Joint State Planning Department of Berlin and Brandenburg
(Project partner No.12)

Sustainable shift of cargo transport into rail networks between Berlin/Brandenburg and Italy/Slovenia with TRANSITECTS in the Scandinavian-Adriatic Corridor (potentials, routes, recommendations and pilot trains)

EXECUTIVE SUMMARY
Imprint

Publication of the project TRANSITECTS

www.transitects.org

Partner / Publisher

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Introduction

As an essential result of the work as a partner in the project TRANSITECTS, we are pleased to present this study with titled: “Sustainable Shift of Cargo Transport into Rail Networks between Berlin/Brandenburg and Italy/Slovenia with TRANSITECTS in the European Scandinavian-Adriatic Corridor (Potentials, Routes, Recommendations and Pilot Trains”). The long version of the study can be found on the enclosed CD-ROM.

Project structure

TRANSITECTS started in July 2009, with a run-time of three years. The project budget is 3.2 million Euro. The project is being carried out within the framework of the Alpine Space Programme – European Territorial Cooperation 2007-2013 (INTERREG IV B) and funded by the European Regional Development Fund (ERDF) and national co-financing.

Fig.: Main Alpine crossings for road transport (source: EURAC)
16 partners from four countries (Austria, Germany, Italy, and Slovenia) are collaborating in a transnational network. Cooperating national Ministries are the Italian Ministry of Environment, Sea and Land Protection as well as the Austrian and Slovenian Ministries for Transport. Regional partners are Carinthia, Salzburg, Tyrol, Berlin Brandenburg, Donau-Iller, Stuttgart, Friuli Venezia Giulia, Lombardy and Veneto, further partners representing research institutions, agencies, chambers of commerce or associations are the European Academy of Bolzano, the Agency of East Lombardy for Transports and Logistics (A.L.O.T.), Veneto Chambers of Commerce and the German Association for Housing, Urban and Spatial Development. The Logistik-Kompetenz-Zentrum Prien has been involved as project- and financial manager.

**Project objectives**

TRANSITECTS is a European project aiming at developing and implementing attractive rail products and systems to disburden traffic bottlenecks in the Alps and to mitigate related negative effects of traffic. To implement the shift from road to rail related traffic TRANSITECTS creates sustainable intermodal solutions to fit changing markets - especially combined transport products for transalpine freight traffic. Furthermore, the project supports the development of intermodal nodes and proactively fosters the railway system.

To generate environmentally friendly transports, the advancement of combined transports is representing the central task. Several railway lines from North to South connect the Baltic Sea Region via Berlin-Brandenburg with the Adriatic space and ports. The aim is to transport cargo on short, innovative and resource efficient routes, intermodal hubs and sustainable networks.

Abb.: Containerzug der Slowenischen Eisenbahn SZ nahe dem Hafen Koper (Quelle: SZ)
Projektinhalte und -ergebnisse

The partners elaborated traffic studies for selected transport relations. Most of them refer to transalpine connections, a few to selected long-distance connections running from the Baltic to the Adriatic Sea and offering alternative routings through Upper Austria or Hungary.

Furthermore, an evaluation-study of transhipment technologies has been worked out. This study underlined that the accompanied combined transport (RoLa) as well as unaccompanied combined transport are very suitable variants of combined transport, which was one main starting point for the pilot projects.

The main content of TRANSITECTS has been the development of additional transalpine train services for combined transport. At the end of the project the status of the processed pilot projects is different: The output reaches from feasibility studies via implementable concepts to signed declarations of intent or initiative test-trains.

Fig.: Pilot train services of the project TRANSITECTS within the Scandria® Corridor
In any case, the development of new train connections went along with the establishment of new contacts between public authorities and train operators respectively potential clients - not least this is a basis for a sustainable planning of future transport infrastructures. Furthermore, in some cases, existing infrastructures could be reactivated alongside the development of a new train service.

A main aspect when convincing operators or clients to implement the proposed concepts is the environmental benefit provided by the new services. An environmental model, developed in TRANSITECTS is able to calculate the potential reduction of emissions by comparing road and train related emissions. Given the availability of data, it can be adapted for any possible connection.

Apart from that, TRANSITECTS designed innovative concepts that aim to improve the functionality of intermodal nodes. In case of the Premium Dry Port-concept for Villach-Fürnitz a declaration of intent concerning the implementation of this innovative idea has already been signed by the Carinthian hub and all NAPA-ports (North Adriatic Ports Association: Ravenna, Venice, Trieste, Koper, Rijeka).

Additionally TRANSITECTS implemented some “soft measures”. Firstly, the project strengthened cooperation networks across borders: among TRANSITECTS partners who are willing to proceed with cooperation e. g. in a new project; but also beyond the project, involving other projects and initiatives – also from other programme regions. Secondly, TRANSITECTS contributed to enhance attention for the necessity to implement a shift to the railway system. For this purpose, communication and dissemination activities – e. g. in the frame of the international fair “Transport Logistik” in Munich or the Symposium “Logistik Innovativ” in Prien am Chiemsee have been launched.

The results of the TRANSITECTS project, which supports and relieves the Central European areas of freight traffic by road, particularly in the Alpine region. They promote environmentally friendly infrastructures, intermodal transport options and the design of new train products in the Trans-European rail network (TEN V) to routes and network nodes, which were coordinated as pilot trains with operators, partners and stakeholders for combined traffic.

Ergebnisse aus Sicht der GL Berlin-Brandenburg

The Alpine space is similarly transit region and barrier in the transport network of the European Union. The traffic flows concern many countries and regions - the environmental impacts as well as capacity constraints are common problems, affording transnational solutions. From the view of the metropolitan region Berlin-Brandenburg the Baltic-Adriatic Development Corridor has a high priority within the Trans European Transport Network (TEN-T). The activities are based on an intensive exchange with other cooperation projects, such as Scandria®, SoNorA, BATCo, i.Monitor! and AlpCheck 2.
Starting from the region of Berlin-Brandenburg, two main routes were identified:
- the traditional cross Alpine route via Munich, Innsbruck, the Brenner line and Verona,
- as well the alternative route via Prague, Linz, the Tauern axis and Villach.

However, limited capacities of the classic cross Alpine routes afford further alternative routes via East Austria, West Hungary, as well as via Slovenia to Adriatic ports, to compare challenges and results.

Efficient combinations of transport requests, result new combined transport services in the TEN-T network. We investigated possibilities for block trains, combined transports (CT) and the combination with existing or planned services. These container transports could be connected with general cargo transports and run, with direct access, between and of the metropolitan regions.

The new pilot trains can be operated economically in all examined routes, also along the Eastern tangential route. The precondition is the use of the presented freight shift potentials.

Public and private stakeholders as well not least the population affected by traffic pollution can benefit from additional transport shifts into the railway system. The reduction of road transports will lead to reduced energy consumption and costs, less road accident victims and better air, particularly in the Alpine tales.

**Stärkung des Scandria® Korridors**

TRANSITECTS cooperates with important Interreg B transport projects, such as Scandria® and SoNorA. The metropolitan region of Berlin and Brandenburg (project partner GL) supports in particular the Scandinavian-Adriatic Development Corridor (Scandria® Corridor). TRANSITECTS strengthens intermodal, innovative and efficient long-distance connections in the Scandria Corridor, with use and transnational integration of the freight village centers of the region.

The Scandria® Corridor from Scandinavia via Eastern Germany and further south is the shortest connection between the Adriatic Sea, Central Europe and Scandinavia. Highly-productive and innovative regions and efficient North-South Connections link more than 110 million people in eleven European states and eight capitals.

The Scandria® Corridor stands for safe, efficient and environmentally sound transport. It supports innovative logistics solutions, relying on intermodal transport and first-class transport links. But most of all it is a dynamic business region, connecting the most advanced knowledge-driven economies throughout Europe.
The political initiative for the Scandria® Corridor was started by the eastern German federal states. Their ministers responsible for regional development signed the “Berlin Declaration” of November 2007, demanding “an attractive transport infrastructure as well an internationally competitive and efficient means of transportation within the Scandinavian-Adriatic Development Corridor”.

The declaration was followed by the COINCO-charter in March 2008, in which regions from Norway, Denmark, Sweden and Germany committed themselves to jointly develop “one of the most competitive, sustainable and liveable regions”. Based on this development, in 2008 the German Federal Ministry of Transport, Building and Urban Development supported the development of concrete EU funded cooperation projects.

The Scandria® Project was approved in EU’s Baltic Sea Region Programme in June 2009. 19 partners from Germany and Scandinavia cooperate for a green and innovative transport Corridor and promote a new European economic core area until summer 2012.

Focusing on the area from Stockholm and Oslo via the Öresund Region to Berlin, Scandria® contributes to the EU Strategy for the Baltic Sea Region, facilitating the coordination of the national transport policies and infrastructure investments in order to improve co-modality and road safety.
The TRANSITECTS workshop “Innovative (rail) transport solutions” on 16th November 2010 in Potsdam discussed future oriented approaches to save the environment. 30 Participants representing the core-group of cooperation projects presented and debated their approaches and ideas in regard to transport models and forecasts, the calculation of environmental benefits and the development of innovative transport solutions.

The discussions identified significant, content related overlaps of the projects. On this basis, cooperation fields could be concretized. It was encouraged to continue cooperation in view to:

• The development of new train relations, as the projects TRANSITECTS, SoNorA, Scandria® and BATCo are explicitly trying to develop and implement new/improved train services.

• The improvement of intermodal nodes, as this is the basis to support the implementation of a functioning multimodal freight transport system and TRANSITECTS, SoNorA, Scandria® and BATCo are setting an important focus on it.

• The involvement of economic actors, as this is a starting point for the development of marketable transport solutions and the implementation of new logistic services and TRANSITECTS, SoNorA, SCANDRIA, BAT-Co and AlpCheck2 aspire to establish a close cooperation with the market.
1. Analysis of the freight traffic volumes

Goods exchange regarding traffic flows based on CAFT Data

The Alp States have been working together in the so called Zurich process for more than ten years. Extraordinary circumstances, like accidents in tunnels, shall be handled together, organized as a central effort. Also a shift of growing traffic, aimed towards environmentally friendly transport modes has to be achieved.

The working group ‘Mobility’ coordinates the collection of comparable statistics for Alp crossing traffic loads. After 1999 and 2004, in the year 2009, CAFT-data (CAFT as an abbreviation for Cross Alpine Freight Transport) has been collected. Regarding the sort of transports, selective methods are realised for the data collection. For example “Roadside-Interviews” with truck drivers have been carried out at the main crossings/junctions of the Alpine region. Furthermore lorry drivers are interviewed at the terminals of the rolling road transport. Freight railway data is analysed based on data banks of the most important national railway companies and on additional evaluations of further railway operators.

The data of the CAFT-Survey of 2009 has been provided by the Lead partner. The author has analysed the data in detail which offers the possibility to provide a detailed view of the alp crossing traffic from Berlin / Brandenburg – Italy / Slovenia and Scandinavia – Italy / Slovenia. Regarding the previously mentioned traffic relation, it has to be estimated, that half of the cargo volume passes also the region Berlin / Brandenburg and for this reason, this volume has to be added to the primarily analysed traffic relation Berlin / Brandenburg – Italy / Slovenia.
Fig.: Alp crossing transport volumes in direction from Italy / Slovenia to the region of Berlin / Brandenburg (Data basis: CAFT-Survey 2009)

Fig.: Alp crossing transport volumes from the region Berlin / Brandenburg in direction to Italy / Slovenia (Data basis: CAFT-Survey 2009)
Fig.: Alp crossing transport volume from direction Italy / Slovenia to Scandinavian Countries
(Data basis: CAFT-Survey 2009)

Fig.: Alp crossing transport volumes from Scandinavian countries to Italy / Slovenia
(Data basis: CAFT-Survey 2009)
Theoretic extrapolation of transport volume distinguished with respect to vehicle volume

Following the total amounts regarding the transport system, which are given after summarizing the evaluated traffic volumes at the relation Berlin / Brandenburg – Italy / Slovenia and Scandinavia – Berlin / Brandenburg – Italy / Slovenia:

<table>
<thead>
<tr>
<th>Transport System</th>
<th>Cargo Volumes (based on CAFT 2009) (in t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road transport</td>
<td>2,473,501</td>
</tr>
<tr>
<td>Railway transport / waggon load</td>
<td>207,538</td>
</tr>
<tr>
<td>Railway transport / rolling road</td>
<td>148,515</td>
</tr>
<tr>
<td>Railway transport / container</td>
<td>304,412</td>
</tr>
</tbody>
</table>

Road Transport

An estimated average loading weight of 15 t per lorry / trailer means that about 164,900 road vehicle units are crossing the Alps per year. These are more than 3,000 units per week or approx. 450 units per day.

Railway Transport

Requests directed at the transhipment terminal located in the Freight Village Berlin South Grossbeeren and at the Rail port Seddin showed, that in the area of Berlin-Brandenburg, the cargo volume can be estimated for source- and destination transports for about 750 t. An interview of operators showed 25 vehicles (loading weight: 15 t) on average are transported with the accompanying combined transport (rolling road transport).

Regarding the wagon-load traffic, a comparable loading volume can be estimated for container trains. An extrapolation of the above listed cargo volumes leads to following train numbers:
- Wagon-load traffic: ca. 280 freight trains per annum, ca. 5 freight trains per week, ca. 1 freight train per day
- Rolling road transport: ca. 400 freight trains per annum, ca. 8 freight trains per week, ca. 1.5 freight trains per day
- Container trains: ca. 400 freight trains per annum, ca. 8 freight trains per week, ca. 1.5 freight trains per day

Following the total transport volumes differentiated between different transport-systems are evaluated in north-south direction:

<table>
<thead>
<tr>
<th>Transport System</th>
<th>Cargo Volumes (based on CAFT 2009) (in t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road transport</td>
<td>1,931,426</td>
</tr>
<tr>
<td>Railway transport / waggon load</td>
<td>245,418</td>
</tr>
<tr>
<td>Railway transport / rolling road</td>
<td>196,489</td>
</tr>
<tr>
<td>Railway transport / container</td>
<td>327,799</td>
</tr>
</tbody>
</table>
Road Transport

An estimated average loading weight of 15 t per lorry / trailer means that about 128,800 road vehicle units are crossing the Alps per year. These are more than 2,500 units per week or approx. 350 units per day.

Railway Transport

Based on the previous assumptions, an extrapolation of the transport volume leads to the following results:
- Wagon-load traffic: ca. 330 freight trains per annum, ca. 6 freight trains per week, ca. 1 freight train per day
- Rolling road transport: ca. 520 freight trains per annum, ca. 10 freight trains per week, ca. 2 freight trains per day
- Container trains: ca. 440 freight trains per annum, ca. 8.5 freight trains per week, ca. 1.5 freight trains per day

Summarising research

In both directions significant cargo volumes have been achieved, as shown by the analyses of the CAFT-data 2009. In total 5.8 m t of cargo have been transported per year. The freight volume transported in south direction has been slightly higher, compared to the north direction (more than 3.1 m t or 53.7 %).

About three quarters of the cargo volume (ca. 4.4 m t) are passing the Alps via the road infrastructure. Consequentially, the freight flows of the relation Berlin / Brandenburg – Italy / Slovenia, including transports which pass Berlin / Brandenburg running to and coming from Scandinavia, contribute to the very high utilization of the alp crossing roads. The north-south direction shows a significantly higher transport volume with more than 28 %. The difference in comparison to the north running transport includes 542,075 t cargo or about 36,100 vehicles per annum. A significant unpairing has to be concluded as central result.

The unpairing isn't of such high relevance regarding the possibility of shifting cargo volume because the northwards directed traffic flows are dominating with 108,941 t cargo or 16.5 %. Accordingly – to reach a total pairing – just an exact difference of 433,134 t cargo has to be equalized. Aiming at an ecologically worthwhile shift of road- to railway transports the approximated pairing of cargo, transportable with railway containers, is of utmost importance. Regarding the wagon load transport, the different types of wagons play an important role. Also this constellation has to be considered in specific by the single operator (specific operation conditions / requirements).
Cargo Volumes differentiated in goods categories based on CAFT data

Relation Berlin/Brandenburg – Italy/Slovenia

The Alp crossing freight volumes, which show a relation to the region Berlin / Brandenburg are taken into account. Besides the volumes from and to Italy and Slovenia, also freight transport flows from and to Austria (especially the federal states which are located in the south of the Alp ridge Carinthia and Styria), Austria crossing flows and transport flows, which lead further to south-east Europe states and to Turkey, are of relevance. The last mentioned once could be steered away easily from the Alp space by using Slovakia, the eastern part of Austria (Vienna) and Hungary touching transport routes.

Transport directed towards south are dominated strongly by the goods category 10 (basic metals, fabricated metal products, except machinery and equipment). This goods category achieves with 150,000 t 67.7 % of the total transported volume, considering the transport flows towards the south of Austria (Carinthia and Styria).

A share of 45.5 % (232,000 t) has been analysed for the high volume in transport to Italy. Goods category 10 represents the third strongest category regarding transport flows, leading to Slovenia (27 %), southeast Europe and Turkey (9.9 %). Mainly dominating are the categories 13 (furniture, other manufactured goods n.e.c.) and 11 (machinery and equipment n.e.c., office machinery and computers, electrical machinery and apparatus n.e.c., radio, television and communication equipment and apparatus, medical, ecision and optical instruments, watches and clocks), followed by category 9 (other non-metallic mineral products) and 4 (foods products, beverages, tobacco). Regarding transports leading to the south of Austria, category 6 (wood and products of wood and cork, articles of straw and plaiting materials, pulp, paper and paper products, printed matter and recorded media) and 7 (coke and refined petroleum products), are dominating. The transport towards Italy is dominated by category 4 (foods products, beverages, tobacco) and 8 (chemicals, chemical products and man-made fibres, rubber and plastic products, nuclear fuel).
Transports directed to the north are dominated by category 4 (foods products, beverages, tobacco). The goods categories 1 (products of agriculture, hunting and forestry, fish and other fishing products), 10 (basic metals, fabricated metal products, except machinery and equipment) and 12 (transport equipment), achieve a transport volume of more than 100,000 tons.

Food products, beverages and tobacco are mainly passing the Alp region with 38.4 % coming from Italy. With a significant distance, products of agriculture, hunting and forestry, fish and other fishing products are (category 1) and other non-metallic mineral products (category 9) are following.

Just three goods categories are loaded in Slovenia which run to Berlin-Brandenburg – products of category 1, category 12 and category 18. From the direction of South Austria the category 10 dominates. In comparison the variety of goods imported from southeast and Turkey is much higher.
Fig.: Freight volumes differentiated in goods categories from Slovenia and further countries to Berlin / Brandenburg

Relation Scandinavia – Berlin/Brandenburg – Italy/Slovenia
In a second step, the Alp crossing freight volumes connected to Scandinavia are of relevance. As already mentioned in 0, about half of the total transport volume is passing the region Berlin-Brandenburg. Besides the volumes from and to Italy and Slovenia, the freight flows from and to Austria (especially for Carinthia and Styria located in the south of the Alp ridge), passing Austria and running further to southeast Europe and Turkey, are of relevance.

Transports directed to the south are strongly dominated by goods category 18 (grouped goods). Also showing a high transport density is goods category 4 (foods products, beverages, tobacco) und 6 (wood and products of wood and cork, articles of straw and plaiting materials, pulp, paper and paper products, printed matter and recorded media), each with more than 250,000 t freight per annum.

Fig.: Freight volumes differentiated in goods categories from Scandinavia via Berlin / Brandenburg to Austria / Italy

With the traffic directed towards the south of Austria (Carinthia, Styria), goods category 6 with ca. 120,000 t cargo is dominating.
In the high volume transport category to Italy are grouped goods (Category 18) and category 4 (foods products, beverages, tobacco) are followed by category 10 (basic metals, fabricated metal products, except machinery and equipment) and 6 (wood and products of wood and cork, articles of straw and plaiting materials, pulp, paper and paper products, printed matter and recorded media), each with significantly more than 100,000 t cargo.

The traffic running to Slovenia is confined to up to 5 goods categories, thereof only category 6 (wood and products of wood and cork, articles of straw and plaiting materials, pulp, paper and paper products, printed matter and recorded media), category 8 (chemicals, chemical products, and man-made fibres, rubber and plastic products, nuclear fuel) and category 10 (basic metals, fabricated metal products, except machinery and equipment) reach noteworthy volume. In direction of further countries (southeast Europe, Turkey), especially food products, beverages and tobacco are transported.

Goods category 4 (food products, beverages and tobacco) represents with 446,000 t freight volume per annum the highest amount for all transports directed to the north. Further following categories are 18 (grouped goods), category 10 (basic metals, fabricated metal products, except machinery and equipment) and 11 (machinery and equipment n.e.c., office machinery and computers, electrical machinery and apparatus n.e.c., radio, television and communication equipment and apparatus, medical, ecision and optical instruments, watches and clocks).

Goods of the above mentioned categories are especially transported, coming from the region of the south of Austria (Carinthia, Styria). Coming from Italy, especially goods of category 4 and 18 are dominating, each with more than 300,000 t freight and in total more than half of the total freight amount. High value freights of goods category 11 are mainly loaded in Slovenia (71.5 %). In southeast Europe and Turkey, mainly foods, beverages, tobacco and metal, products of the metal-working industry, including machines and medical technologies are loaded.
Fig.: Freight volumes differentiated in goods categories from destinations located southwards of the Alps via Berlin / Brandenburg to Scandinavia.
2. Potentials for increased share of rail transport

Evaluation of railway affinity and using potentials in the economic branch context

Industry activities, such as in the sectors metal production and processing, vehicle engineering, mineral oil industry /chemical industry and electrical engineering, which are important and historically grown, characterise the region Berlin-Brandenburg. After the German capital was developed into an industrial center, migrations to the surrounding countryside and later new developments in rural areas (e.g. Schwedt, Eisenhüttenstadt) led to more widely spread locations. There were new key areas within the last two decades. Particularly the wood industry, with a high volume of production in Heiligengrabe, Wulkow near Neuruppin, Baruth and Beeskow are noteworthy, as well as productive locations of the paper industry, particularly at the German-Polish border.

Currently, the economic performance of the Berlin-Brandenburg region regarding the production volume is clearly dominated by products of the mineral oil economy. While crude oil is delivered by pipelines, 60% of the products are delivered by rail. The sectors metal production and processing, food industry and chemical industry with volumes of respectively more than 2 m. tons per year follow. The international exchange of goods of the region Berlin-Brandenburg is also quantitatively dominated by products of the mineral oil economy.

Fig.: Evaluation of railway affinity and using potentials in the region Berlin-Brandenburg

<table>
<thead>
<tr>
<th>sector</th>
<th>volume (tons)</th>
<th>volume (million EUR)</th>
<th>selected important locations</th>
<th>rail transport affinity / potential of utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>inbound</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>affinity</td>
</tr>
<tr>
<td>Mineral oil industry</td>
<td>13.931.773</td>
<td>6.738</td>
<td>Schwedt</td>
<td>low</td>
</tr>
<tr>
<td>Metal industry</td>
<td>4.476.371</td>
<td>3.801</td>
<td>Eisenhüttenstadt, Brandenburg/Havel, Schwedt, Henningsdorf</td>
<td>high</td>
</tr>
<tr>
<td>Food industry</td>
<td>3.385.895</td>
<td>4.157</td>
<td>Werder, Eberswalde, Baruth</td>
<td>medium</td>
</tr>
<tr>
<td>Chemistry</td>
<td>2.433.419</td>
<td>3.309</td>
<td>Schwedt, Oranienburg, Schwarzhede</td>
<td>medium</td>
</tr>
<tr>
<td>Wood industry</td>
<td>1.577.270</td>
<td>1.043</td>
<td>Baruth, Heiligengrabe/Pritzwalk, Beeskow</td>
<td>medium</td>
</tr>
<tr>
<td>Paper industry</td>
<td>1.388.856</td>
<td>1.134</td>
<td>Schwedt, Spremberg, Falkensee</td>
<td>medium</td>
</tr>
<tr>
<td>Biotechnology Life Sciences</td>
<td>913.371</td>
<td>5.197</td>
<td>Berlin</td>
<td>low</td>
</tr>
<tr>
<td>Automotive</td>
<td>519.398</td>
<td>5.958</td>
<td>Ludwigsfelde, Berlin, Brandenburg/Havel, Fürstenwalde</td>
<td>low</td>
</tr>
<tr>
<td>Electrical industry</td>
<td>362.777</td>
<td>6.598</td>
<td>Berlin, Pritzwalk</td>
<td>medium</td>
</tr>
</tbody>
</table>

source: statistic Berlin Brandenburg, calculations of company Infrastruktur+Umwelt Potsdam

A high railway transport affinity is estimated for the chemical-, wood- and paper industry, whereas the possibilities of the railway are underused by the wood industry. An example is given with the share of the logistics railway activities with max. 10% at the biggest location Baruth (wood competence centre, Klenk Holz, Classen Industries and Pfleiderer). The reasons for the lack of railway access at the wood clearing areas and the restricted availability of special wagons in the context of seasonal dependence of wood production volume have been stated. Missing flexibility (market fluctuation for recovered paper purchase)
and handling problems (recovered paper bales are difficult to transport by rail) have been identified as barriers for the paper industry.

In respect to the product value, the sectors electrical industry, automotive and biotechnology / life sciences perform at the best. While the Berlin research landscape, being outstanding in its importance, has been in charge of significant production capacities in the latter sector, the strength of the Berlin-Brandenburg automotive sector surprises. This shows, that important location changes were carried out and well-known South German OEMs (original equipment Manufacturers) like Daimler and BMW as well as suppliers (for example ZF Friedrichshafen and Goodyear-Dunlop) have taken over and extended production capacities in this sector.

Potentials of rail logistics of the automotive sector

The automobile producers use to increasing measures the possibilities of the rail transport to deliver the completed vehicles to special distributing centers. An enormous market, to which internationally operating companies such as BLG Logistics, DB Schenker Rail Automotive/ATG, Mosolf, GEFCO, Transfesa and Bertani Trasporti serve, has come from this requirement. These usually operate with their rolling stock (block trains) and engage suitable railway transport companies to do the traction. The best price/performance relationship is here primarily decisive for respective transportation.

Fig.: Transportation modes into dependence of the delivering distance (source: ECG)

Nevertheless, extensive transport performances are executed by truck, as the direct supply to dealers, delivered ex-works and from the ports as well as the delivery of the distributing centers to the dealers. There are considerable shift potentials such as basic data points show with reference to the total market volume.

The European Association of finished Vehicle Carriers (ECG) represents with 90 members from 22 countries approx. two thirds of all European companies active in this area, with sales volumes of 16.2 bn EUR
and 64,700 employees. 373 car freighters, 13,000 special freight wagons, 24 special river barges and over 17,600 special trucks are put into action.

*Fig.: Goods flows in the sector of new car logistics und traffic modes (source: ECG)*

The significant cost advantage of ship transports explains the fact that exports and imports of new vehicles within Europe are carried out via the sea route. Europe’s most important port for car transports is Bremerhaven together with Zeebrugge (Belgium). After a decline on only 1.2 m. vehicles due to the economical and financial crises in the year 2009, the summarised transhipment of the car terminal amounted to 2.05 m vehicles in the year 2011. With the largest ships, at present, more than 6,000 vehicles can be transported. Traffics are carried out via Bremerhaven mainly with Russia, North America, the Mideast and Asia. As the exports of the big German manufacturers take place to a large proportion with the use of block trains to the port already today, shift potentials exist at the import of vehicles. Purposeful co operations (general grouping of transports to the congested areas and with that distribution centers) could lead to a higher railway proportion here.

*Fig.: Shipment of cars at the port of Bremerhaven*
Due to the size of the manufacturing locations and consequently its logistics activities, there is an enormous railway shift potential not least in the relation with Italy/Slovenia/Southeast Europe or the Adriatic ports for a further transportation from and to countries of the Middle East and Asia. Own partial analyses were also carried out in the context of the project Sonora and have been submitted to the effect that the following outbound performances are suitable for the rail transport:

- Mercedes-Benz engine plant at Berlin-Marienfelde: diesel engines, e.g. for the new MB location in Kecskemét (HU) and also for other brands
- Mercedes-Benz commercial vehicles (Ludwigsfelde): delivery of cargo vans
- BMW motorcycle plant (Berlin-Spandau): delivery of motorcycles
- BMW motorcycle plant (Berlin-Spandau): brake discs for BMW automobiles (Regensburg, Dingolfing, Munich, if necessary also Leipzig) as well as other brands

To clarify the potential: About 220 cargo vans are produced at the MB location Ludwigsfelde daily, the BMW plant manufactures up to 700 motorcycles every day as well as approx. six million brake discs per year at the car component production.

Concerning the production in the region Berlin-Brandenburg, the rail transport of MB cargo vans in the direction of Italy (target station: Vittuone at Milano, approx. five trains monthly), which had been carried out by the middle of 2009 is up until now an individual case of vehicle deliveries crossing the Alps.

*Fig.: Location of important production sites of the automotive sector in the region Berlin-Brandenburg regarding the main and tangential routes shown in chapter 2 (long version)*

Another shift potential: With respect to the Alps crossing finished vehicle transport investigations have shown that e.g. the very important distributing center in Kippenheim (Baden-Württemberg, Mosolf Group) is served with high share from and in the direction of Italy by rail, the German domestic distribution is carried out, particularly however, by truck. The choice of the means of transportation is determined by the
concrete order quantities of the dealers primarily here. A stronger and brand-spanning cooperation as well as joint actions of the vehicle carriers can lead to a higher use share of the railway, in opinion of the authors.

The shipment of raw material and components of the suppliers to the production sites of the OEMs is logistically more difficult. Approx. 120 trucks with approx. 500 t of material reach the Mercedes-Benz commercial vehicle plant in Ludwigsfelde per day. The deliveries take place by the hour in order to make the optimum appropriation possible for the production process. Since more than 1,000 suppliers (800 from Germany, 230 from Europe, 10 from overseas) are bound by contract, the grouping of transportation as a base for rail transports is an ambitious logistic task. Nevertheless, in the mid to long-term there is the option of deliveries by train since the suppliers concentrate in the regions Düsseldorf and Stuttgart. The nearby CT terminal Grossbeeren is suited well as a reception place for the fine distribution to the plant. Prerequisite to this is, however, a transfer of special inter-storage capacities of the plant to the KV terminal.

An example from the region Berlin-Brandenburg shows, that rail transports of the suppliers are possible. An entire block train of the operator Transfesa leaves the plant of the company Visteon with its location in Berlin-Zehlendorf in direction of Cologne or Saarlouis/Dillingen five times weekly in order to transport plastic material components to the Ford manufacturing locations.

**Network Conception**

The high density of locations of the automotive sector (OEM and supplier) in Central Europe, make the concept of a logistics railway services network possible. Until now a significant part of the product delivery has been organised by train, especially to the ports Bremerhaven, Emden, Zeebrugge and Koper. They are almost exclusively connected by company trains, meaning that the companies are organising their trains for their own interests only. Inbound deliveries are mostly realised by trucks. Reasons given by the companies are: security, the unsatisfying time flexibility and the available containers / transport possibilities, which are provided by the combined transport offers.

Based on a connecting logistics network or also a professional connecting agency, inbound- and also outbound transports could be realised via the railway transport mode. Also a growing exchange via the Adriatic ports and the Asian countries would be predestined to exist in that context. Logistic nodes could be Nuremburg or Munich (main route A) and the Czech city Breclav or Vienna (main route B in connection to BATCo).
Transhipment potentials of the railway sides

The currently used, utilizable as well as reactivating railway sides incarnate a high potential for the amplified rail transport in the relation at the manufacturing locations of the region. While the chemical industry, metal producing companies as well as the wood and paper industry are using the efficient railway sides intensively, companies of other economic sectors, partly also with higher vertical integration and more complicated logistical processes, has turned to the road transport completely. Already within the 1980s respectively in the 1990s years, the rail transports at the BMW location in Berlin-Spandau and at the Mercedes-Benz plant in Berlin-Marienfelde were cancelled. The railway sides exist meanwhile to this day and would be reactivated quite easily.
218 railway sides are operated today in comparison to 614 available railway sides for freight transport, located in the federal state of Brandenburg. On the one hand, this is owed to the unfavourable conditions for the use of infrastructure, on the other hand, to the lack of detailed requests from the loading economy.

Just 21 railway sides show annual goods transhipment of at least 1,000 t (cp. following table. The highest transhipment performance has been achieved at the PCK refinery in Schwedt (Oder) by far. To mention further important sites: the inland port Königs Wusterhausen (LUTRA, especially brown coal), and the BASF company located in Schwarzheide (chemical products), Leipa located in Schwedt (Oder) (Paper and cardboard) and H.E.S. in Hennigsdorf (stealing products), each with more than 10,000 t volume in goods per year.

The central node of the single wagon transport is the rail port Seddin, located in the region Berlin-Brandenburg. About 1,500 wagons are moved at the marshalling yard today. Because of the restricted capacity up to 1,800 wagons per day, the marshalling yard Wustermark is currently undergoing extension regarding the functions of the location.

As operator of many railway sides, the DB AG is, because of the company strategy MORA C (2000), only marginally interested in reactivating and newly developing railway sides. Therefore, these realisations have to be managed by municipalities and companies. Examples are the projects railway port connection in Schwedt (Oder) and the enlargement of the industry park in Ludwigsfelde.

**Intensified involvement of the region in the CT-network**

**Systems of the Combined Transport (CT)**

Unaccompanied combined transport (UCT) and the Rolling Highway (Rola) differ greatly in terms of their transportation method. In UCT, only the loading units are loaded onto the train, while the driver and the traction engine remain at the terminal. On Rola, the entire truck including the driver travel by train.

Consequently, the net load capacity of Rola trains is lower than that of UCT. An average Rola train transports approx. 20 trucks, while a UCT train moves up to 36 road consignments. This results in higher production costs per transport unit. An additional factor is the inefficient use of rare rail line capacities. Other aspects which have an adverse affect on the Rola system include significantly higher acquisition and -maintenance costs for the required special wagons.
As far as the environment is concerned, the scale also tips in favour of UCT compared to Rola. The average transportation distance in UCT is considerably longer. Rola shifts shipments to the railroad only for relatively short distances. Additionally, the CO₂ savings of UCT shipments are significantly higher than those of Rola.

**Slow Train Conception / Use of tangential routes**

A decisive aim of the Joint Spatial Planning Department Berlin-Brandenburg during the TRANSITECTS project includes the use of tangential routes to bypass the strongly used and in the following years restricted alp passes because of construction works. These routes are described in chapter 2 (long version) in detail. The pilot train project B 1/B 2 (working title: Eastern Tangential route), worked out in the chapter 4, builds on the route Berlin-Grossbeeren, Kolin, Breclav (Adria ports Trieste/Koper, Verona) - Győr (Adria ports Trieste/Koper, Mantua). As of Breclav a bypass of the main Alpine ridge via Bratislava, Hegyeshalom to Győr is generated, with access to the pilot train connection of the Italian TRANSITECTS partner ALOT (Budapest area – Győr – Szombathely – Hodos – Pragersko – Ljubljana – Sezana – Trieste – Mantua). If this connection should be unsuitable, it is able to go directly via Csorna (not Győr, in the cause of sufficient cargo volume), and further via Szombathely – Hodos – Pragersko – Ljubljana to Trieste or Koper.

Essential features of the Slow Train Project are:

- Bypassing of highly loaded and limited Alpine crossings (Brenner line because of bridge renovations, Semmering passage and Koralim line because of substantial building measures)
- Use of few loaded lines with lower utilization charges (networks of the MAV and GYSEV in Hungary as well as the SZ in Slovenia, alternative also the HZ in Croatia up to the deep-sea port Rijeka)
- Energy savings and consequently environmental protection by lower line speeds and inclinations
- Suitability for freight which does not absolutely need the "fastest" transport service
Fig.: Existing CT services in the central European North-South relation of transports (overview, state of 2011)
3. Development of pilot train projects

Train projects of the TRANSITECTS partners and of the Scandria® project

For the effective use of transport volume potentials at the connection (transit- and source and destination transports), the combination of train concepts by the projects Scandria® and TRANSITECTS and pilot projects by the TRANSITECTS-partner is recommended. The following figure shows the train concepts, which could serve as a decisive factor for the pilot trains’ main route A and B, which yet have to be developed.

Fig.: Train concept variants of the Scandria® project with the aim to connect the Baltic- and the Adria ports (Source: Scandria® Block Train Development Berlin-Brandenburg, 2011)
The partners of the TRANSITECTS project are developing pilot trains, which shall provide in particular connections from the southern part of Germany (Baden-Württemberg, Bavaria) and Upper- and Lower Austria (and also from Eastern Europe, connected to BATCo) to the northern Italian region Lombardia, Veneto and Friuli-Venezia-Giulia (here especially the ports). The objective of the Joint Planning Department Berlin-Brandenburg is to extend these connections going further to the north, specifically going in the Berlin-Brandenburg region, connecting to the closely located Baltic Sea ports Rostock and Sassnitz-Mukran.

The pilot projects of the partner ALOT (Agenzia della Lombardia Orientale per i Trasporti e la Logistica, connection point Nuremberg and the area of Budapest) and RVDI (Regionalauthority Danube-Iller, connection point Ulm), are most suitable for the extension. The ports of the Thyrrhenian Sea and especially the Adriatic ports (Ravenna, Venice) can be connected from the northern Italian terminals Mortara (close to Pavia), Melzo (Milano) and Mantua, with their already existing and accordingly planned connections.

Fig.: Pilot projects of the partner ALOT
(Source: Presentation at the partner meeting in Ulm, 03-2012)

Fig.: Pilot project of the partner RVDI
(Source: Presentation at the partner meeting in Ulm, 03-2012)
Furthermore, the location Villach-Fürnitz, located in the Austrian Federal State Carinthia has been developed to a great connection point of the combined transport in the Alp area ("Premium Dryport") during the TRANSITECTS project.

*Fig.: Dryport concept of the partner AKL (Department of the Carinthian Federal State Government) (Source: Presentation at the partner meeting in Ulm, 03-2012)*

During the comprehensive workshops of the north-south orientated transport logistics, it also has become clear, how practical the establishment of synergies by project cooperation can be. Therefore the axis of the Baltic-Adriatic Transport Cooperation (BATCo) correlates in the southern part with the main route B of the pilot train activities, developed by the Joint Spatial Planning Department Berlin-Brandenburg during the TRANSITECTS project. This constellation is of high relevance for the establishment of an automotive logistics network.

*Fig.: Baltic Adriatic Axis (Source: BATCo, 2012)*
Development of pilot train projects along the main routes A and B

Main Route A (Gotthard/Brenner Route)

Based on the results of the potential evaluation achieved during the Scandria® project (questioning of companies, located in the Berlin-Brandenburg region) and also based on the pilot trains, planned by the TRANSITECTS partners, four variants with different routes have been developed. They start in Berlin-Wustermark (Rail & Logistics Centre / transhipment terminal, A-1 – A3) and Frankfurt (Oder) (transhipment terminal, A-4). The lines are running further via the transhipment terminals Ulm (A-1), Nuremberg (A-2), Munich (A-3) and Regensburg (A-4) and end finally at the northern Italian transhipment terminals (Mortara, Melzo, Verona, Mantua; connections to the ports) or the direct way to a city port at the Adriatic (Trieste).

The starting point Berlin-Wustermark, resulting especially from the demand from of and to the direction of Baden-Wurttemberg (Bosch-Siemens, Bullinger and others) and the simple connection facilities, going to Scandinavia (via Rostock and Sassnitz-Mukran). A demand is also indicated from Frankfurt (Oder), running to and from Bavaria and also in direction of the Adriatic ports (BMW and others), which was the result of a further questioning.

Fig.: Route configuration, main route A in variants
The following route will be chosen for the further project process, because of the size and relevance of transport potentials, because of the far developed project status of the pilot trains, developed by the TRANSITECTS partners RVDI and ALOT and because of the high interest shown by terminal operators and train operators: Beginning in Berlin-Grossbeeren (Transhipment terminal), with partly stopping at the transhipment terminal Nuremberg Bavaria port (with connection to the pilot train Nuremberg – Mantua), going to the transhipment terminal Ulm-Domstadt (connection to the pilot trains Ulm – Melzo) and returning. The parameters of the pilot train are shown in the following figure.

Pilot train project A-1

Route:
Berlin-Grossbeeren – Nuremberg Bavaria port (– Adria port Ravenna/Venice) – Ulm (– Liguria ports Savona/Genoa/La Spezia)

Working title: Gotthard/Brenner Route

Reference in project TRANSITECTS:
• Unaccompanied combined transport (work package 4)
• Pilot train P-03 (Adriatic ports - Baden-Württemberg/Bavaria/Berlin)
• Pilot train P-04 (Liguria ports – Baden-Wuerttemberg/Bavaria/Berlin)

Fig.: Configuration of pilot train project A-1
The following figure informs about the technical as well as commercial and operational parameters, as well as the shipping and connection possibilities:

*Fig.: Parameters of pilot train project A-1*

### Technical parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departing terminal</td>
<td>DUSS Terminal at Freight Village Berlin South Grossbeeren</td>
</tr>
<tr>
<td>Arrival terminal</td>
<td>DUSS Terminal Ulm</td>
</tr>
<tr>
<td>Distance</td>
<td>632 km</td>
</tr>
<tr>
<td>Cross-Border(s)</td>
<td>--</td>
</tr>
<tr>
<td>Track technical information:</td>
<td>Single track Donauwörth-Neuoffingen; Double-track Grossbeeren-Nuremberg, Neuoffingen-Ulm</td>
</tr>
<tr>
<td>Single/Double track</td>
<td></td>
</tr>
<tr>
<td>Electrified/not electrified</td>
<td>Electrified</td>
</tr>
<tr>
<td>Profile</td>
<td>D4</td>
</tr>
<tr>
<td>Maximum length</td>
<td>600 m</td>
</tr>
<tr>
<td>Track speed limits</td>
<td>120-200 km/h, 100 km/h for freight traffic</td>
</tr>
<tr>
<td>Maximum weight</td>
<td>1.600 t</td>
</tr>
</tbody>
</table>

### Commercial and operationally parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>1-2 departure(s) per week (Grossbeeren-Nuremberg-Ulm)</td>
</tr>
</tbody>
</table>
| Pricing Estimation of price for a loading unit (container/swap-body) | 22 EUR for container handling  
1,25 EUR per km for transport (CT wagon)                                                                 |
| Train time schedule        | See figure time-table                                                                                                                   |
| Possible loading units (e.g. ISO-containers, swap-bodies, trailers et.) | Particularly ISO-containers and vehicles (special car transport wagon), others possible (e.g. swap-bodies, trailers) |
| Freight/goods transported (allowed) | Particularly general cargo and cars, no transports of hazardous goods                                                               |

### Shipping and connection possibilities

| Handling terminal operators:         | Details                                                                                                                                 |
| Departure Terminal                  | DUSS Deutsche Umschlaggesellschaft Schiene-Straße                                                                                       |
| Arrival Terminal                    | DUSS Deutsche Umschlaggesellschaft Schiene-Straße                                                                                       |
| Further rail bound connections from and to start respectively end points | 1. FV Berlin South Grossbeeren as hub to Scandinavia, North Sea ports and Eastern Europe  
2. Ulm and Nuremberg as starting points of Alp-crossing services                                                                    |
Main route B (Tauern route, Eastern Tangential route)

Based on the potential analysis of the project Scandria® (survey of companies in the region Berlin-Brandenburg), its results as well as pilot train projects planned by TRANSITECTS partners, three route variants have been generated. Another objective is the network formation with transport offers for the automotive sector, in accordance with BATCo activities.

The pilot train variants start in Wustermark (Rail & Logistic Center respectively CT terminal, B-1) as well as Berlin-Großbeeren (CT terminal, B-2 und B-3), continue via the CT terminals in Lovosice, Wels and Villach-Fürnitz (B-1) as well as Wien und Villach-Fürnitz (B-2) and end in the Adriatic ports Trieste and Koper. It is desirable to strive for the combination of parts of the trains from the direction Berlin-Brandenburg and Poland (BATCo) in direction of the Adriatic ports (variants B-2 and B-3) or as well Budapest via Győr (with potentials of high demand) in the railway node Breclav. This way, a greater flexibility is made possible with respect to the actual volumes in demand. Considering this fact, it is remarkable that some CT offers could already establish themselves in the BATCo transport relation. Pursued with the variant B-3 is the aim of an Eastern bypass of the Alp bottlenecks, in form of a Slow Train service with a slightly higher journey time of the usable lines in West Hungary and Slovenia.

Fig.: Configuration of main route B in variants
In the further process, under consideration of size and relevance of the transport potentials, the project levels of the TRANSITECTS partners as well as the aspect of the resource-efficient bypass potential, two routes are selected which consequently represent also two pilot train projects.

The pilot train project B-1, starting in Berlin-Wustermark (Rail & Logistics Center or CT terminal), with stops at the CT terminals Prague (Praha Uhrineves or Praha Zizkov) and Wels, in direction Villach-Fürnitz (Premium Dryport) and returning. From there, it is particularly favorable to reach the efficient Adriatic ports Trieste and Koper with a high CT proportion. The pilot train project B-2/B-3 understands itself as a service from Berlin-Großbeeren, with stops in Kolin and Breslau to Győr (CT terminals Kombiwest/LCH) and returning. Train parts, in particular with cargo loads of the automotive sector, can be combined in the rail ports Kolin and Breslau. A connection to the pilot train of the TRANSITECTS project partner ALOT (relation Budapest area - Mantua) exists in Győr as well as the opportunity of transport going from it or towards the Audi manufacturing location. The following representations show the parameters of the pilot train projects:

**Pilot train project B-1**

**Route:** Berlin-Wustermark – Prag – Wels – Villach-Fürnitz – Adriatic ports (Triest, Koper)

**Working title:** Tauern Route

**Reference in project TRANSITECTS:**
- Unaccompanied combined transport (work package 4)
- Pilot train P-03 (Adriatic ports - Baden-Württemberg/Bavaria/Berlin)
- Pilot train P-05 (Region Friuli-Venezia Giulia – Eastern Europe)

![Configuration of pilot train project B-1](image-url)
The following figure informs about the technical as well as commercial and operational parameters, as well as the shipping and connection possibilities:

**Fig.: Parameters of pilot train project B-1**

### Technical parameters

<table>
<thead>
<tr>
<th>Departing terminal</th>
<th>BLTW Terminal at Freight Village Berlin West Wustermark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival terminal</td>
<td>Dry Port Villach-Fürnitz</td>
</tr>
<tr>
<td>Distance</td>
<td>998 km</td>
</tr>
<tr>
<td>Cross-Border(s)</td>
<td>Germany/Czech Republic (Bad Schandau/Decin)</td>
</tr>
<tr>
<td></td>
<td>Czech Republic/Austria (Horni Dvoriste/Summerau)</td>
</tr>
<tr>
<td>Track technical information:</td>
<td></td>
</tr>
<tr>
<td>Single/Double track</td>
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</tr>
<tr>
<td>Electrified/not electrified</td>
<td></td>
</tr>
<tr>
<td>Profile</td>
<td></td>
</tr>
<tr>
<td>Maximum length</td>
<td></td>
</tr>
<tr>
<td>Track speed limits</td>
<td>80-160 km/h, 80-100 km/h for freight traffic</td>
</tr>
<tr>
<td>Maximum weight</td>
<td>1.050 t (restriction of Tauern axis)</td>
</tr>
</tbody>
</table>

### Commercial and operationally parameters

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2 departures per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pricing Estimation of price for a loading unit (container/swap-body)</td>
<td>22 EUR for container handling</td>
</tr>
<tr>
<td></td>
<td>1.25 EUR per km for transport (CT wagon)</td>
</tr>
<tr>
<td>Train time schedule</td>
<td>See figure time-table</td>
</tr>
<tr>
<td>Possible loading units (e.g. ISO-containers, swap-bodies, trailers et.)</td>
<td>Particularly ISO-containers and vehicles (special car transport wagon), others possible (e.g. swap-bodies, trailers)</td>
</tr>
<tr>
<td>Freight/goods transported (allowed)</td>
<td>Particularly general cargo and cars, no transports of hazardous goods</td>
</tr>
</tbody>
</table>

### Shipping and connection possibilities

<table>
<thead>
<tr>
<th>Handling terminal operators: Departure Terminal Arrival Terminal</th>
<th>BahnLogistik Terminal Wustermark GmbH (BLTW) Rail Cargo Austria (RCA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further rail bound connections from and to start respectively end points</td>
<td>1. FV Berlin West Wustermark as hub to Scandinavia via Baltic Sea ports 2. Dryport Villach-Fürnitz as starting point of services to the NAPA ports</td>
</tr>
</tbody>
</table>
Pilot train project B-2/B-3

Route:
Berlin-Großbeeren – Kolin – Breclav (→ Adriatic ports Trieste/Koper, Verona)
→ Győr (→ Adriatic ports Trieste/Koper, Mantua)

Working title: Eastern Tangential route

Reference in project TRANSITECTS:
• Unaccompanied combined transport (work package 4)
• Pilot train P-02 (Lombardy region – Austria/Eastern Europe)
• Pilot train P-05 (Friuli-Venezia-Giulia region – Eastern Europe)

Fig.: Configuration of pilot project B-2/B-3
The following figure informs about the technical as well as commercial and operational parameters, as well as the shipping and connection possibilities:

*Fig.: Parameters of pilot train project B-2/B-3*

### Technical parameters

<table>
<thead>
<tr>
<th>Departing terminal</th>
<th>DUSS Terminal at Freight Village Berlin South Grossbeeren</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival terminal</td>
<td>Freight yard Győr (respectively CT Terminal Mantua)</td>
</tr>
<tr>
<td>Distance</td>
<td>822 km</td>
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<tr>
<td>Cross-Border(s)</td>
<td>Germany/Czech Republic (Bad Schandau/Decin)</td>
</tr>
<tr>
<td></td>
<td>Czech Republic/Slovakia (Lanzhot/Kuty)</td>
</tr>
<tr>
<td></td>
<td>Slovakia/Hungary (Rusovce/Rajka)</td>
</tr>
</tbody>
</table>

**Track technical information:**
- Single/Double track
- Electrified/not electrified
  - Single-track Bratislava-Hegyeshalom;
  - Double-track Grossbeeren-Bratislava, Hegyeshalom-Győr
  - Electrified (different systems, locomotive changing or multiple-system-locomotive necessary)
- D4
- 600 m
- 80-160 km/h, 80-100 km/h for freight traffic
- 1,600 t

### Commercial and operationally parameters

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2 departures per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pricing Estimation of price for a loading unit (container/swap-body)</td>
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</table>

### Shipping and connection possibilities

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<tr>
<th>Handling terminal operators: Departure Terminal Arrival Terminal</th>
<th>DUSS Deutsche Umschlaggesellschaft Schiene-Straße MAV Group (Kombiwest, LCH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further rail bound connections from and to start respectively end points</td>
<td>1. FV Berlin South Grossbeeren as hub to Scandinavia, North Sea ports and Eastern Europe</td>
</tr>
<tr>
<td></td>
<td>2. Győr as connecting point to Budapest-Mantua service and via Breclav-Villach or Győr-Ljubljana to the NAPA ports</td>
</tr>
</tbody>
</table>
Summarising overview of pilot train projects

All of the pilot train projects conceived in the context of the project TRANSITECTS are represented in the following overview. Both the Alps crossing pilots of the partners (marked red) and the directly following pilot train projects of the partner Joint State Planning Planning Department of Berlin and Brandenburg are contained. The project A 1 is blue marked, the projects B 1 and B-2/3 are indicated in orange color.
Use of freight potentials by the rail transport in the relation

In chapter 1 the freight potentials were identified and calculated according to amounts of freights and freight categories. For the use of these potentials for rail transport, particularly for the combined transport that is effective and protecting the environment, a proportion of the freight potentials is carried out on the pilot train connections’ conceived routes.

The basic concept of this proportion is the connection of the region Berlin-Brandenburg (respectively the transports realised going from and to Scandinavia via Berlin-Brandenburg) with the NUTS regions in Southern Austria (Carinthia, Styria), Italy and Slovenia. Moreover, the wider NUTS regions in Austria as well as a number of freights going from and to Southeast Europe and Turkey (routes B-2 and B-3) are included to be able to aggregate effects to essential route sections. This definite classification corresponds to the order pattern of the CAFT data (interview in the year 2009). The following graphics of the NUTS regions are supposed to support the comprehension of the foregoing:

The following illustrations show the proportional results in connection with different route variants of the main route B, starting from the Brenner route A-2 respectively. After the respective combination with the route variants B-1, B-2 and B-3, a combination of the Brenner route A-2 with the variants B-1 and B-2 is also constructed (without consideration of the tangential route B-3). The combination with the variants B-1 and B-2, moreover, the “supply” for the planned Dryport Villach Fürnitz as a central node, grows to a considerable size.

As a result of the coordination with the TRANSITECTS project partners, the objective of a cargo load quantity of at least 100,000 t per annum is assessed for the less enquired direction, is evaluated for a stable economy of a new CT service. This objective size is based on the following calculation:

1 train/year: 5 departures/week x 50 weeks/year x 22 rail wagon x 1.5 truck equal value/year
= 8,250 x 15 tons of cargo load amount = > approx. 125,000 tons/year in each direction

These results show that the necessary quantities of freight can be achieved on almost all route sections in the two directions. The insignificant reduced usage in the course of the Pontebbana (B-1, B-2) as well as in the connection Ljubljana – Adriatic ports (B-3, in the direction of the ports respectively) does not appear to be relevant in the opinion of the authors, since additional cargo load or loaded wagons can be integrated in the CT terminals Villach and Ljubljana by the latest. Stability is also granted by the fact that new services, which are introduced to the market during the course of the project, get by on three departures per direction.
Fig.: Freight potential (in tons per year) of the combined transport, spread over the routes A-2 and B-1

Fig.: Freight potential (in tons per year) of the combined transport, spread over the routes A-2 and B-2
Fig.: Freight potential (in tons per year) of the combined transport, spread over the routes A-2 and B-3

Fig.: Freight potential (in tons per year) of the combined transport, spread over the routes A-2 and B-1/2
Sustainable effects of the environmental protection

The comparative analysis of the Italian TRANSITECTS project partner MATTM regarding the environmental efficiency of a selection of pilot projects with respect to the different kinds of transport makes it possible to determine the efficient reduction of greenhouse gases and contaminants quantitatively. The analysis also has permitted for a general feedback for the effectiveness of the improvement of the environment. Depending on the presumptions with respect to capacity factors, unity fuel consumptions and emissions, the projects were compared and analyzed.

Fig.: Emissions overview of the TRANSITECTS pilot train project Ulm – Mortara, connected with the pilot train project A-1 of the Joint Spatial Planning Department Berlin-Brandenburg (Source: MATTM)
The results of the analysis show that the following factors are significant:

- the typology of the railway infrastructure and railway vehicles (electrical or diesel traction)
- the typology of the truck fleet (euro classification)
- the typology of the combined rail services (accompanied or unaccompanied combined transport)

The optimal conditions for the expansive reduction of emissions are as follows:

- the railway infrastructure is electrified without traction change
- the traffic shift is carried out from older trucks (euro 2-3) to newly generated container trains
- the unaccompanied combined transport is selected (considerable benefits compared with the accompanied combined transport)

4. Activities to realise the pilot train projects

Communication with operators and the economy

During the project, several talks to transport companies have been carried out with companies, which could be in favor to the developed freight railway transport concepts. Companies with container transportation and with feeder services as specialised operators:

- Havelländische Eisenbahn AG (HVLE)
- TX Logistik AG (TXL)
- DB Schenker Rail Deutschland AG
- DB Intermodal Services GMBH
- Transwaggon GmbH
- TFG Transfracht Internationale Gesellschaft für kombinierten Güterverkehr mbH & Co. KG
- Eisenbahngesellschaft Potsdam (EGP)
- Trans Eurasia Logistics (TEL)
- Industriebahn-Gesellschaft Berlin GmbH (IGB)
- Captrain Deutschland GmbH
- SNCF Fret Deutschland GmbH

Additionally, the shipping companies Scandlines Deutschland GmbH and the operating societies of the Baltic ports Rostock and Sassnitz have been contacted. Because of the fact that a tough and mainly price dominated competition regarding the freight transport is ongoing, the authors didn’t exactly reflect the business ideas during the report, neither on the fact, that within a few month, even weeks, the information wouldn’t be up to date anymore.

The transport demand of the shipping economy has been evaluated in detail in the Berlin-Brandenburg region in cooperation with the partner projects Scandria® and SoNorA and the results have been presented in the already existing reports. During the TRANSITECTS project a projection of the transport and
transfer potentials at the transport relation Berlin/Brandenburg – Italy/Slovenia for the year 2009 and based on the CAFT questioning in the Alp area, only the short version of the summarised railway potential e.g. of the companies Mercedes-Benz, BMW, ZF Motoring, Goodyear-Dunlop (Automotive), Bul-linger, Kronoply, Klenk Holz, Classen Industries, Pfeiderer (wood products), Progroup, Leipa and UPM (Paper and cardboard), Saint-Gobain plasterboard and Berlin-Chemie (Pharma products) can be stated, which is based on the fact, that the questioning results are often incomplete.

Marketing

During the course of the TRANSITECTS project, three new, interesting CT services have been established themselves for the transport relation Berlin/Brandenburg - Italy/Slovenia:

**Main route A:**

- Malmö – Berlin (Operator: Captain; frequency: 3 journeys per week)
- Berlin – Stuttgart (Operator: DB Schenker; frequency: 3 journeys per week)

While the offer Malmo – Berlin-Wustermark mainly focuses on paper transports, which is also available for further container volumes, especially for transportation directed to the north, at the transport relation Berlin (Brieselang) – Stuttgart (Nagold), mainly construction parts and end products for household appliances by Bosch-Siemens are transported with sliding wall freight wagons and swap bodies. There is also the possibility, to add further loadings and to expand the transport. Following this aim, the marketing for the offers has been intensified by the owner of the transhipment terminal, located in the Freight Village Berlin West Wustermark:

Fig.: Folder containing information about the new available train relations at Wustermark
For marketing reasons, the transport relation Berlin – Ulm offered by the operator Trans Eurasia Logistics, couldn’t be realised until now. But if conditions improve, the train could be realised in the short term.

**Main route B (with possible connections):**

- Ostrava – Verona (Operator: DB Schenker, 3 times per week)

DB Schenker Logistics organizes an offer between the transhipment terminal Ostrava (Paskov) and Verona (Quadrante Europe) from mid-January 2012. Leading operators are the companies Cemat, Kombiverkehr and Bohemiakombi. The train, which runs three times a week in each direction, offers a capacity for 28 semi-trailers. During one year, 3,600 semi-trailers shall be transferred.

This new relation, located in the BATCo transport corridor, provides the possibility for main route pilot trains, to connect at the Czech node Breclav (B-2 and B-3) or at the node Villach (B-1 and B-2). The necessary stops have to be coordinated in an optimized way, in order not to risk the economical operation of the services.

**Project support and –consultation**

The support of operators, who are interested in realizing the train services, developed in the TRANSITECTS project, is one significant aim of the project partners. For example, the communication with the operators until now has shown that the freight transport market shows a strong competition and that the market is characterized by short term variations. It results in a short reaction time for the operators and that a (successful) business development of the companies means high operational stress. The regional TRANSITECTS-partner should react, where efficient support can be achieved.

The Zukunftsagentur Brandenburg (ZAB) and the Berlin Partner GmbH are highly potent points of contact for the transport economy, which are available in the Berlin-Brandenburg region. They could be used especially in cases of organizing project subsidies.

The EU-sponsoring program for international freight transport, Marco Polo, which supports railway, inland waterway and short sea shipping and also intermodal transport chains, could be interesting for operators. A further aim is he avoidance of road transport, basically, without achieving transport shifting effects. The Marco Polo program is runs until 2013 at a second stage (Marco Polo II), with a total sponsoring volume of about 450 M. Euro. Marco Polo especially agrees to pay for the opening losses of operational services at the start-up phase for up to five years. Furthermore, the possibilities of sponsoring are also available for project related infrastructure. So far, the program is success orientated, as the amount of financial support depends in most cases on the transport shifting or -avoiding activities (catalyzing actions, motorways of the sea).
The last call to hand in project proposals has been closed on January 16th 2012. The next call can be expected for the end of 2012.

The federal states Berlin and Brandenburg could also realise start-up financing, e.g. by using European funds for regional development (EFRE). In Saxony this is practiced today. The logistics company Emos Spedition for example, will be financially supported at the beginning of 2013, to finance a train, which will run twice a week between Dresden – Rotterdam. With 834,000 EUR, the train service will be supported during the first two operational years.

**Contact to further TRANSITECTS-Partners**

In the context of the second EU sponsoring program, Marco Polo’s actions will be supported. This will be carried out by at least two companies from two different EU member states or by one member state, involving one further neighboring country of the EU. The developed pilot trains in the TRANSITECTS project take this fact in consideration, by including transshipment terminals or rail ports (in connection with the region Berlin-Brandenburg these are e.g. Ulm, Nuremberg, Villach-Fürnitz, Breclav and Győr) as node points of the individual connection parts. The train offers of at least two operators (coming from different countries) can be combined in a useful way, with the necessity to split the offer into single services.

*Fig.: Impression of the TRANSITECTS project partner meeting, November 2010 in Potsdam*

The TRANSITECTS partners have intensified their relations to the acting operators and to the loading economy in the regions by several regional meetings. That’s why they are the perfect point of contact for requests and cooperation offers. If required, of course, the Joint State Planning Department Berlin-Brandenburg and also the IPG Company for the Development of Infrastructure and Related Projects Ltd will be available for support.