

Map of Intermodal Logistic Centres/Terminals at TRITIA area

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1. INTRODUCTION

The study examines the possibilities and technical requirements for moving a part of freight transport in the TRITIA region to intermodal freight transport using existing and new logistic centers within TRITIA area.

1.1. Definition of the area of interest

The area of interest is TRITIA region, i.e. economically and hence transport - very exposed area of the border territory of the Republic of Poland, the Czech Republic and the Slovak Republic. This region has an area of **34 069 km²** and has **7 885 000 inhabitants**.

There are two cities with about 300 thousand on its territory. Their inhabitants - **Katowice** 312 thousand and **Ostrava** 294 thousand and other 15 cities with more than 80 thousand inhabitants - Częstochowa 227 thousand, Sosnowiec 222 thousand, Gliwice 197 thousand, Zabrze 189 thousand, Bytom 185 thousand, Bielsko-Biała 174 thousand, Ruda Śląska 145 thousand, Rybnik 141 thousand, Tychy 130 thousand, Dąbrowa Górnicza 129 thousand, **Opole** 128 thousand, Chorzów 114 thousand, Jaworzno 96 thousand, Jastrzębie Zdrój 94 thousand, **Zilina** 83 thousand. (headquarters of regions highlighted in bold).

Figure 1 – Region Tritia



1.2. Project aim

The aim of the project is to improve coordination among freight stakeholders in order to increase environmentally friendly multimodal freight solutions.

Resources include improving awareness, planning and coordination between regional authorities, transport managers and freight transport stakeholders. The project focuses on cross-border, transnational and interregional cooperation with a view to strengthening economic and social cohesion in order to achieve the objectives defined in the Europe 2020 Strategy or the EU White Paper on Transport. The specific objective is to explore the possibilities, technical requirements and organizational prerequisites for the transfer of a significant part of the transport load from the transport of the products from the roads to the water transport.

2. EUROPEAN CONTEXT

2.1. EU white paper

The full title of the document is "Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system", COM (2011) 144 final. The objectives set out in this document are primarily to minimize the environmental impact of transport. In particular, Europe's dependence on oil imports should be reduced, while carbon emissions in transport should drop by 60% by 2050 in the context of increasing transport and promoting mobility. From the point of view of the importance of intermodal transport to achieving these objectives, there is a substantial intention to transfer 30% of road freight over 300 km by 2030 to other modes of transport, such as rail or shipping, and by 2050 it should be more than 50 %.

2.2. TEN-T

For example, it is a paragraph (31): "The trans-European transport network should, by far, provide a basis for the large-scale deployment of new technologies and innovations, which can, for example, contribute to increasing the overall efficiency of the European transport sector and reducing its carbon footprint. From the point of view of purely transport, paragraph 32 can be mentioned: "The trans-European transport network must ensure efficient multimodality in order to enable passengers and goods to have a better and more sustainable choice between modes of transport and to allow the consolidation of large volumes transported over long distances.

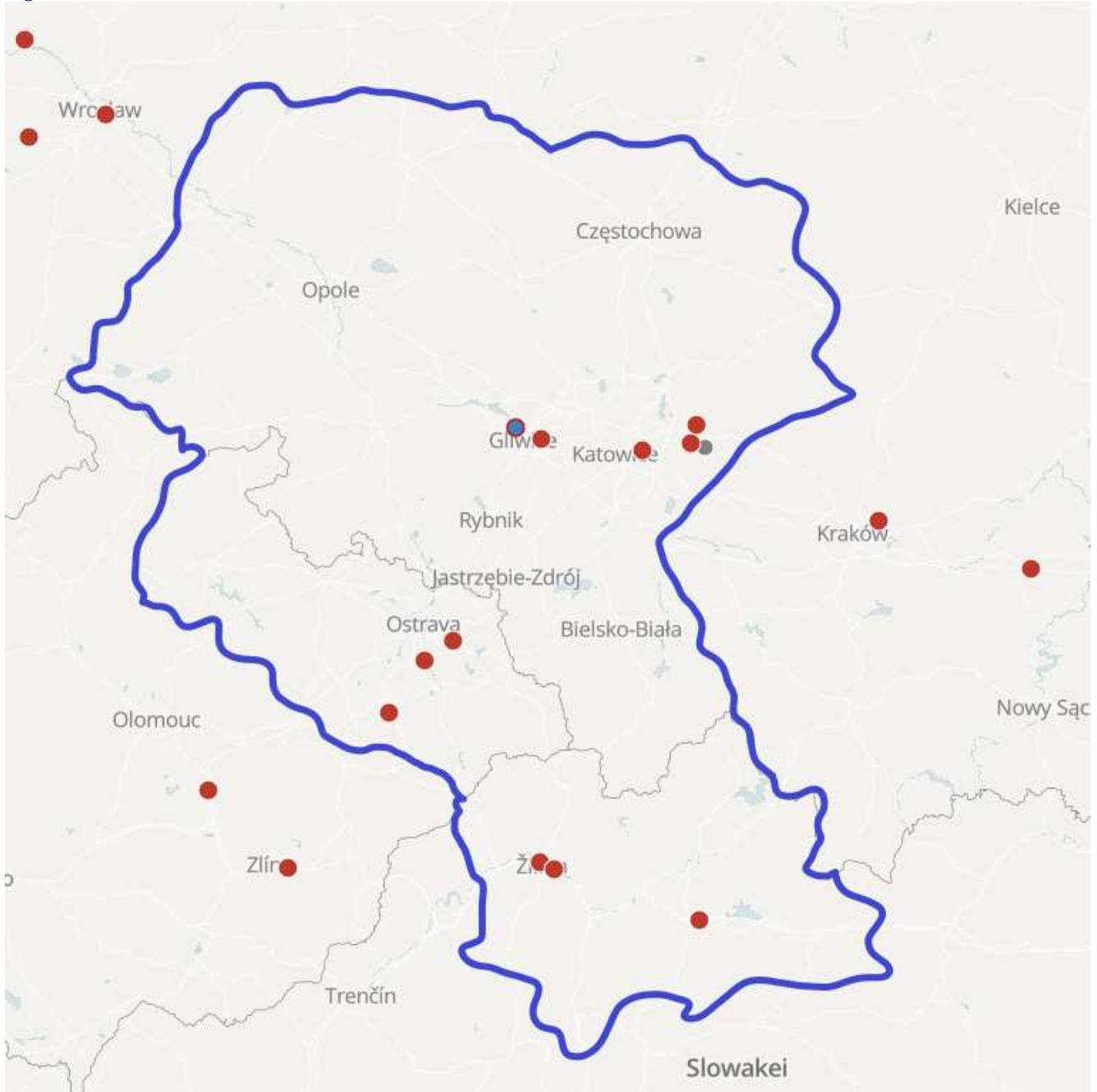
2.3. Terminals classification

Multimodal terminals - terminals for multimodal transport with transfer between types of transport of goods in and out of intermodal units

Intermodal terminals – terminals for intermodal transport with transfer between types of transport of goods in intermodal units

Logistic terminals – final terminals for distribution, this type of terminals are not the theme of TRANS TRITIA project

Figure 2 - V4 terminals



Source: <https://www.intermodal-map.com>

Figure 3 - V4 terminals



Source: [https://www.mdcz.cz/getattachment/Dokumenty/Kombinovana-doprava-\(2\)/kombinovana-doprava-\(1\)/V4_intermodal_terminals_sk_2017.pdf.aspx?lang=cs-CZ](https://www.mdcz.cz/getattachment/Dokumenty/Kombinovana-doprava-(2)/kombinovana-doprava-(1)/V4_intermodal_terminals_sk_2017.pdf.aspx?lang=cs-CZ)

2.4. Low carbon economy

The document "A Roadmap for moving to a competitive Low Carbon Economy in 2050, COM (2011) 112 final", contains above all the intention to keep climate change below + 2 ° C. In essence, the reduction in greenhouse gas emissions by 2050 is by 80-95% compared to 1990. Of course, these plans also concern transport.

2.5. Smart and sustainable growth

The document entitled "A strategy for smart, sustainable and inclusive growth, COM (2010) 2020 final", contains five main objectives. They define what the EU should achieve by 2020. One of these targets relates to climate and energy.

The Member States have committed themselves to reducing greenhouse gas emissions by 20% by 2020, increasing the share of renewable energy in the EU's energy mix to 20% and achieving the 20% improvement in energy efficiency. Subsequently, the EU summit on 23 and 24 October 2014 brought the agreed targets by 2030 (30% reduction in CO₂ production, 30% renewables sources, 27% energy efficiency improvement). In the EU's winter energy package of 30 November 2016, it is proposed to increase energy efficiency by 2030 by 30%. This target is unlikely to be achieved without major changes in transport - i.e. greater use of less energy-intensive water and rail transport.

3. NATIONAL CONTEXT

Of course, all participating states also have their national documents, which respond to the current and prospective state of the waterways and to the relevant European documents.

3.1. Czech republic

3.1.1. Government resolution ČR č. 368/2010

The Government Resolution of the Czech Republic of May 24, 2010 No. 368 "on the design of the method of further territorial protection of the Danube-Oder-Elbe Canal Corridor" reads as follows:

Government

I. approve the proposal for the method of further territorial protection of the Danube-Oder-Elbe Canal Corridor through the Territorial Reserve in

the Territorial Planning Documents until the Government's Decision on Further Progress, contained in Part III of the Material File no. 353/10;

II. require the members of the Government and the heads of the central administrative authorities to proceed to the territorial protection of the Danube-Oder-Elbe Canal Corridor in accordance with point I of this resolution.

Based on this resolution, the Danube-Odra-Elbe waterway corridor was captured in the Territorial Development Principles of the Ústecký, Středočeský, Pardubický, Královéhradecký, Olomoucký, Moravskoslezský, Jihomoravský and Zlínský Regions.

3.1.2. Transport policy ČR for period 2014-2020 with a view to 2050

- Approved transport policy (Government Resolution No. 449 of 12 June 2013) accepts all the decided documents and intentions of the European documents. Therefore, all the considerations and calculations contained in the chapter on relevant European documents are fully compatible with the Czech Republic's Transport Policy.

The following is the attention:

- Regulation of night road freight traffic;
- Inland waterway support under the Naiades and Naiades II programs;
- Ensure the operation of rail freight corridors - to modernize by 2030;
- Ensure the transit of larger railway junctions;
- Expanding regular multimodal freight transport lines;
- Internalize external costs as a source of transport infrastructure financing.

3.1.3. Transport sectoral strategies 2. phase

The transport sectoral strategies of the 2nd phase were approved by Resolution of the Government of the Czech Republic No 850 on 13 November 2013. The strategy deals with scenarios of future development, transport forecasts, identification of measures for the development of transport infrastructure, financial possibilities and implementation of transport sectoral strategies.

Specific measures to promote intermodal transport are not mentioned, only the priority to complete the TEN-T network is mentioned.

3.1.4. The concept of freight transport for the period 2017-2023 with a view to 2030

This document was adopted by the Government of the Czech Republic by its Resolution No. 57 of 25 January 2017. The text analyzes in detail the freight transport market, the preconditions for its further development and the implementation of the relevant European documents. The annexes also define suitable regions for the location of terminals for continental combined transport and the position of neutral (public) terminals of multimodal transport. From the point of view of the structure of the need for freight transport, it also analyzes the assumptions for the objective set out in the White Paper, namely the transfer of 30% of current road freight over 300 km in the EU to rail or water transport. It is noted that the Czech Government has also signed the European Commission's Decision No. 978/2015 to move 30% of road freight over 300 km to rail or water by 2030.

Selected measures:

- ensuring interoperability, charging harmonization;
- support for routes for oversized transport;
- support for multimodal transport and combined transport;
- prioritization of railway according to importance for freight trains;
- specification of strategic buildings;
- extension of selected track lengths to 740m with prediction to 850m;
- upgrade of capacity in Přerov – Ostrava section;
- connection for manufacturers of oversized products to river ports;

- internalization of externalities;
- liquefied gas in road and water transport;
- support for public transport combined terminals

3.1.5. Donationprogramms

Program to support the acquisition of transport units of combined transport

The Ministry of Transport, as the Managing Authority of the Operational Program Transport (OPD), announced on 31 January 2019 a call for submission of applications for support under the Program of Purchase of Combined Transport Units. The total available allocation under this first call for this program will be CZK 90 million (EU contribution from the Cohesion Fund). Applicants may receive support of up to 30% of the eligible costs of the project.

Potential beneficiaries will mainly be the owners or operators of transport units. The application for support within the IS KP14 + information system will be made available to applicants as of 14 February 2019 and from 28 February 2019 their own applications may be submitted. The deadline for submitting applications was 15 May 2019.

The main activities supported under this call are investments for the acquisition of tangible assets - new transport units approved for combined transport, namely:

- intermodal semi-trailers;
- swap bodies;
- inland containers (but not ISO sea containers);
- special transport units, including new technologies, for continental combined transport which cannot be included among the units referred to in points (a) to (c).

3.2. Poland

3.2.1. Transport Development Strategy for 2020 (with a perspective until 2030) - Transport Development Strategy until 2020

The document which sets out the most important directions of transport development in Poland in the medium term is the Transport Development Strategy until 2020 (with a perspective until 2030). The strategy concerns all sectors of transport: road, rail, air, sea, inland waterways, urban and intermodal.

The document is one of the 9 integrated strategies and serves to achieve the objectives set out in higher level national documents. At the same time, it takes into account the priorities of the common transport, regional, innovation and environmental policy of the European Union. The main objective of the national transport policy is to increase territorial accessibility, improve the safety of traffic participants and the efficiency of the transport sector by creating a coherent, sustainable and user-friendly transport system in the national, European and global dimensions.

The above-mentioned objective of the Strategy refers both to the creation of an integrated transport system through investments in transport infrastructure, as well as to the creation of favourable conditions for the efficient functioning of transport markets and the development of efficient transport systems.

- Achievement of the main objective involves the achievement of five specific objectives specific to each mode of transport:
 - the creation of a modern, coherent transport infrastructure network,
 - improve the organisation and management of the transport system,
 - improve the safety of traffic participants and goods transported,
 - reduce the negative impact of transport on the environment,
 - building a rational model of financing infrastructure investments

Due to the general nature of the document (defined in the Act of 6 December 2006 on the principles of development policy), it does not contain detailed information on the implementation of specific measures or investments. This area has been reserved for implementation and operational documents of the Strategies, including the Strategy Implementation Document and development programmes for particular transport branches.

Source: (<https://www.gov.pl/web/infrastruktura/strategia-rozwoju-transportu-do-2020>)

3.2.2. National development strategy (until 2020)

The National Development Strategy 2020 is an element of the new system for managing the country's development, the foundations of which have been defined in the amended Act of 6 December 2006 on the principles of development policy (Journal of Laws of 2009, No. 84, item 712, as amended) and in the document adopted by the Council of Ministers on 27 April 2009, Assumptions of Poland's Development Management System.

Objective II 7 Increasing transport efficiency

Poland's transport infrastructure is one of the weakest elements of the Polish economy. It is not adapted to the entrepreneurship of Poles, intensity of production and exchange and mobility of inhabitants. Current problems include in particular: high level of consumption of many elements of linear and point infrastructure, existence of bottlenecks and missing links, uneven regional distribution and availability of networks, lack of networks adapted to high traffic speeds, lack of continuity of technical class of connections between agglomerations, weak infrastructure elements and systems integrating different types of networks, nuisance of many network elements for inhabitants and the natural environment, few elements or lack of intelligent and innovative solutions. The high number of road accidents and deaths and injuries on the roads remains a serious problem. The long-term objective for Poland is to achieve the density and capacity of the network which corresponds to the development needs of the country and regions. On the one hand, this will facilitate the development of regions by increasing the territorial accessibility of peripheral areas, and on the other hand, it will make it possible to make the best use of the transit location of our country. The planned infrastructural investments will aim at creating an integrated and coherent transport system. This means defining a two-level structure: the core network, defined by identifying nodes and connections of key importance for our country, also taking into account the process of international integration, and Europe 2020: A resource-efficient Europe with 136

complementary networks to ensure territorial cohesion. The creation of a coherent transport network and the abolition of the peripheralisation of our economy are among the main determinants of Poland's development.

The priority over the next ten years will be transport investments in networks of national significance for all branches and on inter-branch nodes, aimed at improving the country's internal accessibility and effective economic exchange, including between the largest centers of economic growth and urban centers (metropolis network) and within their functional areas. At the same time, investments will be implemented to improve external access, taking into account the key role of the TEN-T network in creating an effective transport policy and a coherent infrastructure network in the European Union.

3.2.3. National Regional Development Strategy

It is a basic strategic document of the country's regional policy in the perspective until 2030. This strategy is a set of common values, principles of cooperation between government and self-governments and socio-economic partners for the development of the country and voivodeships. The document defines a systemic framework for conducting regional policy both by the government towards regions and intra-regional. It will play an important role in the process of programming public funds, including EU funds, in the coming years. Objective 10 Ensuring adequate transport and ICT infrastructure to support competitiveness and ensure territorial cohesion of the country.

Despite favourable geographical and natural conditions conducive to the development of both inland and maritime transport, the level of use of shipping in the country's economy is low. This is mainly due to the low competitive position of seaports related to the high ratio of obsolete fixed assets (from 40% to 70% in 2008), the underdevelopment of modern port services, poor communication links with land areas and the low share of navigable waterways with international parameters (only 205.9 km). Inland and maritime navigation and rail transport have been identified as environmentally friendly modes of transport requiring national and European support. In addition, inland waterways and maritime transport can be essential for regional development in the context of freight, passenger and water tourism, increasing the attractiveness of regions as places of economic activity, industry and residence. The development of maritime and inland waterway transport should be carried out in synergy with measures implemented at the central and regional level, and take into account the economic calculation of interventions resulting from the endogenous potentials of individual regions.

3.2.4. Strategy for responsible development (2017)

The development path leading to sustainable development of the country is based on economic development determined by: innovations and knowledge intensive investments and savings; fuller use of human resources and territorial potentials; quality of institutions and of the law to create optimal conditions for economic growth.

The Strategy defines a new model of development up to the year 2020 and in the perspective up to the year 2030. New development model increased responsibility of state institutions for designing economic, social and territorial processes. Main objective: Creating the conditions for the growth of income of the Poles with the increase in the social, economic and territorial cohesion.

Specific objective I. Sustainable economic growth based on the existing and new advantages.

Specific objective II. Socially and territorially sustainable development.

Specific objective III. Efficient State and economic institutions supporting the social and economic growth and inclusion.

Sectoral issues necessary to achieve the objectives of the Strategy: Human and social capital, Digitization, Transport, Energy, Environment, National security. The main goal related to the TRITIA project:

Increasing transport accessibility and improving the conditions of providing services related to the transport of goods and passengers.

One of the priority activities until 2030 involves connecting Poland with the TEN-T core network corridors: Baltic - Adriatic and North Sea - Baltic. The investments undertaken will concern all types of transport (road, rail, inland waterway, sea, air). In particular, this applies to:

- complete the construction of the motorway and expressway system;
- modernization of the railway network, including traction and level crossings;
- reconstruction of waterway transport capabilities (navigability class IV parameters) - on selected sections, economically and ecologically justified.

3.2.5. National smart specialization in Poland

The result of the National Smart Specialisation in Poland will be areas of smart specialization on the national level, along with a mechanism for reviewing and updating the selection in progress.; The document indicates 19 national smart specializations; NSS6. ENVIRONMENT FRIENDLY TRANSPORT SOLUTIONS

I. Innovative means of transport

II. Environment friendly constructional solutions and components in means of transport

III. Transport management systems

IV. Innovative materials in means of transport

3.2.6 Grants in Poland¹

Source: Centrum Unijnych Projektów Transportowych: <https://www.cupt.gov.pl/>

In Poland, EU funding programs are being implemented for the development of intermodal transport under the Operational Program Infrastructure and Environment. Directly intermodal transport concerns:

- Priority Axis III - Development of the TEN-T network and multimodal transport:
 - o Measure 3.1. Development of the road and air TEN-T network
 - o Measure 3.2. Development of maritime transport, inland waterways and multimodal connections.

EUR 16 841.3 million has been earmarked for the entire Priority III in the financial perspective 2014-2010.

Under measure 3.2, in which intermodal transport is directly recognized, investments are made in environmentally friendly forms of transport used for the transport of goods and people. These investments include maritime transport, inland waterways and intermodal transport.

As part of intermodal transport, the following may be financed:

1. Construction or reconstruction of intermodal terminal infrastructure together with dedicated rail / road infrastructure necessary to connect them to the rail network / road network along with the construction / reconstruction of external devices necessary for the

operation of the terminal;

2. Purchase or modernization of devices necessary to operate intermodal terminals

3. Purchase or modernization of telematics and satellite systems (devices and software) related to intermodal transport, as well as expenses for their implementation;

4. Purchase or modernization of rolling stock, including traction locomotives and specialized wagons for intermodal transport (platforms);

The support can be used by:

- seaport managers;
- entrepreneurs from the Member States of the European Union who perform or intend to conduct economic activity in the territory of the Republic of Poland in the field of intermodal transport, including intermodal terminal operators;
- entities involved in providing access to rolling stock intended for intermodal transport;
- entities managing railway infrastructure ensuring direct access to intermodal terminals.

At the address indicated is a list of projects selected for co-financing under the non-competitive procedure for the Operational Program Infrastructure and Environment 2014-2020: https://www.cupt.gov.pl/images/Lista_WoD/Lista__projektow_pozakonkursowych_POI_S_stan_19.06.2019.pdf

Other support

In Poland, in accordance with the transport strategy, activities are carried out to support intermodal transport. However, it is emphasized that they are definitely not sufficient at the moment and require strengthening. For example, in European countries such as Germany, Switzerland or Austria, actions are being taken to reduce road traffic and to encourage the choice of rail as an alternative means of transport. The solutions used in these countries are more effective than in Poland and allow to increase discipline and ensure compliance by carriers.

Discounts for intermodal transport for access to infrastructure:

Intermodal discount in Poland has been paid to freight carriers since 2014. This is a 25% discount, referring to the rates of access to infrastructure managed by PKP PLK. This is stated in the provisions of the "Agreement on co-financing of the costs of railway infrastructure management and protection from 01/01/2014 - 31/12/2017 from the state budget" concluded between the Ministry of Infrastructure and Development and PKP PLK. In the form of annexes, entries are made regarding the provision of financial resources for granting intermodal relief in subsequent years.

In 2016, the funds provided for the intermodal relief amounted to PLN 25,743 million.

Unfortunately, it turned out to be insufficient. After the settlement of the discount in November, it was estimated that its total value will amount to PLN 28.375 million, which at the same time meant a lack of funds in the amount of PLN 2.632 million to grant relief to freight carriers in the period from December 11 to December 31, 2016. In order to eliminate adverse consequences for the intermodal rail transport market, the management board of PKP PLK applied to the Ministry of Infrastructure and Construction for an increase in funds for intermodal relief. The Ministry agreed to this, which was sanctioned by an annex to the contract concluded on December 21, 2016.

In 2017, PKP PLK obtained PLN 29 million for financing the intermodal relief.

Source: www.rynek-kolejowy.pl

For rail carriers operating intermodal rail transport in Poland, there are still high rates for

access to the railway infrastructure compared to other European countries, while the commercial speed is much lower. For example, the intermodal train fee of 1000 t per 1 km in Poland after taking into account the intermodal discount (25%) is: 1.21 - 3.15 euros (on average, carriers paid 2.5 euros for 1 pockm). In addition, fuel and energy costs have a fairly high share in operating costs - over 11% in 2016. Based on the UTK interview under regulatory cooperation (IRG), the rates in selected countries are as follows (in euros): Spain: 0.2, Denmark : 0.65, Finland: 1.35, Slovenia: 0.57 - 1.53, Croatia: 0.37 - 1.83, Portugal: 1.38, Bulgaria: 1.54, Sweden: 1.55, Austria : 0.73 - 2.45 depending on the route, Hungary: 2.12, Netherlands: 3.13, Romania: 2.78 - 3.39, Germany: 3.88 (payment for fast freight trains). In addition, e.g. in Germany, 50% rate reductions have been announced. Further reductions and incentives for carriers (e.g. taking into account the increase in operational work) are necessary. To improve rail competitiveness in transport markets, charges for access to rail infrastructure need to become more competitive.

Source: Zwiększenie roli kolei w równoważeniu transportu towarów w Polsce. Wyzwania, propozycje, dobre praktyki. UTK, Warszawa 2017, s. 27-31

On November 21, 2018, the Minister of Infrastructure submitted for consultation a draft multi-annual contract for the implementation of the program: "Assistance in financing the costs of railway infrastructure management, including its maintenance and renovation until 2023". The document contains provisions maintaining intermodal relief in the years 2019–2023. At the same time, however, in item 6.2.10. it was indicated that in the event that before the end of the third quarter of a given year 65% of the amount provided for co-financing of the concession is exhausted, the minister - after exhausting the annual limit of funds - has the option of suspending its payment. According to many economic and trade organizations, the provision related to a possible suspension of the concession is very unfavorable. It is forecast that such a solution will have very negative consequences for the stability of planning and conducting business activity by entities operating on the intermodal transport market. This provision is in contradiction with the very idea of introducing intermodal relief as a development stimulus for intermodal services.

Source: www.rynek-kolejowy.pl

3.3. Slovakia

3.3.1. Strategic Transport Development Plan of the Slovak Republic up to 2030 - Phase II

This document was published in December 2016 and is one of the most recent strategic publications related to the transport as whole.

General Objectives for Freight Rail Transport (primarily for Čadca - Žilina - Košice):

- Strengthen the role of rail as a carrier mode in the public transport system where justified,
- Increase the share of rail freight transport in total transport performance,
- Improve the safety, efficiency and sustainability of transport operations by strengthening new technologies,
- systematically reduce the negative socio-economic and environmental impacts of transport,
- To systematically increase the safety and security parameters of point and line elements of the transport system.

Measures aimed at promoting rail freight transport:

- Completion of modernization of the main TEN-T lines, which are in a high stage of preparation: Púchov - Žilina, Žilina - Čadca - st. border,
- Modernization of the mainline Žilina - Košice - ČiernanadTisou,
- Modernization of the TEN-T line: Púchov - HorníLideč,
- Periodic preparation of transport infrastructure maintenance plans.

Measures to promote intermodal transport:

- Improving the conditions for combined transport and the operation of coherent freight trains and promoting the interoperability of freight vehicles (organizational, infrastructure and vehicles),
- Periodic preparation of transport infrastructure maintenance plans.

3.3.1. Pilot Interreg project ChemMultimodal of Duslo, a.s.Šaľa

The scope of the project is to evaluate and establish pilot project for connection of the Duslo plant in Šaľa with the customers around the Europe,through the logistic chain of multimodal transportation.

Duslo, a.s. is one of the most important chemical industry companies in Slovakia. Throughout its history, it has grown into a well-established producer of fertilizers with European significance and a global supplier of rubber chemicals. Duslo, a.s. is a part of the AGROFERT group, international holding of companies that operate in chemical, agricultural, food production, forestry, lumber, land and transport technology, renewable resources and media sectors.

Table 1 - The main lines considered in the project

From	Transshipment	Destination	Mods (km)	Mounthlyquantitiy (t)
Duslo	-	Lyon - France	Rail – 1 327 km	5 000 t
Duslo	DunajskáStreda	Rotterdam – Holland	Rail – 1 284 km Road – 37 km	500 t
Duslo	-	Barcelon - Spain	Rail – 1 963 km	1 500 t
Duslo	DunajskáStreda Rotterdam Kingston	Yorkshire - England	Road – 152 km Rail – 1 284 km Sea – 338 km	2 400 t
Duslo	DunajskáStreda Rotterdam	Caldas de Reis – Spain	Road – 37 km Rail – 1 284 km Sea – 1 800 km	780 t
Duslo	DunajskáStreda Rotterdam	Gafanha da Nazare – Portugal	Road – 37 km Rail – 1 284 km Sea – 1 900 km	1 300 t

As shown on table above, two of the planned routes will be carried out as classic freight railway transport in freight wagons. The four other routes will be executed by containers with on route transshipment in strategic points for optimalization of the route. The project is now in pre pilot phase (as of December 2018) and it is expected to be putted into operation in the near future.

3.3.2. Support of intermodal transportation

The main tools for the support of combined transport in the SR, in particular in terms of infrastructure building, are the operational programs of the ICE SR, i. Operational Program Transport 2007 - 2013 (in which an intermodal terminal was built in Žilina - Teplička) and the

current Integrated Infrastructure Operational Program. The OPII 2014-2020 under Priority Axis 1 (Railway Infrastructure (TEN-T core) and Mobile Renewal) mentions the construction of intermodal transport terminals as one of the objectives, provided that appropriate market conditions are created. At this point, it is stated that, in addition to the modernization of railway lines, another opportunity for the development of railway infrastructure is to increase its capacity utilization and to develop combined transport. This requires building intermodal terminals to cover the increasing volumes in this transport system and ensuring readiness for eventual growth in continental transport, with the prospect of extending Asia's direct link with the EU. The long-term goal of ICE SR is to build a basic network of public intermodal transport terminals to improve access to high-quality terminal and logistics services. Based on the EC Decision (EC Decision (2013) 4423 of 17 July 2013 on State aid SA.34369 –2013 / C Construction and operation of public intermodal transport terminals), it is possible to reopen the issue of building public terminals in Slovakia after a year. 2018, when the Ministry of Transport will prepare a new analysis of the possibilities of construction of public intermodal transport terminals. In the future, the granting of public financial assistance for the construction of additional terminals will be subject to a new Commission decision on State aid.

A strategic document of the Ministry of Industry and Trade of the Slovak Republic focusing on the support of intermodal transport is currently under preparation. This document is currently a non-public document and its extent and impact are not known.

In addition to these instruments, the state has long supported the combined transport sector through rapid action and strategies:

- In 1994, the Government of the Slovak Republic signed an approach to the AGTC (European Agreement on the Most Important Intermodal Combined Transport Routes and Related Objects) agreement, according to which the time limit of 30 minutes for the train crossing should be respected.
- Since 1996, the Program of Support for the Development of Combined Transport in the Slovak Republic has been implemented with the validity until the year 2002. 2010. It was a program for SMEs in the field of combined transport,
- At the initiative of the Combined Transport Department, the Combined Transport Section was created at the Freight Transport Division of the Railway Company a.s. (ZSSK) in 1998,
- On 17.1.2001 the Government of the Slovak Republic approved by Resolution no. 37/2001 "Concept for the development of combined transport with a view to 2010",
- On January 23, 2001, the Agreement between the Slovak Republic and ŽSR on support for combined transport operation in the RoLa system was signed for 2001-2005,
- The Ministry of Transport, in cooperation with the Ministry of Finance of the Slovak Republic and the Customs Directorate Bratislava, resolved the customs clearance of integrated trains of KD at the combined transport terminals, which is a prerequisite for a 30-minute stay at the border. In cooperation with ŽSR, MÁV, ČD and DB, the issue of handover of combined transport trains across borders was solved in trust,
- Motor vehicles that perform combined transport with a total weight of over 7.5 t and trucks with a trailer do not have a traffic restriction on 7 days of rest and rest. This is specified in more detail in the Act of the National Council of the Slovak Republic No. 315/1996 Z.z. as amended by later regulations on road traffic (§36 section 3 d),
- Benefits of tax reduction for vehicles used in combined transport in accordance with the conditions of §7 of the Act of the National Council of the Slovak Republic no. 361/2014

Z.z. on motor vehicle tax,

- In the framework of international cooperation, intergovernmental bilateral agreements on combined transport are signed with the Czech Republic, Hungary, Austria, Slovenia, Croatia, Bulgaria, Poland, Latvia, the Netherlands, Romania, Estonia, Ukraine, Macedonia and Serbia;
- On the initiative of combined transport operators, the Association of Forwarders of Slovakia and the Association of Employers of Transport, Posts and Telecommunications of the Slovak Republic, the Interest Association of Combined Transport was established. The Combined Transport Council was established at the Association of Employers of Transport, Posts and Telecommunications of the Slovak Republic (today the Union of Transport, Posts and Telecommunications of the Slovak Republic). The basic objective of the Council is to assist in the development of KD. The Council is represented by selected central state administration bodies, University of Žilina, ZSSK Cargo, a.s., SPaPa.s., operators of KD, ČESMAD Slovakia, Union of Forwarders of Slovakia and others,
- Awareness of the importance of combined transport is carried out in professional journals as well as in electronic media. Since 1996, an international conference called EUROKOMBI has been organized, and has now been replaced by the international scientific conference Horizons of Railway Transport, organized by the University of Žilina,
- In cooperation with the Ministry of Finance of the Slovak Republic, Principles were issued for the provision of special-purpose subsidies from the state budget for technical equipment of combined transport. The policy was approved by PVM on 2.10.2001. The subsidy was provided for the purchase of new large containers, swap bodies, road carriers, reloading mechanisms for work with NJ KD at the combined transport terminals and their loading / unloading points. The amount of the grant was determined from their acquisition price by a share of 30 - 50%. The condition for granting the subsidy was to prove the price of procured funds, to block the agreed financial amount, to conclude an insurance contract for property, to use min. 5 years for KD and conclusion of the Contract with MDPT SR. The program of special-purpose subsidies from the state budget began to be implemented as of 1 January 2003. The instrument was abolished by the combined transport development scheme on 23.3.2004,
- An update of the concept of combined transport development was adopted at the meeting of the Ministry's management on 15.7.2003,
- Resolution of the Government of the Slovak Republic No. 215/2004 approved the use of the Combined Transport Development Scheme in the Slovak Republic in the provision of state aid under the Program for the Support of Combined Transport Development in the Slovak Republic. The scheme of combined transport development in the Slovak Republic was published in the Commercial Bulletin no. 57/2004 on 23.3.2004. The scheme was canceled on 15.6.2007,
- Ministry of Transport, Posts and Telecommunications of the Slovak Republic pursuant to § 8 par. 2 of Act no. 523/2004 Coll. on budgetary rules of public administration and on amendments to certain acts, as amended by Act No. 584/2005 Z.z. Decree no. 491 / M-2006 of the Ministry of Transport, Posts and Telecommunications of the Slovak Republic of 15 February 2006 on the provision of subsidies in the field of combined transport,
- Within the EU programming period 2007 - 2013, the Ministry of Transport, Posts and Telecommunications of the SR prepared the Operational Program Transport (OPD), which was approved by the Government Resolution no. 1007 of 6 December 2006. This Operational Program ensured the absorption of funds for transport projects in 2007-2013 from the Cohesion Fund and the European Regional Development Fund. The starting document of the Slovak Republic for the development of OPT was the "Transport Policy

of the Slovak Republic until 2015”, which was approved by the Government Resolution no. 445/2005. Other documents and their strategies defining the priorities and objectives of the transport policy were also taken into account in the development of OPT. In fulfilling all priorities and objectives through OPT, the global objective of OPT was respected, which was to support sustainable mobility through the development of transport infrastructure and the development of public passenger transport. The specific objectives of OPT were modernization and development of railway infrastructure, modernization and development of road infrastructure, modernization and development of intermodal transport infrastructure and development of public passenger transport. Within the Priority Axis 3 - Intermodal Transport Infrastructure, an intermodal terminal Žilina - Teplička was built.

4. CHARAKTERISTICS OF INTERMODAL TRANSPORT

4.1. Definition

Basic terms of combined transport and combined transport are given in the standard ČSN 26 9375 - Terminology of combined transport. In the following, some definitions are adapted for ease of understanding. Terms are not sorted alphabetically, but according to thematic continuity.

Intermodal transport - transport of goods in one and the same transport unit or road vehicle, which will gradually use different modes of transport, without manipulating the goods themselves during transshipment between modes (modes of transport).

Combined transport - intermodal transport where the main section of the route is implemented by rail, inland waterway or sea and the start and / or end section by road.

Continental combined transport - intermodal transport where the main section of the route is implemented by rail or inland waterway and the start and / or end section by road. The place of loading and unloading of goods is within one continent, respectively the common continent of Europe and Asia, without the use of sea transport.

Maritime combined transport - intermodal transport where the main section of the route is carried out by sea and other start and / or end sections by rail, inland waterway or road. Maritime combined transport is carried out using ISO 1 series containers (also called sea containers).

Accompanying combined transport - the carriage of road vehicles or combinations of vehicles by other modes of transport (eg rail transport), accompanied by their crew. An example of accompanying combined transport is Ro-La.

Ro-La - the system of transport of road freight vehicles and their combinations on railway vehicles. The entire road train is driven onto a railcar where it is secured and the driver can rest in a couchette car. Ro-La was formerly operated eg on the route Lovosice - Dresden (already canceled in this section and replaced by unaccompanied combined transport).

Unaccompanied combined transport - transport of containers, swap bodies, road intermodal semi-trailers by means of other modes of transport (train, ship), not accompanied by the driver of a road freight vehicle.

Transport unit - container, swap body, intermodal semi-trailer, trailer, road vehicle or combination transported.

Container - transport unit with prescribed parameters. Dimensions, marking and other parameters are specified in the relevant ISO standards. The containers are designed for stacking.

ISO 1 series container - (also called a sea container) A container of prescribed parameters, designed for carriage on container ships adapted to carry ISO containers. Most often, 20-foot maritime containers (ISO 1C) and 40-foot maritime containers (ISO 1A) are used.

Inland container - a container designed for continental transport as it cannot be transported at sea due to its size and construction.

Rolling container - a special container with a lower frame with rollers and equipped with an eye for lifting, pulling, moving or standing. An example of a rolling container is the ACTS system.

Intermodal Transport Units - A collective designation of containers, swap bodies and road intermodal trailers (ITU - Intermodal Transport Unit).

Intermodal Loading Units - collective identification of swap bodies and intermodal road trailers (ILU - Intermodal Loading Unit)

Swap body - transport unit, the characteristics of which correspond to the container, except for the possibility of stacking, if the swap body is not designed for this possibility. Most swap bodies are equipped with support legs. It is intended exclusively for continental combined transport using road and rail transport.

Figure 4 –swap body



Source: Van Hool

intermodal semi-trailer - a special road trailer, designed for vertical transshipment within the combined transport, with reinforced frame construction and with gripping points.

Figure 5 –intermodal semi-trailer



Source: ili-code.eu/en/photogallery

Transshipment terminal (terminal) - part of the combined transport infrastructure and transport hub of the transport chain, where the transport units are transferred from one mode of transport to another and where other services related to combined transport are provided.

Complex train of combined transport - train transporting transport units without shifting individual railway wagons between the station or train. departure station and destination station.

Combined transport shipment - transport unit and goods stored in it, or empty transport unit, which is submitted for transport with the relevant transport documents and, if necessary. and other documents and documents.

Combined transport operator - a company that organizes, in cooperation with freight forwarders, carriers and train operators, the transport of transport units from the sender to the recipient by combined transport. The combined transport operator may also be a carrier or a combined transport train operator.

Carrier - a legal or natural person operating means of transport required for the operation of transport. It is also a participant in the transport relationship established by the contract of carriage.

Transporter - consignor and consignee of cargo (goods).

Shipper - a person under whose transport order or concluded contract the freight forwarder or carrier arranges for transport.

Freight Forwarder - a legal entity arranging for the transportation of goods from the place of dispatch to the place of destination for commission on behalf of the Client.

Container traffic volume is expressed in standardized Twenty-foot Equivalent Units (TEUs), with 1 TEU equivalent to a 20 foot container of 6.096 x 2.438 x 2.591 m.

Figure 6 –20 foot container ISO class 1 C



Source: www.containercontainer.com

Table 2 –Technical parameters of 20 foot container ISO class 1 C

		Imperial system	Metric system
Outside dimensions	Length	20'0"	6,069 m
	Width	8'0"	2,438 m
	Height	8'6"	2,591 m
Inside dimensions	Length	18'11 2/5"	5,776 m
	Width	7'8 3/5"	2,352 m
	Height	7'9 9/10"	2,385 m
Door dimensions	Length	7'8 1/4"	2,343 m
	Width	7'5 3/4"	2,280 m
Volume		1 169 ft ³	33,1 m ³
Maximum gross weight		66 139 lb	30 400 kg
Empty container weight		4 850 lb	2 200 kg
Load weight		61 289 lb	28 200 kg

4.2. Transport costs

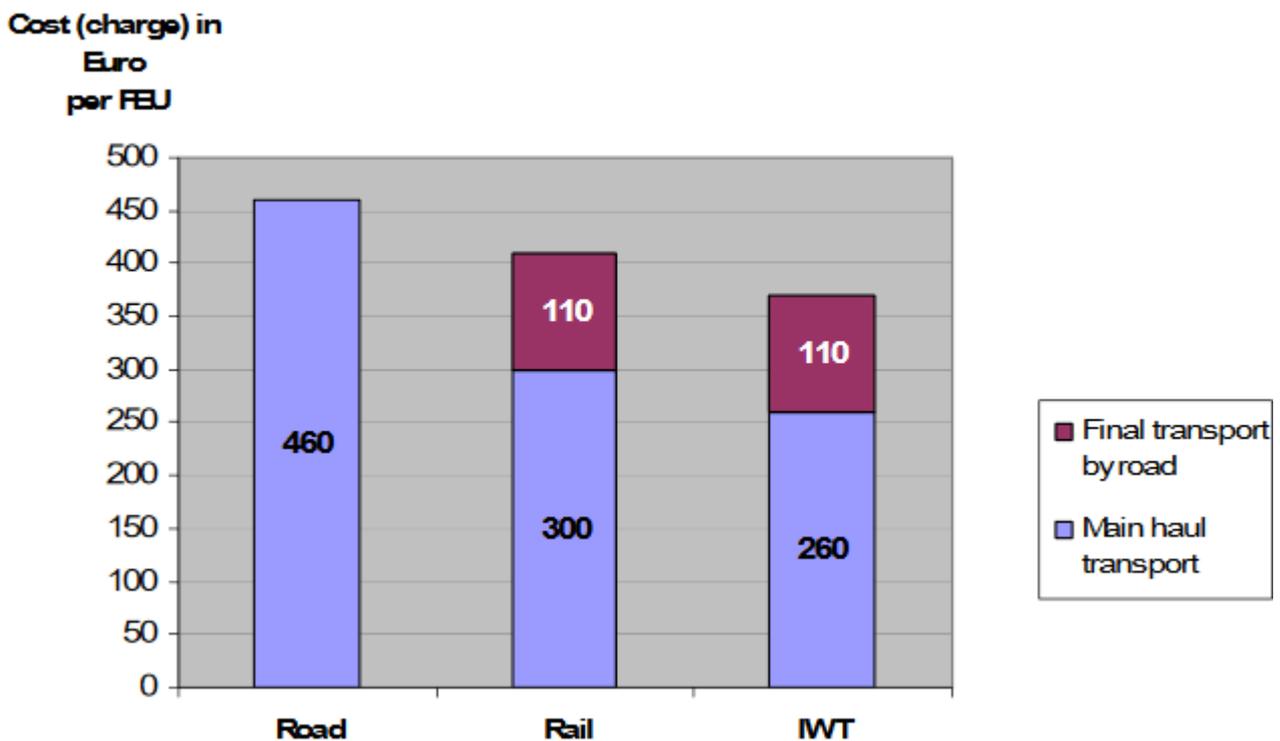
Table 3 - The cost of transporting containers

containers (TEU) 20 t		
	€/1 000 tkm	% of the highest price
road transport	82,2	100,0%
rail transport	46,0	56,0%
inland navigation	33,6	40,9%

Source: Feasibility study of the DOL connection, own processing

It is clear that, in all cases, carriage where inland navigation is the main carrier is the lowest cost, even if all additional payments are included.

Figure 7 – Container transport cost between Rotterdam and Manheim (500 km)



Source: Bruno Vergobbi, Managing Director French Ports Association: Integration of logistics supply chain: cooperation between ports and freight villages, Europlatforms Conference, Paris, 18 December 2006

4.3. Speed

For the division of freight transport between road, rail and water transport, it plays an important role, in addition to transport and freight rates. Higher speed is especially important for expensive or quickly perishable goods. For commodities, however, the reliability of supply is also important, where water transport on high-quality waterways is a priority. There are no congestion on waterways that cause unpredictable delays.

The D-O-L feasibility study, which has reached the following values on the basis of surveys:

Table 4 – Freight transport average speed

Transport network element	average speed (km/h)
Highways and expressways	67 km/h
Class I roads	47 km/h
Class II roads	37 km/h
Municipal collection roads	33 km/h
Railway line	33 km/h
Inland waterways	9 km/h

Source: Feasibility study of the DOL connection, own processing

The following must be added to the table:

- water transport is not a technical speed (this is usually about 15 km/h for economic reasons), but the speed at which the delays are counted in the lock chambers; From this point of view, the speed is final;
- for large boats, it is economically worthwhile to rotate during the cruise of 2 crews, so on a number of waterways it sails 24 hours a day;
- in the case of rail and especially road transport, the resulting speed is uncertain with regard to traffic congestion;
- for road transport, it is necessary to take into account, in addition to congestion, mandatory breaks and various national restrictions (eg weekend rides, etc.).

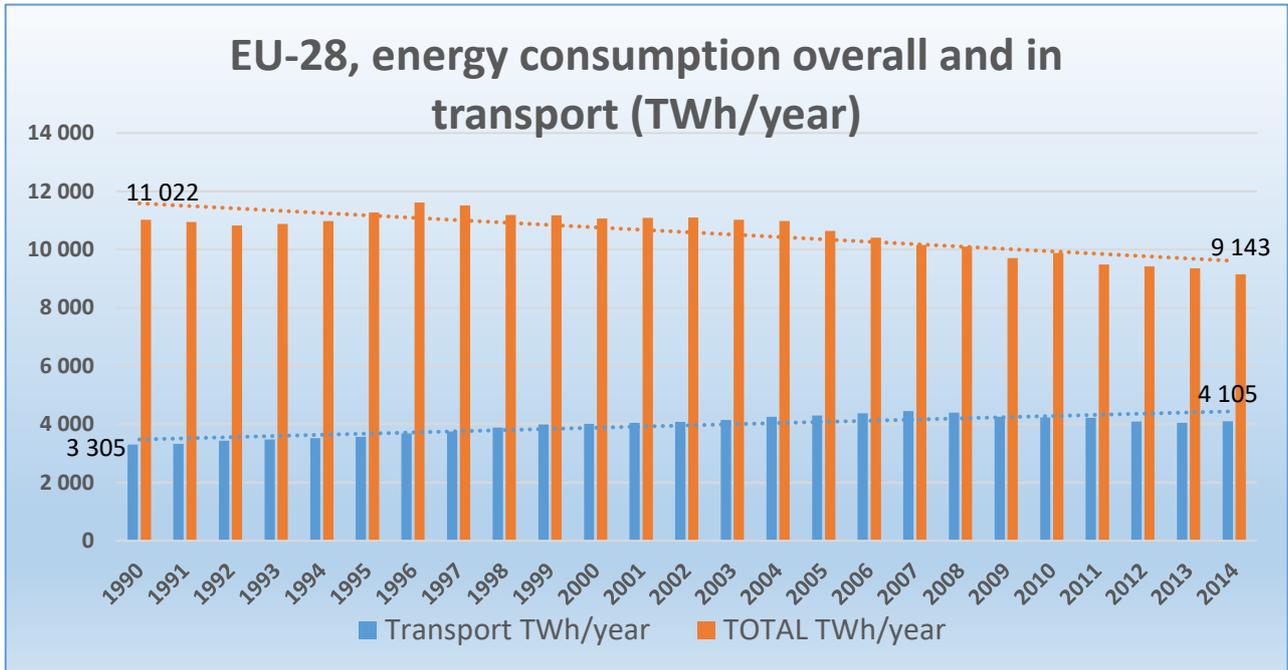
4.4. Energy consumption

Energy consumption is currently a highly watched economic and environmental category of categories, both in and outside the transport sector.

Attention is drawn to the fact that while overall energy intensity in the EU is gradually decreasing (in 25 years to about 83% of the 1990 state), transport consumption is increasing, both relative and absolute - namely to 124.2% compared to the state of the year 1990. Therefore, shipping and rail transport, such as those with lower energy consumption, are receiving considerable support from a number of European governments and EU representatives.

The time series in the countries of the European Union shows the following dates:

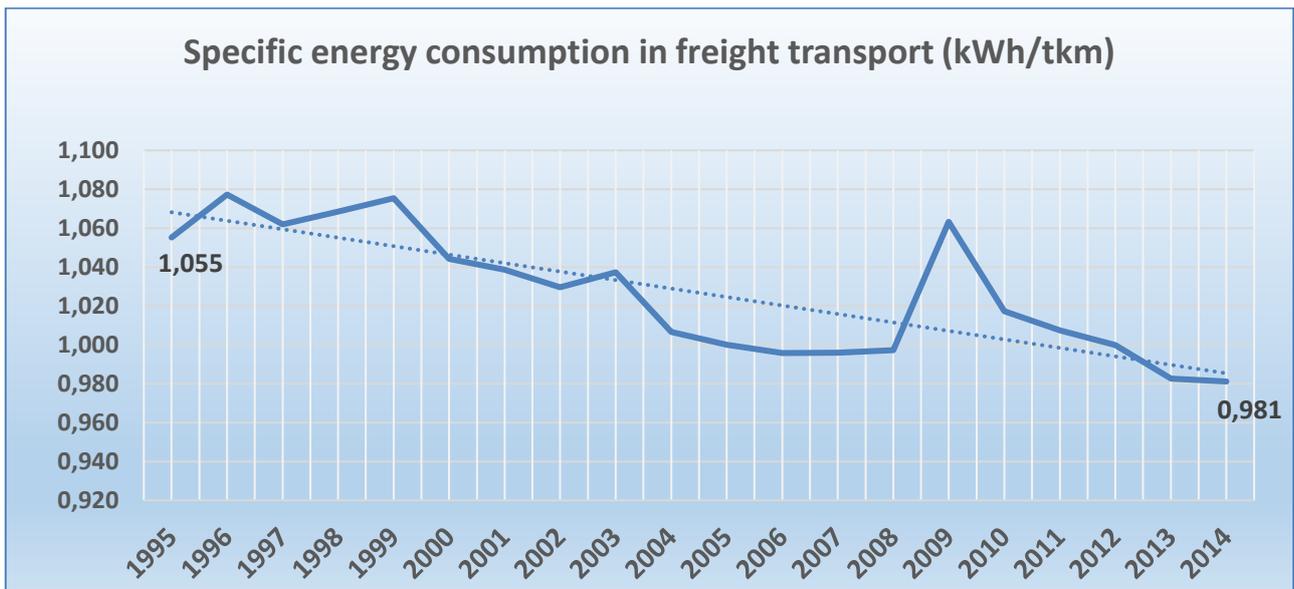
Table 5 – Energy consumption



Source: StatisticalPocketbook, ownprocessing

Nevertheless, a number of measures are progressing in transport, which gradually reduce specific energy consumption - the overall increase is mainly due to the overall increase in transport.

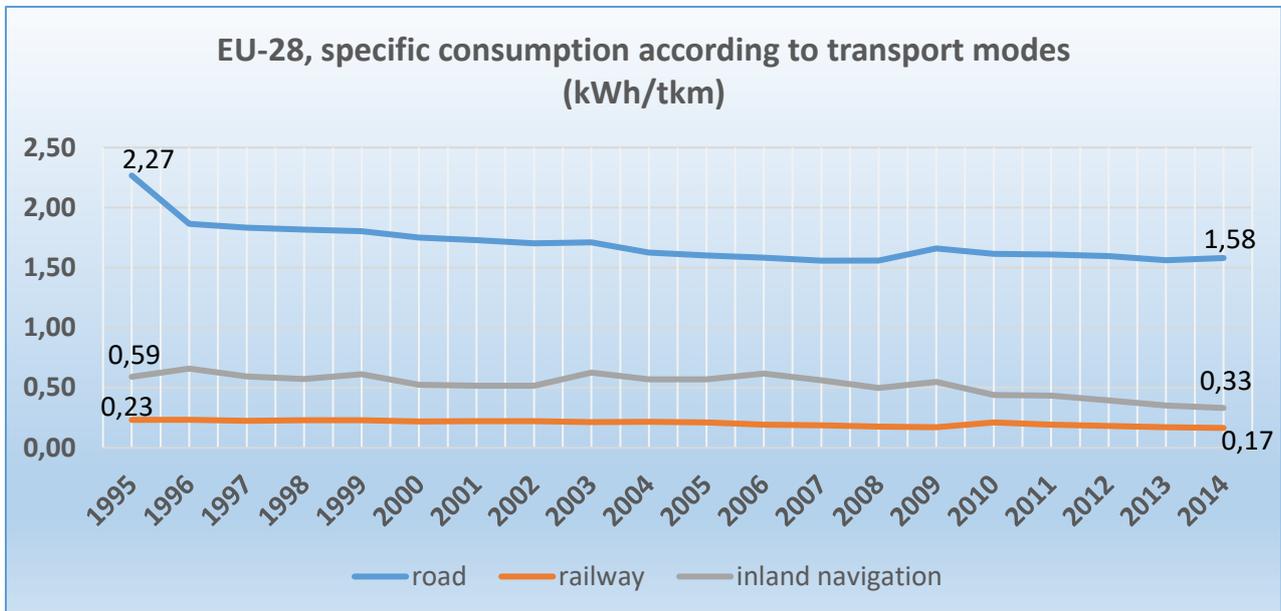
Table 6 - Specific energy consumption in transport



Source: StatisticalPocketbook, ownprocessing

Consumption by modes of transport can also be best demonstrated in the long-term ranges of European statistics:

Table 7 - Specific energy consumption according to transport modes



Source: *Statistical Pocketbook, own processing*

It is also clear from these dates why the EU intends to favor rail and waterways in the long term, as repeatedly mentioned in EU documents.

In addition, continuous research and innovation are taking place in all transport sectors - ships already operate, for example, not only on natural gas (LNG) but also on electric and hydrogen propulsion. These trends will undoubtedly increase.

4.5. Environment impact

Small environmental impacts (so called externalities) are among the important and recognized advantages of water transport.

There are a number of studies and methodologies in Europe to determine the external effects of transport, some more complete (more criteria), others less complex; in addition, they often produce very different results. This allows different groups of experts and public officials selectively to select more useful backgrounds for them.

Reasonably chosen by the processors of the study "Socio-Economic Impact of the Development of the Lower Vistula" (Gdansk, 2017), who decided to process diameters of more relevant European studies.

A similar procedure was also chosen for the feasibility study of the Danube-Oder-Elbe waterway corridor, but the originally used sources were expanded by the "climate impact" parameter, according to Inland Navigation Flanders research.

Table 8 – External costs – current status

Comparing the external costs of different modes of freight transport (€/1 000 tkm) - current status									
current status	road			railway			inland navigation		
	Vito	EC	PLANCO	Vito	EC	PLANCO	Vito	EC	PLANCO
accident	22,8	5,4	37,8	1,6	1,5	2,3	0,1	0,0	0,3
noise	4,4	2,1	7,4	2,8	3,5	12,7	>0,1	0,0	0,0
air pollution	9,1	8,7	29,1	0,4-9,46	4,3	3,5	5,4	3,0	4,2
congestion	5,4	5,5	1,2		0,2	0,0			0,0
necessary areas	1,9	2,5	0,0	0,2	2,9	0,0	0,7	1,0	0,0
other			1,3			0,4			0,0
water and soil pollution			8,6			0,0			0,0
TOTAL	43,6	24,2	85,4	2,3	12,4	18,9	6,2	4,0	4,5
AVERAGE	51,07			11,21			4,89		
Climate Impact According to Inland Navigation Flanders	0,79			0,3			0,5		
TOTAL	51,86			11,51			5,39		

Sources: Socio-economic Impact of the Development of the lower Vistula on the basis of the documents: VITO-Flemish Institut for Technological Research, Belgium; EC-European Commission, Brussels; PLANCO-Planco Consulting; Inland Navigation (climate)

Due to the expected innovations in the transport sector, this data can be expected in the future:

Table 9 - External costs - future expected status

Comparing the external costs of different modes of freight (€/1 000 tkm), future expected status									
	road			railway			inland navigation		
	Vito	EC	PLANCO	Vito	EC	PLANCO	Vito	EC	PLANCO
accident	22,8	5,4	37,8	1,6	1,5	2,3	0,1	0,0	0,3
noise	3,1	1,5	5,1	1,4	1,7	6,3	>0,1	0,0	0,0
air pollution	8,8	8,5	26,0	0,2-4,73	2,2	1,8	3,8	2,1	2,9
congestion	5,4	5,5	1,2		0,2	0,0			0,0
necessary areas	1,9	2,5	0,0	0,2	2,9	0,0	0,7	1,0	0,0
other			1,3			0,4			0,0
water and soil pollution			8,6			0,0			0,0
TOTAL	42,0	23,4	54,0	1,4	8,5	10,8	4,6	3,1	3,2
AVERAGE	39,80			6,89			3,63		
Climate Impact According to Inland Navigation Flanders	0,65			0,2			0,4		
TOTAL	40,45			7,09			4,03		

Sources: see above, own correction

4.6. Safety

Advantage of combined transport is its high safety. This is also apparent from the external transport cost tables, where in all cases inland navigation data is much more favorable than that of the railways and even the whole road traffic regulations.

Statistical data on killed and injured people in traffic accidents is provided, for example, by the Texas Transportation Institute:

Table 10 - Dead and injuries in traffic accidents (persons / billions tkm)

	death in a traffic accident	% relative to the road	injuries in accidents	% relative to the road
Road	1,000	100,0%	1,0000	100,00%
Railway	0,015	1,5%	0,0600	6,00%
Inland navigation	0,006	0,6%	0,0005	0,05%

Source: Texas Transportation Institute

4.7. Intermodal operation

4.7.1. Basic rules

- Intermodal transport is the transport of a consignment which is moved from place A to place B by means of one unified transport unit, the so-called ITU (from the English Intermodal Transport Unit), which is a semi-trailer, container or swap body. In the places of reloading, the so-called transshipment points, which are equipped with the necessary handling means, only the transport unit as a whole is handled. The intermodal transport system differs from multimodal transport in that a different transport document must be drawn up for each mode of transport used. When using intermodal road-rail transport, two consignment notes are issued. The international or national **CMR** consignment note (or bill of lading) may be used for road transport, and **CIM** (or Intercontainer) for rail transport. For transport organized by the KD operator, a shipping note is used.

The FIATA FBL bill of lading is a special document for multimodal transport. It may be issued either as a transferable negotiable document - **a bill of lading** or as a non-transferable non-negotiable document - **an international freight forwarding document**. The bill of lading is a proof of conclusion of the contract of carriage and confirmation of receipt of goods for multimodal transport. Bill of lading is also used for water transport.

- Contractual securing of container transport - the basis is a **contract on the carriage** of goods within the meaning of the Czech "New" Civil Code **No. 89/2012 Coll**, which documents the direct relationship between the consignor and the carrier. Alternatively, it is possible to issue a **bill of lading**, which entitles them to the goods. An alternative is the **forwarding contract** according to the Commercial Code, whereby the forwarder undertakes to provide the shipper with his own name but on his behalf. The Civil Code also contains other types of contracts - contract on operation of means of transport, contract on lease of means of transport and contract on storage.
- Therefore, legislation dealing with the issue of CD consists mainly of communications or decrees of the Ministry of Foreign Affairs on the adoption of individual conventions,

negotiation of agreements or conclusion of international agreements in the field of combined transport.

Table 11 - Overview of legal regulations published in the Collection of International Treaties (Sb.m.s.) and in the Collection of Laws (Sb.).

Regulationnumber	Regulationname
Decree 85/1973 Coll.	MFA Decree on the Agreement on the Implementation of the Single Container Transport System
Decree 57/1976 Coll.	MFA Decree on the Customs Convention on Containers
Decree 20/1977 Coll.	MFA Decree on the Agreement on the common use of containers in international transport
Decree 62/1986 Coll.	MFA Decree on the International Convention on the Safety of Containers
Communication 35/1995 Coll.	Communication from the MFA on the negotiation of a European Agreement on the most important international combined transport routes and related facilities (AGTC)
Communication 35/2000 Coll.	MFA notice on the negotiation of the Agreement between the Ministry of Transport and Communications of the Czech Republic and the Ministry of Transport, Post and Telecommunications of the Slovak Republic on International Combined Transport
Communication 144/2000 Coll.	Communication from the MFA on the adoption of the Convention on Customs Handling of Common Fund Containers used in International Transport
Communication 87/2001 Coll.	Communication from the Ministry of Foreign Affairs on the negotiation of the Additional Protocol on the Support of Combined Transport between the Ministry of Transport and Communications of the Czech Republic and the Federal Ministry of Science and Transport of the Republic of Austria on Articles 4, 5, 6, 8, 12 and 14 of the Agreement between the Government of the Czech Republic and the Government of the Republic of Austria goods
Communication 31/2002 Coll.	Communication from the MFA on the negotiation of the Agreement between the Government of the Czech Republic and the Government of the Republic of Hungary on International Combined Transport
Communication 65/2004 Coll.	Sdělení MZV o sjednání Dohody mezi vládou České republiky a vládou Bulharské republiky o spolupráci v mezinárodní kombinované dopravě
Communication 74/2005 Coll.	Sdělení MZV o sjednání Dohody mezi vládou České republiky a vládou Republiky Slovinsko o spolupráci v mezinárodní kombinované dopravě

Source: Novák 2015

Important legislation directly related to the combined transport sector is **Council Directive 92/106 / EEC of 1992**, which addresses **the rules for the combined transport of goods between Member States**.

It was envisaged that a proposal for a new Directive of the European Parliament and of the Council amending Council Directive 92/106 / EEC on the establishment of common rules for certain types of combined transport of goods between Member States would be discussed in May at the European Parliament, from different countries has not yet been adopted.

The new rules will apply to the international operations of the container transport, in particular to operations conducted between EU countries or between EU countries and third countries. Member States may decide on certain restrictions on cabotage within their territory, including a maximum time limit of five days for the permanent presence of vehicles on their territory in order to prevent the misuse of cabotage by providing unlimited services. The debate on the revision of the cabotage article (Article 4 - application of cabotage rules

to the road section of combined transport) and the development of transshipment terminals have brought about a major break in the discussion of the amendment.

4.7.2. Operational practice

Peaks and leaks, The question of all-day traffic:

The National and Regional Network Statement stipulates that carriers must request SŽDC to allocate railway capacity (to annual timetables) and to allocate a train path for regular trains in good time before the timetable for a given year. If it is not possible to satisfy the requirements of all applicants for the allocation of free railway capacity, regular passenger trains (express trains and regional Os trains) take precedence in the process of application coordination and the other trains are KD trains. They also take precedence over international passenger and international freight trains. The path and timetable of the train are determined by the infrastructure manager (RIA) as part of the assessment of track capacity before the subsequent allocation of track capacity. The international application for capacity allocation shall be harmonized in advance with the cooperating applicants on the surrounding railway infrastructures. IS RNE PCS is used to ensure harmonization of the application among applicants. The allocation of infrastructure capacity on the border section shall be conditional on the consensus of the Infrastructure Manager of the neighboring infrastructure based on the confirmation that the same request for infrastructure capacity allocation has been submitted by the downstream applicant on the adjacent border section of the neighboring infrastructure.

There are no restriction for combined transport as driving bans in road freight transport in peaks and holydays.

Just-in-time:

Container trains are mostly Nex categories, which have the highest priority in rail traffic among freight trains. In most cases, KD lines are routed between KD terminals as part of national transport operations in a given country, and especially between terminals in different countries in Europe. In addition, in international transport, KD links are also linked to seaports, where it is important to respect the prescribed arrival times. In ports, high rip-off fees are charged for loading / unloading containers from train to container and vice versa. Train stays when reloading containers are strictly timed, and if there is a delay, the ship will not wait for a delayed train. Each ship has a precisely booked ship's space, ie the slots (ie where the containers are to be stored) and the number of containers to be loaded from each customer, ie. from which train. If the train is delayed, it is stopped at a distance of about 20 km from the port and is untied (the locomotive is suspended), for which fees are payable. The containers will not be loaded onto the ship where they had a booked ship's space. They must be stored on the terminal area and wait for the next ship, for which handling and storage fees are charged for each day, which are very high (depending on the port size). Whether all containers from the entire train will be reloaded into the ship or whether it has to wait for the next ship depends on its size.

Weather influence, The question of fall-year traffic:

Combined transport enables acceleration of transport over longer distances - transport at night, on Sundays, on public holidays.

For example, the weather in winter does not affect the transport of containers by rail as on the road.

The experience of Bohemian kombi shows that the operational quality of combined transport tends to be significantly higher in the winter months than in the summer. In winter there are almost no construction work or reconstruction of the tracks, so there are virtually no closures. In summer, trains tend to be delayed due to lockouts. Extremely high frosts can cause track breaks. These cases have already occurred, but they were rather exceptions. At the docks, a strong wind could pose a problem, which can complicate the transshipment of transport units.

In case of longer train delays, the plans of forwarding companies (eg ČSAD Logistik Ostrava) have to be changed operatively, which is inevitably connected with problems that the dispatching center has to flexibly solve, even at the cost of extra costs. In terms of accountability for timetables and overall quality, the liability of rail carriers is still very low. The advantages of KD are exclusively in ecology and eliminate the lack of truck drivers.

Repairs and maintenance:

Optimally, maintenance and repair of the means of combined transport takes place in the immediate vicinity of the transshipment area. This eliminates the need for empty rides. There are no limitations to repair and maintenance except to comply with technical standards.

5. TERMINALS IN EZUS TRITIA STATUS QUO

5.1. Moravskoslezský region

5.1.1. Historical contexts

In today's Czech Republic, containers began to appear on transit trains in the 1960s.

Czechoslovakia entered the container transport with its own resources only after 1970 by the Czechoslovak container transport company - INTRANS.

Originally, the company was part of the Czechoslovak State Railways, but in 1976 it was set aside for the Czechoslovak Container Transport - INTRANS. The company managed about 20 container terminals throughout Czechoslovakia and a transshipment terminal in contact with the Soviet Union in CiernanadTisou. In the early 1990s, the demand for container transport fell sharply and most terminals were gradually closed. [3]

On the territory of present-day Moravian-Silesian Region there was a terminal for the transport of piece consignments in the district of the railway station Ostrava hl.n. in the middle of the city with low rail capacity and insufficient surface and rail equipment for further development. It was not suitable for a container terminal. This is the area of the current commercial district, which is currently used by ČD Cargo, a.s.

5.1.2. Current state - terminals and directions

Terminál AWT Ostrava, Paskov ČSKD

It was established on brownfield after former OKD Paskov coal mine in 2007. In 2008-2009, the first stage of the construction of the terminal was used, in which funds from the Program of Support for Revitalization of Railway Siding under OP Transport 2007 -2013 were used. , as In 2011-2012 II. stage of extension and modernization of the terminal. In February 2018 was launched III. phase of terminal modernization, within which the handling area doubled to 70 thousand m² and capacity to 4 800 TEU and construction of 2 new tracks with a length of 375 m. By 2019, 5 handling terminal tracks with a total length of 1,525 m were built. .

Investments into III. During the modernization phase, it was CZK 230 million, of which EU subsidies amounted to CZK 151 million. The whole modernization will be completed in 2020 by the reconstruction of the adjacent railway siding (it has 9 tracks for receiving and dispatching trains, which are used only for the terminal) and the adjustment of 4 tracks to a length of 750 m, allowing to receive complete container trains.

It is already planned IV. phase of modernization and extension of the terminal, which should start in July 2019 with the demolition of adjacent buildings of the former Paskov mine. The expected completion of demolition should take place by the end of 2020, when the handling area will be increased by approx. m² and will serve as a parking area for road trailers.

Further modernization, expansion and strengthening of handling areas will require subsequent investments. After completion of IV. stage will have a final area of 150 thousand. m². At the same time, another 400 m terminal handling rail, which is now part of the railway siding, will operate here and the terminal will reach a total capacity of 10,000. TEU.

The current storage capacity of the terminal is 4200 TEU + 130 parking places for trailers. At present, approximately 14,000 container and semi-trailer operations are carried out at the transshipment facility.

The terminal consists of 5 tracks no. 401, 402 (length 350 m) and no. 301,302,304 (lengths 250, 288 and 323 m).

It is well connected to the I / 56 four lane road via III / 4705.

The inner area of the transshipment area is 32,000 m².

The storage area for IPJ in m² or TEU (out of reach of portal cranes) is 14,000 m².

Theoretical transshipment volume / actual transshipment volume -100 000/95 000 TEU

Number of railways - 5 service / 24 h (11 trains / 24 h)

Equipped with reloading mechanisms - 1 pc Kalmar / DRF450-6S5X - load capacity 45 t, 1 pcs Hyster / 46-33IH - load capacity 46 t, 1 pc Hyster / 45-31CH - load capacity 45 t, 2 pcs Kalmar / DRF450-70C5XS- load capacity 45 t.

The terminal serves 10 large customers, including Maersk, MSC, COSCO, EKOL and LKW Walter.

Container trains lines:

Paskov - port Mělník and further to Germany (ports Bremenhaven, Hamburg) - containers
port Mělník and further to Holland (port Rotterdam) - containers

Paskov - Herne (and possibly further to Benelux), transport of semi-trailers LKW Walter

Paskov - Trieste (and further to Poland, Slovakia, Finland), transport of containers and

semi-trailers Paskov - Koper (Slovenia), containers

Paskov - Chernachovsk (Russia), containers

Paskov - terminal ČD-DUSS Lovosice, groups of wagons with containers for complete trains to Germany

Paskov - Gdansk - containers

Perspective: Paskov - port Piraeus near Athens (Greece) - containers

The strongest relations with the largest volume of container cars were transported to Chernivtsi in Russia, ports abroad - Trieste, Koper Luka, Hamburg, Rotterdam, Bremenhaven, Gdansk (where the transports began to develop only in 2017) and to the Herne terminal in Germany.

Trains with coal, fuel, chemistry:

Paskov - Poland (3 locations) - fuel, chemistry

Paskov - Austria (coal trains)

Paskov - Hungary (coal trains)

Terminál METRANS Ostrava – Šenov (railway station Havířov)

The terminal was established in 2011 on the premises of a former siding of another company that was no longer interested in operating it. The siding is connected to the double-track electrified line No. 301D in the connecting station Havířov, which is connected to the II. and III. transit corridor. Metrans (owner) serves this terminal with KD links connected to the terminal in CeskaTrebova and there is a possibility to connect it with the terminal in DunajskaStreda (for a list of lines see below).

The terminal is easily accessible by road - connected to via road II / 479 to road I / 11 (four-lane road through Ostrava in the west-east direction).

It is equipped with 4 rails (1-4) - lengths 925 m, 372 m, 351 m, 321 m.

The inner area of the transshipment area is 40,000 m².

Storage area for IPU in m² or TEU (within reach of portal cranes) - 400 TEU

Storage area for IPJ in m² or TEU (out of reach of portal cranes) - 20 000 m².

(capacity 5000 TEU)

Theoretical transshipment volume / actual transshipment volume - 180 000/90 000 TEU

The number of railroad operators is 6 operators / 24 h.

Equipment with reloading mechanisms - gantry crane Kalmar - load capacity 40 t,
2 pcs TFC 45 h - load capacity 45 t, 4 pcs F248 - load capacity 10 t.

Lines:

Havířov – Česká Třebová, operatorMetrans

Havířov– Koper, operatorMetrans

Terminál ARGO Bohemia Kopřivnice

The terminal was established in the district of the Kopřivnice railway station in 1998 and was transported by the Transport division of Tatra, a.s. Later, the terminal was sold to Talosa, s.r.o. z Kopřivnice (manufactures prototypes of car parts, provides services for Tatra cars, a.s.) and then sold it to Argo Bohemia, sro (part of the Argo Group, a.s. based in Prague).

The terminal consists of 2 generally loading and unloading tracks (No. 8 and 12) of 280 m and 150 m length.

Equipped with reloading mechanisms - gantry crane PD 38, side translator BP 35, 5t forklift, 3t forklift.

Capacity: 400 TEU, if necessary, capacity can be increased

Lines:

Kopřivnice - Malaszewice / Brest to former USSR, North Korea, China, Afghanistan, (East Line train)

Kopřivnice - Malaszewice / Brest - Ulan Bátár (Mongolia), train Mongolian vector

These are complete groups of wagons with containers, which are hung on trains at the Přerov railway station. traveling to Poland (Malaszewice / Brest) and further to the countries of the former USSR.

East Line Train - Goods are transported to Eastern Europe every week from the Lovosice terminal. Within 48 hours the container train arrives in Malaszewice (Poland). From Brest, connections to the countries of the former USSR (Russia, Belarus, Kazakhstan, the Baltic Republics, Uzbekistan, Tajikistan, Kyrgyzstan, the Caucasus Republic), Mongolia, North Korea, China and Afghanistan are ensured.

Train Mongolian Vector - the project was significantly supported by the Railways of the People's Republic of China, RŽD and DB. It required expansion and cooperation of other participants (Polish Trade Trans, German Transa, Chinese forwarding group at Hu Hot Railway LKMAE).

5.2. Opolskie voivodeship

5.2.1. Historical contexts

Intermodal transport is a form of transport strongly promoted in the EU. This was demonstrated by the establishment in 1997 of a special PACT support program for operators and carriers developing combined transport, followed by the Marco Polo I and II programs. The EC also allows the possibility of providing financial assistance by member states for projects in the field of supporting the development of intermodal transport, and many countries have launched this type of public aid for carriers and operators operating in this transport segment at the beginning of 2000. As a result, the share of intermodal transport in total rail transport is significantly higher there than in those countries that have not used this form of assistance since the beginning. Unfortunately, Poland belongs to the second group of countries and the effects of this are visible both in the material and technical sphere of intermodal transport, as well as the combined transport market. In 2011, 7 rail carriers provided intermodal transport in Poland, including two companies from the PKP capital group, i.e. PKP Cargo S.A. and PKP LHS Sp. z o.o., LotosKolej Sp. z o.o., DB Schenker Rail Polska S.A., CTL Logistics Sp. z o.o., Rail Polska Sp. z o.o. and STK Wrocław. They transported a total of 488.9 thous. loading units (an increase of 41.9% compared to 2010), including 480 thousand containers (800,000 TEU). In total, they transported over 5.9 million tons of freight and performed transport work of 2.4 billion tkm.

Participation of companies of the PKP S.A. group in the intermodal transport market in Poland (in the mass of transported units) at the end of 2011 it amounted to over 73%. In the period 2004-2010, the increase in transport (in units of work performed) amounted to nearly 100%, and in 2011 alone, the transport volume increased by a further almost 30% in relation to 2010. In 2011, there were 24 railway terminals and together with the larger multifunctional rail container handling nodes, this resulted in a total of 30 land terminals of this type. Most of them, however, did not meet the standards required for intermodal terminals operating in countries such as Germany, Austria or Italy. They were in fact temporary - transient (they only had transshipment yards together with mobile container handling devices), and not permanent (stationary devices - overhead cranes, railway sidings of a length allowing to service the entire train, i.e. 600-750 m, adequate facilities storage and storage, etc.). Land intermodal terminals, i.e. in fact rail container terminals, have been managed from the beginning by the largest rail operators operating in Poland or intermodal carriers related to them by trade and capital relations, or companies specializing only in this type of activity. In 2011, the group of main operators - managers of railway terminals could include 9 companies: 1. Spedkont - terminals: ŁódźOlechów, Warszawa GłównaTowarowa, PoznańGarbary, Sosnowiec South. and Kraków Krzesławice, 2. Cargosped - terminals: Gliwice, Warsaw Praga, Małaszewicze, Kobylnica, Gądko, 3. Polzug - terminals: DąbrowaGórnica, Pruszków, Wrocław, Gądko, Sławków (Dębowa Góra), 4. PCC Intermodal - terminals: Kutno , BrzegDolny, Gliwice (intention to build a dry port in Tczew), 5. DB Schenker Rail Polska, which is a shareholder of the Silesian Logistics Center in Gliwice, on which the railway container terminal is located, also provides specialized terminal services in Sławków,

Figure 8 –Location of terminals in Poland year 2015



The Silesian Logistics Center was established in 1989 as the Silesian Water Customs Area, the company was established to create and organize the Free Customs Area as well as to manage and administer the ports in Gliwice and Kędzierzyn-Koźle. In 2002, the name was changed to Śląskie Centrum Logistyki Spółka Akcyjna. The majority shareholder is the city of Gliwice, which in kind contributed the area and real estate of the Gliwice port acquired over 77% of shares. DB Schenker Rail Polska SA and OT Logistics SA also have significant blocks of shares. Śląskie Centrum Logistyki SA covers an area of 47 ha at Portowa Street in Gliwice and 12.58 ha at ul. Sikorski in Gliwice - Sośnica. It is located in the Baltic-Adriatic transport corridor not far from the A4 and A1 motorways. Railway lines of European significance CE-30, CE-59 and CE-65 run through Gliwice. The second most important intermodal node in Silesia is the Euroterminal International Logistics Center in Sławków Sp. z o.o. Euroterminal was established in April 2010 on the basis of the branch of CZH S.A in Katowice Euroterminal in Sławków operating since 2004. The shareholders are CZH S.A., PKP Cargo S.A and PKP LHS Sp. z o.o. The terminal is located at the junction of the wide (1520 mm) and standard gauge (1435) lines. The Polish section of the broad-gauge railway is the broad-gauge metallurgical line, which is the westernmost line with a gauge of 1520 mm. The terminal has rail connections in domestic and international traffic due to the connection with the LHS broad gauge line and the CE30, CE65 standard gauge as well as the regional railway network. The terminal has intermodal connections with the Polish Baltic

ports and the Italian terminal in Maddaloni. In distributed mode, it sends parcels eastwards daily, including to Ukraine, Russia or Kazakhstan. The transformation of the terminal into an International Logistics Center was to significantly contribute to the balance between rail and road transport. The aim of the project was to build infrastructure for container handling and handling goods flow in the following areas:

- international transit - rail - rail reloading
- Combined transport - rail - road reloading
- local transport - distribution and logistics functions as well as road-road reloading.

In December 2007, the first stage of the project was completed - the effect is the operation of a warehouse complex with a total area of 7,000 m². In April 2009, as part of the second stage, the universal warehouse with an area of 4860 and a container plate with an area of 1.3 ha with a container crane with a capacity of 40 tons were put into operation. The accompanying technical infrastructure in the form of 2.2 km of railway tracks, roads, parking lots as well as the water supply and storm water drainage system was commissioned. In September 2012, the third stage of construction began - in the scope of transshipment infrastructure with high technical parameters with the possibility of accepting full-train warehouses.

5.2.2. Current state - terminals and directions

The Opolskie Voivodeship does not have any operating intermodal terminal or intermodal logistics center. Within it, there is a facility called the Opole Logistics Center, but it is only an area of modern warehouse space (11.5 ha). This facility does not fulfill any function of an intermodal terminal or intermodal logistics center. The port of Kędzierzyn-Koźle may become an important intermodal object, but it is a matter of the future.

5.3. Śląskie voivodeship

5.3.1. Historical contexts

Common description with part 5.2.1.

5.3.2. Current state - terminals and directions

In the whole country, the Śląskie Voivodeship is relatively well developed in terms of intermodal terminals. The confirmation of this statement is the average density of intermodal terminals, which in the Śląskie Voivodeship is 3.24 terminal per 10,000 km², while the average density of terminals throughout Poland is 1.12 terminal per 10,000 km². This amount means that the Śląskie Voivodeship, apart from the Łódź Voivodeship, has the highest average density of intermodal terminals.

Currently in the Śląskie Voivodeship there are:

- four intermodal rail terminals,
- logistics center (Śląskie Centrum Logistyczne SA)
- Port Gliwice (located within ŚCL SA).
- in addition, the region has the International Airport Pyrzowice SA, which is the second cargo center in air transport in Poland.

The map below shows the location of four intermodal terminals in the Śląskie Voivodeship. One point on the map (PCC Intermodal) is also a place to locate ŚCL SA and Port Gliwice.

Figure 9 - Arrangement of intermodal railway terminals in the Śląskie Voivodeship



Source: study based on UTK data

Four intermodal terminals operating in the Śląskie Voivodeship have been briefly characterized in the table below.

Table 12 - Characteristics of intermodal terminals of the Śląskie Voivodeship.

	PCC Gliwice	Terminal Kontenerowy Gliwice	Polzug Terminal Dąbrowa Górnicza	Euroterminal Sławków
Właściciel/ Zarządca	PCC Intermodal S.A.	PKP CARGO CONNECT Sp. z o.o.	Polzug Intermodal Polska Sp. z o.o.	Euroterminal Sławków Sp. z o.o.
Obsługiwane ITU	Kontenery ISO, nadwozia wymienne, naczepy	Kontenery ISO, nadwozia wymienne, naczepy	Kontenery ISO, nadwozia wymienne, naczepy	Kontenery ISO, nadwozia wymienne, naczepy
Lokalizacja	ŚCL Gliwice			Linia szerokotorowa
Pow. całkowita terminala [ha]	5	6,5	16	91, w tym terminala kontenerowego 4
Max. roczna możliwość przeladunkowa [TEU]	150 000	128 000	233 600	284 810
Ilość przyłączy elektrycznych	60	20	32A/30	90
Powierzchnia składowa [w TEU]	2900	1 800	1 400 (depot)	3 500
Liczba i długość torów kolejowych do załadunku i wyładunku	4 x 650m	2 x 410 m	3 x 625 m do obsługi pociągów 1 x 100 m manewrowy/dojazdowy 1 x 400 m manewrowy/postojowy	7 x 700 (dotyczy usług UTI)
Regularne połączenia	TAK	TAK	TAK	TAK
Drogi samochodowe	A4, A1	A1, A4, DK88	DK 94	DK1/S1, DK4/A4, S94
Nr linii kolejowej	E30/C-E30, E65/C-E65	E30, E59	nr 154	nr 665, nr 674

Source: Own processing, based on UTK dates

5.4. Žilinský selfgorenment region

5.4.1. Historical contexts

In the past, three intermodal terminals in Žilina (containers), Ružomberok (containers) and Trstená (ROLA) were operated in the Žilina self-governing region. These terminals were built before 1992 and were implemented as part of a nationwide concept of combined transport development throughout Czechoslovakia. At that time, the terminals were built primarily for transshipment of 20 foot containers and do not meet the current requirements for modern terminals, which mainly translate 40 foot containers and ensure fast processing of logistics trains. The main barrier to the rapid processing of trains is the length of rails at terminals, which are usually shorter than 450 m and the gradual processing of a logistics train by dividing it into two sets (currently using trains with a length of 750 m) is necessary.

Ruzomberok - terminal was built to cover regional interest in container transport and was primarily focused on products of the company Severoslovenske pulp and paper mill and, s, Ruzomberok (currently Mondi SCP). Due to the low interest in transshipment at this terminal, it has been out of operation for a long time and its areas are used for wood storage.

Trstená - the main objective of the terminal was to ensure the transport of semi-trailers, or trains heading in the north-south axis as an alternative for road haulage, which had not sufficiently developed highway network at the beginning of the 20th century. The second important factor was the elimination of downtime at the state borders, as it was possible to perform the necessary operations during the transport by rail wagons. Transport under the ROLA regime did not have a significant position in Slovakia, as its support increased only before accession to the EU or the inclusion of V4 in the Schengen area.

Žilina - terminal was built to satisfy the interest in combined transport by companies located in the Žilina region. Due to its construction in 1981, it was adapted for reloading of 20 foot containers, which was adapted to reloading facilities, length of reloading track and storage areas. This terminal had a low performance for a long time and this situation lasted until the opening of the KIA automobile plant in TepličkanadVáhom. Following the arrival of the automaker, there was a significant increase in terminal output, expansion of storage areas and an increase in transshipment capacity through the purchase of new handling equipment.

5.4.2. Current state - terminals and directions

The development of intermodal transport brings high market dynamics and the current situation does not have to directly reflect the long-term direction and construction of new terminals.

Terminal in Ružomberok

is currently down and not in the near future

The terminal in Ruzomberok may have potential in the future due to the expansion of Mondi SCP's production capacity, where the company could be a long-term partner for the growth of container transport in the region, leading to the introduction of regular routes to selected EU terminals. Another important fact that may lead to the opening of the terminal is the completion of the D1 Hubová - Ivachnová motorway section, which will directly connect Ružomberok to the motorway network and significantly improve the availability of production plants in Liptov and Podtatranská area.

Terminal in Trstená

is out of service and the current trend does not imply that re-entry should take place, as the importance of semi-trailer transport has been completely lost, the motorway network has been significantly expanded and obstacles to crossing the national border have been removed by all surrounding countries being admitted from the Schengen area (except Ukraine).

Terminal in Žilina

(RCO operator) is currently reaching the limits of its performance in the current configuration, due to the limited length of the handling track (470 m + 425 m) and the lack of further expansion of storage facilities (built-up surrounding plots). Containers intended for the automotive industry in the Zilina Region, which are transported on a regular connection to the port in Slovenian Koprice, have a large share in transshipment.

Lines:

Koper – Bratislava - Žilina, operator RCO

Terminal in TepličkanadVáhom

(TIP Žilina) is operated by TIP Žilina s.r.o., which belongs to the Metrans group. It is owned by ŽSR, which built this public terminal from financial sources of the Operational Program Transport in 2015 and co-financed from the state budget. The test operation was launched during the Q2 2019 and is currently in full operation. At present, the main shortcoming of the terminal is, from the operator's point of view, the limited capacity of the storage areas, which it intends to significantly expand after obtaining a building permit. Another significant drawback is the connection to the II / 583A road, which through a junction in which the right-hand direction is commanded, and the road trailers must then turn in the opposite direction through the petrol station. The general plan of the city of Žilina envisages the construction of a grade-separated intersection and the establishment of a connection with the I / 18 road near Strečno (direction Martin) via a new bridge over the Váh River.

Lines:

Dunajská Streda - Žilina, operator Metrans

6. ACTUAL PLANNED TERMINALS

6.1. Moravian-Silesian region

Mošnov – OSTRAVA AIRPORT MULTIMODAL PARK

Opening of 1st phase without railway or waterway connection was on 20.6.2019.

Once completed, it will be the largest logistics center in Central Europe. The first open hall was built in less than a year and has an area of 57 133 m². The area of the whole complex is 52 hectares and after completion of construction will be available more than 234 thousand square meters of warehouse, manufacturing and office space. The construction is planned in three stages, currently a second hall of 48,864 m² is being built and the remaining ones will be completed in 2021. The complex will include a railway siding leading directly to the two largest halls as well as a railway container terminal for trains up to 700 meters long. , which allows a large part of freight transport to be shifted from road to rail. The Leos Janacek International Airport Ostrava with the connection to the European motorway and railway network is located in the immediate vicinity of the complex.

Source: <http://www.nase-mesto.cz/otevreni-prvni-haly-logistickeho-centra-ostrava-airport-multimodal-park/>

Figure 10 – Vision of final status of Ostrava airport multimodal park

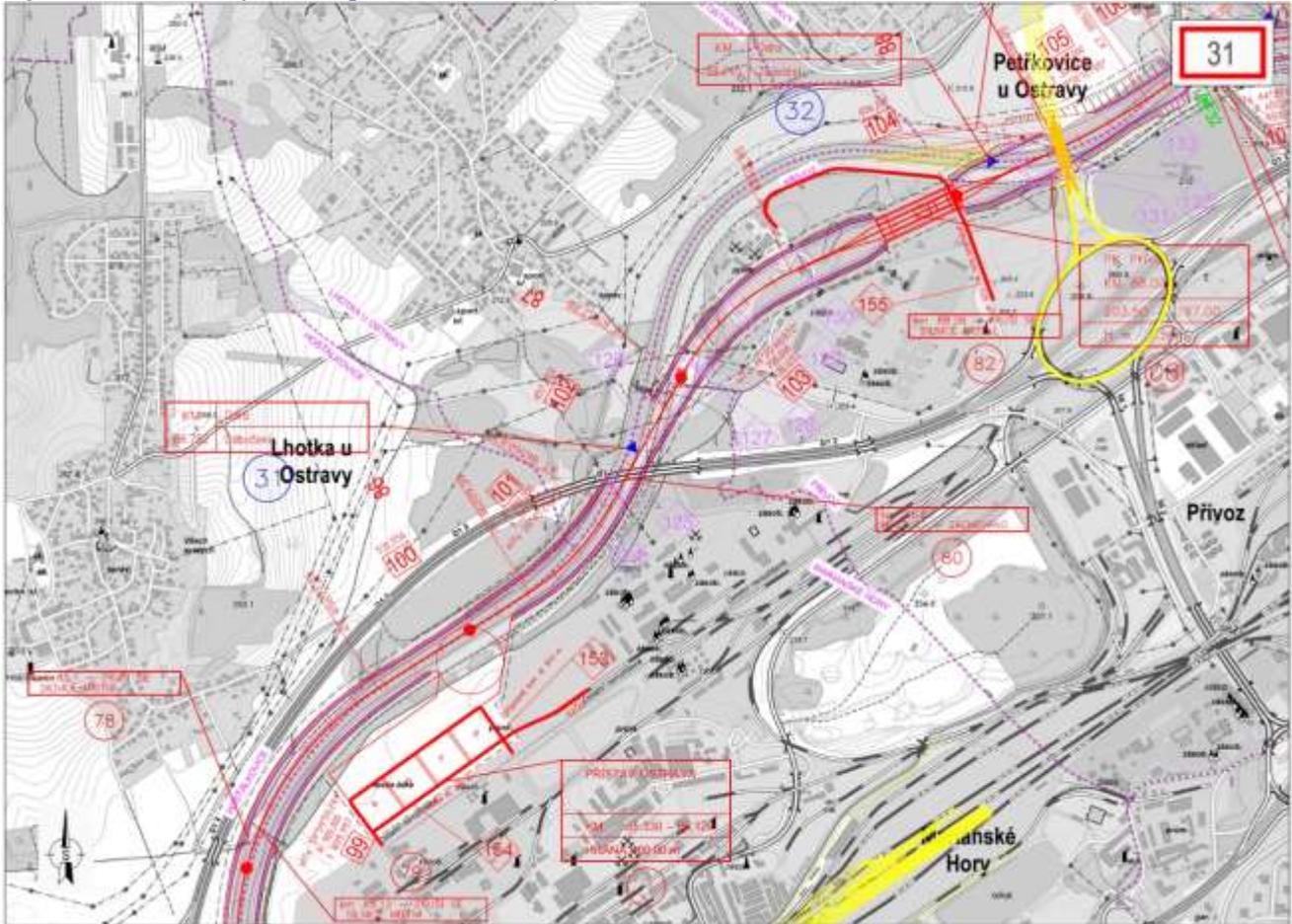


Source: <http://www.multimodalpark.cz/cs>

Věřňovice/Gorzycki—idea of new trimodal terminal on both sides of Czech/Poland state border. No data are available at present.

Ostrava—prediction of new trimodal terminal in consequence with planned port within Odra waterway meant in D-O-L study.

Figure 11 –Location of Ostrava port in D-O-L study



Source: Feasibility study waterway corridor Dunaj – Odra - Labe

6.2. Opole voivodeship

In the Opolskie Voivodeship, a lot of attention is focused around the port in Kędzierzyn-Koźle (below the map showing the location of the port).

Figure 12 - Location of the Kędzierzyn-Koźle port



Source: <https://www.lokalna24.pl/consciousosci/449,toczy-sie-gra-o-wielka-stawke>

The new owner of the port is the company Kędzierzyn-Koźle Terminale (KK Terminale), which plans an investment related to the construction of an inland port consisting of three terminals. The first terminal is to handle liquid bulk cargoes; the second terminal is to serve containers in the intermodal system; the third terminal is to handle loose products and general cargo. The investor intends to spend well over PLN 300 million on all stages of work.

Figure 13 - vision of the planned KędzierzynKozle port .



Source: <http://www.kedzierzynkozle.pl/pl/aktualnosc/port-kozle-wraca-na-mape-europejskiego-transportu>

The investment has been started; investor in construction has invested 55 million PLN. The city built an access road to the port (road investments in this part of the city amount to about PLN 8 million). They also started to develop areas belonging to the commune in the port area. The opening of the first terminal was planned for spring this year. Unfortunately this did not happen. The commenced investment has been suspended for a year. This is due to the lack of agreement with PKP SA regarding rail access to the port.

6.3. Śląskie voivodeship

The planned construction of a large logistics center in **Gorzyczki** is part of the economic project Poland 3.0, which is intended for Poland and cross-border regions. It provides for the restoration of transport on the Odra River and the Odra - Danube - Elbe connection and construction of the largest Gorzyczki Logistics Center in Europe - Wierzniowice, as well as the extension of the wide track from Sławków to the Logistics Center, while modernizing the current route of Sławków - Hrubieszów.

The new transshipment terminal would be located in the areas of the former **Jas-Mos mine**, which were handed over to the Mine Restructuring Company, but the railway infrastructure remained at the discretion of JastrzębskaSpółkaKolejowa. The creation of a railway reloading station is to be based on the infrastructure of the liquidated mine. This is a good place to build a transshipment terminal, as the Company has 13 hectares of land in the vicinity of the station. An additional advantage is the close proximity of the A1 motorway (distance 2.5 km), as well as Jastrzębie-Zdrój investment areas. An analysis has been created that deals with the possibilities of implementing this idea. It was developed by JastrzębskaSpółkaKolejowa in cooperation with JastrzębskaSpółkaWęglowa and local authorities of Jastrzębia. Due to the existing situation on the coking coal market, it is necessary to rationalize the operating costs of mining and mining companies in the area of activity of the JSW SA Capital Group, JastrzębskaSpółkaKolejowa Sp. z o.o. (JSK) has taken actions in the field of managing the assets in the mining plants of GK JSW SA, which is not or will not be used for mining, processing or transport purposes. A preliminary JSK

analysis (in cooperation with JSW SA and regional self-government authorities) indicates that there are solutions enabling the restoration of unused resources of the production and service function. This applies mainly to the area of Zakład Górniczy Jas-Mos, where JSK has a railway infrastructure located on 13 hectares (Jas-Mos station). The immediate vicinity of the infrastructure in question with the Southern Bypass of Jastrzębie-Zdrój and the exit on the A1 motorway creates enormous logistic potential and the possibility of starting e.g. a transshipment terminal or logistics center.

The basic principle of designing a logistics center is to have a large area located at the intersection of international transport routes. The JSK railway area along with the infrastructure in connection with the adjacent plots of JSW SA and UM Jastrzębie-Zdrój will be a potential, large area to be developed for a logistics center.

The area of impact of the so-designed "logistics center" in Jastrzębie-Zdrój is the southern part of the Śląskie Voivodeship (Żory, Bielsko-Biała, Bielsko, Cieszyn, Pszczyński, Wodzisław, Żywiec, and Racibórz in the southern part). Due to the border location, the subject "Gorzyczki-Wierzniowice Logistics Center" will also be redistributed for handling goods exchange with the northeastern part of the Czech Republic in the cities of Ostrava, Karviná and Bohumin.

Final decisions on the construction of the terminal have not yet been made. Conversations are continuing.

The idea of establishing a transshipment station in our city is part of a popular and growing economy - transport logistics. The transfer of goods between national borders will be increasingly important.

6.4. Žilinský selfgovernment region

Due to the launch of the new public terminal in Teplice in 2019, it is not a prerequisite for planning the construction of additional reloading stations in the Žilina self-governing region, as the current terminals provide sufficient capacity for the region as a whole.

A new upcoming strategic document on the development of intermodal transport, which is being prepared by the Ministry of Transport and Development of the Slovak Ministry of Transport, may have a slight change in the view of the development of transshipment stations.