



D.T1.1.5 WORK PAPER

Baseline Study Slovenia & Port of Koper

Version 1.0
09.2019



CONTENT

1. Introduction	3
2. Baseline study.....	4
2.1. Territorial Analysis	4
2.2. Policy Analysis.....	26
2.3. Stakeholder Mapping.....	27
2.4. SWOT analysis	31



1. Introduction

Based on the deliverable “Methodology for baseline study” (D.T1.1.3) this work paper aims at analysing the current state of rail freight infrastructure and services (status quo, policy framework and stakeholders) in Slovenia and in the Port of Koper.

2. Baseline study

2.1. Territorial Analysis

Country	Republic of Slovenia 
Capital	Ljubljana
Area	20.273 km ²
Population	2.081.000
Density	103 / km ²
Official language	Slovene
Administrative divisions	12 statistical regions (no administrative function)
Neighbouring countries	Italian Republic, Republic of Austria, Hungary, Republic of Croatia
Geographical location	Central Europe

Slovenia covers a small stretch of land south of the Eastern Alps right in the heart of Europe. Although the country is comparatively small, it offers a rich natural and geological diversity resulting also in transport infrastructure and its operation. In the west, Slovenia has a 50 km long share of the Adriatic Sea coast where also the most important Slovenian port, Port of Koper is situated. Northern part of Slovenia is characterised by the Alps, with the Julian Alps in the north-west as the highest mountain range in Slovenia also influencing Slovenian position within the European corridors.



Slovenia has been divided into 12 statistical regions (NUTS-3 level) which are grouped in two cohesion regions. Purpose of statistical regions is mainly to analyse different statistical parameters as they do not have legal effects as autonomous regions and also do not have their own regional legislation or even regional budget. From June 2011 onwards Slovenia is divided into 212 municipalities.

With its 20,000 square kilometres and about 2 million inhabitants, the Republic of Slovenia has enjoyed its independence for 28 years. It was a part of Socialist Federal Republic of Yugoslavia that fell apart in the 1990s. Slovenia shares its borders with Italy on the West, Austria on the North, Hungary on the Northeast and Croatia on the South and East. It also borders the Adriatic Sea to the Southwest. Geographically it lies on the borders of the Balkan Peninsula but historically it has always been connected to the Central Europe, being a part of Habsburg's Empire for centuries. With 101 inhabitants per square kilometre, Slovenia ranks low among the European countries in population density.

Taking into account its geographical location and historical circumstances it is easy to see why Slovenia is an intensively transport and transit area and the crossroad of two major pan-European corridors:

- **Corridor V:** Venice-Trieste/Koper -Ljubljana-Maribor-Budapest-Uzhhorod-Lviv-Kiev,
- **Corridor X:** Salzburg-Ljubljana-Zagreb-Belgrade-Niš-Skopje-Veles-Thessaloniki; the corridor Xa also runs across Slovenia, i.e. Graz-Maribor-Zagreb.

The Ministry of Infrastructure is responsible for transport in the Republic of Slovenia, in the field of rail, air, transport and maritime transport, navigation on inland waterways and road transport, except the safety supervision of road transport, tasks in the field of transport infrastructure and cable installations, tasks in the field of the energy sector and mining, and tasks in the field of efficient use and renewable energy sources.

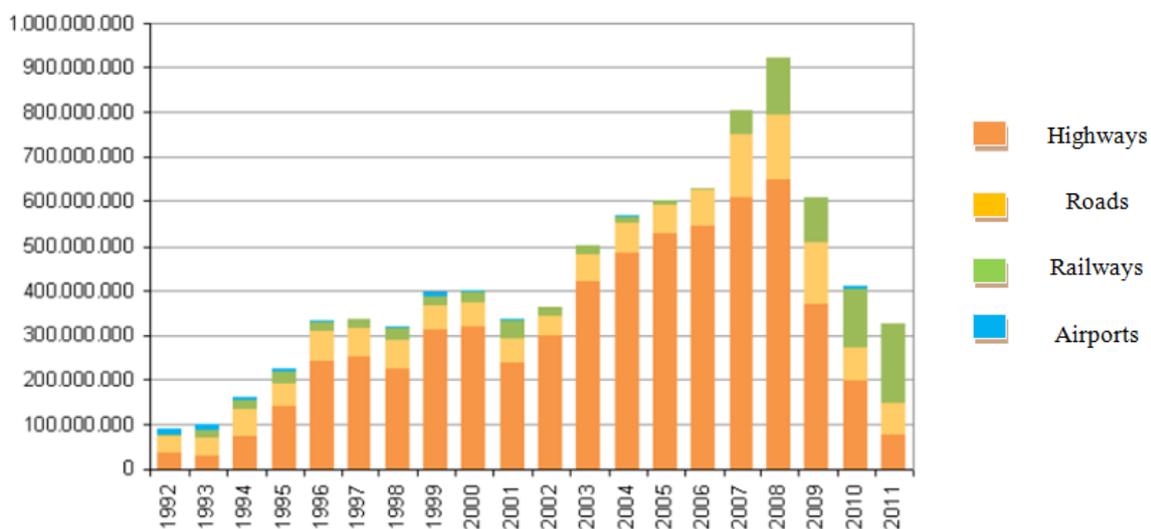
The indicator investments in infrastructure of individual transport sub-systems normally indicates the real transport policy of countries, regions or towns, since often investments are implemented



in the infrastructure of road transport despite the declaratory support of sustainable transport modes in strategic documents at the operational level.

The indicator shows that in the last ten years the Republic of Slovenia has been directing the majority (around 90 %) of its growing investments in infrastructure into the road network, especially the motorway network. Railways, which have a much higher sustainability potential, are staying behind in development due to a lack of investment. Existing railway tracks, built primarily in the 19th century, do not fit the modern transport needs with regard to their parameters and their capabilities, and are completely non-competitive compared to the modern road network of Slovenia and modernised railways in the majority of the EU countries. Air and maritime transport do not have a significant role in the structure of total investments in infrastructure.

Investments in transport infrastructure in Slovenia in the period 1992 - 2011 (in EUR)



However, in the last number of years it is possible to detect changes in the ratio of investments of state resources in individual transport sub-systems. In the year 2000, the resources for the motorway network amounted to 80 %, while 13 % were intended for state roads and only 5 % for the railway network. With the completion of the motorway network the investments have slowly begun to move primarily to the construction and modernisation of the railway network; in 2008, the investments for the motorway network decreased to 70 %, while the resources for the railway infrastructure increased to 14 %.

The Port of Koper, managed by Luka Koper d.d., is the only commercial cargo port of Slovenia and a core node in two EU TEN-T Corridors: Mediterranean and Baltic-Adriatic.

The Port of Koper lies on the shore of the Gulf of Koper in the northern Adriatic Sea, approx. 10 km SSW of Trieste and 80 km SW of Ljubljana. The Port of Koper has a strategic geographic position in the North Adriatic region and therefore important opportunities for servicing its Central European markets. It represents the shortest link from the Far East via Suez to Europe with a distance that is about 2,000 nautical miles shorter compared to other North-European ports and consequently enabling around 5 days shorter transit time. The consequent advantage is the optimization of the whole supply chain, making it more efficient and leaner, with substantial cost and time savings for the customer.

Location of the Port of Koper



The port was established in 1957 and it is a multipurpose port. Luka Koper is a company that also operates all 12 specialized terminals in the port. The Republic of Slovenia granted Luka Koper a concession for the management of the port until 2043. The core business of Luka Koper covers cargo handling and warehousing services for all types of goods, complemented by a range of additional services for cargo with the aim of providing a comprehensive logistics support for customers. The company manages the commercial zone and provides for the development and maintenance of port infrastructure.

Luka Koper is the port operator and global logistics solution provider serving the countries of Central and Eastern Europe, with a cargo throughput of more than 23 million tons, mostly focusing on containers and cars. The turnover is growing and the results for 2018 are around 226 mio euros. The fast development of technology and the contemporaneous spreading of port's capacities, due to the rising volumes of cargo transported through the port of Koper, are bringing new opportunities for the better organization of spaces and technologies adopted for the management of the cargo. It can produce a better linking with stakeholders on the same logistic chain and also a further and concrete collaboration in the region, including areas over national borders.

The port area covers 274 hectares of land, including 50.7 hectares covered warehouses and 109 hectares of open storage areas. Along 179 acres of marine surface and 3,282 meters of shore, there are 26 berths. The Port of Koper has more than 1.200 employees. Logistics services comprise:



- managing the port area,
- collection and distribution center services for all product groups,
- goods services (sorting, palletizing, sampling, security, labelling, weighing, cleaning, etc.) that goes hand in hand with the development of logistics services and upgrade customer demand,
- integrated logistics solutions.

The Slovenian market represents less than a third of total yearly throughput. Other two thirds of throughput are made on traditional and most important hinterland markets of Austria, Hungary, Slovakia, the Czech Republic, Italy, as well as Croatia, Serbia and Romania. In recent years the company has been recording a marked increase in goods throughput for the German and Polish markets. Luka Koper also offers its services at overseas markets where it promotes the Port of Koper as an ideal entry and exit point for these hinterland markets. Promotional and marketing activities are therefore regularly carried out mainly in the countries of the Mediterranean, the Middle East and the Far East.

Capacities of terminals in the Port of Koper

Container terminal	Quayside	596 m
	Max. allowed draft	14.5 m
	Berths	4
	Railway tracks	5 x 700 m, 2 x 270 m, 2 x 300 m
	Storage capacity - marine terminal	19,130 TEU
	Storage capacity - depo for empties	9,547 TEU
	Reefer electrical outlets	432
	Total terminal area	270,000 m ²
Car and ro-ro terminal	Operative shore	800 m
	Berths	7
	Ro-Ro ramps	4
	Railway ramps	6
	Open storage areas	750,000 m ²
	Covered storage areas	125,000 m ²
	Open air storage capacity	44,000 units
	Covered storage capacity	6,000 units
General cargo terminal	Operative shore	840 m
	Berths	6
	Sea depth	7 - 10 m (with prior arrangements up to 12.5 m)
	Multipurpose closed warehouses	139,400 m ²
	Roofed warehouses	3,600 m ²
	Open storage areas	40,000 m ²
Reefer terminal	Quayside	840 m
	Sea depth	6
	Berths	7 - 10 m (with prior arrangements up to 12.5 m)



	Warehouse with moisture regulating devices and temperature ranging from 0 to +20 °C	25,800 m ²
	Refrigerated spaces for deep freezing down to -18 °C	3,600 m ²
	Open storage areas	40,000 m ²
Timber terminal	Covered storage capacities	60,500 m ²
	Open storage capacities	90,000 m ²
	Annual capacity	1,500,000 cbm
Dry bulk cargo	Quay	525 m
	Sea depth	6 to 12,5 m
	Berths	3
	Closed and covered storing capacity	80.000 ton
	Open space storing capacities	40.000 ton
Silo terminal	Operative shore	500 m
	Sea depth	13.5 m
	Silo storage capacity	60,000 tons
	Flat stores storage capacity	55,000 tons
Alumina terminal	Operative shore	250 m
	Sea depth	14 m
	Berths	1
	Storage capacity	20,000 t
	Loading capacity	100 t/h
	Unloading capacity	220 t/h
Iron ore and coal terminal	Operative shore	630 m
	Berths	3
	Max. arrival draught	17.20 m
	No restriction till arrival draught	16.50 m
Liquid cargoes terminal	Total of 51 shore tanks with capacity from 300 to 20,000 m ³	203,000 m ³
	Berths	5
Livestock terminal	Number of stables	2
	Sea depth	4 to 8 m
	Berths	1+1
	Single storage capacity	1300 heads of cattle
Cruise terminal		

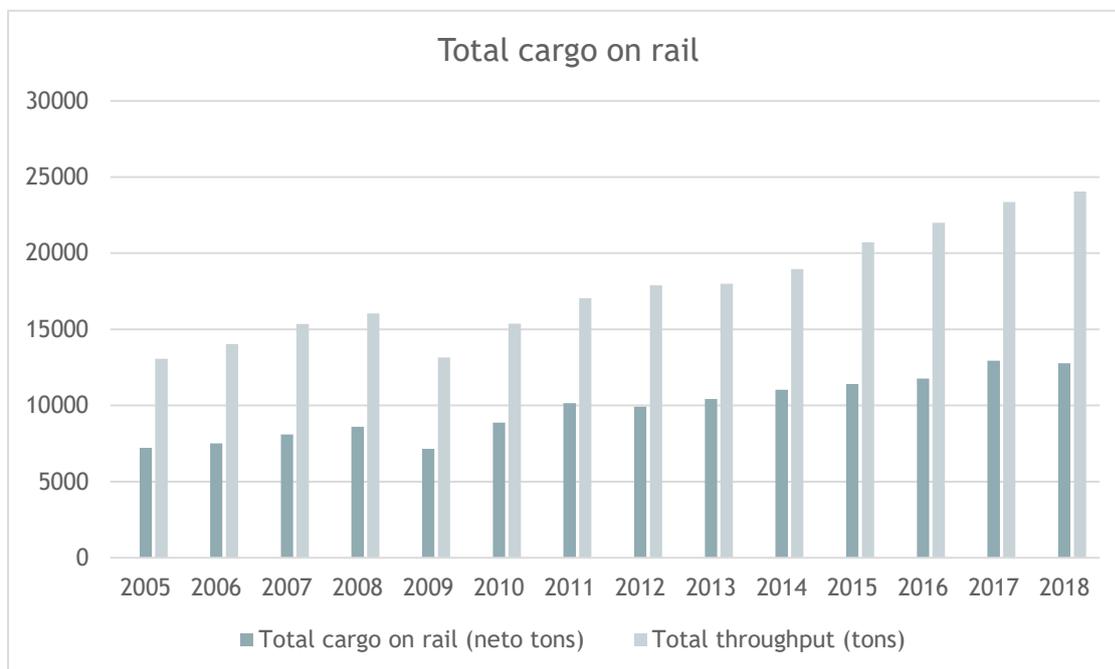


Rail connections from Port of Koper

Austria	Koper - Graz (Cargo Center Graz)	10x weekly
	Koper - Enns - Salzburg (TFG Transfracht)	2x weekly
	Koper - Villach - antenna to Vienna, Linz, Salzburg, Wolfurt (RCO/Adria Kombi)	up to 5 trains/week
	Enns - Koper (Maersk)	1x weekly
	Ybbs, Krems - Koper (Metrans) - export trains (Metrans)	2x weekly
	Linz - Koper (export trains) (Metrans - export)	4x weekly
Hungary	Koper - Budapest BILK (Adria Kombi)	7 trains weekly
	Koper - Budapest Csepel - roundtrip trains (Metrans)	12 trains / week
	Koper - Budapest Törökbálint (Integral)	3 trains / week
Slovakia	Koper - Dunajska Streda - Koper (Metrans) roundtrip trains with antennas to Kosice, Krems an der Donau, Ceska Trebova (Metrans)	14 trains / week
	Koper - Bratislava - Terminal RCO (Adria Kombi)	4 trains / week
	Koper - Žilina (Metrans)	3 trains / week
	Koper - Žilina (Adria Kombi / RCO)	up to 6x trains / week
	Koper - Bratislava - Spap Terminal roundtrip dedicated (Metrans)	1x weekly
	Koper - Žilina (Raillex)	1x weekly
Czech Republic	Koper - Dobra u Fridku Mystku (Adria Kombi - dedicated)	4 trains/week
	Koper - Ostrava (Metrans)	2x weekly
	Koper - Paskov (AWT dedicated)	1x weekly
	Koper - Dunajska Streda - Koper (Metrans) (Metrans - roundtrip trains with antennas to Ceska Trebova)	daily
	Koper - via Ostrava (CZ Terminal Senov) - South Poland (Metrans)	7x weekly
Poland	Koper - Wroclaw (Siechnice) - Ostrava - Koper (Baltic Rail)	2 trains / week
Germany	Koper - Ljubljana - München (Adria Kombi)	5 trains/week
	Koper - München (Adria Kombi)	3x weekly (direct service)
Slovenia	Koper - Ljubljana - Celje - Maribor (Adria Kombi)	2 trains / day
Bulgaria	Koper - Sofia (Adria Kombi)	spot train
Romania	Koper - Arad (Adria Transport)	1 train / week
Italy	Koper - Padova (Adria Kombi dedicated)	1 train / week
Serbia	Koper - Novi Sad (via Budapest) (Adria Kombi / Transagent d.o.o.)	Weekly service
	Koper - Ljubljana - Beograd (Adria Kombi)	2x weekly
Croatia	Koper - Ljubljana - Zagreb (Adria Kombi)	2x weekly



Total cargo on rail in the Port of Koper (2005-2018)



Number of trains, total cargo on rail and total throughput in the Port of Koper

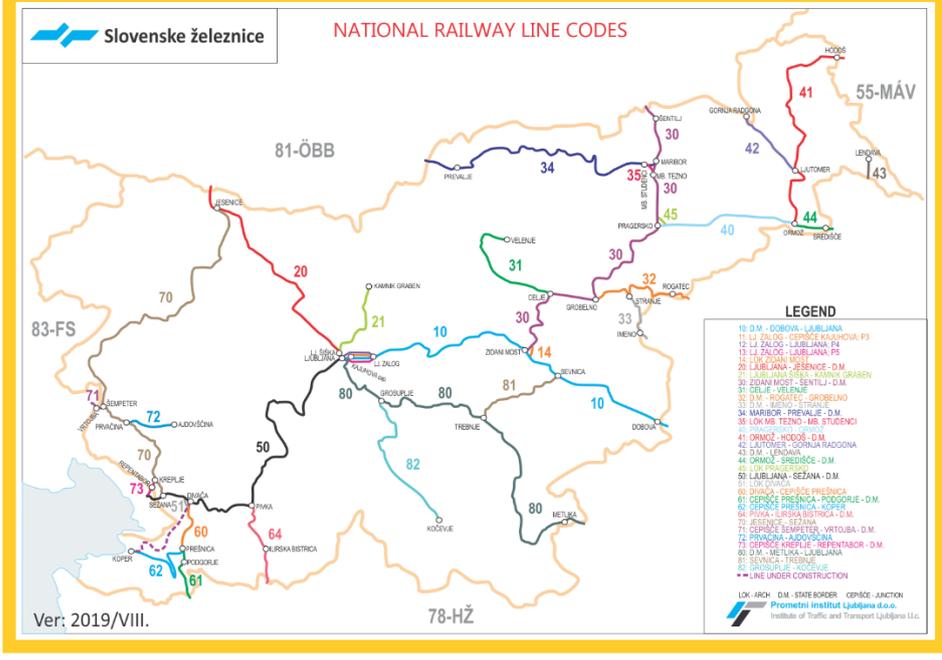
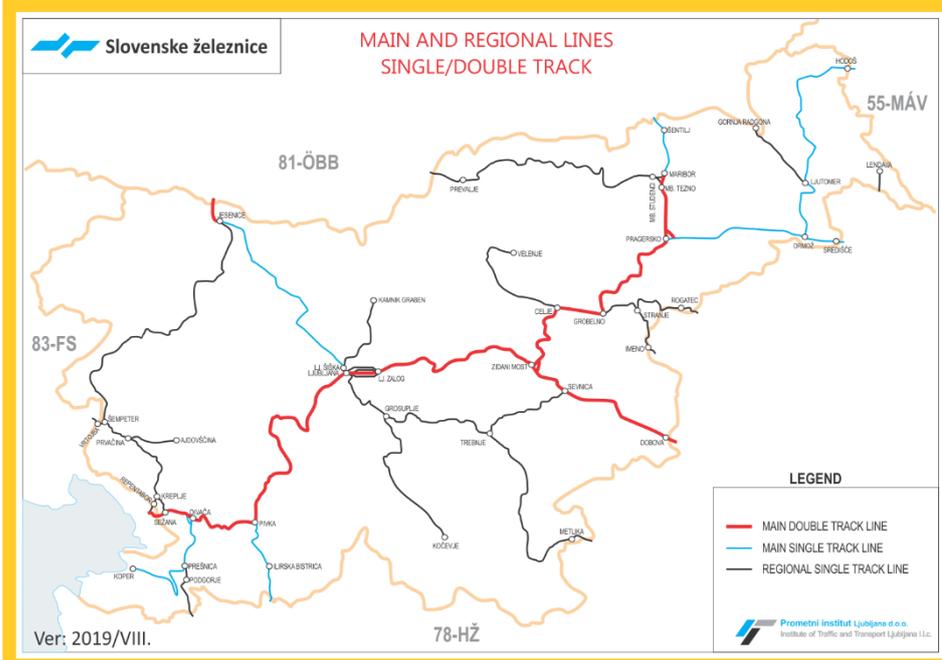
Year	Trains	Total cargo on rail (neto tons)	Total throughput (tons)
2005	14.220	7.216	13.066
2006	14.646	7.507	14.031
2007	15.654	8.093	15.363
2008	16.553	8.610	16.050
2009	13.690	7.146	13.144
2010	17.012	8.876	15.372
2011	19.121	10.163	17.051
2012	19.391	9.914	17.881
2013	20.118	10.430	18.000
2014	20.708	11.038	18.965
2015	21.520	11.408	20.712
2016	23.097	11.772	22.011
2017	23.812	12.941	23.367
2018	23.084	12.776	24.048

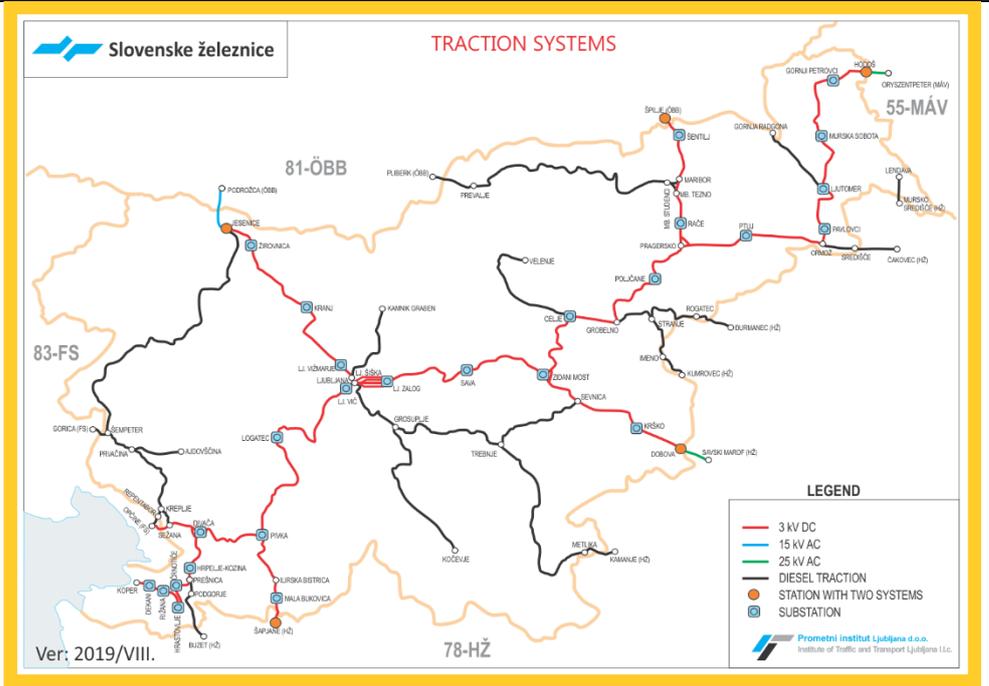
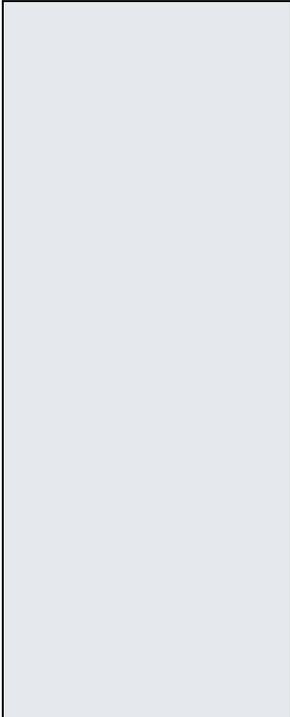
Three major rail operators provide rail services in/to the Port of Koper: Slovenian Railways (SŽ), Rail Cargo Carrier (RCC) and Adria Transport (ADT). For the year 2018, 80% of rail services were provided by Slovenian Railways, 12% by Rail Cargo Carrier and 7% by Adria Transport.



Slovenia and its catchment area	
Industrial clusters/branches	<p>Among the most important industries in Slovenia there are the iron industry, automobile manufacturing and manufacturing of electrical devices. Slovenian industry is large share also based on wood and textiles, pharmaceuticals and chemicals, as well as engineering.</p> <p>The industrial sector represents about one-third of the GDP (28,8 %) and employment (31,7%). Historically, the dominant industries in Slovenia have been the forestry, textile and metallurgical industries. Since the 1980s, the mechanical industries (automobile, tool machines) and high value-added industries (electronics, pharmaceuticals and chemicals) have developed significantly.</p> <p>Slovenia's main export partners are Germany, Italy, Austria, Croatia and France, while the main exported product groups are road vehicles, medical and pharmaceutical products, electrical machinery and appliances, industrial machinery, metals, and iron and steel. The biggest share of imports are associated with road vehicles, followed by petroleum and petroleum products and electrical machinery, while the majority of products are imported from Germany, Italy and Austria.</p>
Industrial sites	<p>Where are the important industrial sites (> 20 ha)?</p> <ul style="list-style-type: none"> - Ljubljana and its area - Maribor and its area - Novo mesto and its area Velenje and its area - Jesenice and its area
Intermodal facilities	Container terminals in Port of Koper, Ljubljana, Celje and Maribor. Marshalling yard in Ljubljana Zalog.
Rail infrastructure	
Lines	Public railway infrastructure in Slovenia contains 1,207.7 km of lines. Length of the main lines is 607.0 km (50%) and the regional lines 600.7 km (50%).

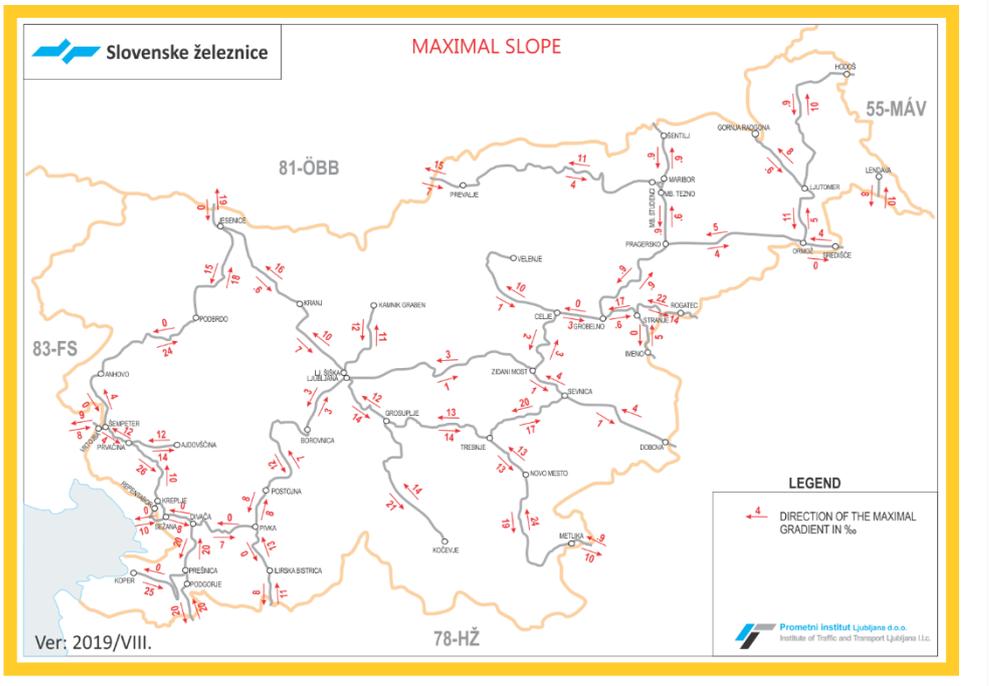


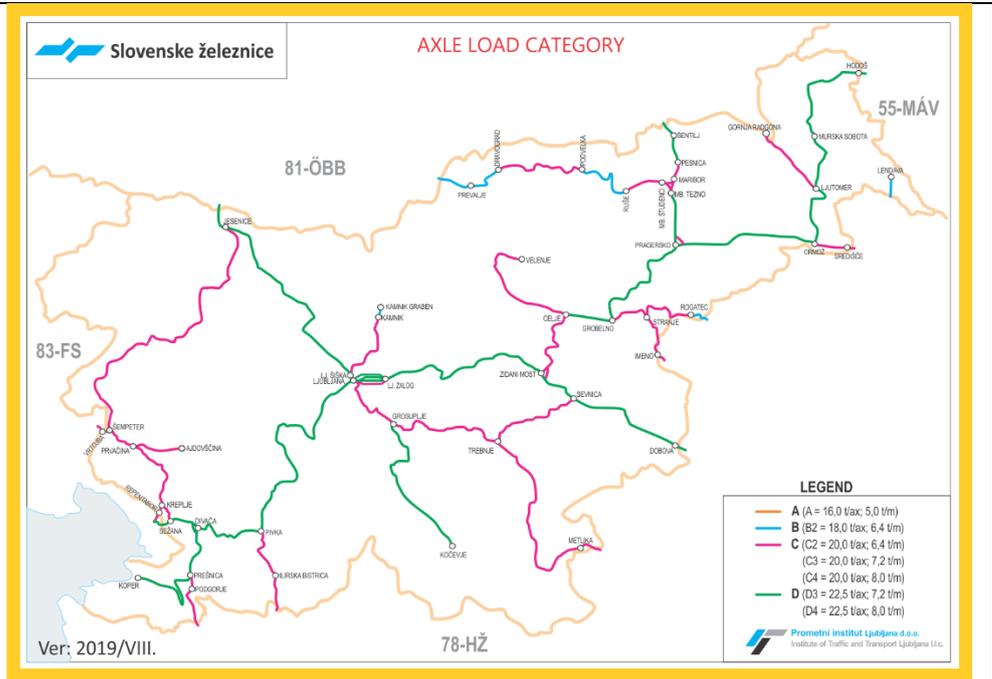
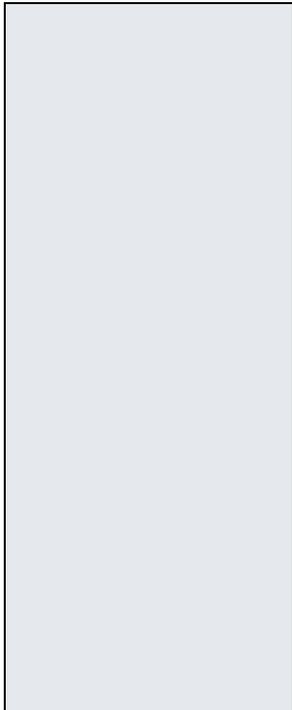
	
<p>Tracks</p>	<p>Only the main railway lines are double tracked. Length of the double track lines is 333.6 km (28%), length of single track lines is 874.1 km (72%).</p> 
<p>Electrification</p>	<p>Only the main railway lines are electrified. Length of the electrified lines is 605.5 km (50%), length of none-electrified lines is 602.3 km (50%).</p>



Maximal gradient on the railway lines is 27%. Axle load category 22,5 tons is presented at 46% of the railway network.

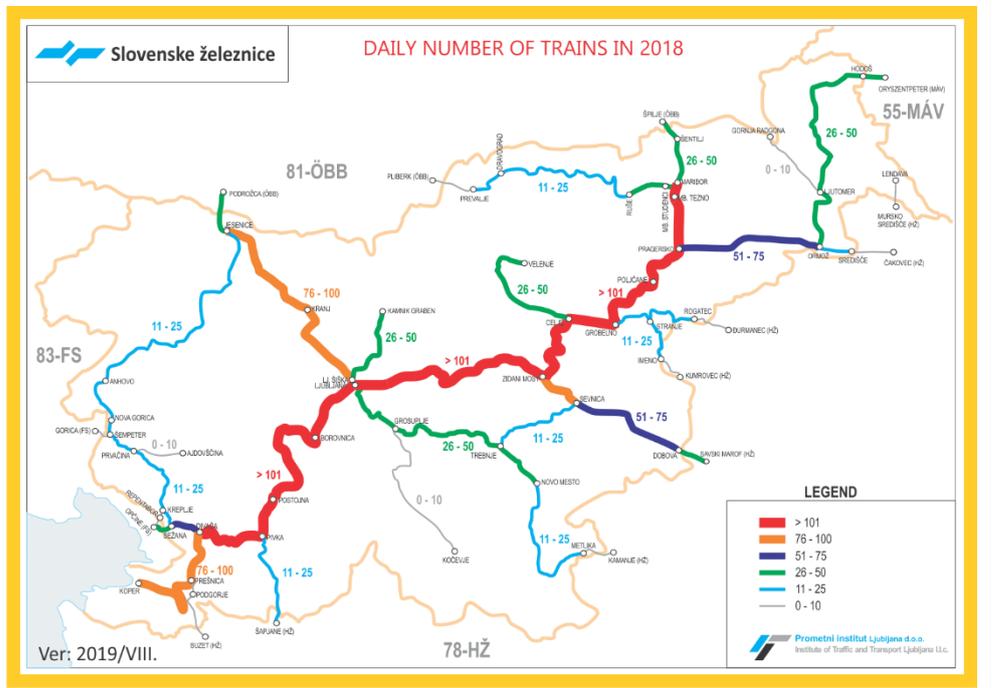
Freight suitability

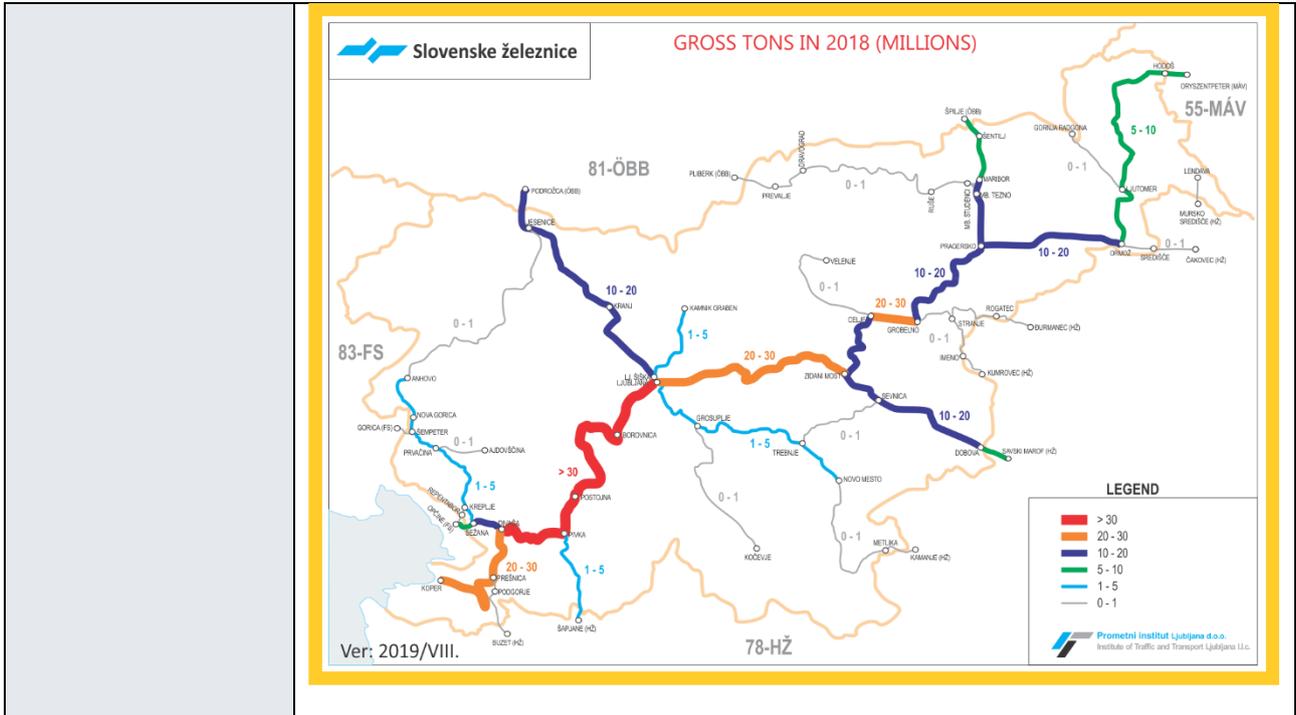




Transport flows

The strongest transport flows are between Port of Koper via Ljubljana, Jesenice and Maribor to Austria and Hungary.





Network classification

7 main railway lines belongs to core TEN-T network, other 3 main railway lines belongs to comprehensive TEN-T network.

Source: EUROSTAT

Transport mode	2005	2010	2015	2016
Rail	30,8	31,8	35,0	33,3
Road	69,2	68,2	65,0	66,7
Waterways	N/A	N/A	N/A	N/A



Port of Koper and its hinterland/catchment area	
Industrial clusters/branches	/
Industrial sites	<p>The Port of Koper hinterland markets</p>  <p>Hinterland markets</p> <ul style="list-style-type: none"> Poland: Containers, Cars, General cargo Czechia: Containers, Cars, General cargo Germany: Containers, Cars Romania: Containers Croatia, Bosnia & Herzegovina, Serbia: Containers, cars, general cargo Bulgaria: Containers <p>Austria: Absolute market leader - more than 7 M tonnes of various goods handled every year</p> <p>Slovakia: Container market leader</p> <p>Hungary: Container market leader + cars, electronics, agro/food/fodder</p> <p>Slovenia: Domestic port</p> <p style="text-align: right;">Source: Luka Koper d.d.</p>
Intermodal facilities	<p>The entire port of Koper for is the multimodal node and there are few aspects very important for its development:</p> <ul style="list-style-type: none"> - the efficiency and the optimization of the terminal operations - the last mile connection services - the possibility to activate new railway services with the hinterland on the modern railway infrastructure that connect the port - terminal with the hinterland. <p>Luka Koper d.d. has 5 profit centres (PC Container terminal, PC Car terminal, PC General cargo terminal, PC Break bulk and liquid cargoes, PC Passenger terminal). Within 5 profit centres Luka Koper operates 12 specialized terminals:</p> <ol style="list-style-type: none"> 1. Container terminal 2. Car and Ro-ro terminal 3. Break bulk terminal 4. Perishables 5. Iron ore and coal terminal 6. Project cargoes 7. Alumina and other materials 8. Timber terminal 9. Livestock 10. Liquid bulk terminal 11. Cereals and fodder terminal 12. Passenger terminal



Sea access: The sea depth in Basin I is 15 m, in Basin II is 16 m and in Basin III is 18 m. Only one big ship (mother ship on the main line) can enter the Basin I. The depth of the basin along the quay of container and ro-ro terminal is 15 m, which allows the entering of bigger container ships (the average is 9.000 TEU) and the management of the current transshipment of containers.

Road access: The Port is connected with the three-lane motorway up to the motorway network of all hinterland countries. The motorway infrastructure in Slovenia fulfils the EU decree requirements. Before the trucks enter the port area, they must stop at the truck terminal, where they arrange the documentation related to their entrance. A direct road junction on the motorway is not yet active. The construction of additional truck terminal is planned along the junction. Thus, the additional truck terminal as direct access from the port to the motorway will facilitate the entry to the port, abolish truck congestion and ease the pressure of the truck transport on the town's roads. The second entrance for trucks to the port has been opened in 2019, so called Sermin entrance, that reduces the traffic congestion in the town of Koper.

Railway connection: The key problematics in the railway infrastructure is that in Slovenia there are still shortcomings in comparison of the requirements in the standards for the core TEN-T network. The current situation in the railway infrastructure is not satisfying. The Port is connected with the hinterland by only one railway track from Koper to Divača. This is a relevant weak point and vulnerability of the port. The interconnection of the port's terminals and the Slovenian railway network is the Railway freight station in Koper ("Koper tovarna" station). Railway logistics at the container terminal: Train compositions on container terminal are currently up to 550 m long (additional length of the locomotive). The train part covers approximately 60% of all manipulations performed at the container terminal. Since most of our (current and future) subscribers of services are located on hinterland markets, where shipping by trucks is also many times more expensive, there is constant pressure from all involved that the development of Port of Koper is moving towards achieving up to 70%/30% share in favour of rail. The best results of wagon loading are achieved using RMG cranes. Container reach stackers are slow and require a lot of manoeuvring space. The equipment with a rotating container grips is a requirement because the terminal tractor can not park it exactly along the wagon. Inspection of container damage and process of recording container for loading and unloading to/from wagons is slow manual process. New technologies (for example OCR - optical character reading technology) will be adopted in the future years to speed-up this process. The container terminal on Pier I has five tracks and three RMG cranes for loading/unloading of complete trains. At this time the Port of Koper is extending the Pier I (quay on southern part) for 100 m with increase of the stacking yard for 8,5 ha for the use of the container terminal. The investment will be completed in 2021. Until 2025 also the extension of the northern part of Pier I is planned (extension of quay for 380 m in the Basin II, and additional stacking area of 14 ha). Altogether 6 railway tracks will be needed for the required railway capacity at the container terminal. Railway tracks will be extended up to the end of the Pier I, consequently this will create additional railway capacities. Additional RMG crane will be needed. Since the railway tracks divide the terminal in two parts, is required efficient



	<p>internal logistics of the container terminal for enabling further growth of the container's throughput.</p> <p>For a long-term stable performance of the Port, besides the provision of a enough storage area and the transshipment equipment, it is necessary to provide a sufficient supporting infrastructure (traffic flows at two main entrances, adequate internal truck terminal, shunting train capacities into/from the port etc.), in order to eliminate all bottlenecks and to provide the maximum exploitation of the storage area and of the equipment.</p> <p>Due to unified way of working on the industrial track of Luka Koper, the Cooperation Agreement has been signed (between Luka Koper and public railway infrastructure operator). The agreement covers a shift in the delivery and removal of wagons at all delivery points, responsibilities and work fields, and health and safety at work. The contract covers also the conditions of public railway infrastructure operator.</p> <p>Delivery points are the places on the owner's industrial track, where all loaded and empty wagons are handled between the carrier and the industrial track owner.</p> 
<p>Rail infrastructure</p>	<p>The key problematic in the railway infrastructure is that in Slovenia there are still shortcomings in comparison of the requirements in the standards for the core TEN-T network. The current situation in the railway infrastructure is not satisfying, therefore on the State level the "National programme in transport and transport strategy of the infrastructure" was drawn up by the Ministry of infrastructure, planned the investments which should significantly contribute to the increase of quality of the railway infrastructure and the achievement of the required level of technical standards, which will result in a major level of safety (on a lot of critical sections, it is possible to guarantee it only with the measures related to the speed limitation) and reliability of the railway transport, providing the transport services of higher quality.</p> <p>The Port is connected with the hinterland by only one railway track from Koper to Divača. This is a relevant weak point and vulnerability of the port, since in</p>



	<p>case of an accident on the railway tracks longer bottlenecks may take place in the port's performance, since in such a case the entry and exit of the cargo is rendered impossible. The railway Divača-Koper has been fully used since 2014, which means that there are literally no free capacities on the railway, and further investments or organizational measures are needed to enhance railway capacity.</p> <p>On average, 63 freight trains per day were transported from Koper in 2018, which is in total 12.7 million tons of freight transported by rail. It should be emphasized that the line is also loaded with machine and passenger trains, which in 2018 meant an average line load of approximately 85-87 trains per day. The current permeability of the line, which involves very frequent maintenance interventions, is estimated at 90 trains per day.</p> <p>The interconnection of the terminals and the Slovenian railway network is the Railway freight station in Koper ("Koper tovorna"), of which efficiency is very high and namely 96%.</p> <p>For the Port of Koper container terminal there is a commercial demand of the departure of 18 - 20 train compositions / day in certain days, during the first days during working operations on board the ship and immediately after their departure, but due to the complete system of work (drive/removal, work at the container terminal - manipulators + RTG cranes, location dispersed workplaces) daily capacity is limited to up to 14 compositions - pairs of trains (with optimum performance of work operations by all participants). As an optimal solution, RMG technology (using RMG cranes) is implemented, which at the same time optimizes the location aspect (the optimal location on the existing location of the work tracks of the container terminal).</p>
<p>- lines</p>	<p>In the Port of Koper there are 5 railway groups (the new 6th railway group on the north side of the port is under construction).</p> <p>Railway lines and crane tracks in the Port of Koper</p>  <p style="text-align: right;">Source: GIS system</p>
<p>- tracks</p>	<ul style="list-style-type: none"> • General cargo terminal: 4 tracks + 2 tracks • Container terminal: 5 tracks • Car and Ro-ro terminal: 2 tracks (+ 4 tracks in construction)



	<ul style="list-style-type: none"> • Dry bulk terminal: 11 tracks • Silo terminal: 5 tracks • Iron ore and coal terminal & liquid cargo terminal: 4 tracks • Timber terminal: 3 tracks + 3 tracks • 11 tracks on marshalling yard <p>Altogether there are 35 km of railway tracks in the Port of Koper.</p>																				
<p>- electrification</p>	<p>All lines/tracks are non-electrified, due to specific port processes and height of heavy machinery that also moves across the tracks. The one-track railway to Railway freight station in Koper is electrified.</p>																				
<p>- freight suitability</p>	<p>Is the rail infrastructure freight suitable? (e.g. gradient, possibility for intersection, clearance gauge, axial load...)</p> <p>In the port:</p> <ul style="list-style-type: none"> - Minimum radius is R= 150 m, with exception of connecting track with R 125 m. - Gradient: in the fall towards the seashore the gradient is 1,60‰ to 0,00‰, with exception of the start of track 62 where the incline is 9‰ and then decline 6,38‰. - Maximum load is 22.5 kN per wagon axis and 64 kN per meter. - Maximum speed is 10 km/h (on wagon weight stations is 5 km/h). - There are 38 level crossings. <p>Outside the port: Existing railway line Koper-Divača is a current bottleneck for the Port of Koper. Its capacity is shown below:</p> <table border="1" data-bbox="464 1245 1256 1675"> <tr> <td>Railway length (Divača-Dekani)</td> <td>44,6 km</td> </tr> <tr> <td>Max speed</td> <td>75 km/h</td> </tr> <tr> <td>Max incline</td> <td>25,7 ‰</td> </tr> <tr> <td>Number of tunnels</td> <td>4</td> </tr> <tr> <td>Voltage</td> <td>3 kV</td> </tr> <tr> <td>Axial load</td> <td>D3</td> </tr> <tr> <td>Clearance gauge</td> <td>GB</td> </tr> <tr> <td>Max train length</td> <td>525 m</td> </tr> <tr> <td>Managing mode</td> <td>remote control</td> </tr> <tr> <td>ERTMS</td> <td>ETCS+GSM-R</td> </tr> </table>	Railway length (Divača-Dekani)	44,6 km	Max speed	75 km/h	Max incline	25,7 ‰	Number of tunnels	4	Voltage	3 kV	Axial load	D3	Clearance gauge	GB	Max train length	525 m	Managing mode	remote control	ERTMS	ETCS+GSM-R
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ERTMS	ETCS+GSM-R																				
<p>Transport flows</p>	<p>Supplying of industrial track by the carrier means delivery of ordered empty or loaded wagons from the areas of track groups of Railway freight station in Koper (“Koper tovarna” station) to the Luka Koper’s railway tracks and vice versa. “Koper tovarna” station is one of the Slovenian railway stations. The railway to “Koper tovarna” is electrified and consists of one track. The railway from “Koper tovarna” to Luka Koper allows only the transport of diesel railway engines.</p> <p>The Port of Koper and Railway freight station in Koper</p>																				



Source: GIS system

The supply of industrial track is done by pushing the wagon on delivery and by pulling it on removal. Delivery and removal of wagons is carried out by the carrier with its railway engine and moving group to and from the point of delivery of the industrial track.

Rail transport in the Port of Koper is organised as:

- Moving works: 5 traction vehicles (locomotives) are used to place wagons on an industrial track. Moving of wagons can also be carried out with road vehicles and manually.
- Transport manipulation works: The owner of the cargo, the freight forwarder and the carrier, are responsible for concluding the transport contracts, or for delivering the freight sheets for the wagon consignments when handing over the wagons for transport, or for clearing the consignment notes of the received wagon consignments. The carrier accepts consignments for transportation during the carrier's business hours at the billing station. The acceptance of the wagon consignment is confirmed by an authorized worker of the carrier by signing the ticket and recording the despatch of the consignment. Handling of empty and loaded wagons is carried out at the place of takeover of wagons with e-records. The unloading of wagons on an industrial track is carried out by the workers of the industrial track owner. The proper unloading of wagons and all work related to the safe unloading of wagons is the responsibility of the owner's authorized workers. Other procedures, for example: weighing, counting, detecting irregularities of received cargo etc. are also carried out.
- Maintenance: Luka Koper is the concessionaire of the industrial track and is obliged to maintain it and to constantly control the conditions or capacity of the industrial track so that safe rail transport is ensured. The same legislation is valid as for public railway tracks.

The railway connection with the hinterland creates a competitive advantage of the port and meanwhile causes the dependence from the railway connection and the level of services of the railway transport. The future railway connection with the hinterland depends on the construction of the second track of Divača - Koper railway line and from the modernisation of other parts of the railway connections with the port hinterland countries. The position of the port does not permit a large increase of containers transport by trucks.

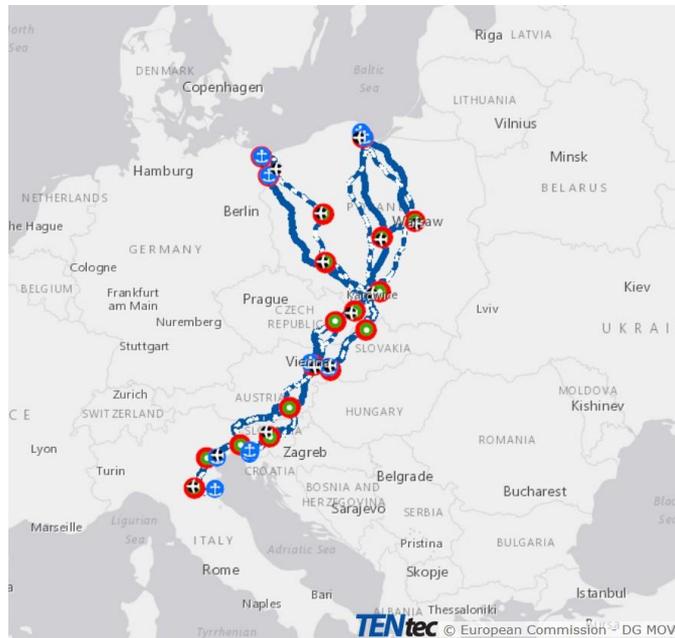


Network classification

The Port of Koper is a core node in two EU TEN-T Corridors: Mediterranean and Baltic-Adriatic.



Source: https://ec.europa.eu/transport/themes/infrastructure/mediterranean_en



Source: https://ec.europa.eu/transport/themes/infrastructure/baltic-adriatic_en

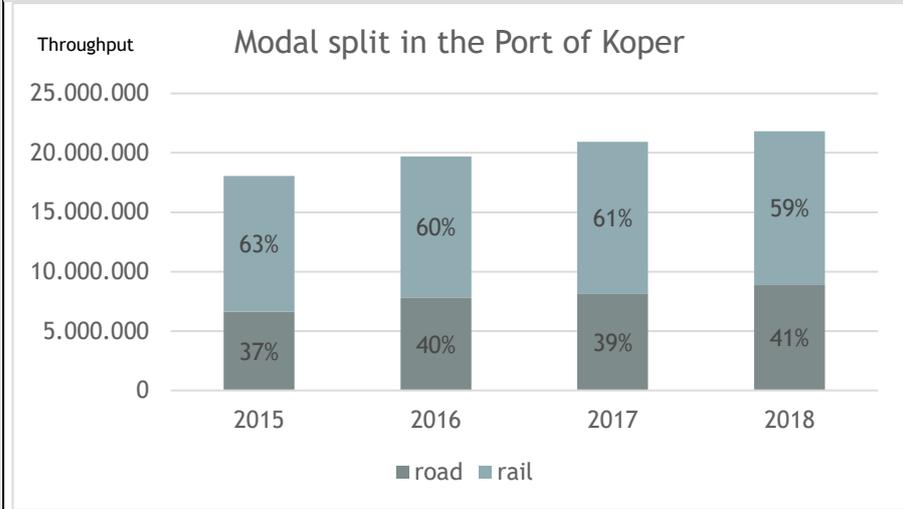
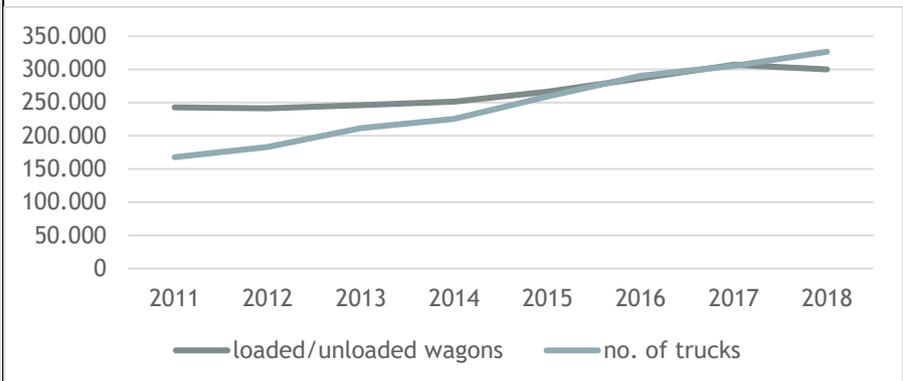
The Port of Koper is also located on two main railway corridors RFC 5 and RFC 6. Rail Freight Corridor 5 (RFC 5) - Baltic-Adriatic Corridor forms a key north-west rail axis between the Baltic ports in Poland and the ports of the Adriatic Sea in Slovenia and Italy while connecting them with land terminals in Poland, Czech, Slovakia, Austria, Italy, and Slovenia. RFC 5 links industrial centres of North Europe with South Europe nodes and landlocked countries.



	 <p>Rail Freight Corridor 6 (RFC 6) - Mediterranean Corridor integrates ERTMS Corridor D from Valencia to Almeria and from Madrid to Barcelona in Spain, and from Budapest to Zahony in Hungary (Hungarian-Ukrainian border) adding two further extensions between Ljubljana and Zagreb and between Rijeka and Budapest.</p> 
<p>Modal share development</p>	<p>Modal split for freight transport in Slovenia (2018): 80% or. 85,4 mio tons on roads and 20 % or. 21,3 mio tons on rail. Main goods on rail were: coal, gas, oil and derivates (19,1%), ore (17,1%), metal and metal products (8,6%), manufacturing products (5,7%) etc. (Source: SURS).</p>

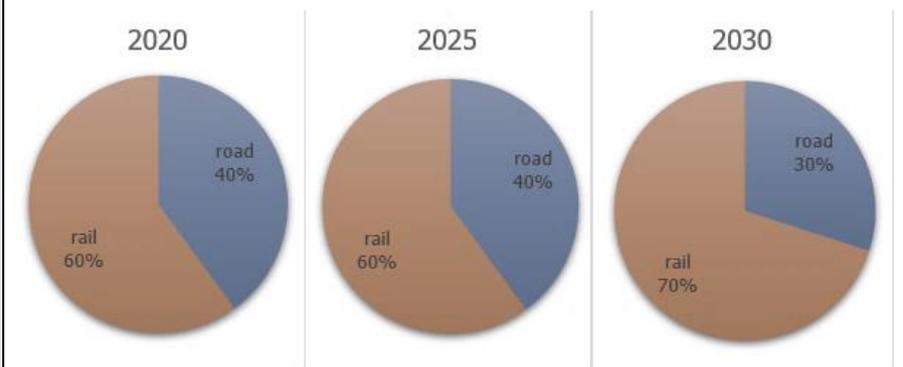


No. of loaded/unloaded wagons and no. of trucks in the Port of Koper



The graphs above show the change in the modal share of goods to and from the port by trucks and trains. There is a decrease in rail share as the total volume of throughput increases, which speaks about the saturation of the railway line and the reaction of customers to this fact. Due to the type of cargo and transport distances, a large part of the cargo flows to or from the Port of Koper are related to transport by rail (bulk and bulk cargo, timber, general cargo, liquid cargo, containers, cars, etc.), so the alternative of transporting these goods via trucks on roads is limited.

Prognosis of modal share in the Port of Koper up to 2030





Despite the challenges with restrictions on railway infrastructure, the Port of Koper will maintain existing modal share until 2025. After the construction of the second railway track Koper-Divača, the Port of Koper will pursue the objective of increasing the share of rail transport (towards the target of 70% vs. 30%) by 2030.

Container terminal modal split:



2.2. Policy Analysis

Slovenia

The Ministry of Infrastructure is responsible for transport in the Republic of Slovenia, in the field of rail, air, road transport and maritime transport. The most important national document regarding transport is “Resolution on the National Programme for the Development of Transport of the Republic of Slovenia until 2030”. Furthermore, Railway Transport Act regulates railway transport.

Port of Koper

Decree on National spatial plan for comprehensive spatial arrangement of the international port in Koper (Official Gazette of the Republic of Slovenia, no. 48/11).

The National Spatial Plan for the Port of Koper.

In 2011 The Government of the Republic of Slovenia endorsed the National Spatial Plan (NSP) for a comprehensive spatial arrangement of the Port of Koper. The NSP is the principal document that will facilitate the port's development as well as enhance its competitive edge..

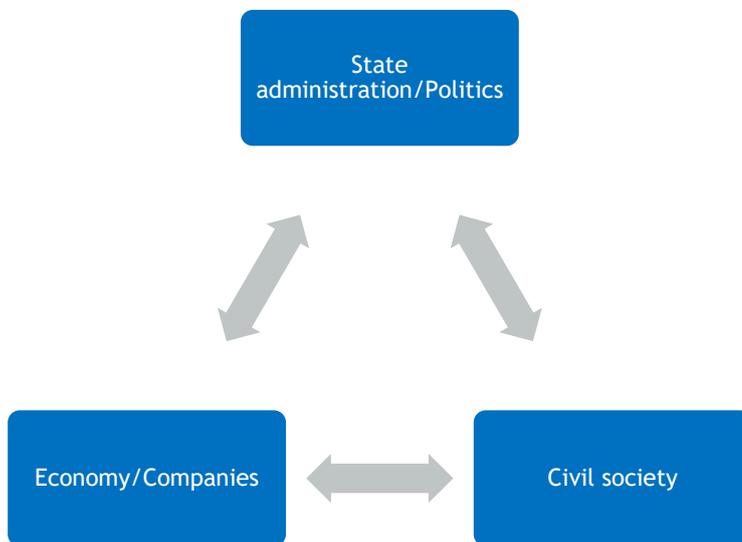
Decree on the administration of the freight port of Koper, port operations, and on granting concession for the administration, management, development and regular maintenance of its infrastructure (Official Gazette of the Republic of Slovenia, no. 71/08, 32/11, 53/13, 25/14, 3/18 in 41/18).



Concession Agreement for port operations, management, development and maintenance of port infrastructure in the cargo port of Koper.

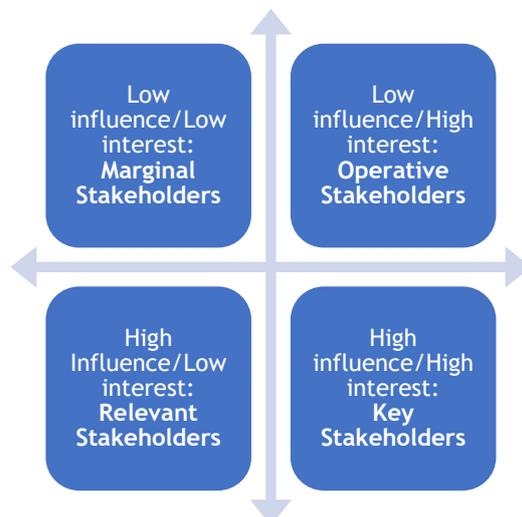
2.3. Stakeholder Mapping

The involvement of major stakeholders is a key element for the project’s results and outputs. Cooperation and coordination between all relevant stakeholders in regional rail freight transport is therefore fundamental and important. For that, this section will map out stakeholders by classifying them according to their influence on the project and their level of interest in the project. The identified and collected key stakeholders can be out of politics, economy and civil society.



Categories:

- Low or high influence
- Low or high interest





		INTEREST	
		Low	High
INFLUENCE	Low	<i>Marginal Stakeholders: Importance = low</i>	<i>Operative Stakeholders: Importance = medium/high</i>
	High	<i>Relevant Stakeholders: Importance = medium/high</i>	<i>Key Stakeholders: Importance = high</i>



Stakeholder	Role	Importance/ Relevance (High/medium/ low)	Contribution to the project	Benefits from the project	Conflicts (Potential, existing, former)	Current level of support	Strategies to improve the support
Ministry of Infrastructure	National legislation, covering fields of rail, road, air and maritime transport, navigation and the field of transport infrastructure, transport policies;	H					
Rail infrastructure manager (SŽ - Infrastruktura, d.o.o.)	Railway infrastructure manager	H					
Rail transport operators (Slovenian Railways,...)	Services in freight transport by rail	H					
Transport organizers	Services in road and rail transport	M					
Local authorities (municipalities)	Local legislation	M					
Local industry	Generator of transport volume	L					
Forwarding agents (47 members of the Slovenian association of port logistics providers)	Organization of shipment in the logistics chain, ordering of services to the port	H					
Shipping agent (20 members of the Slovenian ship and freight agents association)	Organization of shipment in the logistics chain, ordering of services to the port	L					



Shipping company	Sale/purchase and employment of vessels on the shipping market	L					
Road haulier	Services in freight transport by road	L					



2.4. SWOT analysis

Slovenia

Strengths	Weaknesses
EU and national policy which promote railway freight transport	Bottlenecks on the section Divača-Koper
Railway transport is an important factor in sustainable development	Well-developed highway network in Slovenia
Rail freight transport is considered to be the most environmentally friendly mode of transport of goods	A lot of parts of railway network are old/still non-modernized
Opportunities	Threats
Construction of second railway line on the section Divača-Koper	A lot of parallel railway freight routes (Italy, Austria, Croatia)
Modernization of railway lines in Slovenia: many infrastructure projects are in progress with an aim to upgrade the existing railway infrastructure	
A lot of EU projects in terms of railway interoperability among EU countries (ETCS,...)	



Port of Koper

Strengths
Geographical position
High railway modal share
Multipurpose port (for all kinds of goods)
Opportunities
Second railway track Koper-Divača
Potential of strengthening of Adriatic route (diversion of goods from northern ports)

Weaknesses
High occupancy of storage facilities and railway lines
Relatively small port for global actors
Threats
New environmental, safety and institutional requirements
Non-supporting municipalities
Delays in infrastructure investments