clothing and clothing accessories	3	4
Other chemicals	1	2
Inorganic chemicals	1	1
Ships, boats, etc.	2	1
Footwear	1	1
Paper and cardboard; articles made of paper pulp, paper or cardboard	1	1
Fish and crustaceans	1	1
Oil seeds and oily fruits	1	1
Tannin or colouring extracts, dyes	1	1
Other	28	54

In view of the largely commodity-based structure of the Gulf economies[38] the development of transport in the coming years will potentially be possible only in the export direction from Russia, and therefore the development of logistics through the North-South ITC with these countries will inevitably face the problems typical for the countries of the Transcaucasus and Iran — the lack of sufficient back-loading and the resulting high cost of transport costs for Russian shippers.

CONCLUSIONS

The dramatic growth of the East-West ITC was possible solely due to subsidies and political will of China, and this experience of creating favourable conditions seems to have little transferability to other corridors.

The East – West ITC will continue to be a key corridor for Russia in the near term, and therefore it should receive the most attention from the government and transport industry players in terms of technical and technological development.

The Northern Sea Route can become a complement to the East – West route, but only if many technically challenging tasks are solved to reduce freight costs. As practice has shown, the establishment of regular container shipments along the route is economically feasible for high value-added cargoes under conditions of cost compensation (actually subsidisation) for counter cargo traffic with inexpensive cargoes.

No matter how significant the plans to expand the infrastructure of the North –South ITC are, the development of economic and industrial relations between the countries it links should remain ahead of the rest. Without a balance of mutual cargo flows, the optimal transport logistics for container operators and the costs of these logistics for their customers will not be formed.

The solution to these issues will be the development of complex industrial globalisation projects in the con-

tour of Eurasia, allowing to use the strong geographical, scientific-industrial and social sides of one or another country. Another option could be the creation of large logistics hubs, for example, on the borders of Azerbaijan and Turkmenistan with Iran, where cargoes will be consolidated for further shipment by regular container trains on the 1,520 mm gauge.

The establishment of large volumes of trade between Russia and India, which will be crucial to the future success of the North – South ITC project, has significant and undiscovered potential.

For all countries involved in freight transport along the above-mentioned corridors, the key issues for the next few years will remain the issues of infrastructure development and significant investment both in this construction and in the industrial potential of their own economies. Not to mention the elimination of barriers in the so-called 'soft' infrastructure of ITC (across-the-board tariffs and coordinated tariff policy independent of currency fluctuations, settlement and insurance mechanisms, digitalisation and automation of processes, etc.).

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