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CORCAP

CAPITALISING TEN-T CORRIDORS FOR REGIONAL DEVELOPMENT AND LOGISTICS

TRANSNATIONAL CORRIDOR CAPITALISATION STRATEGY







Lead Partner
Saxon State Ministry for Regional Development

Project partners
SBO Saxon Inland Ports Upper Elbe
Rostock Port
Ústí Region
KORDIS JMK
IPP Institute of Spatial Planning
KTI Institute for Transport Sciences Non-profit Ltd.
FBL Freeport of Budapest Logistics
GYSEV Győr-Sopron-Ebenfurth Railway
New railway line Dresden-Prague EGTC

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INFRASTRUKTUR & UMWELT Professor Böhm und Partner
Gregor-Mendel-Straße 9, 14469 Potsdam

LUB Consulting GmbH
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PREFACE

Dear Readers,

the European partnership is one of the most significant achievements of the past decades to ensure peace and prosperity. How significant this is, we realise since February 2022 very dramatically. This situation confirms us to further develop and to carefully maintain cooperation across Europe. Joint projects, such as the CORCAP project, bring the European idea to life.

With the Trans-European Transport Network (TEN-T), the European Union supports the development of interlinked network infrastructures. These transport networks are of great importance for the Free State of Saxony, especially for the cooperation and connectivity with our European neighbours.

To ensure the functionality of the TEN-T network, it is necessary to coordinate stakeholders and projects across borders. To this end, trans-European transport corridors have been established, connecting several member states with each other – as in our case the TEN-T corridor Orient/East-Med, which links the ports of the North Sea and the Baltic Sea with Central and South-East Europe.

The new railway line Dresden-Prague is a strategic infrastructure project in this corridor. In 2020, an important milestone has been reached – the spatial planning procedure has been completed, paving the way for the next phase of the planning process.

The new railway line will boost the exchange between the Free State of Saxony and the Czech Republic. Travel times between Dresden, Ústí nad Labem and Prague will be considerably reduced, and fascinating opportunities for economic and social development will arise, especially for the Ústí Region. We are looking forward to explore these opportunities jointly with our Czech neighbours!

In addition, the new railway line will greatly increase the capacity for cross-border railway transport, thus contributing significantly to the sustainable management of the ever-growing traffic volumes in Europe.

But what can we do already today to utilise the potentials for sustainable passenger and freight transport along the TEN-T corridor Orient/East-Med in the best way? To answer this question, we have realised the CORCAP project together with partners from Germany, the Czech Republic, Slovakia and Hungary.

As a result of the cooperation, joint approaches and recommendations for more efficient coordination of transport and spatial development were developed, which you can find in this publication. Please let me invite you to make use of our joint experiences – for better territorial cohesion, better utilisation of existing infrastructures and more sustainable regional development!

Barbara Meyer
Secretary of State in the Saxon State Ministry
for Regional Development

Dear Readers,

the term "transport transition" is widely discussed – not only because the transport sector can make a significant contribution to reducing our CO_2 emissions, but also because we are reaching capacity limits in the field of mobility, both in passenger and freight transport.

To express it in numbers: An average of 10,000 trucks crosses the Saxon-Polish border every day on the A 4 motorway. At the Saxon-Czech border, on the A 17 motorway, the figure is around 6,500 trucks.

In this situation, taking the example of the new railway line Dresden-Prague, crucial questions are on the agenda: How can we use the opportunities created by investments in rail infrastructure in a meaningful way for multimodal and environmentally friendly, green freight transport? How can we succeed in the necessary shift from road to rail?

Even though some business and logistics enterprises have already changed their supply chains, it is still more effective for most of them to focus on road-based transport. Additionally, commercial areas and logistics centres built in recent decades are mostly only accessible by truck, and not by rail.

By working together in the CORCAP project, we have asked ourselves these questions. Our conclusions are two-fold. First, it is necessary to rethink spatial planning. Rail as a transport mode for freight traffic has to be brought back into the considerations of spatial planners, local governments and policymakers. We must offer and promote the best transport connections from the overall economic and social perspective – even if they do not represent the economically most viable case yet.

Second, courageous business decisions for rail freight transport can also be successful today. As an excellent result of transnational cooperation, new train connections for combined transport between Dresden, Rostock and Curtici (RO) have been established. Meanwhile, a total of 12 trains to and from Rostock and Curtici are handled each week at the Dresden Trailer Port. In 2021, this amounted to more than 24.000 semi-trailers.

This result has been achieved through intensive preparations, successful acquisition of customers and reliable provision of services, with great deal of effort, energy and commitment of all partners and stakeholders involved.

Please let me thank all partners for their efforts and for the fruitful exchange in the project! The cooperation of all political and administrative partners, with businesses and logistics enterprises will lead us forward together on the way to the transport transition. You can count on our continuing support!

Ines Fröhlich

Secretary of State in the Saxon State Ministry
for Economic Affairs, Labour and Transport

INTRODUCTION
TO THE CORCAP PROJECT

The TEN-T corridor Orient/East-Med connects Northern, Central and South-Eastern Europe. A crucial bottleneck is the Dresden-Prague section, which needs to be extended by a new railway line to improve the connectivity between Germany, the Czech Republic, Slovakia, Austria and Hungary.

To capitalise the opportunities of the infrastructure investment for multi-modal environmentally friendly freight transport, the Free State of Saxony joined forces with partners from Germany, the Czech Republic, Slovakia and Hungary. Improving coordination among stakeholders in the field of transport and spatial planning, CORCAP contributed to the creation of an enviroment for more efficient rail freight transport in Central Europe.

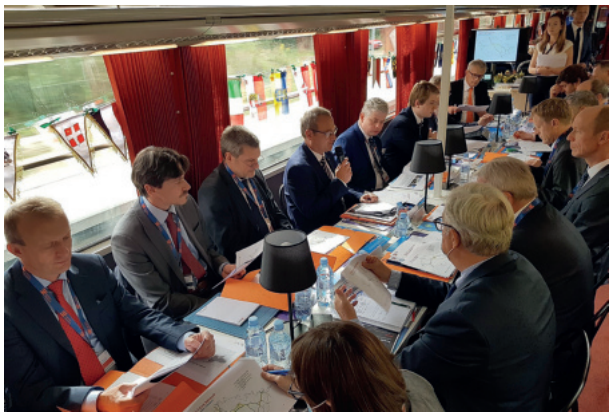
Approach and aims of the project

TEN-T corridors are the backbone of the sustainable multi-modal transport network across the European Union. Amongst others, they determine the competitive position of nodes and agglomerations such as Rostock, Dresden, Ústí nad Labem, Brno, Bratislava and Budapest. However, based on social and economic market priorities, the upgrade and utilisation of the railway network (including related planning procedures) is often focused on national sections, while cross-border sections are the weak element and bottlenecks for transnational freight transport.

Having this in mind, the CORCAP project aimed at the facilitation of efficient and environmentally friendly freight transport along the Rostock-Budapest section of the Orient/East-Med corridor through better coordination of policies and stakeholders in the field of transport and spatial planning.

Supporting multi-level governance

To facilitate the interaction of regional development and transport infrastructure development, the partners have developed Corridor Capitalisation Plans. These plans have a planning horizon corresponding to the perspective of realisation of the new railway line Dresden-Prague. They demonstrate how an intensively used corridor affects regional development and logistics, and which contributions made on regional level will strengthen the corridor and its functionality.



The Connecting Europe Express on 11 September 2021 in Sopron and discussion of the new railway line Dresden-Prague on 25 September 2021 between Brno and Prague

As informal instrument, Corridor Capitalisation Plans address existing planning levels and instruments in the field of transport and logistics, regional development and spatial planning on local, regional, national and transnational level, thus contributing to multi-level governance.

Practical steps towards more sustainable freight transport

To demonstrate the short-term benefits of better accessibility and connectivity and to underline the added value of the strategic infrastructure investment, the partners have implemented multimodal freight transport pilot actions. These were aimed at the improvement of the accessibility and connectivity of intermodal hubs and inland ports, the investigation of the feasibility of new intermodal services considering innovative technical and organisational solutions and the investigation of attractive multimodal logistics locations.

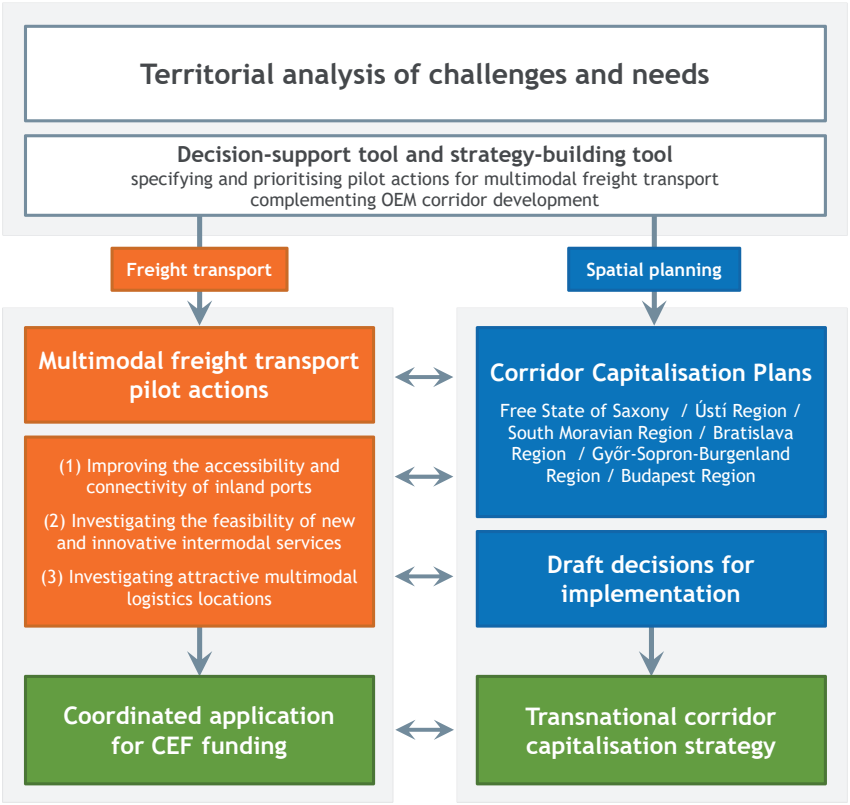
Facilitated through the pilot activities, potentials for joint application of the partnership for funding from the Connecting Europe Facility (CEF) have been investigated. Finally, findings and lessons learnt from project implementation have been summarised in the Transnational corridor capitalisation strategy at hand.

Process of work and exchange with stakeholders

Within three years, from the kick-off meeting in June 2019 in Budapest until the digital final conference in March 2022, a comprehensive work programme was carried out. During ten digital and physical meetings the partners agreed on methodical approaches, discussed the progress of activities and evaluated joint results. Site visits and thematic workshops supported the process of cooperation.

All content-related activities were accompanied by an intensive exchange with stakeholders during bilateral meetings, stakeholder workshops, meetings of the Advisory Board and transnational roundtable meetings. More than 30 regional and more than 20 transnational events took place, involving approx. 150 stakeholders and experts from more than 90 institutions.

Besides the final conference and the exchange with the European Coordinator Mathieu Grosch during several events, a special highlight was the International Rail Freight Workshop in Sopron in October 2021, which was followed by the 740 m TEN-T Demo-Train from Sopron to Budapest. In addition, the CORCAP partners supported the realisation of the Connecting Europe Express on its journey through Central Europe in September 2021.



The work packages of the CORCAP project

THE ORIENT/EAST-MED CORRIDOR
CHALLENGES FOR TRANSPORT DEVELOPMENT

The Orient/East-Med corridor reflects the variety and diversity of Europe. It is characterised by a North-South divide in terms of infrastructure supply and quality: In its Northern part, capacity bottlenecks on roads and railways need to be removed for more efficient freight and passenger transport. In its Southern part, comprehensive infrastructure improvements are required, to enable the provision of competitive transport offers.

Low commercial speed and capacity constraints remain the main challenges for long-distance rail freight along the corridor. To avoid that operational and legal issues and time lost at border stations counteract the achievements in infrastructure upgrading, operational procedures and infrastructure coordination need to be improved.

Greening freight transport – Fostering transnational approaches

The European Green Deal calls for a substantial part of the 75 % of inland freight carried today by road to shift to rail and inland waterways. According to the Sustainable and Smart Mobility Strategy of the European Union (EU), rail freight shall increase by 50 % by 2030 (compared to 2015) and double by 2050. To achieve these aims, rail freight needs serious boosting through increased capacity, strengthened cross-border coordination and management of the rail network, and the deployment of new technologies such as digital coupling and automation.

If all planned TEN-T projects will be implemented, rail freight along the Orient/East-Med corridor is expected to increase by 64 % by 2030. However, uneven achievement of operational parameters (e.g. electrification, train length, axle load, ETCS deployment) reduces the operational efficiency

Freight train in the Elbe valley and transport of heavy and oversized goods on inland waterways

of the corridor. As infrastructure planning and construction remains within national frameworks, there is need for intensive cooperation to achieve coordinated development of corridor infrastructure and mobility services.

The new railway line Dresden-Prague

The existing railway line between Dresden and Ústí nad Labem is a heavily used cross-border link. Due to its exposition to natural hazards (e.g. floodings), limited track speed and dense settlements in the Elbe valley it is not possible to extend its capacity, and suitable alternative routes are missing.

To remove the bottleneck, a new railway line is planned. Between Ústí nad Labem and Heidenau the Ore Mountains base tunnel will be built, doubling the capacity for freight and passenger transport. The new railway line will be a high-speed line, allowing passenger trains to operate at 200 km/h and freight trains to operate at 120 km/h. In total, the tunnel shall be used by 150 freight trains, 32 long-distance passenger trains and 16 regional trains per day.

For the German part of the project, the regional planning procedure has been finalised in 2020. Two corridors have been identified, which are further investigated in the pre-planning phase. If the planning process and construction works will be finalised on time, the tunnel shall become operational until 2038/2040.

High-speed development along the Orient/East-Med corridor

In the Czech Republic, the new railway line Dresden-Prague is part of the future cross-country network of high-speed railway lines. The investment will be realised in several stages, starting with the high-speed line between Prague, Lovosice and Litoměřice. This section will be followed by the branch line to Most and the Ore Mountains base tunnel. In the final stage (i.e. after 2040), the Central Bohemian Uplands tunnel will be realised.

"The great importance of the nine TEN-T Corridors that form the backbone for transportation in Europe's single market lies in the fact that these are expected to generate effects that are not limited solely to the pure transport system, but also to the main dimensions of sustainability. They are deemed to stimulate other wider long-term impacts, such as growth and economic development, economic and territorial cohesion, creation of jobs, institutional harmonisation of rules, society welfare and mitigation of climate change impact."

Mathieu Grosch
European Coordinator of the Orient/East-Med Corridor,
4th Work Plan of the European Coordinator

The continuation to Brno and further to the Czech-Austrian-Slovak border shall be operational until 2034, including the complex redevelopment of the Brno railway node (which will take at least until 2045). These investments will create a high-speed link between Berlin, Prague and Vienna, significantly increase the capacity for rail freight on the existing network and fundamentally improve connectivity within the Czech Republic.

In Slovakia and Hungary, currently feasibility studies for the V4 high-speed railway are being prepared, which follows the Orient/East-Med corridor between Bratislava and Budapest. Another strategic project is the "V0" rail freight bypass, allowing long-distance rail freight to avoid the Budapest agglomeration.

Planned high-speed railway network in the Czech Republic

Multimodality and inland waterway transport

To increase the efficiency of the corridor, last mile connections and intermodal infrastructure need to be improved, and intermodal facilities (rail-road terminals, inland ports) need to be integrated into logistic chains. Unfortunately, poor reliability of free-flowing inland waterways limits the potential shift to this mode of transport. Therefore, German-Czech initiatives for the joint management of the Elbe waterway currently aim for achieving a reliable draught level of 1.4 m, following the approach proposed by the Overall strategy for the Elbe river ("Gesamtkonzept Elbe").

THE ORIENT/EAST-MED CORRIDOR
CHALLENGES FOR SPATIAL DEVELOPMENT

Starting in 2015, the International Working Group "Spatial and Transport Development in European Corridors – Example Corridor: Orient/East-Med" has dealt intensively with questions of cross-border transport and transnational governance in Central and Eastern Europe. During a series of bi-annual meetings in "hot spots" along the corridor, various aspects of corridor development have been discussed with experts of the respective countries, regions and cities.

In the result of their research efforts, the group members from public administration, academia and practice compiled a comprehensive overview of challenges for transport and spatial development. Additionally, based on their valuable insights, they developed recommendations and suggestions for further strategy development.

Strengthening the railway system

Projects of common European interest such as the Orient/East-Med corridor demonstrate the added value of transnational cooperation to the citizens of Europe. The enhancement of cross-border links, better accessibility and the removal of administrative and technical bottlenecks create visible benefits beyond national borders.

The working group calls for the development of an integrated railway system, which is based on competitive travel times and sufficient capacity for freight and passenger transport. With this regard, the corridor should be realised as double-track corridor with a capacity of 250-280 trains per day, including 130-150 freight trains, 30-40 long-distance trains and 40-80 local trains.

Passenger services should be developed based on a conceptual timetable, which defines desired travel times and necessary capacities between important nodes for a long-time horizon. With this regard, average line speeds of 160-180 km/h – except for sections being part of the European high-speed network – are considered adequate, allowing for the efficient operation of mixed transport routes and enabling sufficient travel times between important metropolitan centres. For safety and capacity reasons, in densely settled agglomerations passenger and freight traffic should be separated.

Eurocity train Prague-Berlin and participative discussion with citizens

Capitalising spatial benefits for urban development

On local level, corridor development leads to spatial benefits through improved railway accessibility – in addition to travel time savings, increased safety, reduced environmental impacts and reduced congestion costs. In particular around railway stations and hubs of public transport, railway development can trigger urban redevelopment and facilitate the development of transit neighbourhoods.

In Berlin and Vienna impressive projects are already tapping into this potential. In Brno and Budapest, such projects are under preparation – and for places such as e.g. Ústí nad Labem appropriate solutions still need to be developed. In all cases, there is a need for intensified collaboration between different administrative levels, efficient coordination of multi-level policies and good cooperation among relevant stakeholders – to achieve the best results and to reap the benefits of integrated approaches.

Facilitating processes of informal cooperation

Along many European transport corridors, local and regional players support integrated corridor development by means of informal cooperation and bottom-up initiatives. Integrated spatial and transport development requires civil society participation and an intensive exchange of knowledge and experience in a multi-level environment, with overlapping and co-existing approaches – focusing e.g. on urban nodes, on cross-border areas, on larger corridor sections as well as on the entire corridor.

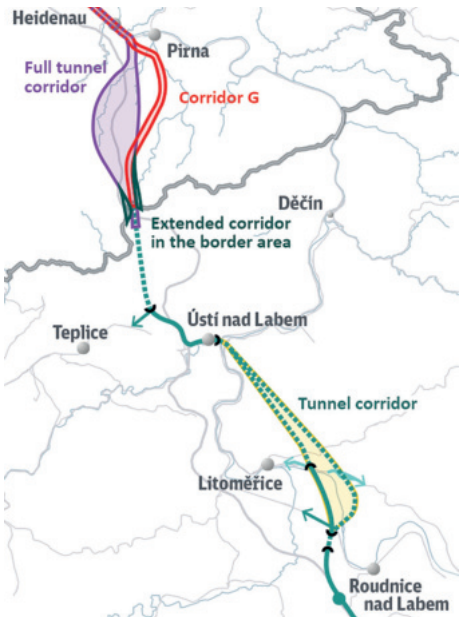
This is in particular true for the implementation of cross-border railway projects, with the need to apply formal planning instruments based on the specific legislation of member states. With this regard, the new railway line Dresden-Prague is being handled in an exemplary way through regular exchange with relevant actors of spatial and transport development on both sides of the border. The experience gained from this cooperation can be applied along the entire corridor.

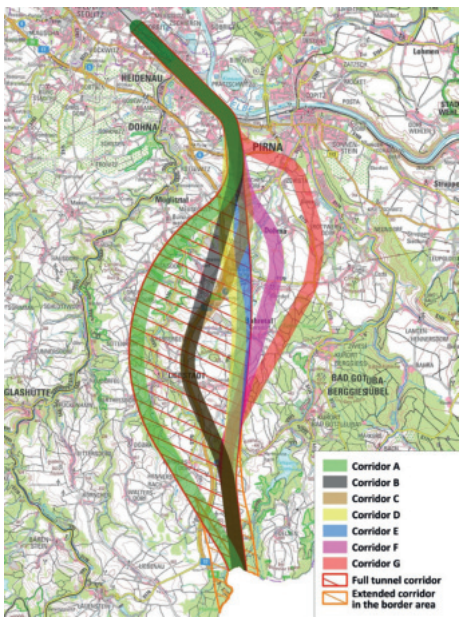
The working group considers the application of informal cooperation processes as complements to formal procedures to be essential to solve complex planning problems. With this regard, the following measures are being proposed:

- Holding regular events on important topics, facilitating the exchange of experiences and complementing formal cooperation procedures,
- increasing funds for transport development, with particular focus on processes of informal cooperation,
- creating and maintaining a pool of suitable experts available for consultation.

With the CORCAP project, these processes of informal cooperation have been applied along the Rostock-Budapest section of the Orient/East-Med corridor. The results and outcomes of the project provide a suitable basis for further investigations – along the Orient/East-Med corridor, and along further European corridors, contributing to the aims of a green and just Europe.

Further reading: ARL Position Paper 112 and ARL Research Report 12 (www.arl-net.de)





Spatial corridors and variants of the new railway line Dresden-Prague

TOWARDS GREEN LOGISTICS
RESULTS AND FINDINGS FROM MULTIMODAL FREIGHT TRANSPORT PILOT ACTIONS

The multimodal freight transport pilot actions implemented by the CORCAP partners address the regional challenges and needs for corridor development. These include the capitalisation and the enhancement of the potentials of multimodal transport in cross-border and transnational perspective, the capitalisation and enhancement of the potentials of inland waterway transport, the reduction of the emissions of noise, pollutants, greenhouse gases and CO_2, the capitalisation of the potentials of digitalisation and the supply of skilled workforce. In particular, the following challenges have been addressed:

- Provision of additional capacity for freight transport through more efficient operation of multimodal terminals and capitalisation of potentials of digitalisation
- Development and support of reliable business models for inland waterway transport
- Facilitation of modal shift and more efficient use of existing capacities in the freight transport system, complementing the cooperation along European Rail Freight Corridors (RFCs) by regional and cross-border networking
- Provision of more capacity for freight transport in regional railway networks with capacity restraints
- Creation of knowledge on the territorial prerequisites for a more efficient system of freight transport

The approach, the results and the findings of the pilot actions are presented in the subsequent chapter, providing an overview about practical interventions realised within the CORCAP project.


Rostock Port
Development of new intermodal services
Saxon Inland Ports Upper Elbe
Accessibility harmonisation of inland ports
OEM freight liner train
South Moravian Region
Investigating attractive
multimodal logistic locations
South Western Slovakia
Sopron - Budapest
Small-scale low-cost improvements
740 m TEN-T Demo-Train
Budapest Freeport
Smart traffic
management system

SMART TRAFFIC MANAGEMENT
FOR LOGISTICS CENTRES

The Freeport of Budapest Logistics Ltd. (FBL) is managing the site of the Budapest DOCK Logistics and Industrial Park, which is located in the area of the Budapest inland port. The site has a total area of 153 ha, more than 160,000 m2 of warehouses and complex port facilities, such as railroads, quays, bays, and container depots.

At peak season, daily more than 5,000 vehicles enter the port area. Over 70 tenants on the site depend on the efficient management of road traffic arriving at the port, including smart guidance and orientation for foreign drivers. Therefore, FBL decided to develop a state-of-the-art, innovative traffic management IT system with reliable, high-precision vehicle identification, access control, routing and a port information system.

Description of the pilot action

The European Federation of Inland Ports (EFIP) has identified the challenges faced by inland ports. There is need to understand the relevance of digitalisation, with the level of digitalisation differing from one port to another. An important challenge is to find the right balance between the creation of tailor-made solutions for digitalisation and securing harmonised and standardised IT systems in inland ports.

FBL required an access control and traffic management system based on automated license plate recognition and a navigation application, supporting the efficient management of the movement of road vehicles within the site. The pilot action required the digitalisation of the locations of tenants and the entire site, the development of a navigation application for the FBL's site (DOCK App) and a management system using artificial intelligence. The navigation is supported by smart LED screens and an InfoPoint (kiosk). Wi-Fi technology has been set up for accessing the application.

Process and organisation

To specify the exact business needs, on-site consultations, field visits, infrastructure surveys and interviews with tenants were realised. Technical specifications were developed, the map data to be digitised was collected, and visualisations were made for the tasks to be carried out. The DOCK App navigation application for the FBL site as well as the database and management system were developed. Subsequently, the DOCK App was tested, assessed and published by FBL. For those who have not downloaded the App, on-site navigation is available with the smart LED screens and the InfoPoint.

Elements of the smart traffic management system: Access control at the gates, smart info panel with license plate recognition camera, InfoPoint (kiosk) and smart signpost

Key tenants were closely involved in the implementation of the pilot action, in order to better understand their needs. The platform for system administration was assessed both by FBL and key tenants. During the 6-month assessment phase, interaction options between the traffic management system and tenants were evaluated, and impacts of the system were recorded and evaluated. Lessons learnt and success factors for deliverability were identified to ensure transferability. This allows interested multimodal logistics centres to adopt and to apply a well-developed solution.

Results and lessons learnt

The developed and implemented IT system delivers a smart solution for the management of road traffic at the site of the Budapest DOCK Logistics and Industrial Park. Based on experiences made during the pilot phase, the system is planned to be expanded at later stage. The investment will remain the property of FBL, who will operate and maintain software and hardware during the upcoming years.

At the beginning of pilot implementation, there was no ready-made solution available on the market for logistics sites of such type and size. Thus, this solution can serve as an important pioneer approach for the digitalisation of multimodal logistics centres and terminals.

In general, all logistics centres connected to road transportation, which are identifying similar challenges as FBL, may be interested to learn about the outcomes and solutions that the pilot action delivered. For future applications, as well linkages to the management of transhipment processes might be of interest.

"The Freeport of Csepel is a public port with an industrial park, where we want to develop an additional 130,000 square meters of warehouse, industrial hall and assembly plant. These developments have induced more modern and efficient traffic management within the port. To this end, a tailor-made smart system has been developed, which we plan to further develop and adapt at other logistic sites in the future."

Ottó Cseh, Chief Executive Officer,
Freeport of Budapest Logistics Ltd.

"On behalf of FBL, our expert team coordinated the pilot activities in the project, which resulted in many innovative soluations. With regard to FBL, a system for managing traffic arriving at and within the port area was implemented, which increased cost and time efficiency and is more sustainable from an environmental point of view than the previous operation mode. We hope that the development will be continued, and that the port will extend the system to the entire area of the logistics centre."

Zoltán Barna-Lázár
Managing Partner, Ex Ante Consulting Ltd.

OUTPUTS AND REPORTS:

> **Technical design of the smart traffic management system for the Freeport of Budapest**

> **Assessment of the smart traffic management system for the Freeport of Budapest**

> **DOCK App mobile application**

RELEVANT LINKS:

http://www.bszl.hu

http://www.bszl.hu/dockapp

ACCESSIBILITY HARMONISATION OF INLAND PORTS

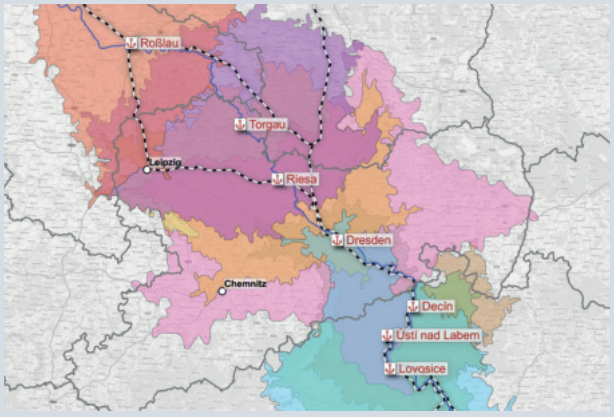
The Saxon-Czech inland ports in Saxony and Ústí Region have succeeded in establishing themselves as competitive locations for the transhipment of goods. Due to the general nature of these ports, their geographical location, their ability to handle all types of goods and their multimodality, there is an essential interest in linking the ports efficiently with transport flows along the Orient/East-Med corridor.

During the upcoming years, the focus will be increasingly on improving the accessibility of the inland ports for pre-carriage and on-carriage for rail and ship transport. This will contribute significantly to the development of an environmentally friendly transport system in Saxony and Ústí Region.

Description of the pilot action
Currently, the number of access routes for heavy and oversized goods to the Saxon-Czech inland ports is limited, and the improvement of road infrastructure is urgently needed. Therefore, it is necessary to consider the inland ports in road infrastructure planning, to find cross-border solutions for efficient access to the railway system and to consider the inland ports in spatial planning and regional development.

Within the pilot action, the currently available access routes for heavy and oversized goods as well as planned road infrastructure improvements in the catchment area of the Saxon-Czech inland ports have been identified. The maps visualise current shortcomings in accessibility of the ports, and they initiate and support the identification of priorities in the field of road infrastructure planning. The implementation of improvements will strengthen the position of the inland ports as multimodal consolidation points along the Orient/East-Med corridor.

With this regard, as well the handling capacities for intermodal transport in Saxony and Ústí Region have been analysed, enabling the access for regional production and trade companies to intermodal services. A key finding was that handling capacities for road trailers are limited in the border region. Therefore, a concept for a new intermodal terminal (Trailer Port) at the Dresden inland port has been developed, as a contribution to easing the bottleneck on the Elbe valley route between Dresden and Ústí nad Labem.



Mapping of accessibility of inland ports and handling of trailers at the Trailer Port Alberthafen Dresden

Process and organisation

The pilot action has been realised in close cooperation of German and Czech partners, with following key activities:

- Preparation of maps on planned road infrastructure improvements with effects on the transport of heavy and oversized goods in the catchment area of the inland ports
- Mapping of accessibility restrictions of inland ports in the German-Czech section of the Orient/East-Med corridor (30/60/90 min), including the identification of needs and demands for infrastructure improvements
- Development of recommendations for priority measures to improve the accessibility of inland ports, supported by an analysis of handling capacities for intermodal transport
- Development of the concept and launch of the planning process for a new intermodal terminal (Trailer Port) at the Dresden inland port

Already during project implementation, the test phase of the Trailer Port was successfully launched. The estimated value of the investment amounts to approx. 4 mln EUR.

Results and lessons learnt

To increase the awareness for the efficient integration of inland ports in road infrastructure planning and regional development, regional planning authorities and road infrastructure managers have been provided with the results of the pilot action. With this regard, particular attention is drawn to infrastructure links from and to the Czech-Saxon inland ports as multimodal consolidation points along the Orient/East-Med corridor and handling points for heavy and oversized goods.

The findings of the accessibility analysis will be used for the implementation of pre-defined transport routes for heavy and oversized goods to inland ports in the German-Czech border region, in line with the recommendations of the German Masterplans for inland waterway transport and rail freight transport.

Similar pre-defined routes are currently being prepared for further inland ports in Germany, so findings of the pilot action (e.g. transport parameters) can be used there as well. Potential transfer might be facilitated through the German ShortSeaShipping Inland Waterway Promotion Center (SPC), which coordinates and promotes activities in this field.

"With the resources of the CORCAP project we elaborated and implemented a comprehensive concept for intermodal trailer handling in the Port of Dresden, including the plans for a dedicated Trailer Port."

Heiko Loroff
Managing Director, Saxon Inland Ports Upper Elbe and Saxon-Czech Inland Ports

OUTPUTS AND REPORTS:

> **Solutions for accessibility harmonisation of inland ports in the German-Czech section of the OEM corridor**

> **Trailer Port concept for the Port of Dresden**

RELEVANT LINKS:

https://binnenhafen-sachsen.de

DEVELOPMENT OF NEW INTERMODAL SERVICES FROM AND TO SCANDINAVIA

Intermodal transport chains, which are much more environmentally friendly compared to road transport, are significantly underdeveloped along the Orient/East-Med corridor. Moreover, freight flows between Central and South-East Europe are dominated by road transport.

Rostock Port is a gateway for intermodal services from and to Scandinavia. A key challenge for more intermodality is the availability of adequate transport equipment, which needs to be increased to enable the establishment of new intermodal transport chains. The investigations realised within the project raise the awareness for this issue, contributing to the promotion of more multimodality in Central and South-East European member states.

Description of the pilot action

Within the pilot action, Rostock Port prepared three market studies for train concepts between Scandinavia and Turkey, Hungary and Romania in order to identify potentials for new intermodal services between Northern and South-East Europe. Each study comprises for each source region:

- The mapping of goods flows for different cargo commodities along the Orient/East-Med corridor,
- in-depth analyses for selected cargo commodities, destinations and intermodal hubs,
- the development of logistics concepts for new intermodal services.

Based on identified transport potentials, different implementation variants for intermodal and conventional wagonload transport have been developed. These train concepts, which have been designed as hub concepts, are a first step towards the establishment of direct trains at later stage.

Process and organisation

Each market study is based on comprehensive desk research, identifying potential source regions for successful new intermodal transport chains. Afterwards, results and findings were discussed with potential users and relevant market players from the operational and organisational sector. Finally, the basic structure of the logistics product was refined step by step with information on prices and lead times together with all stakeholders involved.

Rostock Port – gateway to Scandinavia and the Baltic Sea Region

The analysis of different sources and market surveys as well as a large number of interviews with key players along the Orient/East-Med corridor allowed the elaboration of:

- The market potential (e.g. import and export volumes) for Turkey, Hungary and Romania,
- the design of competitive intermodal products (train concepts) for each market,
- the assessment of opportunities and risks of such intermodal products, as well as
- the selection of possible partners for follow-up market penetration and product implementation.

An online platform serves as communication tool, promoting the project results (market studies and train concepts in the format of product sheets) and thus the capabilities of the corridor. Rostock Port will maintain this website as promotion and marketing tool for intermodal services.

Results and lessons learnt

According to routes investigated, the market studies lead to different conclusions. Between Turkey and Scandinavia, to achieve the requested frequencies, it is necessary to bundle transport volumes and to lower the utilisation risk for operators. A hub concept via terminals such as Railport Arad or Budapest (Bilk) is considered a possible option to connect Rostock Port with Istanbul (Halkali).

Regarding the Hungary-Scandinavia route, the current Rostock-Vienna services, which now comprise conventional wagonload only, could be opened also for intermodal volumes. The frequency of two departures per week could be increased if Budapest (Bilk) would be linked with Vienna by an additional rail service.

Finally, for the Romania-Scandinavia route, in the start-up phase, the trains from Curtici (Romania) and Verona (Italy) to Rostock will meet at Fürth station near Nuremberg. The offer represents an entry-level solution that enables interested parties to test intermodal solutions between Romania and Scandinavia.

The market studies and the derived train concepts are being shared with further target groups and international partners, e.g. intermodal train operators, companies and customers interested in such transport services and further terminal operators along the corridor. The train concepts are open for all operators, providing equal opportunities to book and use the rail transport solutions.

"South-Eastern and Eastern Europe are extremely interesting for combined transport. Up to 16 trains from Bratislava and Dresden, with the option of forwarding them to Curtici, are already reaching the port of Rostock via the Orient/East-Med corridor every week. Identifying potentials for new train products along this route is one of our main goals. The market analyses realised in the CORCAP project have confirmed that the demand for combined transport solutions will continuously grow in the future."

Thomas Biebig
Head of Port Strategy / Business Development,
Rostock Port GmbH

OUTPUTS AND REPORTS:

> **Market analysis for train concepts between Scandinavia and Turkey via the Port of Rostock**

> **Market analysis for train concepts between Scandinavia and Romania via the Port of Rostock**

> **Market analysis for train concepts between Scandinavia and Hungary via the Port of Rostock**

RELEVANT LINKS:

https://www.rostock-port.de
https://intermodal-rostock.de

LOGISTICS CONCEPT FOR THE OEM FREIGHT LINER TRAIN ROSTOCK-SAXONY/CZECH REPUBLIC

The concept of the freight liner train allows to combine a wide variety of customers, goods and transport concepts to achieve a competitive offer for shipping by rail, which on the one hand supports the shift of freight from road to rail, and on the other hand avoids weak points in the rail freight transport offer.

The approach pursued within the pilot action essentially consists of the combination of existing services of wagonload and intermodal transport, creating new potentials for rail freight transport along the Orient/East-Med corridor between Rostock Port, Saxony and the Czech Republic. Additionally, new opportunities have been investigated to interlink the Czech-Saxon inland ports and further logistics centres in the region with transnational transport flows operated along the corridor.

Description of the pilot action

The main goal of the pilot action was to create a corridor train concept that is competitive with continuous road freight transport. This means that not only transport costs are decisive, but that – depending on the type of rail service – additional advantages and incentives for modal shift should be created. These could be shorter or at least the same transit times, additional payload compared to road freight transport as well as reduced need for truck drivers.

In terms of transit time, costs and frequency, the cheapest concept will be the block train as shuttle service between defined terminals with daily departures in each direction. However, this requires considerable volume flows. Particularly in combined transport for semi-trailers, swap bodies and containers, the consolidation can be achieved at conveniently located intermodal terminals. A comparable concept applies to conventional wagonload trains with loading facilities in railports or inland ports as consolidation points.

Process and organisation

After launch of the pilot action, a working group of railway operators and logistics centres was established to support the elaboration and the testing of the logistics concept. During regular meetings, the members of the working group jointly observed and evaluated the market, analysed potential quantities, inquired potential customers and established contacts with further transport service providers.

Inland ports as multimodal consolidation points – wagonload transhipment in Torgau and arrival of the first intermodal train from Curtici in Dresden on 8 September 2021

Besides the Czech-Saxon inland ports and Rostock Port, cooperation took place with associated partners such as LINEAS, Stena Lines and VTG Rail Logistics. In parallel, the flow of goods and the market potential for selected goods and types of goods, destinations and intermodal hubs were analysed, leading to the following outputs:

- A comprehensive analysis of goods flows, customers, locations and transport offers of rail freight transport for the catchment area of the OEM freight liner train,
- a logistics concept for the OEM freight liner train between the Czech Republic, Saxony and Rostock Port,
- testing of new transport services between the Czech Republic/Saxony and Rostock Port.

Results and lessons learnt

In the result of the pilot action, a new intermodal service for craneable semi-trailers between Dresden and Rostock Port was established in cooperation with the intermodal transport operator LKW WALTER. Test operation started in January 2021 with five round trips per week. A second phase of testing was launched in September 2021 with an intermodal service between Dresden and Curtici (Romania) with two weekly round trips. Both new intermodal train services, i.e. Dresden-Rostock and Dresden-Curtici, have left the testing phase and have been transferred into regular operation.

Due to the new transport offers, shippers and logistics services in the Dresden region benefit from the access to direct block train services to Rostock Port and to Romania. This has led to increased awareness and support for intermodal transport in Saxony, and it generated demand for additional handling capacity at the future Trailer Port at the Dresden inland port.

The members of the corridor train working group have agreed to continue cooperation and to use this platform to establish further intermodal services in combined and wagonload transport. Experiences and lessons learnt can be used e.g. for connecting services between North-South and East-West freight flows.

"Thanks to CORCAP the inland port in Dresden was identified and implemented as ideal location to link intermodal freight flows between South-East Europe and Scandinavia."

Steffen Nestler
Managing Director, DGG Association of German Freight Villages

OUTPUTS AND REPORTS:

> **Logistics concept for an OEM freight liner train Rostock-Saxony/Czech Republic**

> **Testing of the logistics concept for the OEM freight liner train Rostock-Saxony/Czech Republic**

RELEVANT LINKS:

https://binnenhafen-sachsen.de

BEST-PRACTICE GUIDELINE
FOR SMALL-SCALE LOW-COST IMPROVEMENTS FOR RAIL FREIGHT

Small-scale low-cost investments have an often underestimated and therefore so far not fully exploited potential to make an important contribution to the development of the rail freight system, to the TEN-T network and to the functioning of TEN-T and EU Rail Freight Corridors.

Large-scale and small-scale projects and improvements must be seen as highly complementary. This clearly calls for a more integrated planning and development approach, with better alignment of the timing of large-scale projects and small-scale improvements. Ideally, small-scale improvements should already be implemented before large-scale projects are finalised, to reap the benefits of the latter from the very first day of operation.

Description of the pilot action

Small-scale low-cost improvements for rail freight deliver quick benefits and tangible improvements at relatively low cost, and they play an important role in strengthening the added value of large-scale investments. With complementary interventions on other sections of a corridor, the value of large-scale projects might substantially increase.

However, the implementation of small-scale low-cost improvements encounters several key challenges:

- The "prestige factor" of small-scale low-cost improvements is often low, making them less attractive for (political) decision-makers. This is in particular true for projects targeted primarily at rail freight.
- The administrative effort in relation to the project size is rather high, both on the side of the project owner as well as on the side of funding entities (national Ministries and/or EU institutions). At the same time, funding instruments, especially on European level, are often adapted to large-scale projects.
- Planning law is not facilitating small-scale projects, since planning procedures are often equally complex and "heavy" as for large-scale projects, e.g. regarding the requirements for the elaboration of studies and the need for approvals and permits.

The 740 m TEN-T Demo-Train on 20 October 2021 from Sopron to Budapest and the GYSEV team

Finally, environmental protection provisions are focusing first of all on local impacts of infrastructure projects, while global effects (e.g. due to increased efficiency of the transport system) are usually underestimated.

Process and organisation

The best-practice guideline defines the understanding of the subject and puts it in a broader policy context on EU and national level. It also explains, how small-scale low-cost improvements address overall challenges for rail freight.

Subsequently, a system approach is being developed, taking stock on experiences and best practices in global scale. In this context, also the 740 m TEN-T Demo-Train operated between Sopron and Budapest on 20 October 2021 is presented.

The guideline concludes with recommendations on how small-scale low-cost improvements can be better integrated into national and European infrastructure and spatial planning, serving as source of inspiration for planners and stakeholders in all European corridors and regions.

Results and lessons learnt

Taking the example of the Brno-Budapest section of the Orient/East-Med corridor, the best-practice guideline identifies exemplary measures for improvements:

- Construction of triangle tracks to avoid the change of travelling direction,
- upgrade of terminals through the extension of handling tracks, connections at both ends of the terminal, electrification of head-ends of handling tracks and measures for digitalisation and automation,
- extension of sidings to at least 740 m and electrification of railway lines,
- construction of freight bypasses,
- identification of time windows and pre-defined train paths for 740 m freight trains,
- investigation of possibilities for directional running of trains through coordinated development of parallel single-track routes.

Finally, the guideline presents suggestions how to improve the conditions for small-scale low-cost improvements in the context of planning processes, planning law and policy making, with particular focus on strengthening of the European corridor approach. With this regard, the guideline can also serve as an input to the process of definition of the future role of TEN-T corridors.

"The analyses carried out during the CORCAP project in preparation of the TEN-T Demo-Train paved the way for GYSEV and RFC AMBER to offer in the near future train paths with extended train length on a regular basis. This is only one example showing that small-scale low-cost measures on local and regional level help to develop efficient corridors for environmentally friendly rail transport, leading to tangible benefits for key stakeholders."

Dr. Gerhard Troche
Managing Director, AMBER Rail Freight Corridor

OUTPUTS AND REPORTS:

> **Best-practice guideline for small-scale low-cost improvements for rail freight**

> **Documentation of the International Rail Freight Workshop with the TEN-T Demo-Train**

RELEVANT LINKS:

https://gysev.hu

INVESTIGATING ATTRACTIVE MULTIMODAL LOGISTICS LOCATIONS
IN SW SLOVAKIA AND SOUTH MORAVIA

To achieve carbon neutrality in Europe by 2050, it is necessary to prepare territorial pre-conditions for the efficient transhipment of goods between road and rail through the establishment of networks of intermodal/multimodal logistics centres and hubs (IHUBs) as well in the regions along the Orient/East-Med corridor.

Based on the mapping of cross-border accessibility in the Centrope region until 2050, potentially most suitable locations of attractive intermodal/multimodal logistics centres and hubs have been identified for the South Moravian Region and South-West Slovakia with the Bratislava, Trnava and Nitra Self-Governing Regions. Based on the results of the pilot action, in the next step adequate territorial reserves might be created within spatial planning procedures.

Description of the pilot action

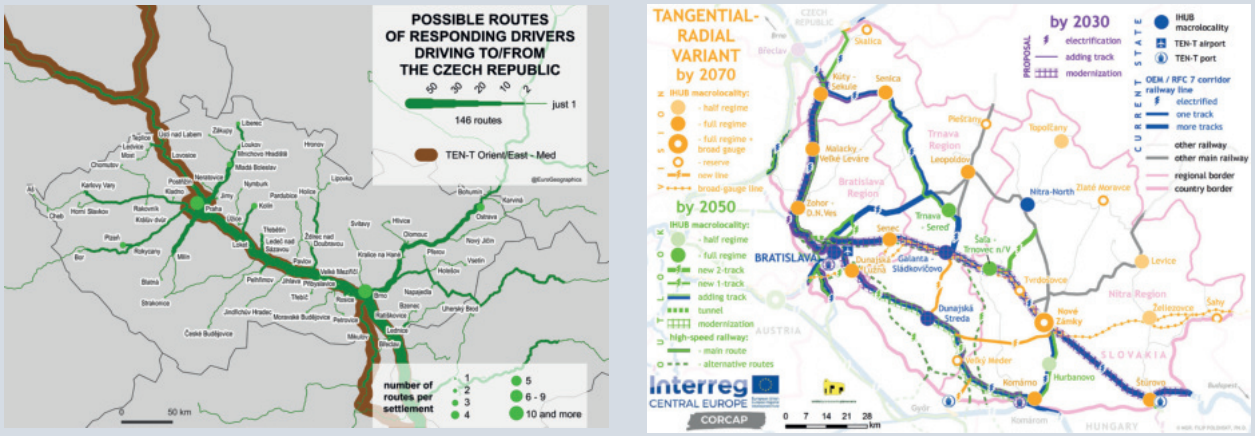
Based on quantitative and qualitative surveys of road freight transport flows and scenarios of development of freight transport and TEN-T transport networks, two partial studies were elaborated:

- Mapping of cross-border accessibility in the Centrope area until 2050
- Identification of attractive multimodal logistics locations and elaboration of profiles for development in the South Moravian Region and in South-West Slovakia

As separate result, a web mapping application (WMA) documenting the identified multimodal logistics locations was launched, based on the technical framework for the mapping of cross-border accessibility.

Process and organisation

Initially, road freight transport flows crossing the South Moravian Region were analysed, and scenarios of development of freight transport and TEN-T networks in the South Moravian Region and in South-West Slovakia until 2050 were developed. After setting-up the technical framework, cross-border accessibility in the Centrope area until 2050 was calculated, considering the modelling of the development of TEN-T transport networks. Based on the results, attractive multimodal logistics locations were identified, and profiles for development of these locations elaborated.



Visualisation of road freight transport flows along the Orient/East-Med corridor targeting the Czech Republic and Tangential-Radial variant of scenarios of infrastructure development in SW Slovakia

The identification of attractive logistics locations was based on GIS network analysis and expert analyses, considering the above-mentioned models and surveys of goods flows. Experts from transport, logistics, spatial planning and GIS supported works during all stages of implementation, and stakeholders from national, regional and local level were involved in the process through meetings and consultations.

Results and lessons learnt

Besides comprehensive maps of accessibility and attractivity analyses, key outcomes of the pilot action are scenarios for infrastructure development until 2050/2070. In case of South-West Slovakia, three complementary variants have been elaborated:

- Tangential variant with a freight bypass, enabling the segregation of long-distance transit freight from transport starting/ending in Bratislava,
- Radial variant with a focus on the Bratislava railway node, strengthening the radial railway system and providing a local bypass at Bratislava main station,
- Tangential-Radial variant as a combination of the tangential and radial variants, including the perspective of a broad-gauge railway line.

Additionally, based on potential macro- and microlocalities for intermodal/multimodal logistics centres and hubs (IHUBs), a proposal for a network of local, regional and supraregional IHUBs has been developed.

The outputs of the pilot action in form of analyses, conclusions and drawings/shapefiles serve as input for the improvement of regional strategic documents, e.g. for the Economic and Social Development Programme of the Bratislava Region (2021-2027) and regional spatial plans. They have already been accepted by decision-makers as background material for the improvement of planning documents and support the discussion on the revision of the TEN-T network in South-West Slovakia.

The methodology of the assessment of accessibility and attractivity of locations can serve as inspiration for other fields of investigation in various geographical areas. All results and findings are available via the web mapping application (WMA), including the profiles for IHUB development.

"We appreciate the idea of development of a network of intermodal transhipments of local and regional character, which would strengthen the attractiveness of settlement structures in the Nitra region, including their socio-economic development. This creates additional development potential e.g. in Nové Zámky, Komárno or Stúrovo, which needs to be carefully examined. And it reinforces the need for close cooperation with our neighbours."

Ing. Vladimír Čulík
Head of Section of Strategic Activities,
Nitra Self-Governing Region

OUTPUTS AND REPORTS:

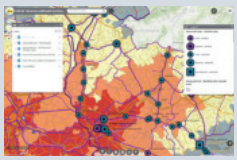
> **Mapping of road freight transport flows crossing the South Moravian Region**

> **Scenarios of development of freight transport crossing and targeting the South Moravian Region**

> **Mapping of cross-border accessibility in the Centrope area until 2050**

> **Identification of attractive multimodal logistics locations and elaboration of profiles for development in the South Moravian Region and in SW Slovakia**

> **Web Mapping Application (WMA)**



RELEVANT LINKS:
http://ipp-oz.sk/corcap

ENHANCING THE FUNCTIONALITY OF THE CORRIDOR — RESULTS AND FINDINGS FROM CORRIDOR CAPITALISATION PLANS

Corridor Capitalisation Plans are an innovative instrument with potential relevance for all TEN-T corridors. Currently, the existing practice of corridor development is mainly focused on infrastructure standards, following the principles of sectoral planning. The approach followed by the CORCAP partners goes beyond this practice, as it aims at the elaboration of strategies supporting the interaction of regional development and transport infrastructure development, considering as well operational requirements of multimodal logistics locations and transport services. With this regard, the following challenges have been addressed by the partnership:

- Strengthening the Orient/East-Med corridor as gateway to Scandinavia and South-East Europe
- Facilitating high-speed development and efficient freight transport along the Orient/East-Med corridor
- Increasing the capacity for railway transport in urban nodes
- Facilitating green logistics on regional and metropolitan level

The development of Corridor Capitalisation Plans has been supported through a strategy-building tool and regional analyses of challenges and needs. The results and recommendations of the Corridor Capitalisation Plans are presented in the subsequent chapter, explaining as well the challenges addressed and the approach towards stakeholder involvement.


Free State of Saxony
Ústí Region
South Moravian Region
South-Western Slovakia
Budapest Region
Győr-Moson-Sopron
and Burgenland Region

FREE STATE OF SAXONY
MANAGING THE LAST MILE IN THE REGIONS

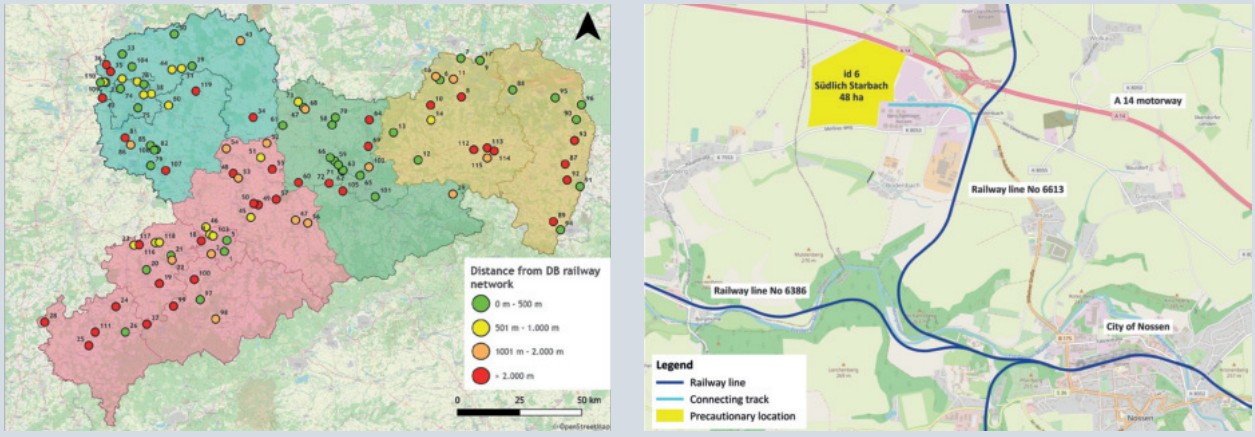
A key element to increase the share of rail freight in the transport market is better access to the railway network for industry and commerce. With this regard, sidings for industrial and commercial areas and public access points to the railway network, such as intermodal terminals and railports, are important prerequisites for transporting goods by rail in a time- and cost-efficient manner.

In the context of the Free State of Saxony, it is important to develop the transport infrastructure in such a way that it provides incentives to shift freight flows from roads to alternative modes of transport. Additionally, besides their transit function, the corridors of the TEN-T network offer favourable framework conditions for participation in international trade flows for the regionally based, import- and export-intensive economy.

Challenges addressed
Investors are increasingly asking about the availability of renewable energies and environmentally friendly modes of transport, driven by requirements and demands of customers (CO2-neutral supply chains). Accordingly, a shift of paradigm in transport policy is necessary, after decades of road-oriented planning and efficiency-oriented "optimising" of railway infrastructure, leading to the reduction of capacity and flexibility in the railway network.

While public passenger transport – as part of services of general interest – enjoys high priority, freight transport and logistics are seen as the subject of private-sector action. In the effect, most industrial and commercial locations are lacking access to the railway network. To change this situation, the Corridor Capitalisation Plan for the Free State of Saxony has examined how spatial planning, as an essential instrument for strategic development on state and regional level, can address this issue.

Process and organisation
The elaboration of the Corridor Capitalisation Plan was based on a comprehensive process of stakeholder involvement from March 2021 until February 2022. During four workshops, all regional planning associations, the Metropolitan Region of Central Germany, the Saxony Economic Development Agency and the Saxon Chambers of Industry and Commerce were involved.



GIS-based survey of rail access of existing and designated locations for industry and commerce

To facilitate the discussion, the rail access of 113 existing and 52 designated locations > 25 ha for industry and commerce in the Free State of Saxony has been analysed in a GIS-based survey. As part of an in-depth analysis, for 43 designated locations the realisation chances of rail access have been investigated. The results of the analysis have been shared and discussed with all regional planning associations.

Results and recommendations

In the result of joint discussion, the following set of measures and actions for better rail access of locations for industry and commerce has been developed:

- Systematic provision of information on rail access in commercial property databases,
- consideration of rail access as essential element of accessibility quality during the determination of locations for industry and commerce,
- documentation of disused railway lines in regional plans and identification of pilot projects for the reactivation for rail freight transport,
- extension of suitable locations for industry and commerce by spatial corridors for possible (future) access tracks and/or areas for transhipment facilities,
- improvement of access to locations for industry and commerce through additional stops for commuter trains.

Access to the railway network should be strengthened e.g. through the extension of existing intermodal terminals, the creation of additional access points with efficient road connection and the upgrade of existing loading points to multifunctional transhipment facilities. In addition to public funding, these activities could be supported through a coordination function ("rail coach"), providing technical assisstance and attracting new providers of intermodal logistics solutions - as practised in the pilot actions realised by the Saxon Inland Ports Upper Elbe.

Needs for cross-border cooperation in the field of corridor capitalisation have been compiled to the "Elbe Valley 2040" paper, focusing on the development of the Elbe waterway, the strengthening of inland ports as logistics locations, the development of sustainable tourism and regular information of the public on the progress of the joint project of the new railway line Dresden-Prague.

"We are highly interested in the results of the CORCAP project – both in terms of better rail access of commercial areas and in terms of cross-border cooperation with our Czech partners. The new railway line Dresden-Prague is a challenging project for our common region, and we want to make the best possible use of all opportunities created by this project for regional development."

Michael Holzweißig
Deputy Head of Office, Regional Planning Association Upper Elbe Valley / Eastern Ore Mountains

OUTPUTS AND REPORTS:

> **Corridor Capitalisation Plan for the Free State of Saxony**

> **Elbe Valley 2040 - Opportunities and potentials for regional development in the Elbe Valley through the new railway line Dresden-Prague**

RELEVANT LINKS:

https://www.landesentwicklung.sachsen.de

ÚSTÍ REGION
CAPITALISING THE NEW RAILWAY LINE DRESDEN-PRAGUE

The new railway line Dresden-Prague with the branch line to Most is the most important planned investment on the Orient/East-Med corridor in the Ústí Region. It will significantly reduce travelling times in the direction of Prague and Dresden, creating outstanding opportunities for regional and urban development. Through significantly improved accessibility, the city of Ústí nad Labem and the Ústí Region will become more attractive places for living and work.

To capitalise these opportunities and to create an environment for sustainable transport, a multitude of challenges must be addressed – both in the field of passenger and freight transport. With this regard, the future development of the railway node in Ústí nad Labem and its seamless integration with local, regional and cross-border transport systems will be of crucial relevance.

Challenges addressed

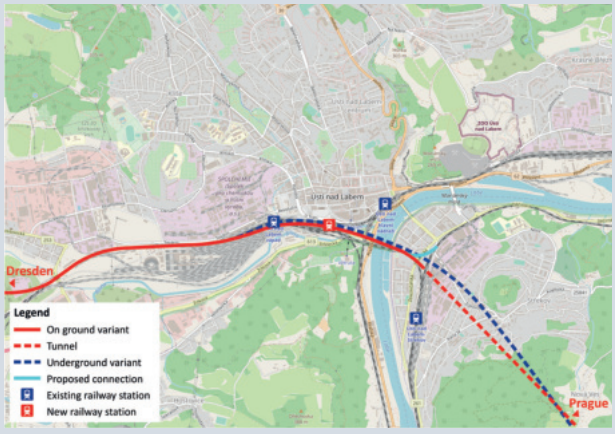
The Corridor Capitalisation Plan for the Ústí Region shall support the preparation of the construction of planned new railway lines, increasing as well the added-value of these investments. In particular, the Plan addresses the following challenges:

- Capitalising the effects of the new railway line Dresden-Prague for regional development, supporting structural change in the Ústí Region,
- increasing the competitiveness of rail passenger transport and enhancing the accessibility of cities and micro-regions not directly connected to the new railway lines,
- providing sufficient capacity for cross-border rail freight transport and improving the conditions for intermodal transport.

In the effect of implementation of the Plan, the transport and logistics system in the Ústí Region should be more in favour of railway transport.

Process and organisation

The Plan was developed based on the regional analysis of challenges and needs, discussions with project partners located along the Orient/East-Med corridor and discussions with stakeholders. The transnational process of elaboration enabled the Ústí Region to reflect its situation in the corridor and to receive inspiration and feedback from transnational exchange and discussion.



Main station in Ústí nad Labem and planned railway lines with proposed additional connection

During the process of work cooperation and negotiations with the infrastructure operator SŽ Správa železnic, local authorities and possible investors of intermodal terminals were launched, to facilitate the realisation of priorities outlined in the Plan.

Results and recommendations

The Corridor Capitalisation Plan for the Ústí Region is composed of a comprehensive set of targeted actions, which are aimed at the improvement of coordination between transport and spatial planning and the strengthening of logistics locations:

1) Incorporating the spatial corridors from the feasibility study for the new railway line Dresden-Prague into the regional spatial plan
2) Dealing with conflicts of interest arisen during the planning process of the high-speed railway line
3) Securing conditions for transit-oriented development in regional centres through spatial planning and acquisition of land around railway stations
4) Enabling faster train connections from Prague and Dresden to as many regional centres as possible
5) Assessing changes of the transport system in the Elbe/Labe valley through the new railway line Dresden-Prague ("Elbe Valley 2040")
6) Incorporating the needs of freight transport into strategic planning documents of the Ústí Region
7) Securing conditions for future development of intermodal terminals and rail freight facilities
8) Increasing resilience of cross-border rail freight transport until completion of the new railway line Dresden-Prague
9) Navigability of the Elbe/Labe waterway
10) Preserving and developing rail sidings through management of land use changes

It is planned to incorporate the principles and recommendations of the Corridor Capitalisation Plan into the regional development strategy. Throughout further implementation, it will be crucial to keep stakeholders and the public continuously informed about plans for the development of transport infrastructure – to prevent misunderstandings, to receive useful feedback and to increase support for planned improvements.

"As the new railway line Dresden-Prague is a top priority for the Ústí Region, the Corridor Capitalisation Plan emphasises activities aimed at smooth preparation of the investment and maximising its benefits for the region, e.g. by calling for transit-oriented development and fast connections to all regional centres. Regarding freight transport, the Plan promotes an active role of the Ústí Region - so far, a regional policy in this field of action has not been in place."

Josef Mareš
Consultant in the field of strategic planning

OUTPUTS AND REPORTS:

> **Corridor Capitalisation Plan for the Ústí Region**

> **Elbe Valley 2040 - Opportunities and potentials for regional development in the Elbe Valley through the new railway line Dresden-Prague**

RELEVANT LINKS:

https://www.kr-ustecky.cz
https://www.spravazeleznic.cz/vrt

SOUTH MORAVIAN REGION
PROMOTING LONG-PLANNED INFRASTRUCTURE IMPROVEMENTS

The South Moravian Region is heavily affected by transit traffic. Therefore, there is an urgent need to make road and rail transport along the Orient/East-Med corridor significantly faster, smoother, with less delays caused by works on tracks, offering more attractive connections and using regional transport as feeder for national and international high-speed connections.

The region has been working for many years on measures that can significantly improve the traffic situation. The support and construction of the high-speed line Prague-Brno, the new Brno railway node, the completion of the motorway to Austria and capacity increase of the motorway along the Orient/East-Med corridor are the most important challenges in long-term perspective.

Challenges addressed

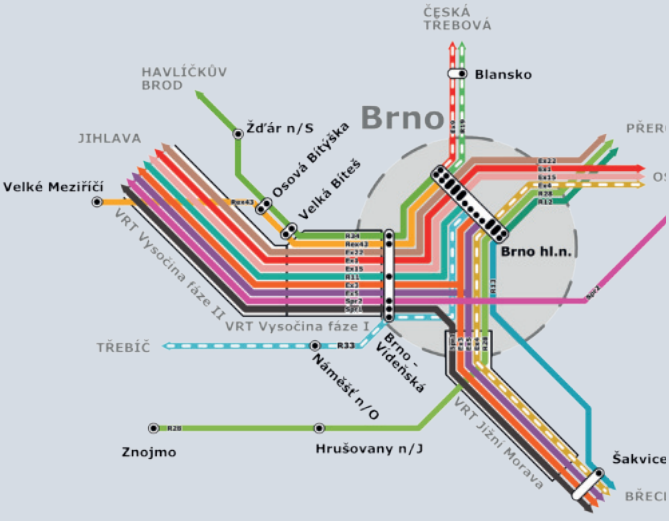
The TEN-T railway line between Brno and Prague faces problems of capacity, ineffcient routing, and speed. The new high-speed line Prague-Brno and the new Brno railway node will increase the capacity both for passenger and freight trains. It speeds up connections not only between Brno and Prague, but also with the neighbouring countries.

Motorway sections around Brno are heavily congested. The Brno-Vienna motorway is as well part of the Baltic-Adriatic corridor and the most important connection between Poland, Moravia and Austria. It is necessary to complete the last section of this motorway and to extend the Prague-Brno motorway, to handle the heavy transit traffic.

Process and organisation

The Corridor Capitalisation Plan has been prepared by KORDIS JMK, applying its expert knowledge of the transport sector in the South Moravian Region. Initially, studies and analyses on rail freight transport, quantitative and qualitative aspects of road freight transport, and scenarios of development of freight transport have been realised.

The research confirmed the strong demand for the TEN-T corridor route from the Balkans to Northern Germany and Western Europe, the increased traffic intensity in the area



Visualisation of the Brno new main station published by the Brno City Architect's Office (https://kambrno.cz/novenadrazi) and future scheme of railway lines serving the Brno railway node

of Brno through the routing of several major transit routes and the insufficient capacity of tracks in the section Břeclav-Brno-Prague and in the Brno railway node.

The Plan was consulted in July and September 2021 with representatives of the South Moravian Region, the operators of railway and road infrastructure and further transport experts, with particular focus on priorities and timeframes.

Results and recommendations

The Corridor Capitalisation Plan for the South Moravian Region is a supportive material for regional decisions about future passenger and freight transport. It also supports the increase of the capacity of railway infrastructure between Vienna/Bratislava, Dresden and Berlin. Content-wise, the Plan addresses the following priorities, which are translated into specific measures to be implemented by 2030 and 2050:

- Higher capacity, reliability and speed of passenger and freight transport along the multimodal link Vienna/Bratislava–Prague,
- support of planning and construction of high-speed railway lines,
- support and promotion of the increase of capacity of the Brno railway hub,
- monitoring and support of activities of multimodal cargo terminals (Brno railway terminal, Brno airport terminal, Břeclav terminal),
- integration of priorities into regional development and spatial plans, interaction with the interested public.

The development of the new Brno railway node will as well reinforce the need for thorough planning and coordination of public transport services, to serve the mobility needs of the population and to integrate complementary modes of urban transport. Therefore, authorities at all levels and transport coordinators such as KORDIS JMK are expected to be involved in regular preparation and continuous updating of sustainable mobility plans.

"The priorities of the South Moravian Region leading to the improvement of transport have been unchanged for decades. The high-speed lines, the motorway to Vienna and a modern motorway between Brno and Prague are investments that we consider necessary. Although these are long-standing declared interests, the financing of the necessary investments had been stalled. And this despite the fact that freight transport in the South Moravian Region is predominantly cross-border, not just domestic."

Jiří Horský
Director, KORDIS JMK

OUTPUTS AND REPORTS:

> **Corridor Capitalisation Plan for the South Moravian Region**

> **Proceedings of analyses of freight and passenger transport in the South Moravian Region**

RELEVANT LINKS:

https://www.idsjmk.cz
https://www.kr-jihomoravsky.cz
https://www.spravazeleznic.cz/vrt

SOUTH-WEST SLOVAKIA
PREPARING THE INFRASTRUCTURE FOR THE FUTURE

Considering the results of the pilot action aimed at the investigation of attractive multimodal logistics locations, the Corridor Capitalisation Plan for South-West Slovakia outlines an action-oriented framework for the preparation and implementation of identified investments and improvements in the Bratislava, Trnava and Nitra Self-Governing Regions.

For this purpose, a comprehensive intervention logic with a hierarchy of objectives, priority axes and measures has been developed, supporting the enhancement of the functionality of the freight corridor and an efficient corridor development process. Additionally, related outputs and activities, financial needs, relevant stakeholders, possible sources of funding and relevant key projects have been identified.

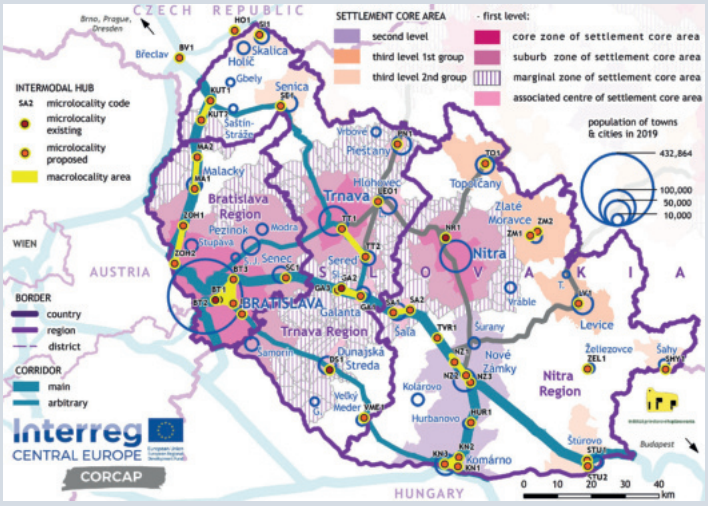
Challenges addressed

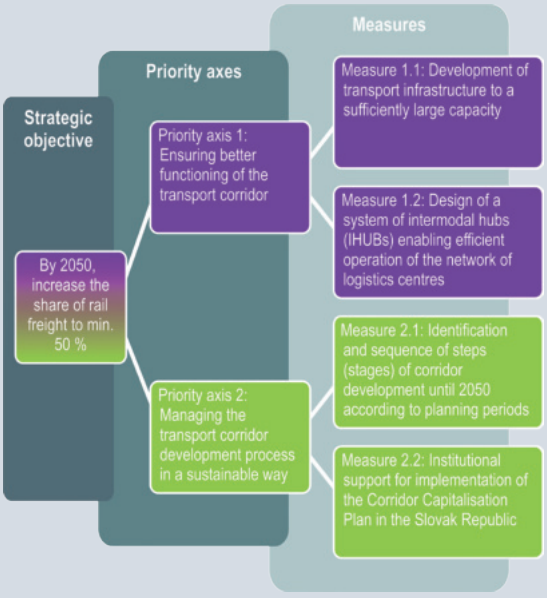
Following the Slovak Spatial Development Perspective, the settlement system in the Slovak Republic shall be developed according to the principle of "concentrated decentralisation", with efficient suburban and regional rail passenger transport. At the same time, it is necessary to provide sufficient capacity for transit rail freight.

To comply with these aims, the strategic objective to increase the share of rail freight to at least 50 % by 2050 has been defined. This change shall be achieved through the modernisation and completion of the regional railway network and the development of a network of intermodal/multimodal logistics centres and hubs (IHUBs). In the effect, the burden on the settlement environment by road freight transport would be significantly reduced.

Process and organisation

The Corridor Capitalisation Plan for South-West Slovakia is based on the regional analysis of challenges and needs and the results and findings of the pilot action aimed at the investigation of attractive multimodal logistics locations. Representatives from regional offices of the Bratislava, Trnava and Nitra Self-Governing Regions, the Ministry of Transport and Construction of the Slovak Republic, the





Potential macrolocalities and microlocalities of IHUBs in SW Slovakia and linkages of objectives, priority axes and measures

Capital City of Bratislava and transport and logistics experts have been involved in the processing of the Plan during stakeholder meetings and bilateral consultations. Works and agreements were supported through the web mapping application (WMA) created in the result of the pilot action.

Results and recommendations

Based on an intervention logic with strategic, specific and operational objectives, the following key measures have been included in the Corridor Capitalisation Plan:

- Development of transport infrastructure to a sufficiently large capacity, based on the analysis and assessment of different variants (Tangential, Radial, Tangential-Radial),
- design and development of a system of IHUBs, enabling efficient operation of a network of logistics centres,
- identification and sequence of steps (stages) of corridor development until 2050, considering the interlinking of planning cycles of EU regional policy and spatial planning,
- institutional support for implementation of the Corridor Capitalisation Plan, consisting of a coordination and cooperation platform and a territorial monitoring and information system.

Regarding the development of the railway system, it is proposed to establish a rail freight bypass for the Bratislava railway node via Kúty, Senica, Trnava, Nové Zámky and Komárno/Štúrovo. Railway lines and facilities should be adjusted and upgraded to make cross-border freight transport more efficient, with high-quality railway infrastructure providing effective connections to Brno, Budapest, Győr and Vienna. Regarding the possible extension of the broad-gauge line from Košice to Vienna, particular attention should be paid to the impact on the economic and social development of regions located along this line.

Finally, several recommendations on transnational, national and regional level have been identified, supporting the implementation of the Plan. These include the adoption of EU and national legislation favouring rail freight transport, the incorporation of project results into national and regional documents in the field of regional policy, transport, economic development and spatial planning and the elaboration of territorial and technical documents mapping related quality factors of the settlement environment, as a useful database for subsequent works.

"The proposed solution of the CORCAP project follows the Regional Sustainable Urban Mobility Plan of the Bratislava Self-Governing Region, which was recently developed and approved. This means mainly the planned redirection of transit freight transport outside the territory of the Bratislava Railway Node and the proposal of a new railway tunnel under the Carpathians. The proposed routing of the tunnel also considers the possibility of its use for a high-speed line through Bratislava."

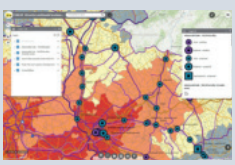
Ing. Matúš Bukovčák
Head of Department of Road Transport and Railways,
Bratislava Self-Governing Region

OUTPUTS AND REPORTS:

> **Corridor Capitalisation Plan for the Territory of South-West Slovakia**

> **Action plan for implementation of the Corridor Capitalisation Plan for the Territory of South-West Slovakia**

> **Web Mapping Application (WMA)**



RELEVANT LINKS:

http://ipp-oz.sk/corcap

GYŐR-MOSON-SOPRON AND BURGENLAND REGION — PROMOTING SMALL-SCALE LOW-COST IMPROVEMENTS

The Győr-Moson-Sopron and Burgenland Region is characterised by a dense network of TEN-T corridors and Rail Freight Corridors, which are interconnecting in the region. Considering the continuously growing demand for transport services, it is necessary to further develop the transport infrastructure. With this regard, faster and efficiently operated freight and passenger rail services should be well coordinated with road and inland waterway transport.

During future development, the operational requirements of multimodal logistics locations (e.g. in Sopron) need to be thoroughly considered. Through better connectivity of intermodal hubs, including e.g. the inland port of Győr-Gönyű, tangible benefits will be delivered for more efficient freight transport solutions.

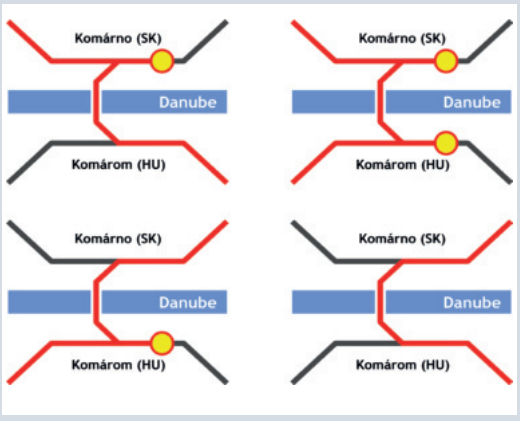
Challenges addressed

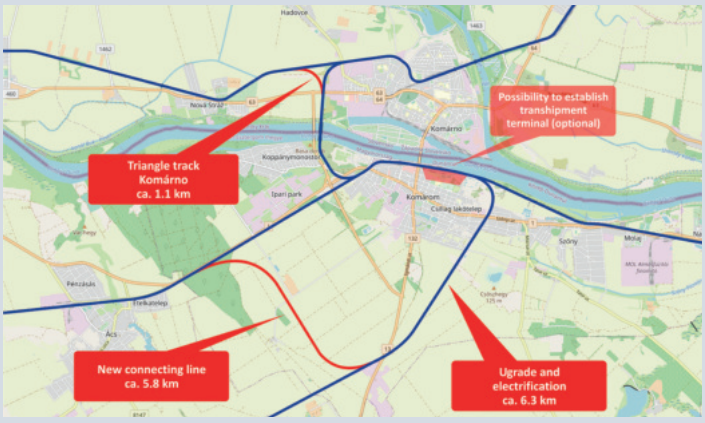
The key objective of the Corridor Capitalisation Plan is to support a dynamic economic development, keeping the environmental burden and the impact on natural resources as low as possible. In the mobility and transport planning sector this can be achieved by shifting the growing passenger and freight traffic to rail. With this regard, there is a need to resolve existing capacity constraints found at junctions along important traffic flow directions. Also, track doubling along several single-track sections is crucial to increase capacity, reduce transit times, decrease delays and to improve the resilience of the transport system.

Due to recently opened new motorway sections (M85-M86) and the M83 soon to be opened, it is essential that the competitiveness of rail services will be improved. TEN-T standards, in particular train lengths of at least 740 m and 22,5 tons axle-load must be available on the TEN-T rail network. Based on an integrative and interactive approach, the Corridor Capitalisation Plan addresses organisational and coordination barriers for these issues.

Process and organisation

The preparation of the Plan was closely interlinked with the elaboration of the best-practice guideline for small-scale low-cost improvements for rail freight. Regional and national stakeholders were involved through consultations and workshops, including the International Rail Freight Workshop in Sopron and the 740 m TEN-T Demo-Train between Sopron and Budapest on 19-20 October 2021.





Train direction changing needs around Komárom / Komárno hub and proposed connecting triangle tracks

The feedback received on the Plan from key experts from various authorities, planning institutions and railway operators are taken into account as well for further plans and strategies, including the V4 High-Speed Rail Concept and the Hungarian National Rail Freight Concept.

Results and recommendations

Based on the analysis of available plans and studies, the Corridor Capitalisation Plan identified infrastructural bottlenecks related to all transport modes. They should be removed through improvement of the railway network, development of the Danube waterway for safe and economical navigability, including the Győr-Gönyű Port and the Komárom/Komárno ports, and development of the road network, in particular the M85/A3 cross-border section between Sopron and Eisenstadt.

For the improvement of the railway network, a set of key measures has been identified:

- Construction of triangle tracks in Zalaszentiván and Ebenfurth to avoid the change of travelling direction,
- upgrading of the Sopron node and terminal,
- improvement of the Komárom/Komárno node through triangle and connecting tracks, improving fluidity of traffic and creating the opportunity to strengthen the Komárom/Komárno node as intermodal node,
- reconstruction and upgrading of the Zalaszentiván-Szombathely-Csorna-Hegyeshalom-Rajka-Bratislava line, double-tracking of the Győr-Csorna-Sopron line and electrification of the Sopron-Wiener Neustadt line,
- implementation of full TEN-T standards (740 m train length, 22,5 t axle load) along North-South and East-West transit lines.

All projects need to be considered in regional and local spatial plans to ensure that land requirements – e.g. in case of new alignments of railway lines – are properly met. Since the Győr-Moson-Sopron and Burgenland Region serves as hub for macro-regional connections, improved alternative routes are beneficial for a much wider area than the directly impacted regional population. With this regard, relations to Austria and to Slovakia are of similar relevance.

"The CORCAP project allowed us to promote developments and elaborate solutions important for the future of GYSEV, benefitting our customers and the region we serve. Developing rail freight does not only allow us to contribute to a sustainable European transport system in line with the objectives of the European Green Deal, but is also crucial to strengthen the logistical attractiveness of regions and the competitiveness of their industries and businesses."

Szilárd Kövesdi
Chief Executive Officer, GYSEV Zrt.

OUTPUTS AND REPORTS:

> **Corridor Capitalisation Plan for the Győr-Moson-Sopron County and Burgenland**

> **Documentation of the International Rail Freight Workshop with the TEN-T Demo-Train**

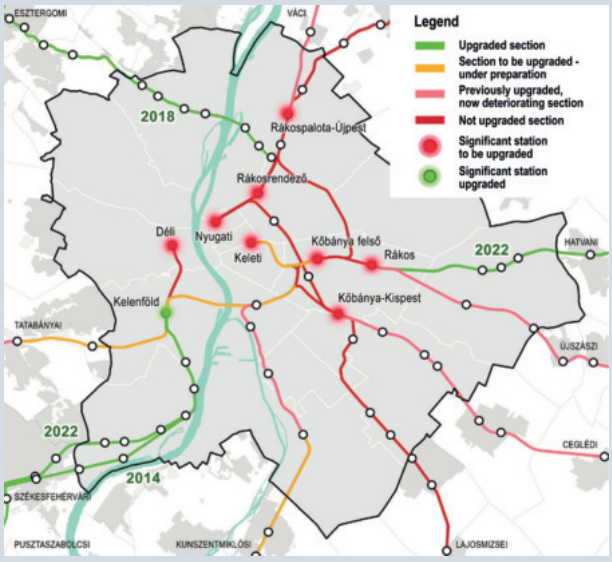
RELEVANT LINKS:

https://www.kti.hu
https://gysev.hu

BUDAPEST REGION
STRENGTHENING THE GATEWAY TO SOUTH-EAST EUROPE

In the Budapest region, as in the case of all urban nodes along the Orient/East-Med corridor, there is the need to provide an attractive mobility system that is both economically and environmentally sustainable and able to cope with the ever-growing transport demand. Also, supporting economic growth and transport-oriented regional planning is a crucial task.

Through the elaboration of the Corridor Capitalisation Plan a professional platform for coordination between transport infrastructure and spatial planning has been facilitated, supporting the connectivity of intermodal hubs and inland ports through better railway access and increased capacity for rail freight. The main lesson learnt is that coordination between different stakeholders is a must to reach efficient optimal solutions.



Challenges addressed

To create an attractive mobility system in the Budapest region, there is a need to facilitate cross-sectoral cooperation between stakeholders, leading to mutual involvement in the elaboration of plans and concepts. To shift significant transport volumes to more environmentally friendly modes, to remove bottlenecks and to strengthen the hub function of Hungary for Central and South-East Europe, it is necessary to facilitate multi-governance level cooperation, enabling stakeholders to share their thoughts and to identify possible synergies, and to integrate local, regional and national development concepts.

To create commitment on lower levels, experts responsible for smaller administrative territories should be involved in higher level development plans as well. This approach should result in jointly elaborated, aligned development plans, making the best use of development opportunities.

Process and organisation

Stakeholders were involved in the process of elaboration of the Corridor Capitalisation Plan through a series of four online workshops from March until June 2021. Due to the wide stakeholder consultation process, decision-makers from different administrative levels and different sectors could take part and cooperate on the issues discussed. The first and the final workshops were organised on a larger scale, to include more participants and to provide broader publicity for the developed Plan.

Rail infrastructure conditions in Budapest and capacity upgrade of the Southern railway bridge

To elaborate on the contents of the Plan, interactive methods for discussion and for the ranking of problems have been applied, enabling all participants to actively share their insights and opinions.

Results and recommendations

Based on the discussion of development challenges and considering the Budapest Transport Development Strategy 2014-2030, the Budapest Rail Node Study (BRNS) and the Budapest 2030 Long-Term Urban Development Concept, existing project ideas have been identified. After in-depth discussion, they have been grouped into three sequential action plans:

- Action plan 1 – Business-as-usual scenario (BAU), based on the patching of the current transport system according to official and valid decisions;
- Action plan 2 – New Plans (NP), including planned and proposed measures from the Budapest Rail Node Strategy;
- Action plan 3 – Rail Freight Development, including measures necessary for the service of local and corridor-based freight operations.

The Corridor Capitalisation Plan supports the removal of crucial bottlenecks through additional tracks on Danube bridges and a new Danube tunnel, the improvement of the feeder network and the upgrade of important junctions. Additionally, it supports faster rail freight flow across the Budapest urban area, considering plans for the "V0" rail freight bypass as well as small-scale investments for better rail access to important logistics sites and a better served urban logistic system.

Several elements and objectives of the Plan were already adopted and agreed upon by the Budapest Municipality and the Hungarian Central Government, which approved the Budapest Agglomeration Railway Strategy by the Governmental Decree 1994/2021 (28/12/2021).

Since the Corridor Capitalisation Plan includes all planned developments foreseen for the Budapest Region within a holistic concept, it may serve as justification for the support of project developments. If policy makers need to rank project ideas by necessity and importance, it may also serve as a decision-support tool.

"Within the CORCAP project KTI contributed to successful cooperation between spatial and transport planning to pave the way for long-planned infrastructure developments. In its currently ongoing projects such as the Hungarian National Rail Freight Concept and the "V0" rail freight bypass KTI is actively implementing the project outcomes, willing to capitalise not just for the logistic sector but also for the society as a whole for more efficient and less-pollutant freight transport."

András Munkácsy, PhD
Head of Centre, KTI Institute for Transport Sciences Non-profit Ltd.

OUTPUTS AND REPORTS:

> **Corridor Capitalisation Plan for the Budapest Region**

RELEVANT LINKS:

https://www.kti.hu
https://delikorvasut.hu

OUTLOOK: ACTION PROGRAMME 2022+

The topics and issues tackled within the CORCAP project will remain on the agenda. Draft decisions and action frameworks aimed at the implementation of Corridor Capitalisation Plans and further capitalisation of results and outcomes of pilot actions have been prepared for all participating regions and partners, outlining possible follow-up activities. Each draft decision and action framework has been tailored to the local situation, considering the experience of stakeholders, current challenges for cooperative and integrated approaches and expected developments.

In the very end, each pilot action and each Corridor Capitalisation Plan shall contribute to the durable strengthening of the Orient/East-Med corridor and its functionality. With the CORCAP approach, certain steps towards the transnational capitalisation of the corridor have been undertaken – and there are many further steps to follow, contributing to European cohesion and solidarity.

Intermodal services along the Orient/East-Med corridor

- Strengthening of hub concepts to support the bundling of cargo volumes and the establishment of direct services
- Continued exchange with train operators, shipping companies and freight forwarders to foster their commitment for the implementation of train concepts
- Continued operation of the online platform https://intermodal-rostock.de as promotion and marketing tool for intermodal services

Free State of Saxony

- Support of the review of criteria for the designation of locations for industry and commerce and of the extension of existing locations by spatial corridors and areas for access tracks and/or transhipment facilities
- Support of informal approaches to promote better rail access of locations for industry and commerce
- Intensification of dialogue between spatial planning and sectoral planning in the field of economic development and transport
- Update of information on access points, support of preparatory studies for extended and new terminals

Free State of Saxony & Ústí Region: Elbe Valley 2040

- Support of the further development of inland ports as multimodal logistics interfaces for inland waterway, rail and road
- Promotion of sustainable tourism in the Elbe valley – support of sustainable mobility and management of visitor flows
- Continuous promotion of the new railway line Dresden-Prague

Ústí Region

- Incorporation of spatial corridors from the feasibility study for the new railway line Dresden-Prague into the regional spatial plan
- Dealing with conflicts of interest arisen during the planning process of the high-speed railway line
- Use of the results and outcomes of the Corridor Capitalisation Plan as input for the actualisation of the regional development strategy

South Moravian Region

- Support of infrastructure operators in upgrading of transport infrastructure according to priority needs confirmed within the Corridor Capitalisation Plan
- Emphasis of the importance of planned developments in future communication towards the public and decision-making bodies
- Support of the implementation of investments in the regional development strategy and in the regional spatial plan

South-Western Slovakia

- Monitoring of follow-up studies for the upgrade of transport infrastructure
- Elaboration of proposals for follow-up projects on logistics networks and monitoring of the implementation of IHUBs
- Update of national, regional and local planning documents and realisation of task-related urban studies
- Follow-up discussions on working structures and possible governance arrangements

Budapest Region

- Facilitation of exchange and collaboration among stakeholders, in particular regarding the application for CEF funding
- Dissemination and transfer of the results of the Smart traffic management system
- Use of the results and outcomes of the Corridor Capitalisation Plan as input for follow-up studies
- Emphasis of the importance of planned developments and digitalisation issues in future communication and promotion of the improvement of inland navigation

Győr-Moson-Sopron and Burgenland Region

- Incorporation of results and outcomes of the Corridor Capitalisation Plan into ongoing and future works and studies
- Adjustment of spatial plans, based on the results of feasibility studies
- Promotion of more attention for processes of prioritisation of train paths, check of regular operation of 740 m trains
- Promotion of more attention for different requirements of passenger and freight transport

PARTNERSHIP
OF THE CORCAP PROJECT

Project partners

SMR Saxon State Ministry for Regional Development (Lead Partner)

SBO Saxon Inland Ports Upper Elbe

ROSTOCK PORT GmbH

Ústí Region

KORDIS JMK

IPP Institute of Spatial Planning

KTI Institute for Transport Sciences Non-profit Ltd.

FBL Freeport of Budapest Logistics

GYSEV Győr-Sopron-Ebenfurth Railway

New railway line Dresden-Prague EGTC

Associated partners

MMR Ministry of Regional Development of the Czech Republic

MDČR Ministry of Transport of the Czech Republic

DGG Association of German Freight Villages

ŽESNAD Association of Rail Freight Carriers of the Czech Republic

Saxon Switzerland-Eastern Ore Mountains District

Bratislava Self-Governing Region

Nitra Self-Governing Region

ÚÚR Institute of Spatial Development

ARL Academy for Territorial Development in the Leibniz Association

Metropolitan Region Central Germany

List of abbreviations

ARL	Academy for Territorial Development in the Leibniz Association
BRNS	Budapest Rail Node Study
CE	Central Europe
CEE	Connecting Europe Express
CEF	Connecting Europe Facility
CEO	Chief Executive Officer
CZ	Czech Republic
DE	Germany
DGG	Association of German Freight Villages
EFIP	European Federation of Inland Ports
EGTC	European Grouping of Territorial Cooperation
ERDF	European Regional Development Fund
ETCS	European Train Control System
EU	European Union
FBL	Freeport of Budapest Logistics
GIS	Geographic Information System
GYSEV	Győr-Sopron-Ebenfurth Railway
HFIP	Hungarian Federation of Inland Ports
HU	Hungary
IHUBs	Intermodal/multimodal logistics centres and hubs
IPP	Institute of Spatial Planning
KTI	Institute for Transport Sciences Non-profit Ltd.
MDČR	Ministry of Transport of the Czech Republic
MMR	Ministry of Regional Development of the Czech Republic
OEM	Orient/East-Med
RFC	Rail Freight Corridor
RO	Romania
SBO	Saxon Inland Ports Upper Elbe
SPC	ShortSeaShipping Inland Waterway Promotion Center
SK	Slovakia
SW	South-West
SMR	Saxon State Ministry for Regional Development
TEN-T	Trans-European Transport Network
ÚÚR	Institute of Spatial Development
V4	Visegrád Group
WMA	Web mapping application
ŽESNAD	Association of Rail Freight Carriers of the Czech Republic

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