Rail Baltica

Rail Baltica in Economic Focus

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Bringing you the latest insights about the Rail Baltica project, its macroeconomic impact and the relevant trends in the industry

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"The inaugural newsletter highlighted turbulences in construction market and navigated through changes in passenger and freight transportation. Continuing to follow macroeconomic development trends and Rail Baltica being part of the picture, it is with great satisfaction that we introduce the second edition of the newsletter, aimed at consistently keeping our partners and project enthusiasts well-informed and engaged."

Summaries

01 Understanding the needs of future passengers

This article is about the evolving needs of passengers in future, emphasising the shift toward appreciation of "time well spent" when people are travelling. This particularly applies to Generation Z. The article highlights the role of technology in facilitating productive commutes, as well as the need to align rail services with digitally native expectations.

02 Fluctuations in the cost of materials and construction: Mid-term trends holding steady

Fluctuating prices for construction materials and energy resources can lead to cost increases and delays. It is vital to monitor such changes, particularly when dealing with megaprojects such as Rail Baltica, so as to ensure cost management, risk reduction, timeline adherence, contracts and communication with stakeholders. 2023 producer price indices for materials and energy show consistent midterm trends, sometimes featuring steady increases or decreases. Regional differences among the Baltic States in terms of price trends and complex material cost dynamics are identified.

03 How much freight is carried by rail in the Baltics

The significance of the Baltic rail network in the transportation of transit goods has changed during the past decade. This has to do with changes in consumer behaviour, business growth, E-commerce and energy priorities. This article examines the changing landscape of cargo rail traffic in the Baltic States, focusing on how these shifts have affected transportation patterns. Amidst all this, the role of rail in inland freight traffic is undergoing transformation throughout the region. The article explores the shifting trends and what they mean for rail transportation in the Baltic States.

04 Communication with the market helps to minimize the risks ahead

Large scale infrastructure projects are not isolated from macroeconomic and geopolitical shocks which may result in cost overruns, delays, failed tenders, and other potential problems. In this article we focus on communication with the supply market as one of the risk mitigation measures. Engagement with suppliers through surveys and interviews allow to receive first-hand information and thus support informed decision making.

Image source: Shutterstock

01 Understanding the needs of future passengers

Rail Baltica will substantially reduce distances within the Baltic States and the rest of Europe. Modern, high-speed rail connectivity will provide for a comfortable, safe, and environmentally friendly alternative for passenger mobility whilst also improving the quality of rail journeys. Although it is certain that the importance of these aspects will only increase over the course of time, the fact is that some level of speculation is needed if we want to forecast the specific needs of future railway passengers during the next decade and beyond.

The primary advantage of new transport infrastructure projects usually relates to the amount of time that is saved when travelling. This means that there is justification in investing in projects which focus on this.[1] It is no secret that people who commute from one place to another often choose the cheapest, fastest, and most reliable form of travel.[2] The assessment of time travel utility these days has changed all around the world.

If railway services are to offer a competitive alternative to other forms of transportation, then they are to allow passengers to experience door-to-door travel time in a relaxed and pleasant manner.[3] This hypothesis is probably universal among all generations of people, but in this article we will try to outline a few areas in which passenger needs and expectations may evolve in future as new generations take on increasingly important economic and social roles.

> The good journey is not solely about time well saved, but also time well spent.

[1] Lee, S., Chul Kim, G. Kook Wu, S. and J. Oh (2019). "Influence of ICT on Public Transport Use and Behaviour in Seoul," *ITF Roundtable Reports*, No 176. See www.itf.oecd.org/influence-ict-public-transport-use-and-behaviour-seoul

[2] Hagen, M. and N. Oort (2019). "Improving Railway Passenger Experience: Two Perspectives," *Journal of Traffic and Transportation Engineering*. 7.10.17265/2328-2142/2019.03.001.

[3] *Ibid.*

The industry's ability to adapt to changes and relevant technological developments is vital in ensuring a great modal shift toward more sustainable transportation. The European Commission has an action plan aimed at boosting long-distance and cross-border passenger rail services among other forms of transport. This emphasises the importance of digitalisation, more user-friendly ticketing and access to the rail system, as well as sustainable transport modes which are an attractive option for young people.[4] As Gen-Z people continue to mature, for instance, railway services and other industries will have to adapt so as to cater to their specific expectations and needs in future.

> **Gen-Z is the first generation to grow up entirely in the digital age, so they are likely to expect extensive digital integration in railway services.**

Scholars argue that improving the quality of a customer's journey involves not just the amount of time saved by the traveller, but also the time well spent.[5] The survey "Britain's Railway: What Matters to Passengers?" was conducted by Transport Focus in 2022, and it supports this argument by showing that future customers from Gen-Z and millennial generations will prefer services which allow them to spend more time on things that they enjoy. These young people will appreciate services that are digitally enabled, sustainable, seamless, and integrated across their entire journey.[6] The industry must be aware of the fact that younger people tend to prioritise flexibility in their lifestyles. This means that in future decades, there will have to be a firm perspective about the basic qualities of a journey by train, including issues such as safety, reliability, cleanliness, and speed. This might be enough to satisfy passengers, but it will not create happy ones.[7]

Perceptions about travel time are already shifting toward the idea that the journey should involve both enjoyable and productive activities.[8] Several recent studies have shown that an ability to engage in other activities whilst travelling correlates with changes in perceptions about the value of the time that is spent travelling.[9] This trend is likely to expand as younger generations take on a more significant role in society. The progress and widespread use of information and communications technologies (CT) have enabled easy access to a variety of on-demand goods and services. This allows passengers to engage in work, studies or other activities while riding in public transport.[10] It is also true that young people are increasingly relying on technology to make their way across various modes of transportation, to find destinations, and to check on traffic conditions.[11] Therefore, it is crucial to consider the preference of passengers to enjoy easy commuting and travel-based multitasking. It is already important today to ensure that future railway services will attract young people. This may mean that more emphasis will be needed in terms of providing accurate and timely information about departure times, availability of seats on board, easy links to other trains and public transportation services, as well as reliable Wi-Fi and mobile reception throughout the voyage by train. Gen-Z is the first generation to have grown up entirely in the digital age, and these young people are likely to expect extensive digital integration in railway services. This includes seamless online ticketing, real-time

[4] EC (2021). New Action Plan: Boosting Long-Distance and Cross-Border Passenger Rail. See transport.ec.europa.eu/news-events/news/action-plan-boost-passenger-rail-2021-12-14_en.

[5] Hagen, M. and N. Oort (2019). "Improving Railway...", *op.cit.*

[6] *Transport Focus* (2022). "Britain's Railway: What Matters to Passengers." See www.transportfocus.org.uk/publication/britains-railway-what-matters-to-passengers.

[7] Hagen, M. and N. Oort (2019). "Improving Railway...", *op.cit.*

[8] Calastri, C., Pawlak, J. and R. Batley. "Participation in Online Activities While Travelling: An Application of the MDCEV Model in the Context of Rail Travel, *Transportation*, No 47 (2002), pp 61-87. See doi.org/10.1007/s11116-021-10166-8.

[9] *Ibid.*

[10] Lee, S., Chul Kim, G., Kook Wu, S., and J. Oh (2019). "Influence of ICT... *op.cit.*

[11] Chatterjee, K., Goodwin, P., Schwanen, T., Clark, B., Jain, J., Melia, S. and G. Stokes (2018). Young People's Travel – What's Changed And Why: Review and Analysis. Bristol: Department for Transport.

updates via mobile apps, as well as onboard Wi-Fi connectivity. This is also a generation which tends to prioritise flexibility in its lifestyles. Young people may expect rail services to be flexible when it comes to ticketing, allowing them to change or cancel reservations easily and without significant fees.

Not enough research has been done yet to determine the needs of future rail passengers with great confidence, but it is evident that there will be a likely move toward easier, more flexible, more sustainable, and digitally integrated travel. This involves several factors such as lifestyle, culture, demographics and others. These shape travel preferences and patterns, and the relevant expectations tend to vary over time as people get older.[12] Regular assessment of changes in patterns will help to better product the way in which needs and expectations of rail passengers will evolve in future. This, in turn, will allow railway operators and infrastructure managers to take informed decisions about investments in the development of services. Such a data-based approach is particularly crucial for operations such as Rail Baltica, where a new greenfield infrastructure is already being built to satisfy consumers of tomorrow. As younger generations enter the economy, thus, it can be argued that the key to ensuring happy rail passengers in future will be the ability to ensure that time spent travelling from Point A to Point B will be not just well saved, but also well spent.

[12] ITF (201). "What is the Value of Saving Travel Time?", *ITF Roundtable Reports*, No. 176, OECD Publishing. See www.itf-oecd.org/what-value-saving-travel-time.

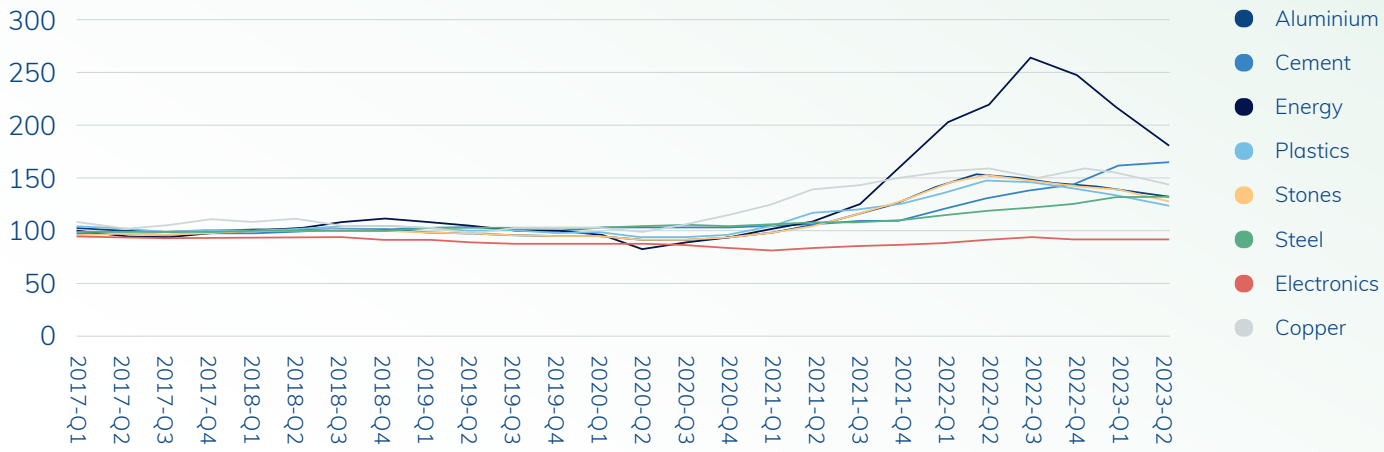
Kalevi Ecoduct. Photo by: TREV-2-GROUP

02 Fluctuations in the cost of materials and construction: Mid-term trends holding steady

Infrastructure projects can face problems if there are shifts in the cost of building materials. This can lead to abrupt changes in overall expenses and also cause delays down to restricted or even non-existent availability of essential materials. Tracking the fluctuations in the cost of materials and construction allow major infrastructure projects such as Rail Baltica to manage costs, mitigate risks, maintain project timeliness, uphold contractual agreements, and communicate effectively with shareholders.

Shifts in the producer price indices for construction materials and energy resources during Q1 and Q2 of 2023 (source: Eurostat) are presented in the graph below. As can be seen, medium-term trends appear to remain stable. When comparing the costs during the last four quarters (Q3 2022 to Q2 2022), we see a constant decrease in the cost of aluminium, plastics and, especially, energy prices (down by 10%, 12% and 30% respectively). The cost of cement, stones and quarry and steel, by comparison, has grown by 18%, 10% and 10% respectively. The price of electronics components and copper have remained basically stable.

Producer Price Indices



Quarterly prices for materials and construction compared to 2017 during Q1 and Q2 2023, base price 2015 (source: Eurostat)

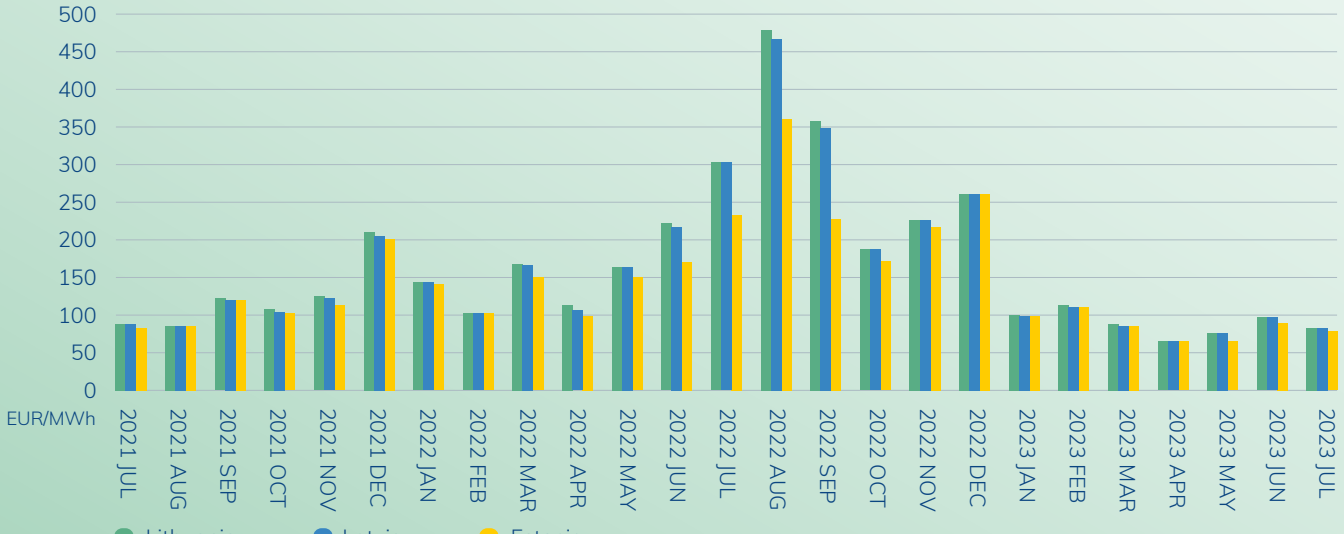
It is worth noting here that average costs in the European Union do not necessarily represent costs in member states. During the first six months of 2023, the cost of steel in the Baltic States decreased by 2% (EE), 7% (LV) and 9% (LT), as against an average increase of 2% in the EU. The decrease in energy costs was at 15% in EE, 24% in LV and 15% in LT, as opposed to an average drop of 17% during the first half of 2023 in the EU (source: Eurostat).

> The cost of electricity in the Baltic States has returnedto the level that existed in the summer of 2021.

The cost of electricity in the Baltic States has returned to the level that existed in the summer of 2021. Major fluctuations during the summer mostly have to do with changes in electricity production from renewable energy resources in the region. According to data from the Latvenergo power company[1], the volume from wind power plants decreased by 22% in June, as against May, while the amount of electricity produced by hydroelectric power plants dropped by 67%. May and June were very dry months, and this has had a significant effect on the level of water in the rivers of the Baltic States. The proportion between electricity generated and consumed in the Baltic States was around 50% on average (37% in Latvia, 43% in Lithuania, 73% in Estonia), with the rest of the electricity that was consumed in the three countries having to be imported.

Künka Road Viaduct. Photo by: Rail Baltic Estonia and AS YIT Eesti

Electricity Price



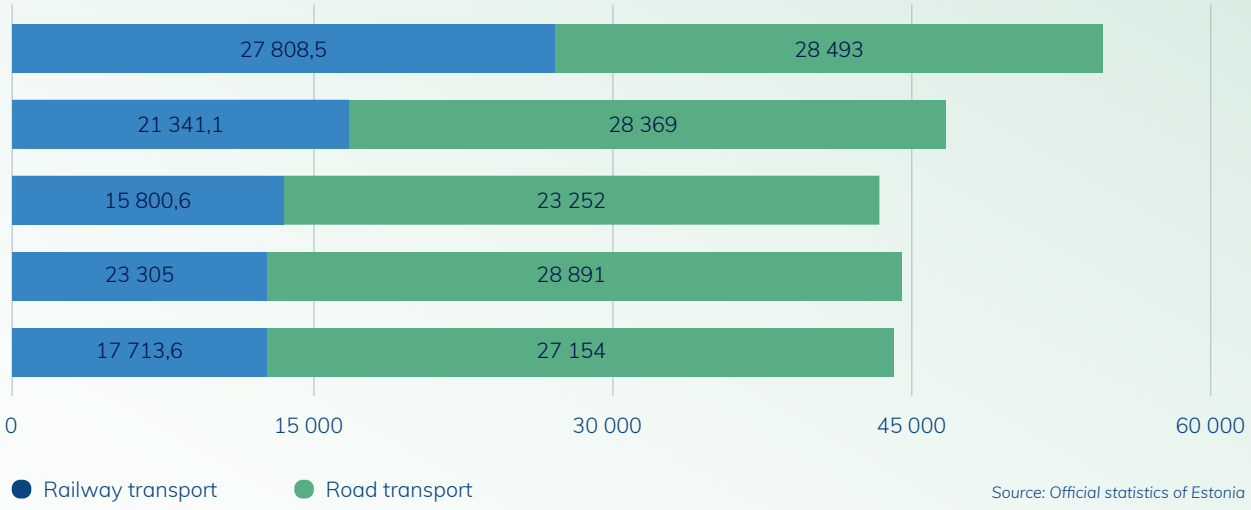
[1] Monthly review of the electricity market, June 2023, Latvenergo. See latvenergo/lv/lv/elektribas-cena#apskats.

03 How much freight is carried by rail in the Baltics

There are two major land-based transport modes in the Baltic States used to carry freight – road and rail. Each of these serves a different market segment and has a different share. Rail is the preferable option for shipping large volumes of freight over longer distances. The rail network in the Baltic States has historically been used largely to ship transit goods from the East to the seaports of the three countries. The role of transit has decreased significantly during the past decade, however, thus reducing the amount of cargo carried by rail to a major degree.

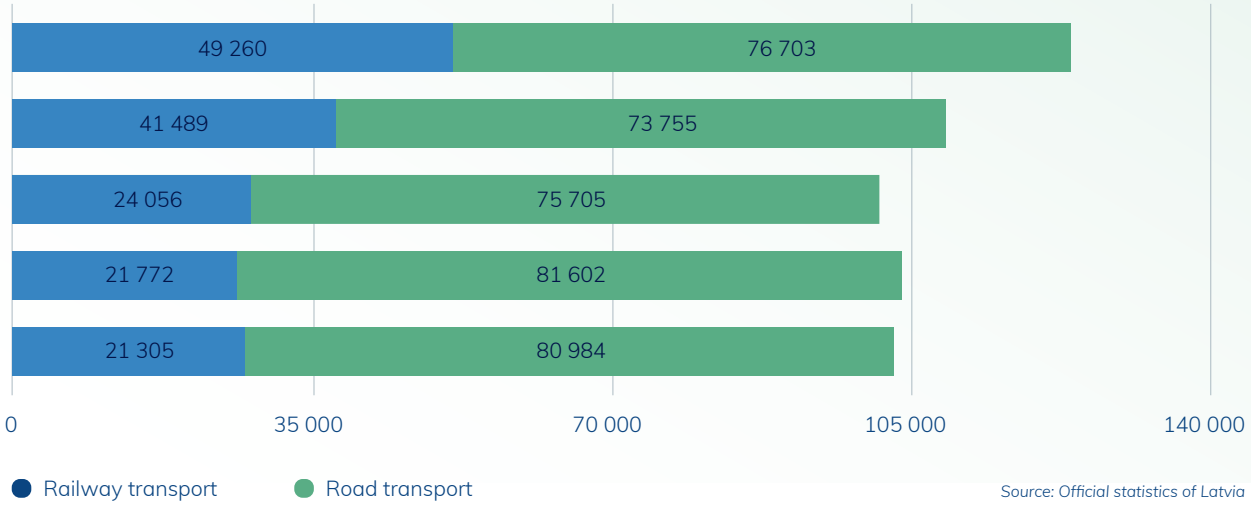
Road transport, in turn, has been facilitated by changes in consumer behaviour, a rapidly developing business environment, the increased role of E-commerce, and a shift in emphasis when it comes to the use of energy resources. Road transport is more flexible and accessible, and it can ensure door-to-door deliveries. The share of rail in domestic cargo traffic has continued to shrink in all three Baltic countries. According to national statistics, the share of inland cargo traffic transported by rail last year was 39% in Estonia, 21% in Latvia and 24% in Lithuania.

Estonia inland freight traffic (thousand tonnes)



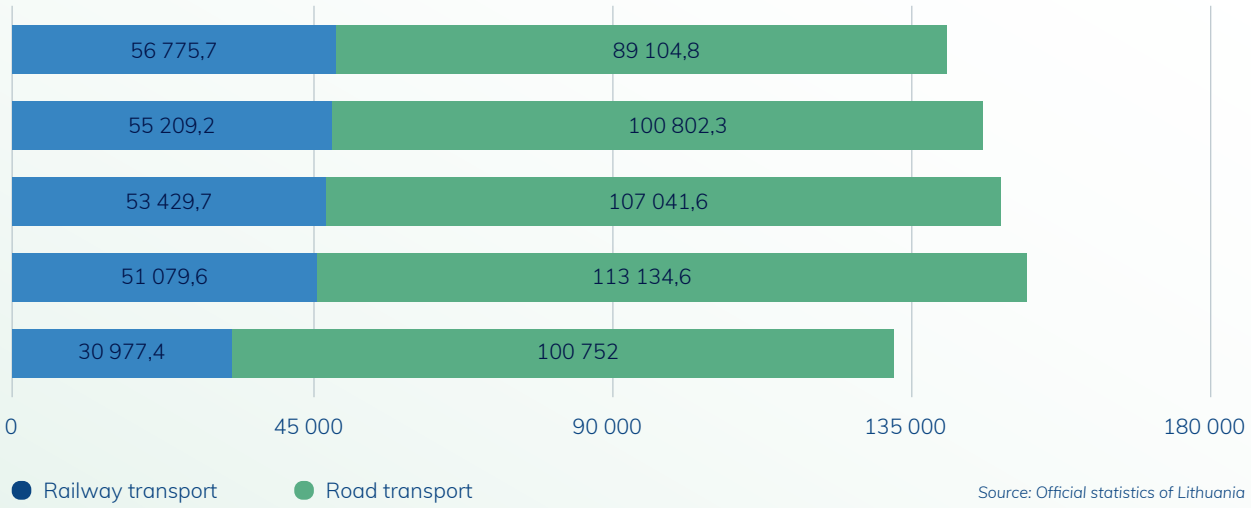
Source: Official statistics of Estonia

Latvia inland freight traffic (thousand tonnes)



Source: Official statistics of Latvia

Lithuania inland freight traffic (thousand tonnes)



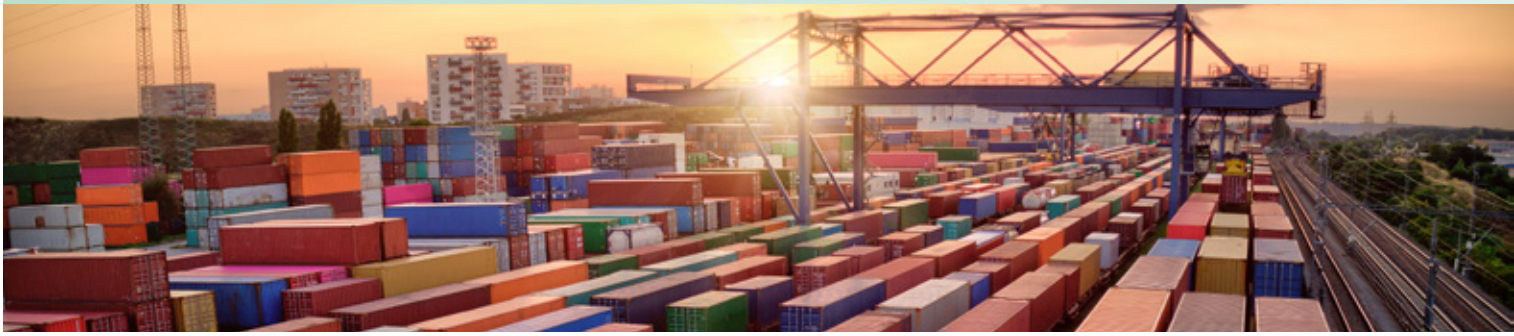
Source: *Official statistics of Lithuania*

183 million tonnes of cargo were transported by road and rail in Latvia in 2022, and this amounted to 36 billion freight tonne-km. According to national statistics, 21% of the freight was carried by rail (81 million tonnes), which corresponded to 34% of total tonne-km. Although the amount of cargo transported inland in 2022 remained close to 90% of the level in 2018, the share of the rail system declined significantly – from 39% in 2018 to just 21% in 2022. This trend is also seen in the travelled tonne-km, with the share of rail transport dropping from 54% in 2018 to 34% in 2022.

Freight traffic by rail, type of traffic in thousand tonnes (Latvia)

Source: *Official statistics of Latvia*

Inland freight traffic volume in Estonia is roughly one-half of the volume in Latvia and three times lower than in Lithuania, but Estonia has the highest proportion of rail usage. In Lithuania, unlike the other two countries, there has been an increase in overall inland freight volumes ever since 2018. The exception was in 2022, when the consequences of Russia's invasion of Ukraine also caused effects in the transport sector.



When it comes to the purpose of goods that are sent by rail, there has been a steady increase in domestic trade in Latvia ever since 2018. There has been an increase of 27% since then, resulting in 1.7 million tonnes of freight being transported by rail in 2022. In Estonia, domestic transportation declined between 2018 and 2020, but in the past two years it has recovered dramatically – by approximately 123% from 5.6 million tonnes in 2020 to 12.6 million tonnes in 2022. In Lithuania, the scope of domestic transport has remained quite stable around 15 million tonnes per year, with a slight drop of 5% in 2022.

Freight traffic by rail, type of traffic in thousand tonnes (Lithuania)

Source: Official statistics of Lithuania

During this same period, international exports delivered by rail from Latvia also showed a significant increase of 57% in comparison to the volume in 2018. Approximately two million tonnes of cargo were transported by rail in 2022, and this was despite a 10% drop between 2018 and 2021, mostly because of a slowdown in trade as a result of the Covid-19 pandemic. The opposite trend can be seen in Estonia and Lithuania, where international exports delivered by rail decreased in 2022.

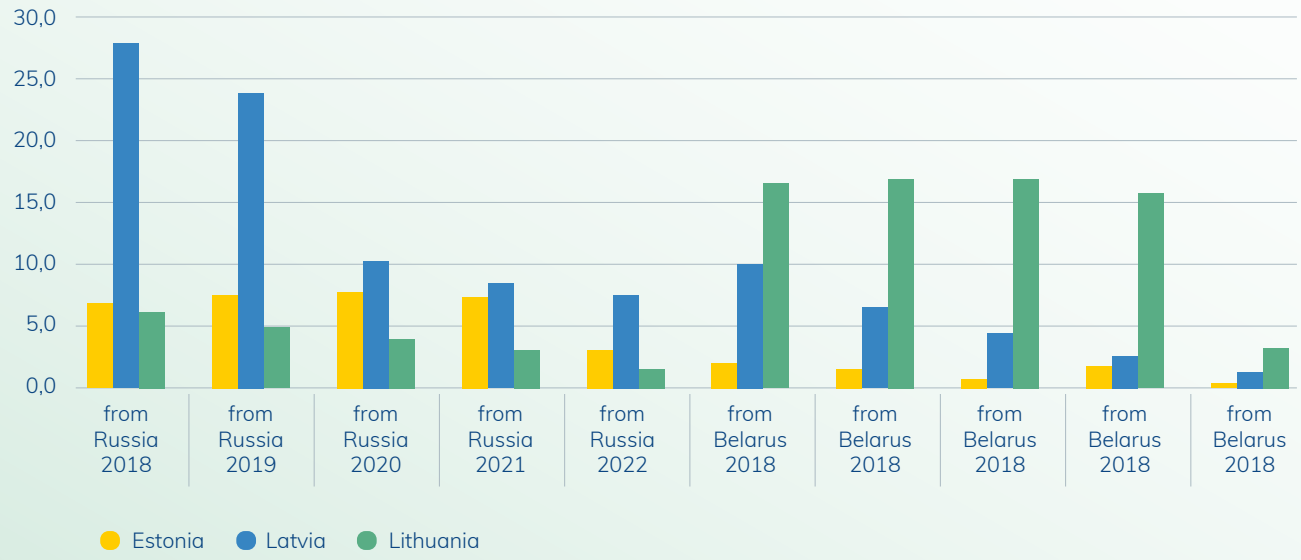
Freight traffic by rail, type of traffic in thousand tonnes (Estonia)

Source: Official statistics of Estonia

A major drop in the import of goods by rail from Russia & Belarus

A closer look at the country of origin of international imports into the three Baltic States shows that there has been a massive decline in the amount of cargo delivered by rail from Russia and Belarus. This is because of the geopolitical situation and because of sanctions that have been imposed onto the two countries. Latvia imported approximately 30 million tonnes less from the two in 2022, as compared to 2018. In Lithuania the volume dropped by 18 million tonnes, while in Estonia it declined by six million.

International transport of goods (million tonnes)



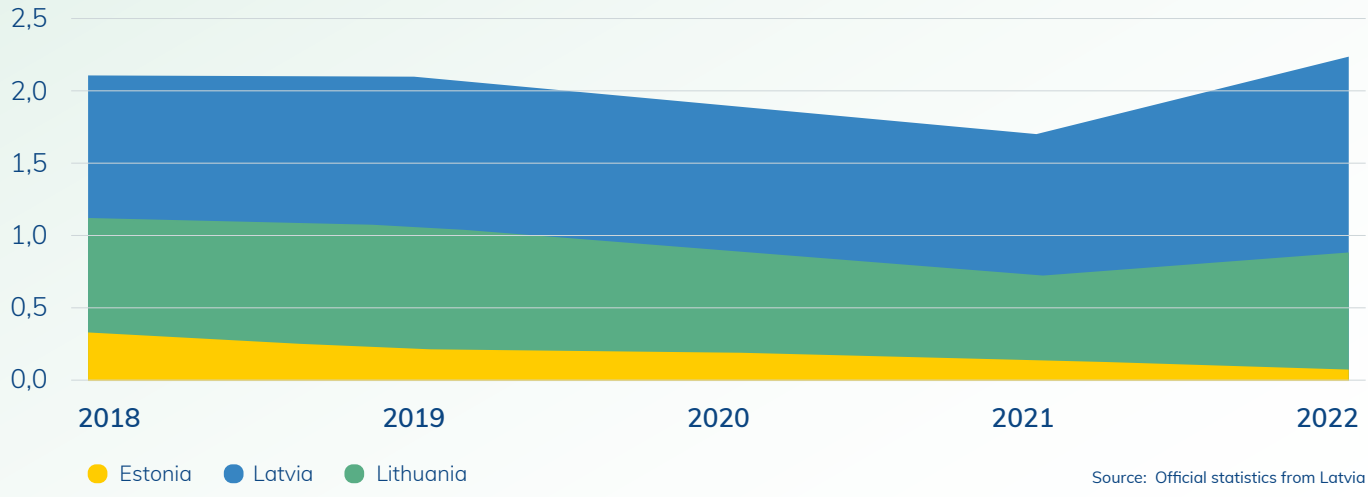
At the same time, imports by rail to the Baltic States from Kazakhstan increased by a factor of 4.5 times in 2002 as against the previous year for a total volume of four million tonnes. Most of these goods were delivered to Latvia (an increase from 0.27 million tonnes in 2018 to 3.61 million tonnes in 2022). Estonia increased rail imports from Kazakhstan from 51,000 tonnes to 184,000 tonnes within the same period. Lithuania received 214,000 tonnes of goods from Kazakhstan in 2022, which was five times more than in 2021.

Rail transport within the Baltic States

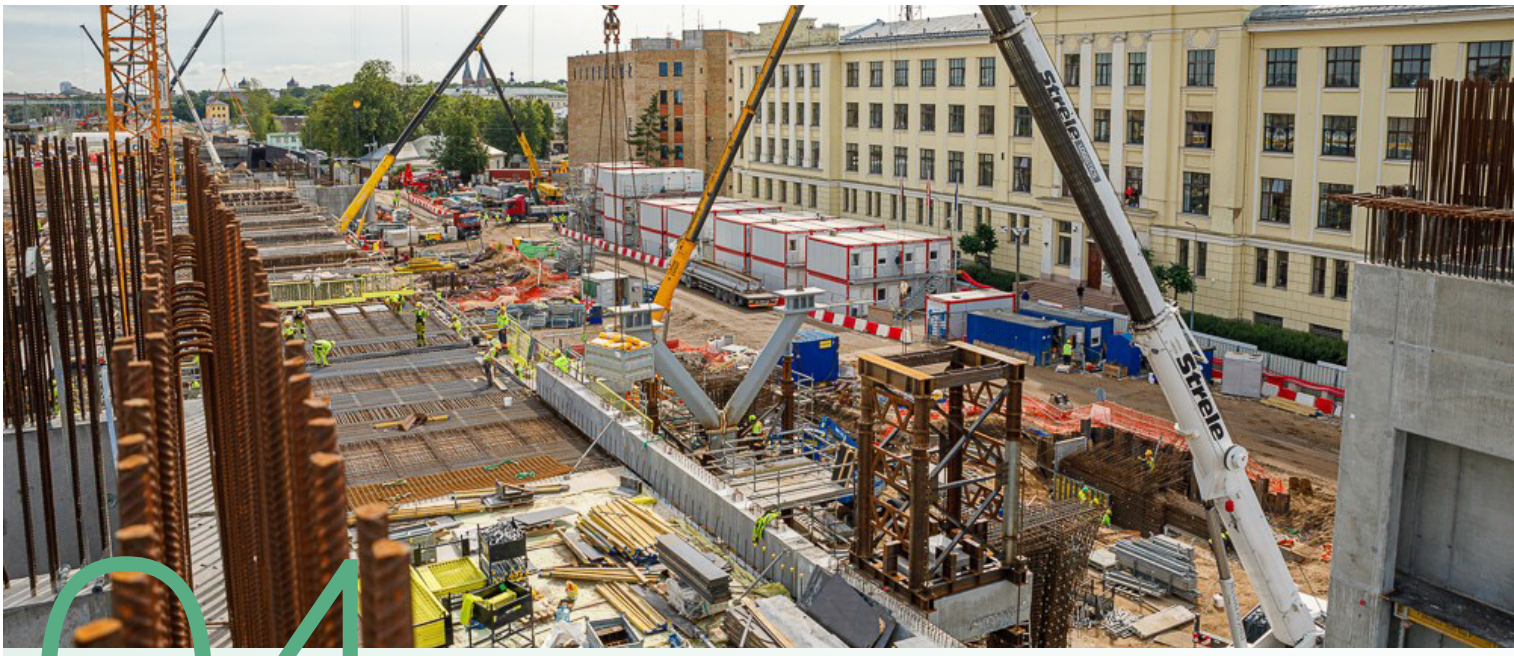
International transport of goods among the Baltic States generated turnover of approximately two million tonnes per year. The volume of cargo transported by rail to and from Estonia has tended to decrease, while goods transported to and from Lithuania represent a major part of international rail transport in the Baltics.

Relatively short distances among the three Baltic States, an unsuitable rail network for North-South transport, national regulations, and divergent requirements – all of these have significantly complicated cross-border railway transport across the Baltics along the existing network. The new Rail Baltica corridor will fill the gap in the rail network, reduce travel time and provide seamless cross-border transportation. Until it is ready, however, road transport will remain the main way of transporting freight between Estonia, Latvia, and Lithuania.

Goods transported by rail between the Baltic States (million tonnes)



Source: Official statistics from Latvia



Rail Baltica Riga Central Hub. Photo by Eiropas Dzelzceļa līnijas

04 Communication with the market helps to minimize the risks ahead

During the past few years, the Baltic region has faced issues because of Covid-19, an energy crisis, a high level of inflation, as well as major changes in market trends that have been caused by Russia's aggression in Ukraine. Supply chains have been impacted all across Europe, and there has certainly been no lack of a need to adjust continuously to these varied and changing circumstances.

Large-scale infrastructure projects are not isolated from macroeconomic and geopolitical shocks which can result in cost overruns, delays, failed tenders, and other potential problems. An appropriate approach toward risk management can help to foresee and avoid these negative consequences or to reduce the impact of challenges which arise. One risk mitigation measure is communication with the supply market. Monitoring of the construction market and engagement with suppliers with the help of surveys and interviews – all of this ensures first-hand information that supports well-informed decisions.

Surveys which Rail Baltica has conducted have highlighted the impacts and consequences of recent turbulence in the building industry. Supply chains had to be adjusted because of the pandemic and the logical challenges which it created, and this has meant major changes for some businesses. It is also true that the business situation in the market has been additionally aggravated by issues such as difficulties in obtaining payments from clients, loss of orders, as well as difficulties in obtaining finance and insurance. The energy crisis, Russia's aggression in Ukraine and the related sanctions have all caused a lengthy period during which significant changes have been occurring, and the need to remain versatile under difficult circumstances remains important. The period of constant change is continuing, and the market is experiencing additional impacts from inflation, as well as changes in infrastructure investments in the region. Estonia, for instance, has seen a drop in public funding for road infrastructure projects. Without sufficient focus on communication with suppliers and also market monitoring, it is difficult to get a good sense of market circumstances, because the fact is that the dynamics of market change as such have changed.

Construction of large scale infrastructure projects such as Rail Baltica requires a large amount of materials that need to be delivered to the construction site. Companies working on different infrastructure or construction projects in the region have first-hand knowledge of the situation of local quarries and the availability of materials within the area, as well as challenges relating to logistics and site access. Ascertaining the sufficiency of materials that may be coming from any particular location and the logistical issues that may need to be taken into account, allows ensuring a consistent workflow for the mainline construction. Market feedback helps the project implementers to better assess the likelihood of risks and bottlenecks, which in turn allows for improved risk mitigation in advance. Also, such practical aspects allow for advance planning of site access and the sufficiency of access points important aspects that need to be addressed with the local stakeholders and authorities.

A deliberate effort is required to identify, assess and if possible, quantify the risks the project might be exposed to at different implementation stages. Moreover, an in-depth analysis is required for separate sections or components, as often the application of averages can give a false impression or overlook some peculiarities of individual cases. For instance, with regards to the earthworks in Rail Baltica section Pärnu-LV border, it is likely to achieve an average production rate of 4 500 m3 to 5 500 m3 per day across a sample 10 km stretch of railway embankment. However, this rate could vary significantly from 1 250 m3 to more than 10 000 m3 per day, depending on logistics, site access, environmental and other restrictions of a particular section. Noting the restrictions and challenges in different sections of the Rail Baltica railway line, appropriate risk mitigations measures can be implemented including, for example, technological advancements for soil stabilisation from the local construction market as well as a range of potential pro-active actions that could be taken by the project implementers in order to ensure successful delivery as planned. In large scale infrastructure development, the risks of technical capabilities, geological obstacles, environmental challenges, site access, delivery of building materials, construction market capacity, and others should be identified and their impact on time schedule and project costs assessed.

Closer cooperation is aimed towards informing decision making regarding upcoming works, for which it is necessary to have clarity on resources available on the market, the various contractual mechanisms possible to be applied, potential sub-contracting issues and other risks and bottlenecks that may negatively impact the successful implementation of large scale infrastructure projects. Practice shows that listening to market proposals and sharing of ideas that improve the project implementations is vital. Open, transparent and structured communication with the market is one of the keys to success.

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"Rail Baltica in Economic Focus" is a quarterly digital newsletter that brings together key contributors such as Rail Baltica strategy experts, transport economy analysts, logistics specialists, and other industry experts.

These individuals collectively share their knowledge and insights, offering a comprehensive perspective on the economic implications of Rail Baltica. The goal is to inform and engage subscribers, partners, and suppliers of the newsletter, providing them with updates on the project's progress and highlighting its potential as a catalyst for economic growth in the region.

To subscribe to future editions of the newsletter, please visit our website at www.railbaltica.org.

Join Rail Baltica for Online Industry Day 2023

We would like to inform you that Rail Baltica will be holding its online Industry Day 2023 event on November 8. The online conference will feature interactive sessions for questions and answers so as to encourage greater audience engagement.

The event will offer a chance for partners and suppliers of Rail Baltica to gain fresh insights into this global project. There will be updates about the project, as well as country-specific details, updates about procurement strategies and planning, the development of railway subsystems, the logistics of the construction process, etc.

Participants at the event will include management and key experts from Rail Baltica's delivery organisations, partnership projects and the railway industry, existing and potential suppliers, representatives of business associations and also other stakeholders.

Dedicated Q&A sessions will follow each presentation so that attendees will be able to engage directly with the project team. The primary working language will be English, with simultaneous translation being provided in Estonian, Latvian and Lithuanian.

Prior registration will be required to access presentation materials after the event.

Should you have any questions about the event,
we urge you to contact us at forum@railbaltica.org