

RAIL CONTAINER TRANSPORTATION IN EURASIA IN THE FIRST HALF OF 2021

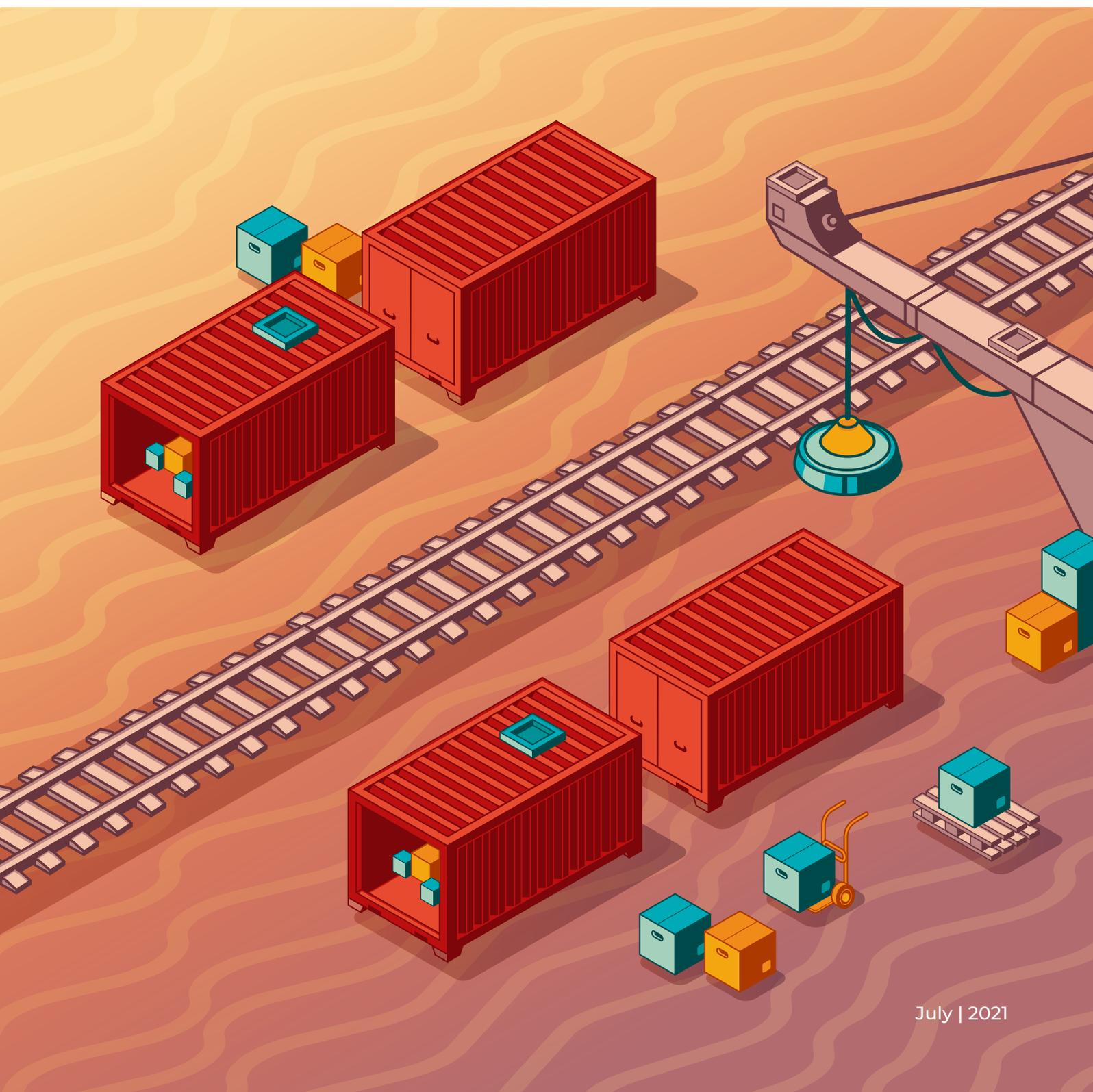


Table of contents

—	At a Glance: To Maintain and Further the Achieved Results	2
—	Summary	3
—	EU-China Mutual Trade and the State of the Cargo Transportation Market	4
	Economic Recovery Boosts EU-China Trade.....	4
	Issues with Maritime and Recovery of Air Cargo.....	5
—	Status of the Eurasian Railway Corridor in the First Half of 2021	7
	Cargo Transportation Key Indicators and Cargo Volumes Growth.....	7
	Cargo Base Diversification and Tendency for Full Train Utilization.....	9
	Geographic Expansion of Rail Cargo Transportation.....	11
	Position of the Eurasian Corridor and Alternative Routes.....	12
—	Outlook for the Second Half of 2021	13

AT A GLANCE: TO MAINTAIN AND FURTHER THE ACHIEVED RESULTS

In the first half of 2021, 336,598 Twenty-Foot Equivalent Units (TEUs) were transported along the Eurasian railway transit route in the China–Europe–China direction, which is 50% more than in the first half of 2020. The network of routes was rapidly expanding, and the number of routes increased by 59.

In 2020, the pandemic, which led to disruptions in supply chains, congestions at ports and a sharp increase in maritime freight rates, as well as a severe reduction in air cargo transportation, drove the growth of Trans-Eurasian railway transportation. In 2021, notwithstanding some pessimistic estimates, the modal shift has continued bringing more cargo flows into rail services. Currently, the Eurasian railway transit not just maintains but furthers its competitive position against alternative types of cargo transportation.

Both the situation on the maritime freight market, marked with record freight rates, and the strategic activities aimed at increasing the train-handling capacity of the Eurasian transit route are benefitting Eurasian rail transit. In 2021, a new terminal of DTT LLP was [put into operation](#) in the immediate proximity of Dostyk station, which will boost capabilities of the corridor on the Kazakhstan-China border. Multimodal transit routes through the ports of the Kaliningrad region are also undergoing rapid development, thus boosting overall corridor capacity on the Western side.

The safety of transportation is one of the key criteria that cargo shippers are guided by when choosing a mode of transportation. At present, digital solutions aid rail transport in setting new quality and safety standards for China–Europe–China transit. For example, in the first half of the year, [the Guard Train](#) project was launched, that was designed to further increase the safety of cargo transportation through the use of intelligent sealing systems.

In the first half of 2021, the cargo nomenclature continued to expand. For a long time, the dominant goods for transportation along the Eurasian route were mechanical equipment, computers, electrical devices, vehicles. Currently, over 100 types of cargoes follow on the route and the cargo structure has become considerably more diversified.

All new competitive advantages gained by the railway will allow it to maintain and further the achieved results. The Eurasian railway transit route sustainability has been proved. Not only transport and logistics companies are the beneficiary of the achieved success of the route, but also the entire space of the 1520 mm track gauge. The route development attracts investments and creates growth points in the Eurasian space.

SUMMARY

- 1.** The Eurasian railway transit route is the key rail corridor in the China–Europe–China container trade. In the first half of 2021, the Eurasian route accounted for 86.9% of the transported TEUs broken down by border crossings.
- 2.** Container volumes transported along the Eurasian railway route amounted to 336.6 thousand TEUs, which is 50% more than in the same period last year. The average number of train departures per day increased from 10.6 trains in 2020 to 15.3 in 2021 year over year, and train loading increased up to 115 TEUs. However, the capacity limitations led to a slight increase in transit time up to 6.84 days, which is higher than the level of 2020, but close to the indicators of previous years.
- 3.** Mechanical equipment and machinery, electrical devices, vehicles account for 46% of the cargo volumes. However, the share of these products is gradually decreasing because of the diversification of the cargo nomenclature.
- 4.** The share of empty containers on the route dropped to a record 6%, and in the Europe-China traffic decreased to 14%, which is the lowest recording throughout the corridor's history of operations.
- 5.** In the first half of the year, 59 new routes were added to the route network, 15 of which are eastbound and 44 are westbound. The development of multimodal transportation from the Kaliningrad transport hub is enjoying particular interest.
- 6.** The economic recovery of the European Union and the development of the Chinese economy contribute to the growth of mutual trade. Notwithstanding the continuing imbalances in trade flows (a significant negative balance of the EU in trade with China), the economic situation favors Trans-Eurasian rail transit cargo transportation.
- 7.** In the first half of 2021, railways once again established themselves as a faster and more reliable alternative to maritime transport. In June 2021, maritime freight rates renewed another record, rising to \$ 7,400 per Forty-Foot Container Equivalent Unit (FEU) amid disruptions at ports in South China and widespread container equipment shortages.
- 8.** The confident recovery of air transport may conflict with the lack of belly capacity, which still has not been put back on after a sharp drop in 2020. This allows railways to compete with air transport in the e-commerce transit segment.

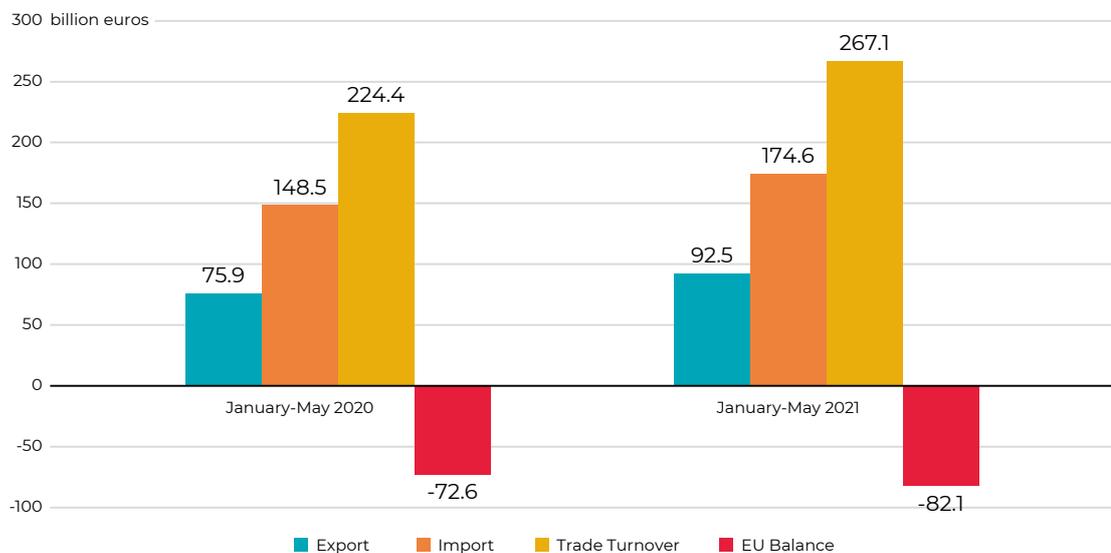
EU-CHINA MUTUAL TRADE AND THE STATE OF THE CARGO TRANSPORTATION MARKET

Economic Recovery Boosts EU-China Trade

Last year, China became the only major economy to maintain positive GDP growth rates (+2.3%). The steady-state economic situation and successful adaptation to the economy specifics during the coronavirus spread allowed China to become the major trading partner of the EU in 2020. To date, both economies have entered a phase of recovery and growth.

The trade turnover of bilateral EU-China trade, that is the grounds for Trans-Eurasian transit, **grew** by 19% for the first five months, and reached 267.1 billion euros in May 2021. The negative balance of the EU in trade with China increased to 82.1 billion euros (+13%), notwithstanding the advanced growth in exports to China (about 22%) over imports.

TRADE OF THE EU WITH CHINA FOR THE FIRST 5 MONTHS OF 2021



Source: Statistical Office of the European Communities

The current situation gives evidence of a favorable trade and economic situation for the cargo traffic of the Eurasian route. In addition, the advanced growth rates of the EU exports to China over imports contribute to some levelling out of imbalances in trade flows. According to the results of the first half of the year, the volume of loaded containers from Europe to China showed significant growth, which amounted to 80%.

As detailed in the analysis carried out by ERAI analysts, the export of Germany and the Benelux countries to China has several commodity groups with a high potential for transferring to cargo transportation by rail. In the case of Germany, these are timber products, metal products, certain categories of vehicles and food products (baby food, pet food). In the case of the Netherlands and Belgium, these are equipment and products for the semiconductor industry, pharmaceuticals.

Issues with Maritime and Recovery of Air Cargo

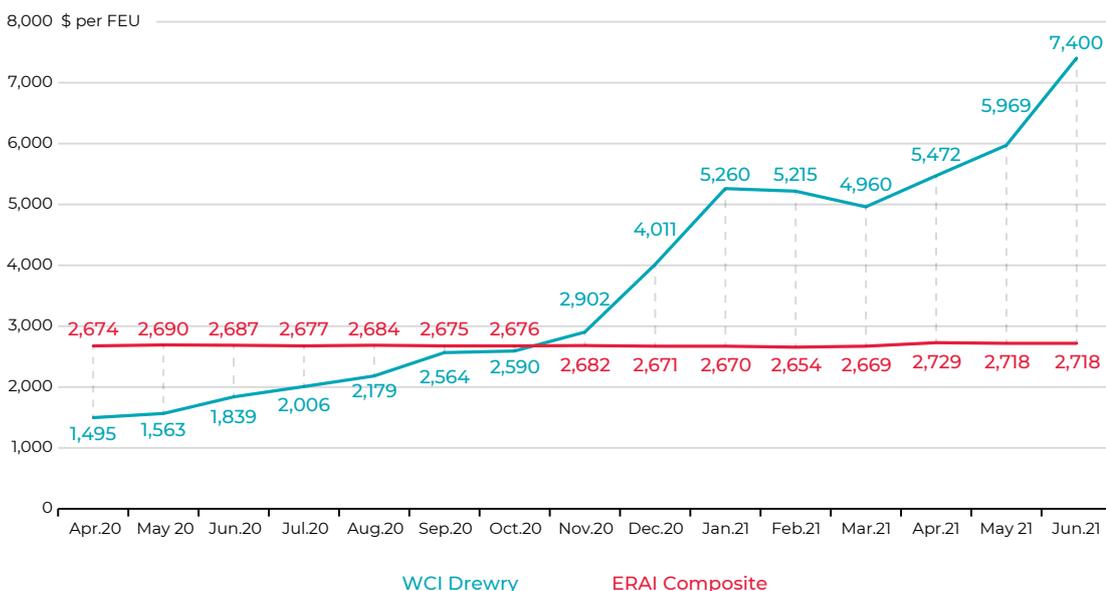
The condition of other modes of transport, maritime and air, is an external factor affecting the growth of Eurasian rail cargo volumes. During the coronavirus crisis, rail transportation established itself as a faster and more reliable alternative to maritime transport.

To date, the crisis in maritime logistics is a significant driver of modal shift in favor of rail. According to the dynamics of the ERAI index, which shows the rate of transportation of a 40-foot container by rail, and the WCI Drewry index, which reflects the cost of maritime freight, maritime cargo transportation is still undergoing a crisis mode.

Since April 2020, a consistent increase in rates for maritime container cargo transportation began against the backdrop of logistics disruptions due to anti-coronavirus restrictions. By October 2020, for the first time, maritime freight rates and the ERAI levelled. And already in November, the WCI Drewry index surpassed the ERAI Composite index: \$2,902 per FEU against \$2,682. Having decreased to \$4,960 per FEU in March 2021, maritime freight rates continued to grow, surging up to \$7,400 per FEU amid the continued container equipment shortage and port congestions.

The stability of the rail cargo transportation rate became a significant competitive advantage and stimulated an accelerated modal shift in favor of rail transportation in the China–Europe–China trade in the first half of the year. In June 2021, maritime freight rates stood at about 390% higher year over year, whereas the rates of rail transit only showed 2% increase respectively.

DYNAMICS OF THE ERAI COMPOSITE AND WCI DREWRY INDICES



Source: Statistical Office of the European Communities

An additional benefit of the railway is that maritime carriers use the present situation to increase profits. According to Lloyd's estimates, in the first half of 2021, the main maritime carriers earned a significant sum equal to \$16.2 billion. According to Drewry's estimates, by the end of 2021, the pre-tax profit of maritime carriers could reach **up to \$80 billion**, which is an exceptional result for the industry.

Hereafter, maritime freight rates are likely to start its reduction, however, based on expert estimates, the effect of the disruptions that have occurred will continue for 2-3 quarters, provided the there are no new crises.

Air cargo transportation is in the active recovery stage. According to the International Air Transport Association (IATA), in the second quarter of 2021, the air freight volume in ton-kilometers increased by 8.4% compared to the same period in 2019. Spring of 2021 was a period of market recovery and advanced growth. The revival in the economy and the new economic cycle, which led to an accelerated replenishment of warehouses by manufacturers, became the core driver. Further growth in air transportation will depend on the recovery rate of transportation capacities, a significant part of which was retired because of cuts in expenditures by companies in the crisis year of 2020.

Regarding Eurasian rail transit, the unfolding situation in air transport may contribute to a shift towards rail, for example, for cargo shippers of the cross-border e-commerce sector. Air transportation is currently the mainstay of e-commerce, but railway alternative, which is cheaper and more comparable in delivery time, becomes increasingly more competitive.

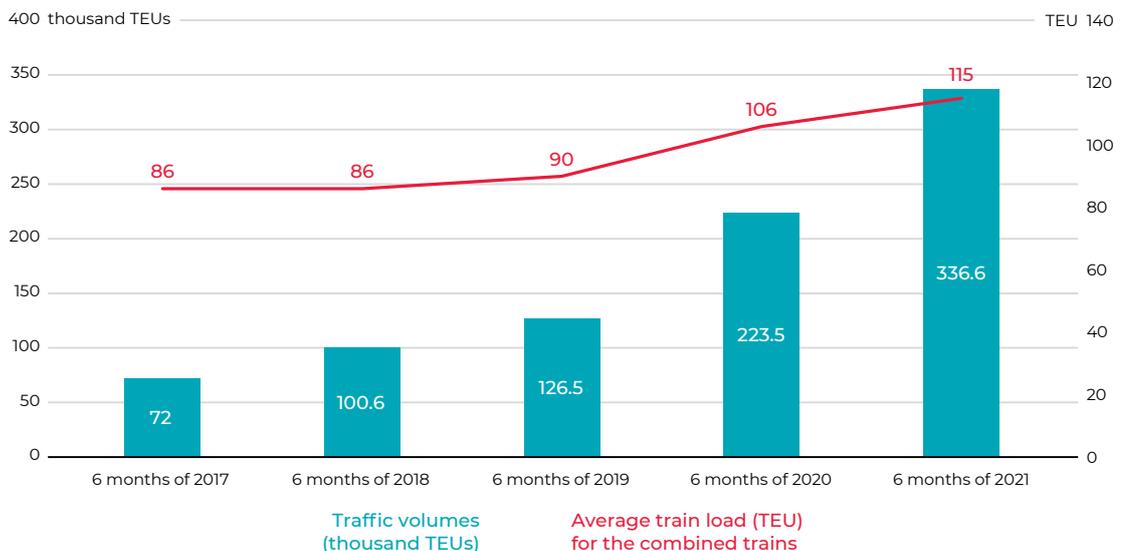
STATUS OF THE EURASIAN RAILWAY CORRIDOR IN THE FIRST HALF OF 2021

Cargo Transportation Key Indicators and Cargo Volumes Growth

Stable pricing and reliability of rail cargo transportation, coupled with other factors, have led to the renewal of transportation records on the Eurasian railway transit corridor. As of the first half of the year, the volume of goods transported along the Eurasian railway route amounted to 336.6 thousand TEUs, which is 50% more year over year. In the first half of the year, 135.4 thousand TEUs proceeded eastbound and 201.2 thousand TEUs proceeded westbound. Namely, 60% of the containers went to the west and 40% – to the east.

The increase in transportation volumes has led to a more efficient use of traction equipment. When comparing half-year to half-year of 2017 and 2021, the average train load increased by almost 60% (from 86 TEUs per train to 115). Such statistics show that external factors, as well as the well-organized work aimed to improve the operational efficiency of the corridor, became a guarantee for such an impressive growth in container volumes.

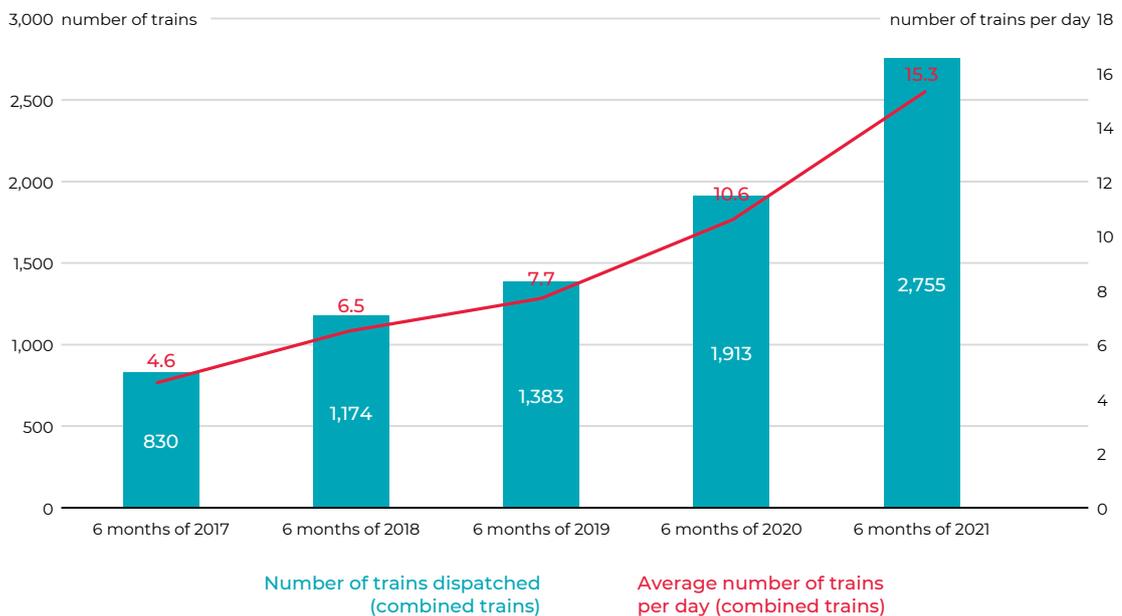
TRAFFIC VOLUMES AND TRAIN LOADING



The number of trains dispatched (combined trains) continued to grow as well, which is a direct result of increasing cargo volumes. In the first half of the year, 2,755 trains were dispatched, which is 44% more than in 2020 and 99% more than in 2019, in the same periods. In addition, the average number of train departures per day has also increased from 10.6 trains in 6 months 2020 to 15.3 in 6 months 2021.

The continuing increase in demand from consignors for transportation on the Eurasian railway route and the increase in volumes raises the question of the possibilities and train-handling capacity of infrastructure over the long term. In the first half of the year, the key operator of the Eurasian route used the new terminal of DTT LLP near Dostyk station to increase the train-handling capacity for transshipment of containers on the 1520 mm track gauge.

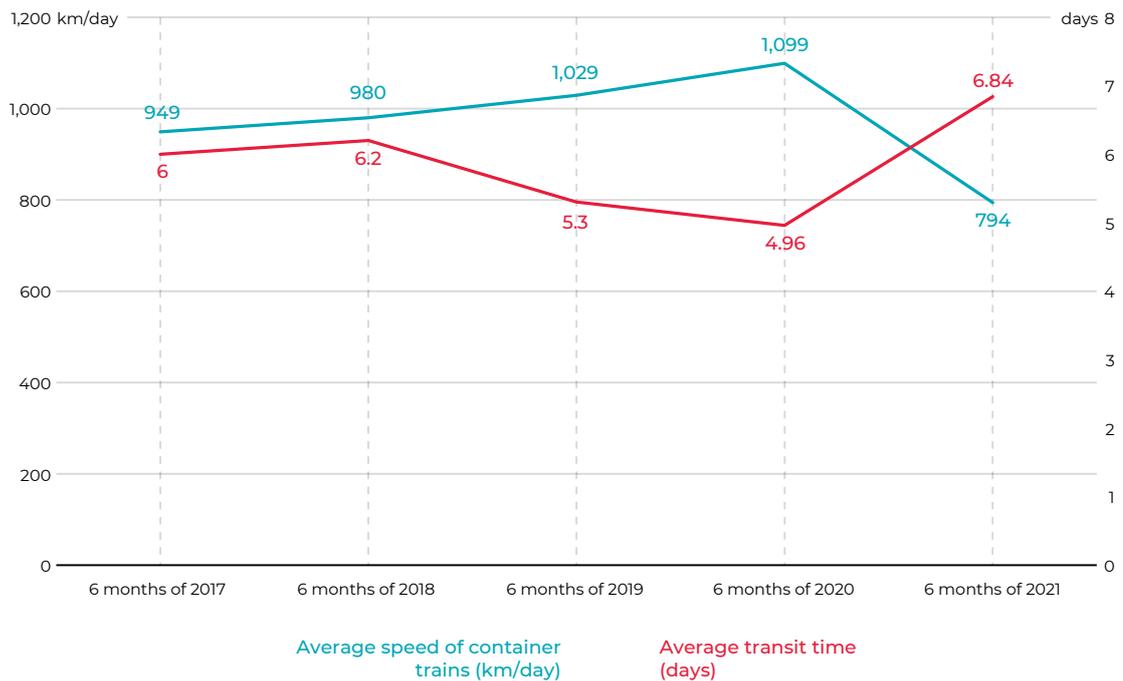
NUMBER OF TRAINS DISPATCHED



The vigorous growth in traffic volumes on the Eurasian route led to a corresponding increase in the load on the infrastructure of the 1520 mm railway space and, consequently, to a certain drop in average speed of container trains and an increase in the average transit time. In the first half of the year, the speed of trains was 794 km per day, which is lower than the levels of previous years. The key limiting factor was the limited capacity at the border crossings, where gauge switch occurs.

The average transit time increased to 6.84 days, which is significantly higher than it was in the first half of 2020 (4.96 days). However, it is not much higher than the indicators of 2017 and 2018, which were also about 6 days.

SPEED AND TRANSIT TIME



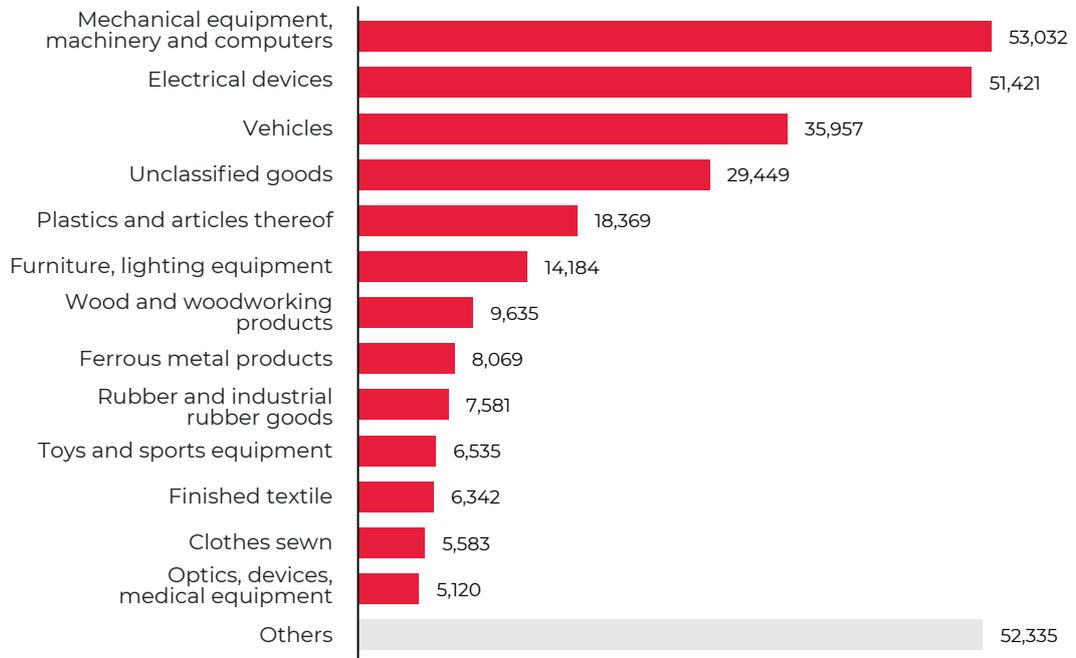
Cargo Base Diversification and Tendency for Full Train Utilization

In the first half of 2021, goods belonging to 86 categories of the Harmonized System (HS) at the two-digit level were transited on the Eurasian route. According to the ERAI web-portal statistics section, the main goods transported on the Eurasian route in the first half of the year were mechanical equipment, machinery and computers (53 thousand TEUs), electrical devices (51 thousand TEUs), vehicles (36 thousand TEUs). In the early stages of the route development, these goods asserted 80% of the cargo volume. At present, their combined share is around 46%.

The group of unclassified goods (29 thousand TEUs) is followed by plastics (18 thousand TEUs), furniture and lighting equipment (14 thousand TEUs), wood and woodworking products (9 thousand TEUs), ferrous metal products (8 thousand TEUs).

Among the groups represented, in the first half of the year, rubber and industrial rubber goods showed the greatest growth (+75%). Significant growth rates should be also noted in mechanical equipment and machinery (20%) and ferrous metal products (21%).

CARGO NOMENCLATURE 1ST HALF OF 2021, TEU



If we compare the current cargo structure with the same period in 2020, we can note the cargo nomenclature diversification. The mechanical equipment share in the cargo traffic structure decreased from 19% to 17%, the share of electrical devices – from 18% to 17%. Wood and woodworking products, rubber and industrial rubber goods (7 thousand TEUs), toys and sports equipment (6 thousand TEUs) moved several positions up.

In the first half of the year, the share of empty containers continued to decline, following the tendency for full capacity utilization. Only 6% of containers passed the route empty, that became a new record. Earlier, in 2017 and 2018, almost a quarter of containers ran empty.

Geographic Expansion of Rail Cargo Transportation

In the first half of 2021, the Eurasian transit railway route network welcomed 29 new locations, 11 of which are in Europe (Felixstowe, Wilhelmshaven, Amsterdam, Busto-Arsizio, Immingham, Katowice, Colin, Fredericia, Paris, Rostock, Shushary), and 18 are in China (Dongjiazhen, Rizhao, Lanzhou, Xuzhou, Xiayuan, Wuwei, Wuyishan, Jiaozhou, Qingdao, Yantai, Bangda, Xinjiang, Dalang, Dongguan, Jinan, Shenyang, Yuergou, Taiyuan).

In total, 59 new routes were added to the transport network, 15 of which are eastbound and 44 are westbound. As the Eurasian rail corridor develops, it unites an increasing network of routes, locations and partners in various countries.

Chongqing-Malasheviche (>25 thousand TEUs), Xi'an-Malasheviche (>10 thousand TEUs), Xi'an-Duisburg (>10 thousand TEUs), Yiwu-Malasheviche (>10 thousand TEUs), Chengdu-Tilburg (>10 thousand TEUs) became the key westbound routes in the first half of 2021.

For eastbound routes, at the top were Hamburg-Zhengzhou (>15 thousand TEUs), Sassnitz-Xi'an (~8 thousand TEUs), Malasheviche-Chongqing (~8 thousand TEUs), Gent-Xi'an (~8 thousand TEUs), Duisburg-Yiwu (~8 thousand TEUs).

Europe-China	Ranking*	China-Europe	Ranking*
Hamburg-Zhengzhou	1	Chongqing-Malasheviche	1
Sassnitz-Xi'an	2	Xi'an-Malasheviche	2
Malasheviche-Chongqing	3	Xi'an-Duisburg	3
Gent-Xi'an	4	Yiwu-Malasheviche	4
Duisburg-Yiwu	5	Chengdu-Tilburg	5

*-Ranked by associated TEU volumes

The Kaliningrad region was critical to the expansion of services along the China-Europe-China rail container trade. Kaliningrad's location allows cargoes to flow further to Northern Europe (through the ports of the Kaliningrad region via short sea): the Scandinavian countries and the ports of Germany. The development of a multimodal transit route with key players like DB Cargo, TE Bahnoperator, Mukran Port Terminals and Belintertrans Germany increases the geographical reach of deliveries, as well as the cargo base of the corridor. For 6 months of 2021, the traffic volume through the ports of the Kaliningrad region amounted to 39,958 TEUs against 4,802 TEUs for the same period last year (+732%).

In a period of increased load on the infrastructure of the Eurasian route, the Kaliningrad region and respective regional border crossings are critical in regulating the throughput and transportation capabilities of Eurasian railway transit. On the one hand, a significant increase in traffic volumes gives evidence of the establishment of Kaliningrad as a key transit point, and, on the other, shows that the service through Kaliningrad is not inferior to other key crossings on the western side of the 1520 mm space.

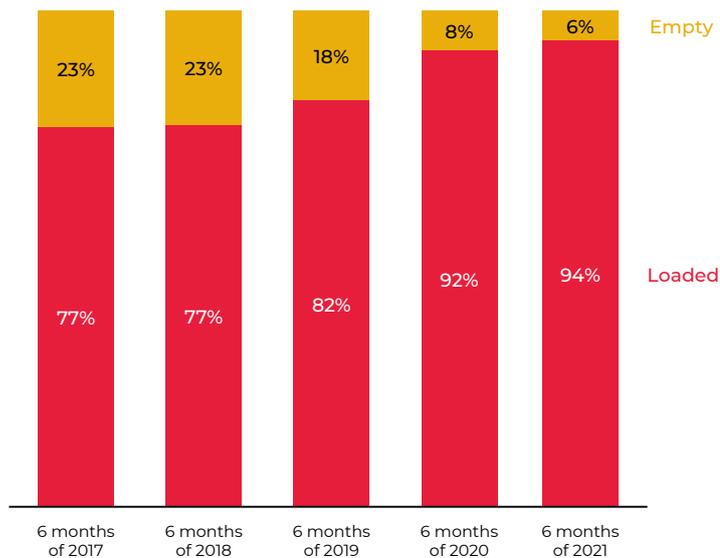
Position of the Eurasian Corridor and Alternative Routes

The Eurasian rail transit corridor (the corridor via Belarus, Russia and Kazakhstan) is the main rail passage in its respective niche. In the first half of 2021, the Eurasian corridor accounted for 86.9% of all TEUs transported in the China-Europe-China rail container transit.

Compared to the same period last year, despite an increase of 54.9%, the Eurasian corridor's share decreased by 4.2%, although it remained dominant. The second most used corridor is via Naushki, which grew substantially in 2021 primarily due to the low base effect (from 7 thousand TEUs to 22.5 thousand TEUs (6.4%)). The third position is held by the border crossing Zabaikalsk with 21 thousand TEUs (5.9%) in the first half of 2021 (+77.6%).

Other directions, namely, the Far East corridor, handled around 2.9 thousand TEUs in total in 2021, which is only 0.8% of all containers transported.

SHARE OF THE MAIN CORRIDORS IN THE CHINA-EUROPE-CHINA RAIL CONTAINER TRANSIT



OUTLOOK FOR THE SECOND HALF OF 2021

The Eurasian rail container transit hit new major records in the first half of 2021 because of efforts of all the stakeholders coming to fruition and the shifts in consignor preferences, the rail's public image has been on the rise. Also, the issues competitive modalities are facing have also played to the benefit of the rail. The competitive advantages of railway transport, backed by the solid reputation of the Eurasian railway route developed over the last several years, are the key success factors throughout 2021.

In the second half of the year, improvements in operating efficiency are expected to become new drivers of the route's competitiveness. The use of intelligent sealing systems (ISS) is promising, as they raise the safety and security of deliveries to a new level due to implementation of a system of rapid response to the penetration or theft of cargo, whereas also transmitting data regarding transit, like container location, current speed, cargo condition if applicable, etc. To note, 99,9999% of cargo has been safely moved via the Eurasian corridor's rail services in the last 5 years, hence the new technology would ensure for this metric to converge even closer to 100%. The combination of coordinated actions of [partners in the system's implementation](#) will provide another competitive benefit both for the Eurasian corridor.

The environmental friendliness of railway transport will become increasingly important over the years. The international environmental summit on combating climate change (the largest one within five years) will be held in the second half of 2021, that will, most likely, lead to a new round of struggle for decarbonization of road, maritime and air transport. New regulation at the EU level, as well as the prospects for the inclusion of all modes of transport in the emission trading system, will increase costs for the modalities mentioned above.

Transportation of agriculture and food products by rail continues to great potential. Because of the sanction restrictions imposed by China on the import of goods of certain categories via rail, this cargo segment is currently underrepresented in the nomenclature of Trans-Eurasian railway container transit. However, the «sanctioned» cargoes are still an excellent growth point, as the service is fully fledged which is confirmed by the successful test shipments last year and also numerous shipments in 2021. Hence, once the restrictions are to be lifted by the Chinese side, agriculture and food products would provide a significant upside in terms of container volumes.