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Rail Baltica

Comparative Analysis of the Rail Baltica Project
and the Rail Link Between Perpignan and Figueres

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Abstract

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With its long history, Europe has always faced great challenges in upgrading certain past projects or infrastructure. That is why, from the historic standpoint, the Baltic States have to deal with the legacy left by previous governments. Since the Baltic States entered the EU in 2003-2004, there has been an increased tendency and promotion both from the EU and the Baltic States of cultural and economic belongingness.

This study explores the railway infrastructure project Rail Baltica, answering the questions of what is it, why it is needed and what it represents. Rail Baltica is the first high-speed railway infrastructure project in the Baltic States, aimed to include these three countries in the continental European railway network. The research includes a comparative analysis of the railway linking Perpignan-Figueres. The comparative example showed that even though there are similarities between these two projects, there are still differences in their foundation. It is believed that new projects should bring positive outcomes, for instance, profits, social well-being, and opportunities. In this paper, the discussion will examine arguments for and against Rail Baltica, how this project might benefit the Baltic States and the criticisms of it.

Keywords: Rail Baltica, Perpignan - Figueres, EU Green Deal, Railway, High-speed railway

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Glossary

EC - European Commission

EU - European Union

GDP - Gross Domestic Product

GHG - Greenhouse gas

RB - Rail Baltica

1 Introduction

The creation of railways in the industrial times has changed the world and still nowadays technologies and upgrades continue to change and improve the transportation system. Several countries are still dealing with the legacy of former governments, whether in transportation, architecture, or culture. Nonetheless, in this case, the debate will focus on the Baltic States and how, after 30 years of independence, the countries have just recently been admitted to the EU railway network.

Rail Baltica is the infrastructure project that will integrate the three Baltic States with the rest of Europe and build the region's first high-speed railway line. This paper will look into the description of Rail Baltica, investigating the questions of what it is, why it is needed, and what it represents. A large part of the research will be to explore the benefits this project has brought and will bring, including jobs, business opportunities, tourism, and environmental benefits. Given the economics of the Baltic States, it is unsurprising that the EU will fund the project, but the question is by how much and how the Baltic states will cover the rest. The thesis will present the discussion of whether Rail Baltica is economically viable or represents more of a political statement.

A research strategy often employed successfully is a comparative case study. Comparisons are revealing because they serve as a helpful reminder that social phenomena are neither fixed nor "natural". A comparison can de-centre what has been considered routine in a specific place or period, learning that something has changed over time and discovering that it is different elsewhere or for other individuals (Bloemraad, 2013).

The *comparative technique* assumes that the units of comparison may be distinguished from one another. It is not the continuity of two phenomena nor their mutual impacts that distinguish them as examples for comparison. Rather, they are viewed as distinct examples that are linked together logically through questioning parallels and contrasts (Kocka, 2003).

To understand the different aspects of Rail Baltica a comparative analysis was conducted, using the railway line Perpignan-Figueres. The Perpignan-Figueres rail line was proposed as the solution to the cross-border bottleneck between France and Spain. These two projects are very much alike; therefore, the comparative analysis will discuss differences and similarities. It will clarify whether the similarities are just coincidence or in fact more profound, whilst highlighting the reasons for differences.

Rail Baltica is an important matter from a variety of angles. First, it will be the gateway for the Baltic States to Europe which includes the representation of “belonging to Europe” and the opportunities. Second, the railway is the method of transportation that produces the least greenhouse gas emissions; hence, by encouraging people to utilize the railway, the EU is addressing the climate crisis.

2 Rail Baltica project

2.1 Background of the Rail Baltica project

Discussions about a transport connection between the three Baltic countries started in the 1990s. The idea was introduced in a document named “Vision and Strategies around the Baltic Sea 2010” in 1994. One of the visions was to improve the high-speed railway system connection between European and Baltic cities, as well as a connection to the main ports and hinterlands with the railway network (VASAB, 1994).

The Rail Baltica project was initiated by the government of Lithuania, which borders Poland. The two countries have different sized gauges and because of that the time needed for changing the wagon wheels is about 40 min for passenger trains and about 130 min for freight trains. Rail Baltica (RB) is an international cross-border project connecting the Baltic States with the European gauge railway infrastructure, and therefore it is the largest state construction project of railway infrastructure in the past 100 years. This project

lays out many positive prospects. It is thought that RB will increase the capacity for cargo transportation by rail and develop the traffic of goods to and from European countries, reduce travel time, traffic flow on the ViaBaltica, Polish and German motorways, and last but not least it will develop environmentally friendly rail transport. As a result, it will provide new opportunities to develop tourism, transport and logistics services. It is expected that the RB rail line will transport at least 13 million tons of freight and 4 million passengers a year (Jēkabsone, 2017).

Furthermore, Rail Baltica is part of a bigger and more important purpose. The Trans-European Transport Network (TEN-T) strategy tackles the construction and growth of Europe-wide network of railway tracks, roadways, water transport, marine shipping routes, ports, airports, and railroad terminals. The fundamental goal is to promote social, economic, and territorial integration within the EU by closing gaps, removing bottlenecks, and removing technological impediments. (European Commission, 2022)

The EU has selected a “Corridor” concept, where it has identified 9 European Core Network Corridors that connect various states by rail lines. This Core Network supports the operations to focus on modal integration, interoperability and the coordinated development of cross-border infrastructure. These 9 corridors can be seen in Figure 1. (RFI, 2019)

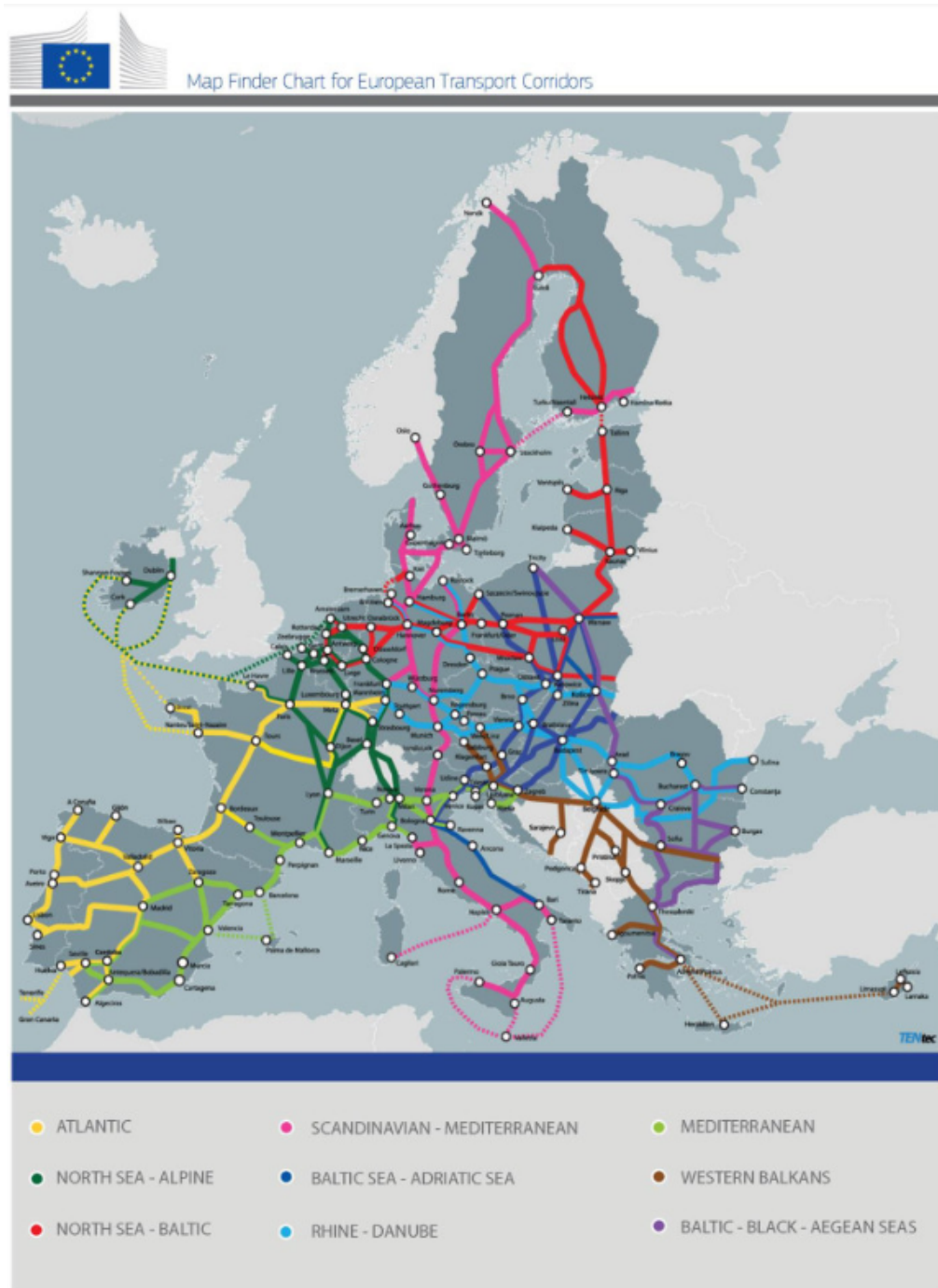


Figure 1. The 9 railway corridors (RFI, 2019)

This time the focus is on the red line which is the North Sea - Baltic line. This line consists of 5947 km of railway, 4029 km of roads and 2186 km of inland waterways. The North Sea - Baltic corridor connects 6 EU States: Finland, Estonia, Latvia, Lithuania, Poland, Germany, the Netherlands and Belgium. The TEN-T aims are linked with the integration of the North-Eastern member states into the European transport network, which is a top priority for developing

regional economic ties. The Corridor's physical location gives it a crucial position not just within Eastern Europe and Central Asia but beyond. (CIVITTA, 2019)

Nevertheless, the most important project is already mentioned Rail Baltica, that will connect Estonia, Latvia and Lithuania to Poland. The RB project envisions a continuous rail connection running from Tallinn to Warsaw, passing through important economic centres in both North Eastern Poland and the Baltic States. Through infrastructure improvements and the elimination of interoperability obstacles, RB seeks to complete the missing link of 1435 mm gauge rail across the Baltic States. This will allow for efficient cross-border passenger and cargo movement (CIVITTA, 2019).

2.2 Current Rail Transport

In the early 2000s in the Baltic States the dominant transportation mode was rail transport. During the Soviet times, the focus was on rail transport. Therefore, today there is high density of rail tracks in the Baltic States. Specifically in 1995 the rail tracks accounted for 31 km per 1000 km², however, in 2020 the density decreased to 28 km per 1000 km² (UNECE¹, n.d). In comparison to other EU countries, it is relatively low (railway density by country can be seen in Appendix 1). Nevertheless, these tracks are badly maintained. They have low technical standards, minimal electrification, and are rarely more than single tracks. There are many obstacles that must be overcome, for instance, the institutional and technical disintegration of rail transport in the EU. It includes harmonising standards and requirements for rolling stock, locomotives, signalling, information systems and track gauges. These are the points that challenge the interoperability and interconnectivity of EU rail transport. Another legacy that the Soviet times left behind is the emphasis on East-West connectivity, even though there is no railroad connecting the three capital cities of the Baltic States. (Kovacs, 2006)

For economic and national security reasons, a dependable transportation infrastructure is critical. Providing military mobility and the secure movement of commodities and services is a key and difficult problem in the Baltic States. The States are geographically distinct from the rest of Europe, as is the Soviet-era transportation infrastructure, which is mostly east-west orientated. The north-south highway route from Warsaw to Tallinn is the only economical land connection for European freight, consumer goods, and travellers. (Thomas, 2020)

Apart from obvious security issues, the Baltic republics' infrastructure seclusion has financial implications. Economic security is critical in defeating Russia's efforts since Moscow now chooses a hybrid disruption approach over traditional combat. Russian hybrid warfare tactics range from economic influence operations to misinformation aimed at co-opting the political as well as business leaders. The Baltics' economic vulnerability is decreased by closer ties to Europe, and Russia is prevented from having a ready source of disinformation to sow division in society. Thus, by strengthening their ties with Europe, the Baltic states may strengthen their basis within the West while also improving societal security and resilience. (Thomas, 2020)

As previously stated, the railway networks of Latvia, Lithuania, and Estonia reach mostly east-west into Russia and Belarus. The majority of the network is built on a Russian rail width of 1520 mm rather than a smaller European rail width of 1435 mm, which is mostly owned and managed by state-controlled enterprises. Several commercial businesses, however, run portions of the network. Certain parts of the system are electrified within or near the capitals, although they account for a relatively minor amount of the entire system. Most of the system is also single-track. This implies that, unlike on multiple-track lines where trains may run in both directions, trains traveling in opposing directions on a single-track line need more coordinated planning, delaying the operation and lengthening the time each train is immobile. As a result, rail transport in the Baltic States is slow and inefficient. Various measures have been taken to modernize the train fleet. Despite having the shortest and least

established network, Estonia has effectively updated both its freight and passenger fleets. Latvia has managed to refurbish but not replace its outdated Soviet-era trains. Lithuania has also upgraded its fleet, although the multiplicity of different types of trains in the country makes maintenance difficult. (Thomas, 2020)

A direct train from Tallinn to Vilnius is currently unavailable. For freight or passenger transit, none of the three capitals are connected by rail. Rail travel from Riga to Vilnius must pass through Daugavpils in Latvia's southern area. To get from Riga to Tallinn, passengers must take a Latvian train to the Estonian border at Valga, change trains, and then travel to Tallinn via Tartu. This makes both freight and passenger transportation between the capitals more difficult and longer. (Thomas, 2020)

Because there is no north-south rail link connecting the Baltic states and their capitals to the rest of continental Europe, the highway system is congested. The majority of people traveling within the Baltic centres and Warsaw travel by vehicle or bus. Road transport accounts for 90% of all cargo among both Lithuania and the Europe, which is a significant difference from the rest of Europe and is not environmentally-friendly. The "Via Baltica" route, that extends north-south from Estonia to Poland is the crossing point in all three countries and has the largest number of traffic incidents. Cargo transport makes up roughly 30% of the traffic volume on that road. The majority of this path is two-lane highway with tricky shoulders to allow for crossing in the lane of incoming traffic. The principal roads are fairly well preserved, but the secondary roads are frequently with potholes. Due to the strategic and economic importance of the Baltic republics' north-south road, the current status in terms of road quality, driving behaviours, and traffic levels is untenable. (Thomas, 2020)

2.3 Rail Baltica in details

Rail Baltica is intended to connect Poland, the Baltic countries and Finland, also improve links of Central and Eastern Europe with Germany. The Baltic States

will eventually be able to fully integrate with the rest of Europe since it will remove the logistical barrier that currently exists in north-eastern Europe and complete the transit networks in Europe. (Rail Baltica, n.d.)

First of all, RB will make it possible for residents of the Baltic Sea region to communicate more easily with one another. Also, RB complies with the highest environmental requirements, assisting in the region's move toward greener and healthier transportation. At the same time, it is anticipated that more than 400 lives will be saved in the first 30 years of operation because to the inherent safety of rail travel and the project's unwavering safety and security goals. (Rail Baltica, n.d.)

Businesses will be able to transfer products throughout Europe using the freight transport and multi-modal logistics capabilities provided by Rail Baltica, and service sectors will be able to rapidly and easily collaborate with businesses around the area to seize new growth potential. In addition, the project would provide 36 000 additional employment opportunities throughout the building period. The region stands to gain enormous economic advantages for a comparatively minimal investment because EU funds are providing 85% of the project's funding. (Rail Baltica, n.d.)

RB is a brand-new, double-track, electrified, and ERTMS-equipped railway line with a maximum velocity of 240 km/h that runs from Tallinn to the Lithuania-Poland border through Parnu, Riga, Panevezys, and Kaunas, with a connection between Vilnius and Kaunas as part of the railway shown in shown in Figure 2. Right side is for passengers' rail and the left side for freight rail. (EY, 2017)

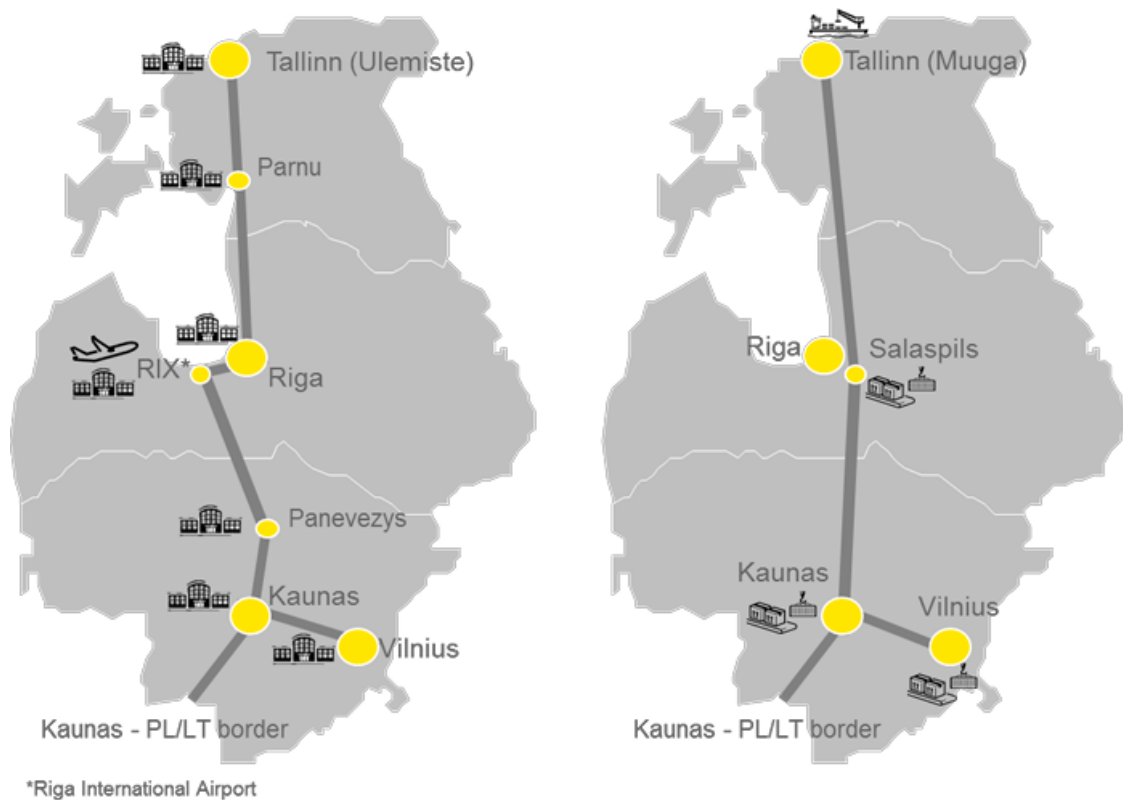


Figure 2. Schematic map of railway line location with stations and terminals for passengers (left) and freight (right) (EY, 2017).

The primary objective of the Global RB project is to construct an 870 km long railway line adequate for both travellers and cargo transportation, as well as the rail infrastructure required to ensure the railway is fully operational (including travellers and cargo terminals, maintenance facilities, and rolling stock facilities). It will compete with other modes of transportation in the area in regards to service offerings for both people and freight, and it will be interoperable with the rest of the European TEN-T system. An effort of great importance to the Baltic States, the RB Global Project also benefits the surrounding nations and the continent of Europe. (EY, 2017)

Even though the automobilization in the past 10 years in the EU has been popularized, the EU is looking for replacing that with railway transport which is in accordance with its new policy. To achieve this reality, the EU has established European railway projects. As a result, already mentioned “Core

network corridors” were introduced to help coordinate the core networks. They help to bring together public and private resources and accumulate EU support, especially to remove bottlenecks, build missing cross borders connections and promote modal integration and interoperability. (Vaičiūnas, 2017)

In this case one of more significant projects is RB. This project is part of the approach that is intended to uniform EU railway network system. Therefore, in this policy there should be a uniform railway transport standard, which would also satisfy the needs of the EU countries and its citizens to the maximum level by improving the effectiveness of the business links, which might provide better developed railway network system. According to the White Paper “European Transport Policy 2010: Time to Decide”, a modern transport system must be balanced in the economic and social, also environmental respect. Therefore, railway line must be equipped with modern rolling stock and infrastructure facilities, as well as, it should be equally important for all the member states involved. However, in reality it differs. (Vaičiūnas, 2017)

A paper written by Gediminas Vaičiūnas and Stasys Steišūnas concludes the analysis for which country the RB will have the greatest and the smallest significance. The indicators of the countries are analysed related in one or another respect with significance of RB for the country: for example, length of RB in the country, length of RB per million residents in the country, length of RB per thousand km of the existing railway, length of RB per area of the country, length of RB per county’s GDP. Multi-criteria optimization methods were used to generalize the indicators. They were rating according to the sum-of-ratings method and the geometric mean method. By using the sum-of-ratings approach to rank the indicators, it was possible to establish which countries were most significant for the RB project. The most important countries were Estonia and Lithuania, followed by Latvia and Poland as the fourth. By using geometric mean method, it was concluded that the project is most significant to Estonia, followed in second place by Lithuania, with the third being Latvia, followed by Poland. (Vaičiūnas and Steišūnas, 2017)

3 Impacts to the outside

3.1 Economic Development

Prior to completing a study of the status of the transportation system in the Baltic countries, it is important to determine how this aspect would impact economic growth. According to logistics and transport geography theory, a direct relationship between regional economic growth and an increase in freight transport must be classified into distinct types of models that relate transportation demand to economic development. First, traffic patterns in which foreign economic variables impact transportation demand, and second, supply factors, placement, and general equilibrium theories in which transport impacts the economy. Because the link between growth of the economy and transportation infrastructure investments may also be shown in a circular fashion, these two types of models with opposing causation axes do not have to compete with one another. In general, a region's ability to compete for foreign direct investment is correlated with its ability to maintain a strong transportation infrastructure. As a result, a description of a country's transportation system can also show the status of its economy. Transport infrastructure that is still being developed, variable provider operating standards, a lack of support for information and communication systems, and variable human resource availability are all features of economies in transition. (Kovacs, 2006)

Even though there are differences among developed and developing nations in terms of the effectiveness and efficiency of material handling processes, the standard of the transportation infrastructure, the modal split, and other issues and difficulties faced, the developed nations still experience the same issues with their transportation systems. The only requirement for economic growth cannot be viewed as having a reliable transportation system.

Nevertheless, accomplishing well-functioned freight transportation system still is an important part of economic development and the country's main supporter. From the EU perspective, a nation or region's connectivity is considered as

promoting its economic growth. In actuality, the EU predicts that its investments in transportation infrastructure would lead to an increase in the GDP and save time to international traffic with monetary value. (Kovacs, 2006)

It is without a doubt that functional transport infrastructure is essential for the nation's economy. Many investments and choices connected to transportation are made daily by businesses, governments, and people. The potential for and availability of transportation has a big impact on where things will be built. Both directly and indirectly, the large-scale transportation industry has a substantial influence on productivity and economic growth. Infrastructure construction, car manufacturing, and transportation service providing are all substantial economic activity in and of themselves. Practically every other item or service in the economy entails some cost, little or large. Economic activity is enabled by transportation, which also facilitates international trade. In many cases, transportation may be a leading indicator of economic activity because physical movements often take place before financial transactions. Given that goods must be transported to markets, transportation is a reflection of economic activity. Some of these relationships are clearly circular, in which transportation influences economic conditions and vice versa. Additionally, all of these relations vary as a result of numerous circumstances, including advancements in technology, economic growth, geographic shifts, and others. (National Research Council, 2002)

Certainly, there is a connection between the nation's financial prosperity and the quality of its transportation infrastructure. Through certain macroeconomic productivity aspects, a well-developed transportation infrastructure provides enormous benefits. Advances in business activity, innovations and investments, job market adaptability, competition, cross-border commerce, global mobility, regional economic growth, citizen well-being, and environmental safety and health are among them. The straightforward relationship between transportation infrastructure and economic growth is shown in the following scheme in Figure 3. (Skorobogatova, 2017)

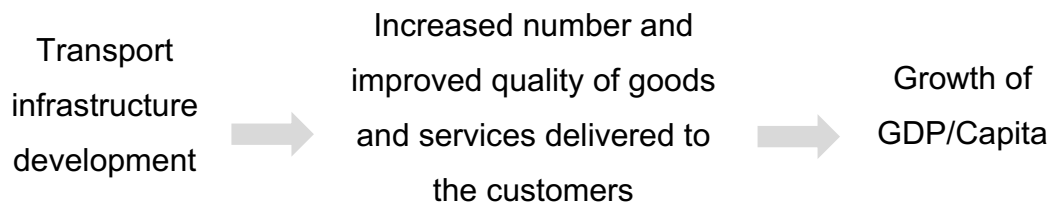


Figure 3. Transport infrastructure and economic growth (Skorobogatova, 2017).

The use of transport infrastructure can be seen in everyday life. Therefore, well-developed transport infrastructure has a direct impact on the quality and cost of logistics services, because infrastructure allows reducing the length and cost of time, as well as decreases risk and improves quality of logistics services by improving the comfort, safety and security. Therefore, there is a definite correlation between the development of transportation and a growing economy. Figure 4 illustrates how the Latvian economy and the demand for the passenger and freight transport have changed over time. (Skorobogatova, 2017)

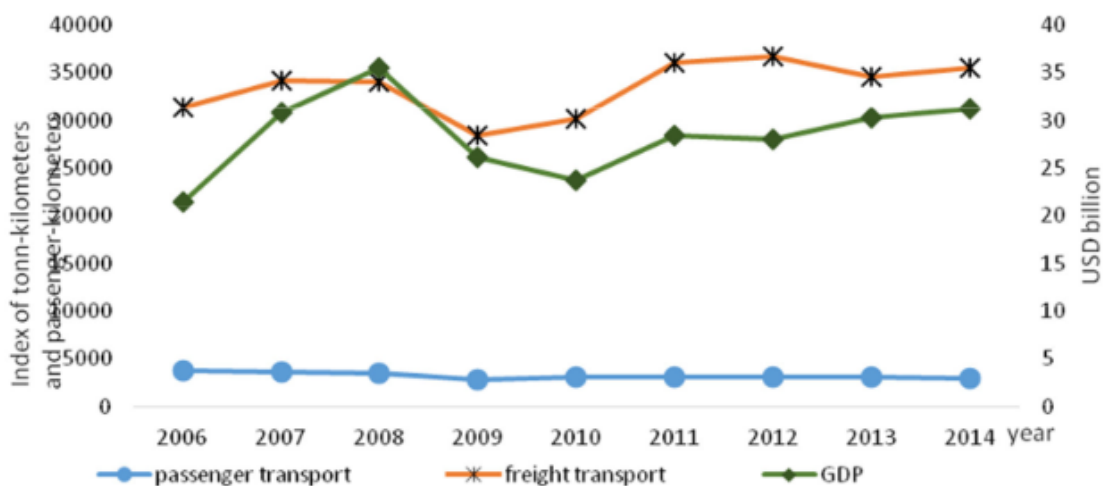


Figure 4. Transport trends against GDP: Latvia 2006-2014 (Skorobogatova, 2017).

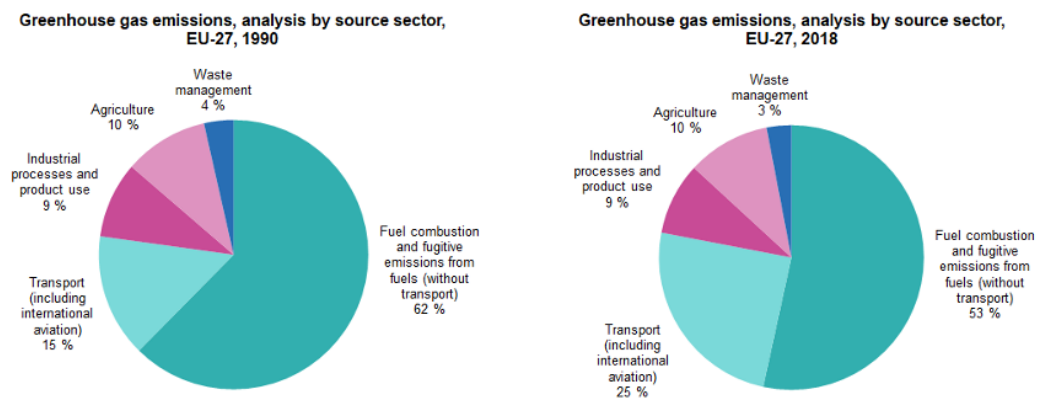
As it can be seen the passenger traffic does not present any significant change during the time period 2006 - 2014. It can be concluded that the passenger transport is largely unaffected regardless of changes in the GDP. Meantime, the trend of freight transport does not always correlate to the changes of GDP. It can be analysed that the role of the freight transport as a contribution to GDP has varied over the time. As a result, from a theoretical standpoint, it is

reasonable to argue that expansion in transportation infrastructure corresponds to economic growth. However, because the links between transportation infrastructure and the economy are so complicated, measuring their interrelationship is challenging. (Skorobogatova, 2017)

3.2 Environmental Benefits

This section will focus on how indispensable is the transportation sector to society and its economy, as well as how environmentally friendly is the railway transport. Figure 5 shows the greenhouse gas (GHG) emissions divided by the main sectors in the EU. The 2 graphs compare the years 1990 and 2018 (Eurostat, 2020).

Greenhouse gas emissions, analysis by source sector, EU-27, 1990 and 2018



Source: European Environment Agency (online data code: [env_air_gge])

eurostat

Figure 5. Greenhouse gas emissions, analysis by source sector. (Eurostat, 2020)

It can be seen that the largest sector generating the GHG emissions is fuel combustion and fugitive emissions from fuels, excluding transport. Comparing the two years 1990 and 2018, the percentage of this sector has decreased by 9 percent. To the contrary, the transport sector has increased by 10 percent. (Eurostat, 2020)

Furthermore, transportation is a vital part of the economy. It provides mobility not only for individual use but also for businesses. Transport services have a

strong presence and network in 1.2 million private and public companies, which employ 11 million people and provide goods and services for everyone. For these reasons, efficient transport services and infrastructure are the backbone of the EU's economic strength. Transport accounts for 25% of the EU's greenhouse gas emissions and is still growing. (European Commission, 2019)

Share of Greenhouse Gas Emissions by mode of transport (2017)

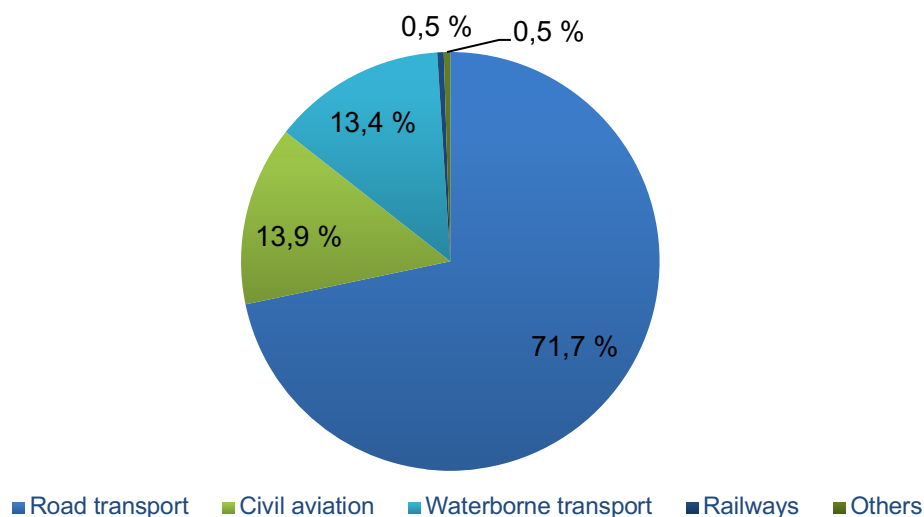


Figure 6: Share of Greenhouse Gas Emissions by Mode of Transport (2017) (European Commission¹, 2019).

According to the European Commission, road transport is responsible for carrying 73% of inland freight; however, it also shares 71% of all greenhouse gas emissions, as seen in Figure 6. However, rail transport only produces 0.5% of the share due to its sustainable characteristics. The majority of the trains are powered by electricity; therefore, no fossil fuel-powered locomotives are needed (European Commission¹, 2019). Rail, the attractive low-emission mobility mode, has the potential of helping to reduce GHG emissions. However, its use is still considerably low in popularity. Rail freight services have a poor reputation for quality and dependability. This is due to a lack of cooperation in the provision of cross-border capacity, traffic management, and infrastructure design. (European Commission, 2019)

To show a clearer picture about the best mobility method, Figure 7 gives more detailed information about the different modes of transport over the period 2014-2018 and about their GHG emissions.

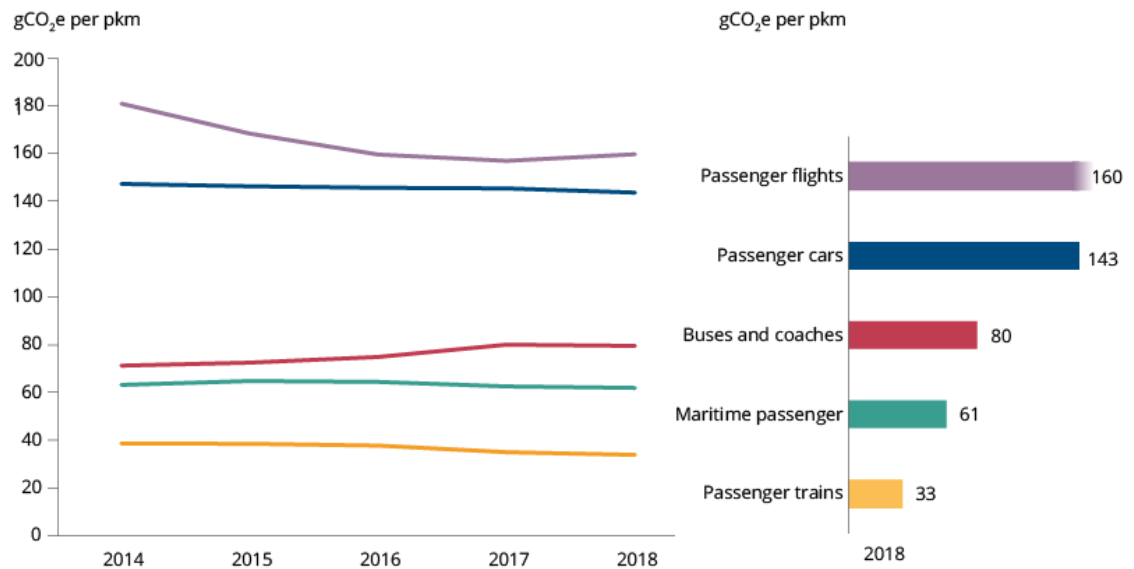


Figure 7. Average GHG emissions by motorised mode of passenger transport, EU-27, 2014-2018 (European Environmental Agency, 2021).

When it comes to GHG efficiency, motorized passenger travel is clearly ranked in Figure 7. Passenger-km (pkm), which refers to moving one passenger over one kilometre, is the relevant unit. With GHG emissions per kilometre that are much lower than those of the majority of other modes, trains are the most effective means of passenger transportation in the EU. The second-most effective mode of passenger transportation is maritime. However, the amount shown here primarily represents emissions from automobiles and passengers-carrying roll-on/roll-off boats. The thorough results demonstrate that emissions from other types of passenger ships, such as cruise ships, can be far greater. Together, buses and coaches make up the most effective mode of passenger transportation on the road. These vehicles' various usage, however, have an impact on how efficiently they emit emissions. The least effective and most environmentally damaging modes of passenger transportation are passenger airplanes and private automobiles. The findings imply that between 2014 and 2018, the efficiency of both rail and aviation passenger transport increased by 12% and 13%, respectively. The electrification of the rail network and the

decreasing carbon intensity of the EU's power mix are mostly to credit for this in the case of rail. Gains in aviation are mostly attributable to the adoption of more effective aircraft. Car travel's GHG intensity slightly decreased throughout the time frame in question. GHG efficiency for bus and coach travel appears to have decreased. (European Environmental Agency, 2021)

Furthermore, the next figure focuses on the freight transport. Compared to passenger transportation, freight transport has a significantly wider range of GHG efficiency rates. So much so that the left portion of Figure 8 was scaled using a logarithmic scale. Tonne-km, or transporting a payload weighing one tonne over a kilometre, is the pertinent unit.

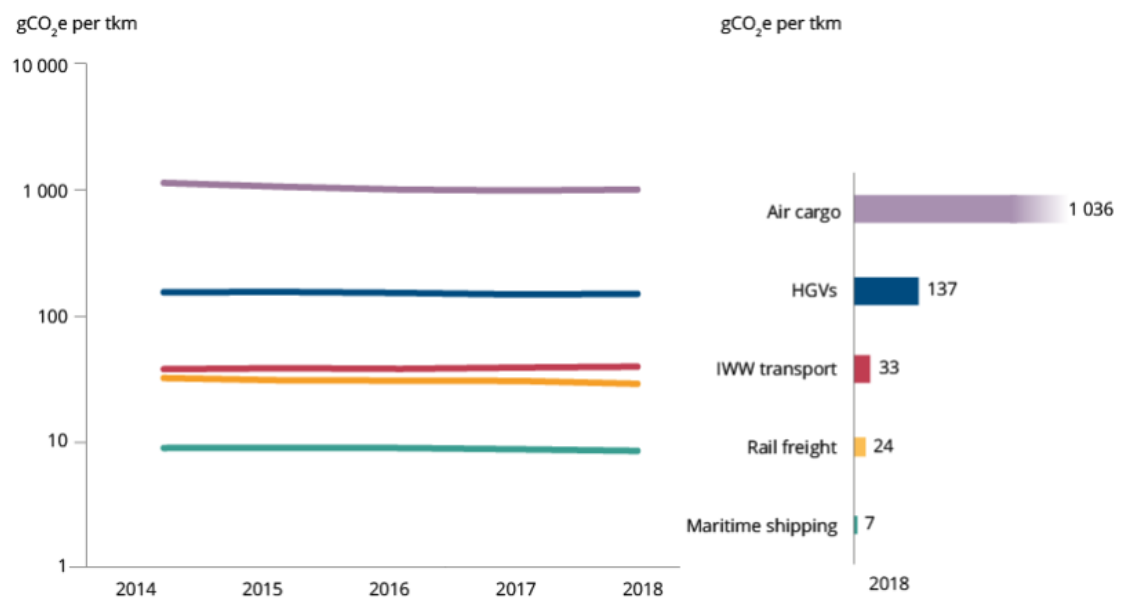


Figure 8. Average GHG emissions by motorized mode of freight transport, EU-27, 2014-2018 (European Environmental Agency, 2021).

When compared to the emissions produced by a heavy goods truck (HGV), those for freight moved by rail, inland waterways, and maritime ships are quite low. By far the mode with the largest emissions is air cargo. Air cargo, however, experienced the greatest increase in GHG efficiency between 2014 and 2018, followed by rail freight (11%). This trend is driven by more efficient airplanes and the electrification of railroad lines, similar to how passengers are transported by air and train. HGVs only exhibited a 3% marginal improvement. However, not all transit duties are well adapted to all kinds of transportation. As

a result, switching from one means of transportation to another is not always an option. What is feasible is limited by geographical (e.g., transportation over sea), infrastructure-related, and time-sensitive (e.g., express delivery or perishable goods) issues. Additionally, the most effective motorized transport methods can only be used in conjunction with other modes of transportation since they can only be employed between transportation centres like ports and rail freight terminals. (European Environmental Agency, 2021)

Coming back to the topic of Rail Baltica, as this project is a current undertaking, it has to include environmental respect. Compared to other modes of transportation, railways are significantly and quantifiably more environmentally friendly. Due to RB's complete electrification, CO₂ emissions will be as low as possible. Data acquired for RB's cost-benefit analysis shows that it will also reduce air pollution by 18.3% and noise by 4.7%. The RB project is anticipated to aid in reducing climate change as a result of these and other environmental issues. In terms of environmental impact, the RB route has been carefully planned to respect protected regions in addition to mitigating climate change and reducing emissions. To lessen the impact on migratory paths and natural habitats, special animal tunnels will be constructed across the embankment. (Rail Baltica₁, n.d)

3.3 Socio economic benefits analysed by the EY

In this section there will be a discussion about the Socio-economic analysis that is provided by Ernst & Young. EY (2017) published a Cost-Benefit Analysis of the global railway infrastructure project Rail Baltica. It highlights the impact from RB to the outside parties.

RB will serve as a gateway to connecting the Baltic countries, providing access not only to labour market, study places, healthcare institutions but also resources, other markets and tourism. This transportation network will open up options for choosing jobs or education in a larger area. The significantly reduced travel time will bring communities closer together and allows them to

access a more suitable study or employment environment without leaving their existing abode. By reducing input costs and the amount of time spent traveling unproductively, improved access to labour markets promotes economic growth and raises productivity, which in turn raises demand for transportation. The employment market continues to expand as a result of economic expansion that is supported by more efficient use of time and financial resources, which raises demand for transportation services once more.

Better access to healthcare facilities not only increases the catchment area of these facilities, boosting their competitiveness, but also allows patients the chance to select the finest healthcare options among a wider range. The Baltic States' healthcare systems have varying levels of patient satisfaction and in one state or another specific medical operation may be carried out or not. RB would offer a quick and safe transportation option to go to the greatest healthcare option in the Baltics.

RB also will provide access to resources, for instance, raw materials, components and goods. The new railway will improve the movement of resources between markets, lowering the need to stockpile goods. As well as, it will offer Central and Western Europe markets quick and dependable access to and from Northern and Eastern bulk resource markets. Better access to markets is a result of higher competitiveness and economic growth. RB will improve connectivity from Riga to nearby nations and all of Europe. The North Sea-Baltic Corridor and farther into mainland Europe, including the Visegrad area, Southern Germany, and Northern Italy, would be accessible to exporters from the Baltic States thanks to the integration of the European railway system. For example, this railway line it would improve access to Poland's agricultural and technical equipment markets, which are both sizable and typically accessed by road.

Last but not least, RB will open access to tourism. Investments in the transportation infrastructure of famous tourism destinations can encourage cross-border travel. Proximity to well-known tourist destinations can improve

tourism activity. Due to more favourable trip times compared to both road and air transportation, the new form of transportation will boost mobility in the area. Tourism and allied industries will expand as a result of this factor. Given that tourism makes up a sizable portion of the GDP, economic expansion and the creation of new job opportunities should further boost demand for transportation.

RB project will increase reliability of passenger and freight transport, exports and transport capacity. A profitable supply chain is created by highly dependable freight transportation. Strong supply networks boost output and accelerate economic expansion, both of which directly influence rising transportation demand. Since road and air travel are mostly utilized in the Baltics, RB would provide a dependable option for freight and passenger transit. Weather can unpredictably affect air travel, while significant traffic volumes or winter conditions make road traffic slower and more unpredictable.

Furthermore, transport infrastructure lowers export obstacles, and as exports rise, so does the need for new transportation infrastructure. Through the development of new export destinations and the improvement of connectivity, exports will rise. As mentioned, RB will increase transport capacity. Due to the economies of scale, the ability to move larger quantities of commodities affords a competitive advantage. For Baltic companies exporting grain, wood (and wooden products), and other commodities that now require additional links in the supply chain and are only available in states with sea borders, RB will reduce costs and maybe open up new markets in Central and Southern Europe. Therefore, for supply chains, higher railroad capacity may boost profits and result in cost savings.

4 How is it financed?

In the latest financing phase, the EU's transportation received 25.81 billion euros. The remaining 33.71 billion dollars of the total budget are allocated to energy and digital connections. The trans-European transport networks (TEN-T)

will receive a priority for the 1.56 billion euros allocated for rail projects, with an emphasis on cross-border projects with an EU added value and linkages between "cohesion nations." Additional funds from the total transportation budget can be allocated to railways, but also to roads and waterways. All CEF-funded projects must comply to EU and national climate and energy plans. It was agreed that at least 60% of the funds would be used to support the EU's climate objectives. (Geerts, 2021)

Rail Baltica is now one of the region's largest investments in enhancing mobility and travel prospects, as well as promoting business, trade, tourism, and the interchange of commodities. The RB project is funded by the national governments of Estonia, Latvia, and Lithuania, as well as co-financing from the European Union of up to 85% of total eligible expenditures, namely through the Connecting Europe Facility (CEF) financial mechanism. (Rail Baltica₂, n.d.)

According to the previously mentioned EY Cost-Benefit Analysis, the overall anticipated cost of the project in all three states is 5.8 billion euros. Estonia – 1.35 billion (national share ~268 million); Latvia – 1.968 billion (national share ~393 million); Lithuania – 2.473 billion (national share ~493 million). (Rail Baltica₃, n.d.)

4.1 Is Rail Baltica suffering from the White Elephant Syndrome?

When political motives take precedence over economic ones, organisational effects such as the "*White elephant syndrome*" can result. A white elephant is a term used in business to describe an unprofitable investment, real estate, or company that is so expensive to manage and preserve that it is challenging to do so while generating a positive cash flow, turning a profit, or even selling it for the asking price. (Veebel, Markus and Ploom, 2019)

When the White Elephant syndrome manifests, project managers typically do not use pilot or test project options, claiming that prior tests are either impractical, extremely expensive, or time-consuming. Prassner (2007), Syvret –

Syvret (1996), Papanikolaou (2013) and Scott (2007) have listed the elements that make up the “White Elephant Syndrome”, they are as follows:

- 1) It is presented as a gift—or a partial gift—to a local authority and is intended to symbolize integration and progress. The gift will be given to the receiving side, who will only shoulder a portion of the expenses. The White Elephant will continue to use more resources after delivery or completion.
- 2) In normal conditions, the White Elephant cannot be sold because it has no market value.
- 3) It is enormous, out-of-date, and incapable of being modified to meet local requirements. It does not contain any contemporary, client-focused, or reasonable technology.
- 4) It is frequently motivated by supply rather than need - "we can build it," instead of "we need it," typically portrayed in the "build it and the clients will come" mindset.
- 5) There is insufficient initial or independent evaluation of the project's viability as a result of poor project governance, which leads to excessive interference in design, budgets, and management. As a result, expectations are exaggerated, overly optimistic, or left unspecified, and it is unclear what level of certainty and reliability the project plans and preliminary assessments have.
- 6) Timelines are shortened, unknown, or set up to coincide with election cycles, and there has not been much engagement with the right parties.
- 7) High degree of disinformation that decision makers encounter, such as whether to build and what the risks are. As a result, there are expense overruns and/or benefit deficits. (Veebel, Markus and Ploom, 2019)

The previous sections have described the current state of the railway network in the Baltic States. Looking at local initiatives to strengthen and improve the current railway link, it appears that both profitability and governmental willingness to ensure long-term subsidies are lacking. As is known, in the Baltic States until now the railway network has been mostly used for freight transport, particularly from Russia. Although recently the use of passenger transport services has significantly increased, this was achieved only with the assistance of the state's subsidies. (Veebel, Markus and Ploom, 2019)

Despite that the RB project's origin is in the early 1990s, its first thorough cost-benefit analysis was carried out in 2011 and was published by AECOM Limited. The report described the RB project as financially stable, because under certain assumptions the financial analysis projected a positive cumulative cash flow in all the years. In spite of this, without the EU support, the financial indicators revealed poor performance. In the end the report concluded, that the subsidies should not be required during the operational time, but they might be useful during the start-up period to boost the early demand, particularly for freight traffic. Nevertheless, the political view was recognized as a significant factor, not only it would include the Baltic States to the EU standard gauge railway network but also it would increase the chances to develop each state. (Veebel, Markus and Ploom, 2019)

On the contrary, a report published in the 2014 by the Directorate-General for Internal Policies (European Parliament) emphasises that the export/import figures are a source of worry and analyses that various scenario may not be profitable to all countries involved. For example, the trains travelling from east to west and north to south (from Russia to Germany or the Baltic states) might be rather full but on the way back empty, which would not be cost-effective (Directorate-General, 2014: 42). Not to mention, the local experts in Estonia disagree with the investigation from AECOM, arguing that the analysis was based on unreasonable assumptions and unrealistic expectations for the volume of the passengers and freight transport (Neivelt, 2014). They also question the rationale behind the chosen route of the railway and highlighting

that the survey results are clearly out of date today. The local experts also underlined that the source for the annual operating costs and the capital costs for the RB project are ambiguous and that the costs for maintaining the existing railway lines and the construction of the RB should be covered at the same time. (Veebel, Markus and Ploom, 2019)

A more recent and realistic cost-analysis was published by Ernest & Young in April 2017. The new report is more precise regarding the revenue, and at the same time more optimistic. However, the optimism is positioned towards economic development in Finland. According to the paper, market analysis and forecast modelling demonstrate that the RB project has a clear potential in terms of both passenger and freight flows, and that the potential is sufficiently balanced. However, without the support from public co-financing the project will not be financially sustainable and the net revenues would not cover the investment costs throughout the course of the project's lifecycle. This is partially due to the infrastructure charging principles outlined by the EU transport policy. The main difference between the Estonian and Latvian studies is that "linking Europe" is no longer the goal for the Estonians and Latvians. According to the investigation, the building stage is perceived as economically advantageous, but the operating stage is only considered as socially rewarding while being financially hard. (Veebel, Markus and Ploom, 2019)

Ultimately, both analyses published in 2011 and 2017 suggest that there is overestimation of the project revenues. The three Baltic States already have a railway track linking the three capitals, although it is not frequently used. Moreover, the freight transportation has the access to three goods ports and seaways in the Baltic Sea area. Therefore, a question arises, from where would the extra passengers and freight come? Evidently, the project's high-speed component has mostly focused on passengers. With this in mind the initial goal was to connect the Baltic States to Central Europe. However, the three states already have national airlines with the aim to connect passengers to Europe more economically time-wise and competitively priced. The estimations can also be doubted because, for instance, the comparative costs of airline tickets

seem to be based only on the most expensive options, and once again, only trips beginning at RB stations are included in the price comparison, disregarding the fact that far more than 50% of the Baltic population does not reside in the cities served by RB stations and may encounter difficulties getting there due to underdeveloped public transportation infrastructure. (Veebel, Markus and Ploom, 2019)

All freight is anticipated to move from the old Russian-standard railroads to the new European standard railroads. The upkeep and other expenses of state-owned infrastructure and public transportation enterprises (such as national airlines) should be part of the RB cost/revenue calculations, which is a key issue. It is critical since these industries and services cannot continue without state assistance, and the subsidies have also been justified as contributing to the life-line linkages to Europe and generating significant non-internalized advantages. So, by funding the RB, the Baltic States will inevitably enter the market of their own national carriers. It is believed that an overall optimism will increase the usage of RB for freight, although it is difficult to pinpoint which specific freight group will be interested, if there is already a cheaper and slower railway and sea transport. (Veebel, Markus and Ploom, 2019)

No assessment has considered RB's project entirely capable of surviving market circumstances or luring private investors, in this situation. None of the assessors have also acknowledged that, even when the internalization impact is taken into account, the project may still not be profitable at any point in its lifecycle. The AECOM highlights how the project is sustainable when the maintenance expenses are included but the initial investment is left out of the service rates. As a result, it is anticipated that the infrastructure, if built by national governments and the EU, will be able to stand alone. On contrary, EY acknowledges that even after the initial investment is completed, the project will not be able to produce enough revenue to pay for maintenance expenditures. As a result, lifetime subsidies are required. Meanwhile, societies should encourage the initiative since the non-internalized advantages, environmental implications, and social welfare outweigh the necessary subsidies. Numerous

impartial experts concur that the project will not create enough financial flow to meet even basic operating expenses, but they are sceptical of the social and environmental advantages. (Veebel, Markus and Ploom, 2019)

Is Rail Baltica meeting requirements for a 'white elephant syndrome'? Since the beginning of the project, RB has been established as a symbol of European integration, a good collaboration effort with local governments, and a statement that Europe needs and handles the Baltic requirements, for instance the modern technologies and infrastructure. In the 2000s the freight volumes started to grow and a discussion of "belonging to Europe" became popular, in sense that there was a need to develop and improve the transportation options and quality. (Veebel, Markus and Ploom, 2019)

Both analyses demonstrate the "build it and they will come" mindset because the necessary cargo volumes do not yet exist. It is anticipated that the new customers will emerge even though the new prices will be higher and the economies will be more service and industry based. Besides the current Baltic railways are experiencing low volumes, need maintenance costs and will remove a certain trade flow group that is not dependent from speed, therefore affecting the profitability for RB. When RB is implemented, maintenance costs will increase significantly compared to the current system, but trade flows will continue to be based on market demands and industry capacity. According to the estimations made thus far, the RB infrastructure itself will be the biggest advantage for the Baltic States. It appears that none of the evaluators have given any thought to describing the degree of certainty and dependability of the project plans. The overall amounts and percentages paid by taxpayers to national governments have been rising continuously. However, the assessors have only included the cost for an average operational year (2035), leaving out the possibility of rising expenditures over the course of years of usage. (Veebel, Markus and Ploom, 2019)

The European Regional Development Funds are responsible for creating Rail Baltica, because no private investors or local governments saw this project as

economically attractive. However, large non-local corporations will construct and provide the necessary components for RB, earning the measurable financial benefits, while local corporations are only expected to assist the project and are intended to benefit socially and environmentally. Local member state governments are expected to contribute around 30% of the initial expenditures. If the White Elephant scenario comes true, they will be significant net-payers. Even though the positive outcomes, including social and environmental benefits are listed, it is still uncertain who and how long will compensate the gap between RB income and the maintenance costs. Instead of conducting a reliable study and tailoring the project to the necessities of actual life, the institutions have remained with the original design. This certainly relates to emotional reasons, institutional incentives, and process dependency, which might, in theory, lead to irrational resource allocation and a "lock-in" situation. When rational and quantitative reasons run out, symbolic arguments tend to take over: 'It is our only stable road connection to Europe' and 'the current offer is unique'. The Baltic States have had a pretty reassuring experience with significant internalisation combined with limited direct income from national carriers. Air Lituanica and Estonian Air, for example, have gone bankrupt, while airBaltic is only surviving thanks to enormous injections of public assistance. (Veebel, Markus and Ploom, 2019)

Most of the factors listed for "white elephant" were met. The rest of them will need to be evaluated after the project reaches the construction phase. RB cannot be viewed as an economically successful project or even as having reached the point of equilibrium between operational costs and revenues. The fact that the focus of the criticism has thus far been on how to improve the RB rather than whether it is necessary or not reveals a crucial aspect of the discussions surrounding the project. The fact that the project management and national governments are largely unaware of how to implement any of these suggestions or even have a serious conversation about them suggests that the project may be experiencing the White Elephant syndrome. (Veebel, Markus and Ploom, 2019)

To complement the above, in an interview Priit Humal, who is one of the leaders of Avalikult Rail Balticust (a citizen movement and a non-profit organization from Estonia that has its doubts about Rail Baltica), stated his disbelief that all the promises of RB and the costs will outweigh the benefits. His criticisms are based on the fact that RB in the beginning was about upgrading the railway from Warsaw to Tallinn. However, in 2011 the general plan changed to building a brand-new parallel railway in another location. RB will operate through a sparsely inhabited area surrounded by wild nature which will be far more expensive than imagined, and there will not be enough traffic to be expected. (Geerts¹, 2021)

Even though the EU is financing 85 percent of the project and the Baltic States can benefit from receiving a good rail connection with a lot of support, Priit Humal still thinks that the national expenses are too high for the Baltic States' economies. The 85 percent is a financing rate on the paper, which still is a limited amount. The project's results can be unpredictable and the official budget, which is 6 billion, can and will be exceeded, forcing the Baltic States to pick up the rest. The cost of the Riga terminal improvement, the largest construction deal, is nearly two times higher. It is quite improbable that the final figure for the 85 percent that the EU will fund will just be 1.6 billion. The prediction is that it will be closer to three billion. To put that in perspective, the HS2 line in the UK will cost over 100 billion euros, and some people now believe that it may be too expensive. Rail Baltica is at least three times more expensive for Estonia when compared to the UK's GDP. Politicians in the EU find it difficult to comprehend this as well. Due to Estonia's small economy, failure would be devastating for both Estonia and the European Union. (Geerts¹, 2021)

One of the reasons for RB is to have a standard gauge to connect the states with Europe. However, the two-gauge sizes in small countries are very expensive, because the trains cannot switch tracks. By all means no one has enough money to change the existing gauge, not even the EU. Positive benefit from the RB is that it will create local jobs, but unfortunately, the reality is

different. There is a shortage of construction workers and most of them are imported from other countries, for instance Ukraine. Construction costs are also rising. In reality, other planned construction projects in Estonia, including those for roads, are currently being delayed to make room for Rail Baltica because otherwise there would not be enough workers. As conclusion Priit Humal says: *“In the end, the expectations and promises of Rail Baltica are unsure and unrealistic. For Estonian and other Baltic people, it sounds good to have a good new railway connection, and officials and politicians have unrealistic dreams”*. (Geerts¹, 2021)

5 Perpignan–Figueres railway link

5.1 Details of the project

In 2001 the French and Spanish governments agreed to build a new railway line from Perpignan, France to Figueres, Spain. The cross-border region became popular for continuous traffic growth, in particular for freight. The new connection will significantly reduce transit times over the border because previously it was forced to go through the change of gauge at Portbou, shown in the following Figure 9. (Railway Technology, 2002)



Figure 9. Route of the TGV line between Perpignan and Figueres (Tourmag, 2015).

The construction of the project Perpignan and Figueres railway started in the autumn of 2004 and was planned to be finished in 2009. This fragment represented as an “international section”. which has double track and international railway spacing. (Masson, 2009) This section is part of the Southern Mediterranean Europe high speed railway (HSR) project:

- Lyon–Marseille and Lyon– Nîmes
- Montpellier–Perpignan
- Perpignan–Figueres
- Figueres–Barcelona
- Lleida–Barcelona
- Madrid–Zaragoza–Lleida

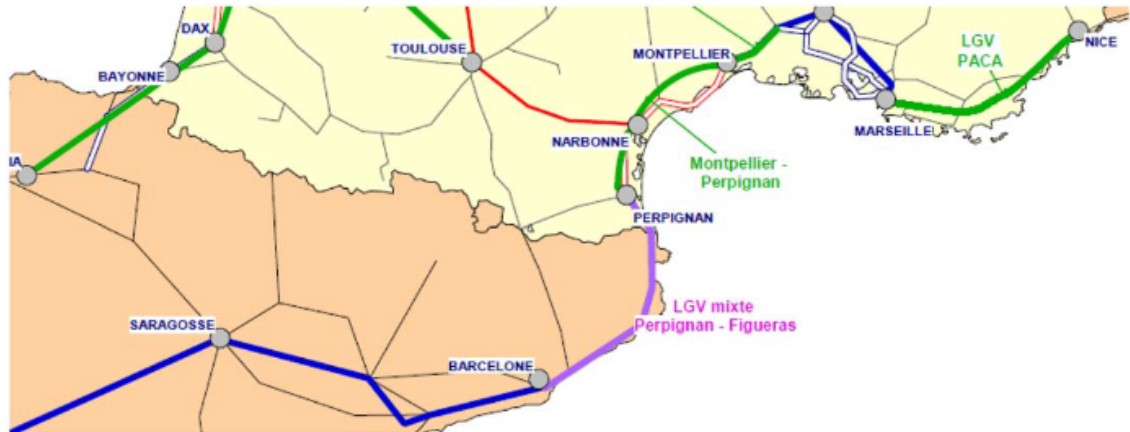


Figure 10. The HSR line between Perpignan and Barcelona. (Masson, 2009)

The Perpignan-Figueres high-speed line is one of the largest European projects aiming to solve technical barriers and bottlenecks between rail networks. The cross-border project between Perpignan (France) and Figueres (Spain) is the direct link between Spanish rail network to the rest of the Europe (TEN-T). Since 1988 Spain has successfully developed an UIC (international union of railway) gauge network. The 44.4 km double track line is divided in 24.6 km in France and 19.8 km in Spain. (UNECE, 2021)

However, this project might be a small but essential part of the high-speed link that connects Madrid and Marseille, providing travellers with an alternate to the increasingly crowded air and road routes. In the 1990s, traffic over the Pyrenees increased steadily; by 1998, 144 million tonnes per year of freight were traveling from Spain to the rest of Europe. 15,000 heavy goods vehicles (HGV) cross the Pyrenees every day, and that number is expected to keep rising at a rate of more than 10% per year. Rail freight on the existing four lines only accounts for 3% of that total. By 2020, according to industry estimates, that number will have more than doubled. At the moment, all trains crossing the border either go through a gauge changer or have their cargo moved between wagons, which slows down the process. The line will not only be a desirable option for travellers hoping to significantly shorten travel times between Spain and its European neighbours, but it will also present a quick and practical freight alternative that will offer a long-term solution to the severe cross-border traffic congestion. (IJGlobal, 2005)

Spain and Portugal share the same size gauge which is 1668mm. The Iberian track gauge was another name for it when it was first introduced in the 19th century. There is a gap between the nations since the rest of Europe uses the standard gauge size of 1435 mm. Therefore, it created delays, costs and inconvenience. Furthermore, after considering several options, the Spanish government agreed in 1988 to construct new high-speed rail lines using standard gauge and link them to the rest of Europe. Following decades of investment, Spain's high-speed rail system has become the longest in Europe and the world's second longest behind China. (Sanchis, 2021)

Carlo Secchi, the European coordinator in charge of organizing high-speed rail connections in southwest Europe at the time, made a statement in 2011:

"This link between the two main high-speed rail European networks overcomes an historical natural barrier. The new cross-border section represents a major achievement for the internal market and for the mobility of citizens. I am proud the European Union played such an essential role in making this possible." (European Commission₂, 2011)

The project's ultimate purpose is to strengthen the European high-speed rail connectivity. The Montpellier-Perpignan part, according to some economists, is not socially beneficial. As a consequence, if the French side does not complete their HSR line for the time being, it will limit Perpignan's development potential. By removing both the Pyrenees' geographic barrier and the disparity in rail spacing between France and the Iberian Peninsula, the building of this HSR will enable a significant reduction in travel times: Barcelona and Perpignan's travel time would be 50 minutes instead of 2 hours and 45 minutes, while Barcelona and Paris's travel time would be 5 hours and 35 minutes rather than 9 hours and 35 minutes. Only the trip time between Perpignan and Spain will be reduced as a result of the HSR; the journey time between Perpignan and other French towns will not change. As a result, Perpignan cannot rely on the new infrastructure to bring in more French tourists. (Masson, 2009)

5.2 Benefits

When evaluating the mobility effects of new connectivity, in this case the route French border-Barcelona-Madrid, caution is required. From past experience, the time and costs have decreased as a result of changes to transportation infrastructure. Reducing interaction costs, enhancing the system's overall competitiveness, and enabling more specialization are all benefits of improved transportation networks that allow for the use of economies of scale and specialization benefits. Hence, it can be expected that manufacturing and other commercial sectors may be performed more successfully when a region's transportation networks increase in terms of both quality and capacity.

(Gutierrez, 2001)

The high-speed train makes it possible to connect cities in ways that were previously unthinkable. Its competitiveness in the transportation sector is influenced by a variety of factors, including its capacity to handle heavy passenger loads, transit times to the major economic facilities, and service quality. This movement is essential in the European regions, where large metropolitan areas are separated by hundreds of kilometres in distance. It is clear that decreasing travel times has an effect on accessibility conditions and, as a result, on the relative location of places because the structural distribution of the EC regions within Europe and the accessibility of large conurbations and infrastructure centres are factors of the regions' attraction and development capabilities. (Gutierrez, 2001)

5.2.1 Tourism

It has grown increasingly difficult to understand how transportation system and economic growth, particularly regional development, are related. Many individuals believe that improving and expanding existing infrastructure is not only a desirable but also necessary instrument for regional growth. The argument suggesting transportation infrastructure projects have a significant influence on the expansion of local economies has frequently been used to

support the choice to invest in transportation infrastructure. Understanding the market and industrial structures for tourism is where the examination of transportation's influence on tourist has the most difficulties. Regarding both the nature of the product and the method of distribution, tourist supply is in fact a complicated issue. It refers to:

- the demand that customers approach the product;
- the inability for customers to try a tourism product before buying it;
- significant reliance on historical or cultural monuments or environmental assets;
- the capabilities for any tourist attraction being immobile;
- the presence of several components that make up the tourist industry;
- the tourist industry's (typically seasonal) nature;
- the broad range of sub-sectors, suppliers, and manufacturers that comprise this industry. (Masson, 2009)

The tourism industry's product is a mixture. Transportation, food, and housing make up the bulk of the complementing demand for tourism. When examining the connections between tourism and transportation infrastructure, it is necessary to investigate how changing transportation costs affect both visitor behaviour and tourism suppliers. (Masson, 2009)

The study on the high-speed rail impact on local economies examines the "structuring effects" of transportation infrastructure was viewed as a source of prosperity under all conditions and forever by expanding the markets and enabling production and exchanges. The validity of this idea was highly questioned. In fact, studies on the impact of the highway system, and subsequently on the impact of high-speed rail, questions the automatic nature of the changes brought on by new transportation infrastructure. The idea that building transportation infrastructure would lead to growth and wealth has gradually faded since the 1970s. This strategy was abandoned in favour of a reflection that gives the infrastructure-valuation strategies a significant character. As a result, the provision of transportation is no longer seen as a means of creating wealth but rather as a tool that must be developed by the

government through the adoption of supporting policies. As a result, the initial determinism changes to purpose. In the 1990s, many communities implemented programs of valorisation to draw in new businesses and make HSR the engine of their economic development. These measures did not, however, always have a positive impact. Finally, in comparison to the economic and spatial framework in which it is embedded, the transport network plays a supporting function. Thus, the transport facilities enable functions and allow adjustments to the pre-existing interactions before becoming a processing component of the economic relations. Only when local possibilities and player strategies suited to these potentialities are present, the impacts of the HSR are evident. The facility's structuring aspect now comes from the structured environment in which it belongs, not from the facility itself. Any direct connection between causes and effects is disregarded in this new definition of the idea. The outcomes are influenced by the HSR's relationship to the economic and spatial contexts. Rarely are the observed alterations solely attributable to the HSR, but rather to a variety of converging causes. Even while they are seen as a direct result of the new transportation options, changes in travel habits are actually the result of the interaction of many different causes. The impact of the creation of the European transport network on the growth of European regions has recently caught the curiosity of several economists. (Masson, 2009)

Today, there is a significant exchange of excursionists (day-trippers) between the Spanish province of Catalonia (6,209,000 people) and the French administrative area of Languedoc- Roussillon (2,400,000 people). This is due to the geographical closeness of Perpignan and Barcelona. In 2000, there were 723,200 tourists from Languedoc-Roussillon traveling to Catalonia as opposed to 415,100 tourists traveling the other way. The three primary reasons people take excursions from Languedoc-Roussillon to Catalonia are to shop (60%), go on vacation (20%), and see relatives or friends (9%). Additionally, a recent study on the mobility of culture and leisure revealed that few people from the Perpignan region visit Barcelona. The majority of tourists to Barcelona are qualified independent individuals and business professionals. Their travel is primarily for shopping and sightseeing in different cultures. According to the

respondents, the HSR's construction will boost their travel. There is an asymmetry between Perpignan's and Barcelona's tourism potential. While Perpignan is a tiny city with a couple of historical sites, Barcelona is a prominent European metropolis with a substantial architectural heritage along with an extensive range of buildings and visitors' amenities (parks, museums, etc.). The deployment of the HSR for the tourism industry's growth therefore seems to benefit Barcelona more than Perpignan. (Masson, 2009)

It can be said that HSR contributes to development for urban and business tourisms. When viewed from this angle, Catalonia (including major European city Barcelona) places a far greater emphasis on the increase of tourism. The use of the transportation would imply an increase particularly in business tourism, for Barcelona. As a result, the full-service destination becomes more appealing and tourism grows. Therefore, the tourism attraction for Perpignan declines. (Masson, 2009)

5.3 Financed

Public-private partnership (PPP) agreements can be used to get the most effective management of rail transport. Public-Private Partnership is a collaboration between a government and a private-sector company, it allows large infrastructure projects to be completed with private funding (Investopedia, 2022). PPP permits access to benefits associated with the private sector, such as skilled project management and innovation, while reducing the amount of public funding required. It also encourages private investment. This partnership has been successfully implemented in public services like road transportation, but it is not a typical model in high-speed rail transportation. Only a small number of high-speed rail lines have been built using PPP agreements. (González-Medrano and Martín, 2021)

Perpignan to Figueres, the HSR link between France and Spain, was built under a PPP framework comprising a collaborative partnership among the two nations. Similar to the relationship between Portugal and Spain, bilateral summits between these two countries essentially determined the features of the

international stretch between Figueres and Perpignan. The Madrid Agreement, which was signed by Spain and France after the Spanish-French summit conference in Madrid on October 10, 1995, established a foundation for the construction and operation of a HSR link between Spain and France through Figueres and Perpignan. (González-Medrano and Martín, 2021)

Public investment made up 57 percent of the Perpignan-Figueres link. This 44.5 km railway link was authorized by the French and Spanish government railroads, and a combination of private enterprises from both nations built it, which is an example of concession PPP. It will be run as a joint partnership. As a compensation for the right to run the line's infrastructure and impose tolls at rates outlined in the concession agreement on each passenger and freight train that traverses the tracks, the concessionaire assumed financial risk in the operation. (Henn, 2013)

Due to construction delays, the service was unable to launch as planned, requiring an extension of the concession agreement from 50 to 53 years as well as additional government investment to assure the concession group's financial viability (loan funding of 20.4 million euros in 2009, 45.9 million euros in 2010-12 as well as 62 million euros in additional support). An overall public investment of 57 percent of project expenditures was required for financing. The benefits of cross-border mobility were mentioned by the EU when it provided 25% (69–75 million Euro) of the budget for the Trans-European Transport Network. (Henn, 2013)

The Mediterranean corridor now serves as a connection between France and Spain, linking Paris to Madrid without changing the train or track gauge. TP Ferro, a multinational operator, was granted a franchise for the cross-border segment (Perpignan to Figueres). (Zembri, 2017) TP Ferro, a consortium formed by the French group Eiffage and the Spanish company ACS, managed the operations of the railway line between Perpignan and Figueres, in particular the cross-border portion the Perthus railway tunnel. (Ferri, 2016)

Nevertheless, this franchise was abolished in 2014 due to low volume (10 commuter round-trips per day and 12 cargo trains per week) and the prolonged postponing in the building phase of the Barcelona-Figueres HSR line (opened in 2013). The two public infrastructure carriers will be required to assume control of the underperforming franchise holder if the commercial court declares TP Ferro insolvent following the current observation period (November 2015). The bankruptcy would indicate a troubling trend, given there are presently no promises that PPPs are working on a strategy to meet the expected traffic numbers. (Zembri, 2017)

6 Comparative analysis

This chapter compares the similarities and differences between the 2 railway projects - Rail Baltica and the rail line between Perpignan and Figueres. The principal research was carried out to investigate the RB project. However, to compare it, the secondary study was carried out on the cross-border rail line connecting France and Spain. Because RB is an international project involving 3 Baltic countries, it was necessary to find a similar project involving multiple EU states.

Ironically, the talk about building a railway line through the Baltic States started already in the early 1990s, and the construction period is still ongoing. However, the Perpignan-Figueres line was introduced on 2001 and completed in 2009. Despite this, the length of the projects is very different and the involved parties also vary. The basic facts of the projects are displayed in Figure 11.

	Rail Baltica	Perpignan-Figueres
Length	870 km	44.4 km
Construction started	2019	2004
Construction ended	Planned 2026	February 2009
Involved countries	3; Estonia, Latvia, Lithuania	2; Spain, France
Part of which TEN-T corridor	North Sea - Baltica	Mediterranean
Gauge size	From 1520 mm to 1435 mm	From 1668 mm to 1435 mm
Allowed speed	Passenger trains - 249 km/h; Freight trains - 120 km/h.	Max 350 km/h; Passenger trains - 300 km/h; Freight trains - 120 km/h
Workers employed	36 000 jobs in construction phase	1500
Estimated end costs	5.8 billion euros	1,096.7 million euros
Support from EU	85 %	25 %
Tunnel	0	1; 8.2 km long

Figure 11. Details on the projects.

When starting a large infrastructure project one should ask, why it is important. Evidently, the new railway lines were planned to improve efficiency, time, and the impact on environment, and to decrease costs.

The Baltic states have a complicated history with Russia and to this day the remains of that can be seen. Different from the rest of the Europe, the Baltic States still have the Russian gauge size that creates this easy west to east movement. By not having the standard continental European gauge size, the

three Baltic States' railway system has a poor connectivity with the rest of Europe. After the Soviet Union collapsed and the States joined the EU, a discussion of "belonging to Europe" became popular and the Rail Baltica project began to establish a foundation.

The rationale for constructing Perpignan and Figueres rail line is quite similar for the cross-border connection linking France and Spain. The Iberian Peninsula region that is occupied by Spain and Portugal has their own railway gauge size. This small railway link's aim is to connect and strengthen the European HSR network. This section represents the achievements for passengers and freight mobility as a long-term solution for the cross-border traffic congestion.

The involved parties are part of the EU. Therefore, the goals shared by the EU are the goals for each state. For the last 25 years, the Commission has been aggressive in proposing improvements to Europe's rail transport sector in order to enhance rail in comparison to other forms of transportation. Initiatives have focused on three critical areas for a successful and ambitious railroad business: 1. expanding the rail transportation industry to competition, 2. enhancing interoperability and safety, and 3. building rail infrastructure. (European Commission₃, n.d.)

The history of establishing an EU-wide, transport, energy and telecommunications infrastructure policy goes back to beginning of 1990s. However, this Trans-European network in transport was developed in 1996 and in 1999 the guidelines were amended to incorporate the laws for granting of EC and EU funds to TEN-T projects. (European Commission, 2022)

Rail Baltica is part of the TEN-T North Sea-Baltica corridor and Perpignan-Figueres line is part of the Mediterranean corridor. Evidently, the two railway projects are part of the EU initiatives to strengthen and improve mobility by closing the gaps, removing the bottlenecks and technical barriers. TEN-T supports the modern and sustainable transport policies, that are part of the New EU Green Deal.

In December 2019, The European Commission unveiled its plans for addressing issues related to the environment and the climate by introducing the European Green Deal. In response to climate change, environmental dangers, and forest and ocean pollution, it intends to turn the EU into a fair and affluent society with a modern, resource-efficient, and competitive economy that emits no net greenhouse gases by 2050. (Hainsch, 2021)

The Green Deal is built of different parts extending from "a zero-pollution objective for a toxic-free environment" to "mobilizing industry for a clean and circular economy". "Accelerating the change to sustainable and smart transportation" is one of the railway sector's strategy elements. To make the European Union the first carbon-neutral area in the world by 2050, efforts must be made to reduce greenhouse gas emissions in the transportation sector. Transport is the second largest sector in terms of emissions and it represents 25 percent of greenhouse gas emissions. Railway is considered as the mode of the transport with the lowest emissions (Pagand, 2020). For these reasons, the EU is interested to financially support railway infrastructure projects and Rail Baltic and rail link Perpignan-Figueres are no different. Both projects are part of EU funding; however, the percentage is different. Rail Baltica is receiving 85 percent of EU funding, but Perpignan-Figueres only 25 percent. There are a few factors different from the two projects, for example, the end costs, the involved countries, and the length of the railway, that may have contributed to the amount of the EU support fund.

Returning to the previously discussed subject of the EU Green Deal. As previously indicated, this is the initiative through which the EU is fighting climate change. Both railway lines are electrified, giving the opportunity for travellers and businesses to choose an environmentally-friendly modes of transport.

Both projects share similar qualities, including objectives, impacts, and financial support. However, the fundamental difference is the political and economic view. Quite simply the Perpignan-Figueres railway line is to serve as an efficient solution, to decrease costs and time crossing the border. This small rail line is

the link part of a bigger picture, where tourists can travel faster by train from Perpignan to Barcelona.

The objective of the infrastructure project might be difficult when looking at Rail Baltica. The preliminary cost-benefit study demonstrates that Rail Baltica will be an economic growth instrument that will help the Baltic States' economies. Nonetheless, the project's critics argue that the project's political and socioeconomic benefits outweigh its profitability.

7 Conclusion

Without a doubt the infrastructure project Rail Baltica will change the three Baltic States in many fields. The Baltic States will be included in the European high-speed railway network system allowing the train to cross the states' borders without any bottlenecks. Rail Baltica is part of a new economic corridor to be launched in 2026 connecting the largest Baltic cities' seaports and airports, carrying passengers and cargo safely and reliably within Estonia, Latvia and Lithuania and further on. A gap is bridged reintegrating the Baltics back into Europe so that people and freight can finally travel seamlessly from the south of Portugal or Italy all the way to Finland. Additionally, RB connects the European gauge railway with the Eurasian railway system.

The linking traffic with Poland is expensive to offer and challenging to run because of the various gauge sizes. Rail has a very limited potential to contribute to actual economic growth because of historical and physical limitations. This matter was not regarded as being of great significance prior to the accession of Lithuania, Latvia and Estonia to the European Union. There is now complete agreement that the Baltic States must be completely included into the single European rail network, removing the gaping rail connection to other EU members. The major goal of Rail Baltica is to provide first-rate links for both passenger and cargo transportation between the Baltic States and Poland on the south and the Nordic nations, mainly Finland, on the north. Bearing in mind the present situation with the war in Ukraine and the complete

demarcation with Russia, this project gained another perspective and an additional boost of importance.

The total cost of Rail Baltica, including the building of the Kaunas-Vilnius segment, was projected at 5.8 billion euros based on a cost-benefit study done in 2017. Estimates of the project's economic viability and its social benefits provided the revised criteria required for the project's ongoing EU and national co-financing. The project's larger socio-economic advantages are what make it profitable. The railway will be the most competitive form of transportation for the Baltic nations once the project is finished. Rail Baltica outperforms automobiles and buses in terms of journey times between the pertinent routes. When factoring the time spent at the airport and getting to and from the airport, it is anticipated that traveling with Rail Baltica would take about the same amount of time as going by plane across relatively short distances within the Baltic States.

Given the importance of this project to the EU, the union co-finances it with grants of up to 85% of total eligible expenditures. The Rail Baltica project is already underway. Technical design works have started for the entire mainline in Estonia and Latvia as well as for the sections running from Kaunas to the Lithuania/Latvia border.

RB will also open up the most exciting prospects in the north with game-changing new routes being developed. Rail Baltica is going to mitigate climate change and reduce noise, create jobs, save time, make travel safer, saving lives, and much more. The benefits of Rail Baltica go far beyond the Baltic region, contract opportunities are equal to suppliers from any European Union member country, and even more importantly on a larger scale it is a European added-value project.

Using a comparable example, comparison research was conducted to assess whether there is any correlation between the two projects. The second project was carefully chosen, taking into account similarities, for example, if the participating countries are EU members, and whether this initiative is cross-

border and has some expected value addition. It resulted in choosing the small yet essential railway link between Spain and France Perpignan - Figueres railway line. This 44.8-kilometer-long railway was built with the same primary objective as Rail Baltica. Historically, the Iberian Peninsula has had a different gauge size system than the rest of Europe, with the exception of high-speed rail. The cross-border section, on the other hand, was inefficient and time-consuming since the train had to go through a unique gauge change. The new initiative has drastically decreased border passage time and has added value to the EU objectives.

Spain is well-known for its tourist industry. Catalonia, in particular, is physically near the south of France, making it a popular tourist destination. The high-speed rail link has made mobility more convenient and accessible. It has contributed to the development of urban and business tourism, offering tourists an environmentally friendly mode of transport.

Unfortunately, with its benefits to the environment, the railway is the least popular method of transport. With this in mind, the EU is eager to change that and fight global climate change. For the past two decades, the European Commission has been combative in reforming European's rail transport by opening the rail transport to market competition, improving interoperability and safety, and developing rail infrastructure.

While having some similarities, the two projects display a significant difference. The railway line Perpignan-Figueres has financial prospects and is a solution to a very necessary concern. On the contrary, the Baltic States have recognized the non-existent rail link with west Europe. The first introduction of RB was presented as a financially viable project; however, the arguments indicate otherwise. In the Baltic States the current condition of rail maintenance is poor, and states lack the money to upgrade them. In addition, the present freight volume is mostly handled through roads, airports, and seaports. As a result, sceptics ask how the states will maintain the new railway link's quality and where the increased freight will come from. The concept of RB was first

developed in the 1990s; however, the construction period just started in 2019. This long period of planning and looking for investors, shows that already from the beginning this was not a certain and profitable project. Consequently, the political viewpoint of Rail Baltica takes precedence over its economic one.

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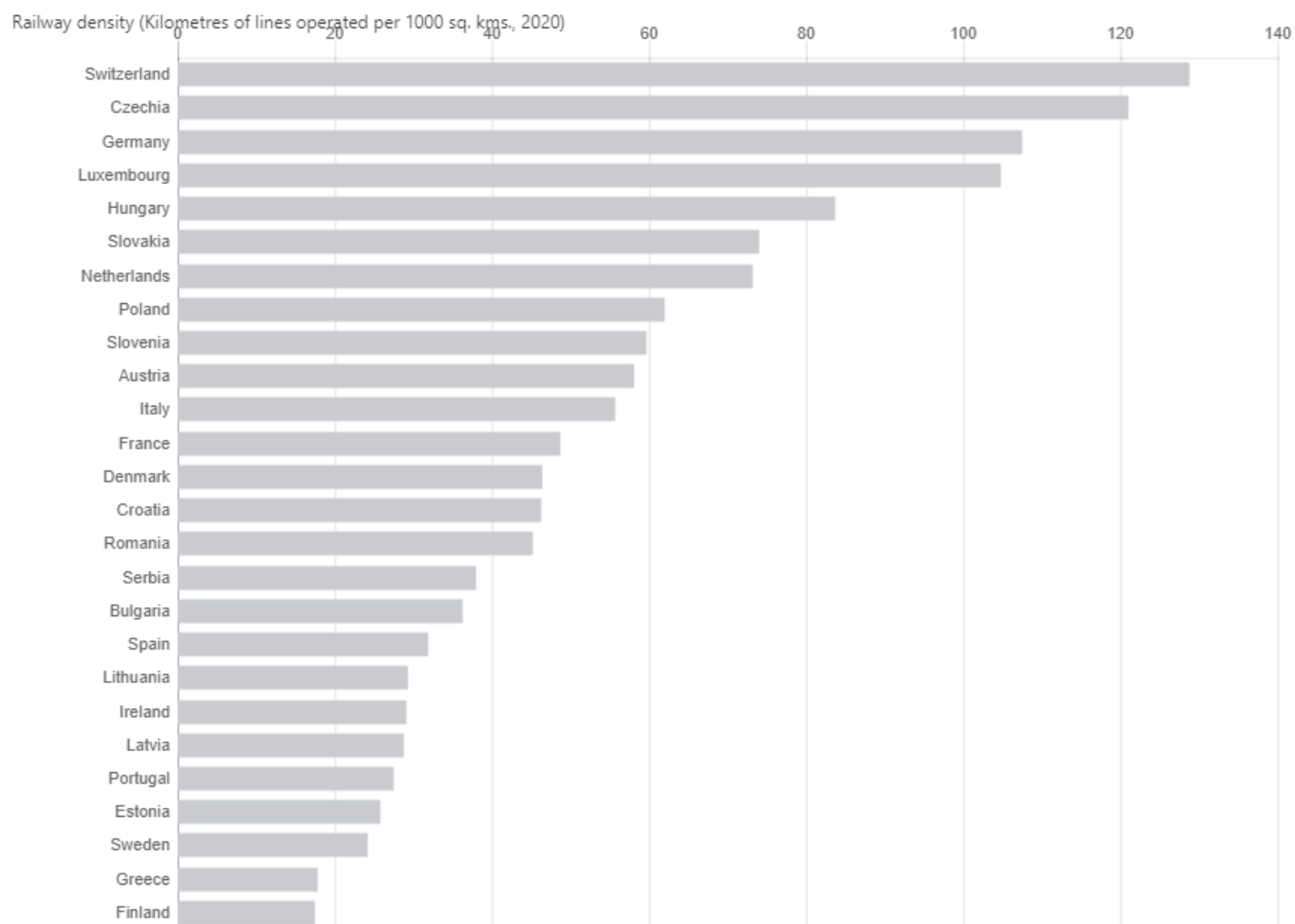
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Appendices



Appendix 1. Railway density, Kilometres of lines operated per 1000 km² in 2020. (UNECE₁, n.d)