



Elaboration of East-West Market Development Strategies for Intermodal Transport

**Stephanie Besters, IVT
Jost Wichser, IVT
Prof. Dr. U. Weidmann**

Conference paper STRC 2005

STRC

5th Swiss Transport Research Conference
Monte Verità / Ascona, March 9-11, 2005

Elaboration of East-West Market Development Strategies for Intermodal Transport

St. Besters
IVT
Zurich

Phone: 0041 1 633 2163
Fax: 0041 1 633 10 57
email:
besters@ivt.baug.ethz.ch

March 2005

J. Wichser
IVT
Zurich

Phone: 0041 1633 3093
Fax: 0041 1 633 10 57
email:
wichser@ivt.baug.ethz.ch

Prof. Dr. U. Weidmann
IVT
Zurich

Phone: 0041 1 633 3350
Fax: 0041 1 633 10 57
email:
weidmann@ivt.baug.ethz.ch

Abstract

The economic development in Eastern Europe is influenced by the EU enlargement (since 05/01/2004) not only by the accending countries, but even by potential nations (Romania, Bulgaria and Yugoslavia) and the GUS. Because of an accelerated economic growth, enormous mobility as well as economic and logistic needs are certain. For thus, the major service providers focus on these eastern states. The combined traffic and the road network in Eastern Europe is poorly developed. A significant economic growth and extended traffic will cause major problems for sure. A logistic bottleneck is worried.

For this reason, the IVT was authorized by Danzas Foundation to determine the technical settings and the conditions by law. Based upon this strategies for successful intermodal transport between Eastern and Western Europe have to be proposed.

First, data of different countries will be analyzed and economic areas determined. These areas can consist of counties up to different nations. Second, unpromising corridors will be sort out based on geographical limitations and transport logistics. The basic stettings for law, market and infrastructure will be defined. Areas and markets, which obviously can not grow, will be sort out. This allows a very detailed analysis for the most potential areas and a custom made proposal for the corridors. Taking the EU white paper „time to decide“ and the characteristics of the combined transport as starting points, different business strategies are developed.

The strategies for each corridor contain the aspects of market, product and business. The market strategy will determine, which goods are of interest for certain areas. Whereas the product strategy tells, which goods gain the market. The business strategy defines possible business plans. The strategies are used to sort out unpromising markets. These strategies apply to the defined corridors. Last but not least, the different strategies will be evaluated to give detailed recommendations for each corridor. Actually, we work on the basic settings of the different countries. We plan to present the first results and possible strategies.

Keywords

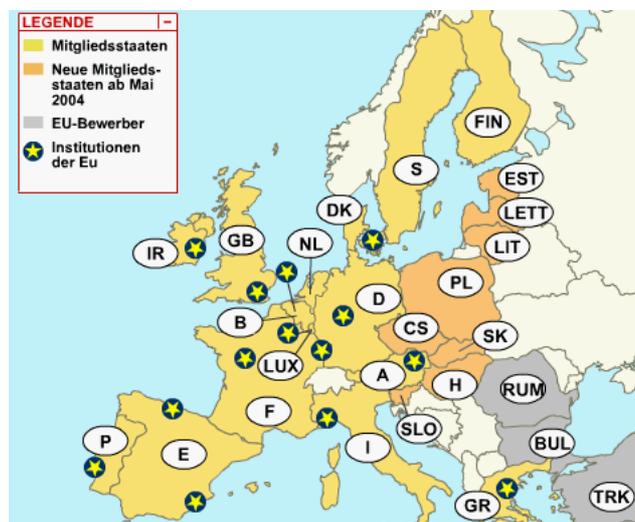
Intermodal transport – combined traffic – buisness strategies– EU

Elaboration of East-West Market Development Strategies for Intermodal Transport

Dear Prof., Dear honorables, my colleagues, ladies and gentlemen!

The European Union extended on May, the first. Nowadays, the dimension is 25 countries, 450 million inhabitants, 21 different languages and over 40.000 kilometers of coastal border – as shown by the picture.

Figure 1 European Union



The economic development in Eastern Europe is influenced by the EU enlargement, not only by the acceding countries, but even by potential nations (like Romania, Bulgaria and Yugoslavia) and the GUS. Because of an accelerated economic growth and an enormous mobility, economic and logistic needs are certain for future. For thus, the major service providers focus on these eastern states.

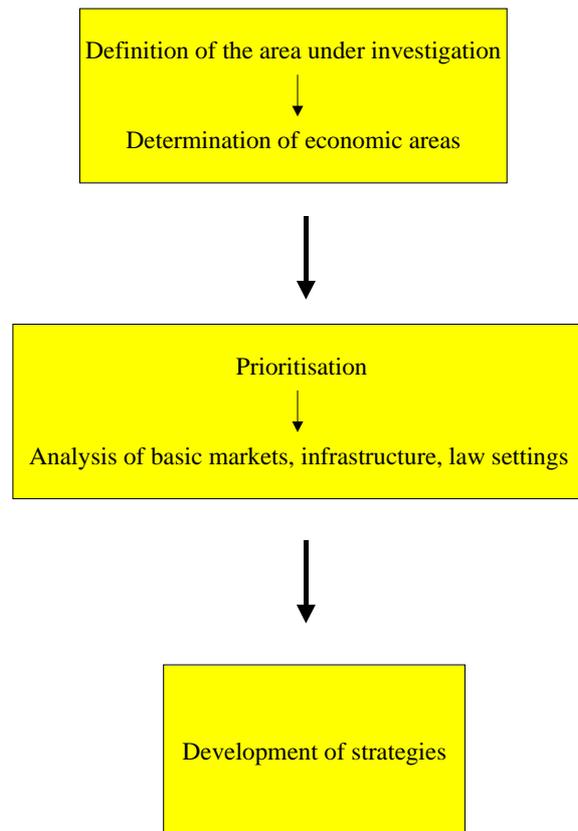
The combined traffic and the road network in Eastern Europe is poorly developed. A significant economic growth and extended traffic will cause major problems for sure. A logistic bottleneck is worried. Additionally, EU transportation policy is strengthening rail freight transport by opening the railway networks and by large investment programs.

For this reason, the IVT was authorized by Danzas Foundation to determine the technical settings and the conditions. Our goal is to focus on law settings to set basic conditions and to

determine economic milestones. Based upon this, strategies for successful intermodal transport between Eastern and Western Europe will be developed.

Methods

Figure 2 Methods



Basic considerations according to traffic networks and topographical settings were made and the area under investigation defined.

Now, data of different countries will be analyzed and economic areas determined. These areas can consist of counties up to different nations. Second, unpromising corridors will be sorted out based on geographical limitations and transport logistics. The basic market, infrastructure and settings for law will be defined. Areas and markets, which obviously can not grow, will be sorted out. This allows a very detailed analysis for the most potential areas and a custom made proposal for the corridors.

Classification

Classification of area

The purpose of the European Union is to build a mutual domestic market and homogenous social settings for the participating nations. These aims need competent networks for energy supply, telecommunication and traffic. For thus, the EU contract of Maastricht in 1995 declares the development of a trans-European traffic network (known as the TEN). The TEN-projects refer to the infrastructure and are of high public interests. These projects coordinate national and international network development and transborder traffic also.

When the pre-determination of the TEN were made, it was obvious that the infrastructure of the middle, east and southeast European countries should be considered for future projects and cooperation. 10 Paneuropean corridors were defined and the international traffic will be concentrated on capable axes. The corridors are huge and consist of effective traffic networks between the main cities and economic centres of the participating countries. The realisation/progress of the corridors is very different.

Figure 3 10 Paneuropean Corridors



Classification of intermodal transport

Intermodal transport means the transport of loading units by at least two different transport modes. This is differentiated by accombined and combined transport. Combined transport

means transport on a greater part of the transport distance by train or ship without tow vehicles, also containers, swap bodies and semitrailers. The accombined transport is known as “Rollende Autobahn” or “Rollende Landstrasse”, the tow vehicle is part of the freight transport by train or ship. Basically, the air traffic is part of the Combined Commercial Transport, but will be unconsidered by this study.

Data

First, data of different countries have been analyzed and economic areas were defined. The evaluation of the basic settings includes an analysis of specific countries. Economic areas are determined referring to these data. These areas could include certain regions or different countries. The focus is on markets, infrastructure and law settings. Based on these results, indicators and procedures are determined.

Data are sampled according to the table:

Settings	Indicator	Measurement category
Present Future		
Market	Economic sector Economic branches Foreign trade Economic growth Gross wage	Major branches: gross domestic product (GIP) (percentage %) Employee's contribution (percentage %) Resorce orientated vs. product orientated: approximate contribution Major import/export goods GIP/Gross national product (GNP), per inhabitant in purchasing-power parity Average gross wage in purchasing-power parity
Infrastructure	Network quality Capacity of railroad traffic Interoperability KV-Terminalinfrasturcture Quality of road network Topography	Possible trains / time / axis / number of engines / network density Weight per axis, track gage, electrical network, structure gauge etc. Existent / non-existent Upgrading level, state, quantity / highway network / possible capacity bottlenecks
Law	Fiscal system Customs / Toll fee Additional economic policy / settings Basic settings	Evaluation of KV(dis)advantage

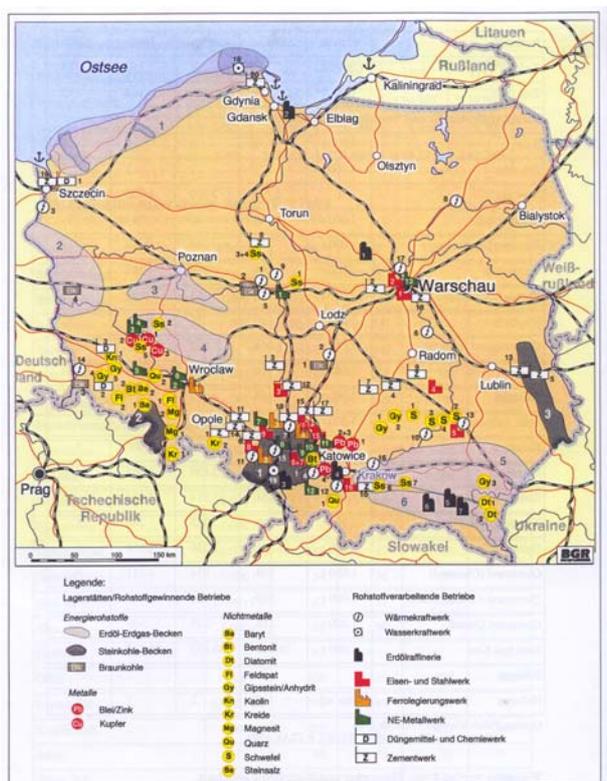
Data of Poland

Poland is used as an example to present methods and results.

Figure 4 Poland



Figure 5 Industries



Source: Rohwirtschaftliche Länderstudien

Poland is an important transit country for the east-west and north-south traffic. Altogether three paneuropean traffic corridors pass through Poland. For west European countries, Poland is the gate to the East. The insufficient infrastructure will get extensive investments in the coming tenth, especially the road network. The main advantage for the Polish economy are the low wage costs by a simultaneously large potential of labors and workers compared to west European countries. The labor forces are well trained and qualified. Especially the technical education is on a high level. But the high additional wage costs and the social insurance contributions are a problem, too. The economic growth remains static and unemployment is oppressing, recently. In the Baltic Sea harbors Danzig, Swinoujscie, Szczecin as well as Mszczonow duty-free zones exist. Technology parks and centres are in Danzig, Krakow, Lodz, Poznan, Warszawa and Wroclaw.

Poland has different automobile industries (e.g. in Poznan). Warshaw is the major center for iron- and steelworks. Germany is the major foreign trade partner. Poland's economic structure is determined by coal and steel industries and agriculture. These branches have few profits, but are very intense in transports. That makes railroad traffic high attractive.

Deficits of polish traffic infrastructure:

- few highways
- low road- and railroad traffic network for transborder traffic
- low level of road, railroad and inland waterway network
- absent of multifunctional goods terminals and intermodal terminals (possible in Poznan, Warshaw and Kattowitz)
- insufficient maintenance and service
- complicated customs at the Polish-Belorussian border (EU-Outside-Border)
- according to the German-Polish contract exclusively the KV checkpoints Frankfurt/Oder-Kunowice and Horka-Wegliniec are licensed for Deutsche Bahn AG and PKP. But especially these line sections have capacity bottlenecks. The rail companies try to solve this problem by re-routing the traffic via Guben. It is necessary to built new checkpoints to fight capacity bottlenecks.
- complete liberalization of goods transport after 2012

Excluding of Areas

In order to exclude markets and regions, which show for obvious reasons no economic development, certain indicators as well as the pertinent fair sizes are determined in accordance with the following table. These are subjected in the connection of a ranking:

Regarding the market:

III market potential (import/export) available and goods have a high affinity to the KV

II market potential today available, future development of market and KV-potential obvious

I market inexistent, future development unknown

Regarding the infrastructure and the law:

III approximately EU-countries-standard, few capacity bottlenecks

II beneath EU-countries-standard, but capable, development and expansion possible

I beneath EU-countries-standard, but capable, development and expansion unknown

Settings Present Future	Indicator	Measurement category	Scale		
			III	II	I
Market	Economic sector	Major branches: gross domestic product (GIP) (percentage %) Employee's contribution (percentage %)	III	II	I
	Economic branches	Resorce orientated vs. product orientated: approximate contribution			
	Foreign trade	Major import/export goods			
	Economic growth	GIP/Gross national product (GNP), per inhabitant in purchasing-power parity			
	Gross wage	Average gross wage in purchasing-power parity			
Infrastructure	Network quality	Possible trains / time / axis / number of engines / network density	III	II	I
	Capacity of railroad traffic				
	Interoperability	Weight per axis, track gage, electrical network, structure gauge etc.			
	KV-Terminalinfrastructure	Existent / non-existent			
	Quality of road network	Upgrading level, state, quantity / highway network / possible capacity bottlenecks			
Topography					
Law	Fiscal system	Evaluation of KV(dis)advantage	III	II	I
	Customs / Toll fee				
	Additional economic policy / settings				
	Basic settings				

In the case of Poland, this classification is shown by the next picture.

Figure 6 Scale of Poland

country	Market	Infrastructure	Law
Poland	●	●	●



According to the market: Poland has over 38 mio. consumers and is because of its topography in Middle-East Europe of high interest for foreign investors. Poland has a high potential for economic growth, especially for the automobile industry sector. Poland has a high need of construction machinery, environmental and power techniques and electrical products because of its dimension.

According to the railroad infrastructure: The railroad has almost standard gauge. More than 50% of the railroad network is electrified, the quality has average level and low technical standards. The density of highway network is low and the quality bad. The deficits of the polish road network are obvious. The percentage of interstates (3%) and highways (less than 0,15%) is very low. Transit highways for transborder traffic are non-existent.

According to law settings: Toll fees are approximately 20%.

The automobile industry is the major factor for the Eastern Europe economy. Because markets develop international and have transborder influence, it is necessary to focus not only on single countries, but also on surrounding nations. Therefore, the Czech Republic, Slovakia, Hungary and Slovenia are surveyed.

Figure 7



In the Czech Republic, Slovakia, Hungary and Slovenia the vehicle industry is known as the motor of economy. Automobile companies are attracted to the East by low wage costs and toll fees of 20%. The productivity and the quality of the employees are comparable to western standards. The new EU-countries have a high potential for development and economic growth, because of their relatively slight automobile density. Based on the population, Poland represents an especially attractive market. With increasing income, a gradual postponement of the demands to higher classes by debiting small vehicles is noticed. But this process will take place slowly. The fabrication in these countries is especially attractive, because not only candidate states but also other Eastern countries can be supplied. Not only complete cars are built in the East: Porsche gets bodysells from Slovakia. The final step is made by few employees in Leipzig. Audi builds engines for all different types in Hungary. Last year, 1.3 mio. engines were built in Győr.

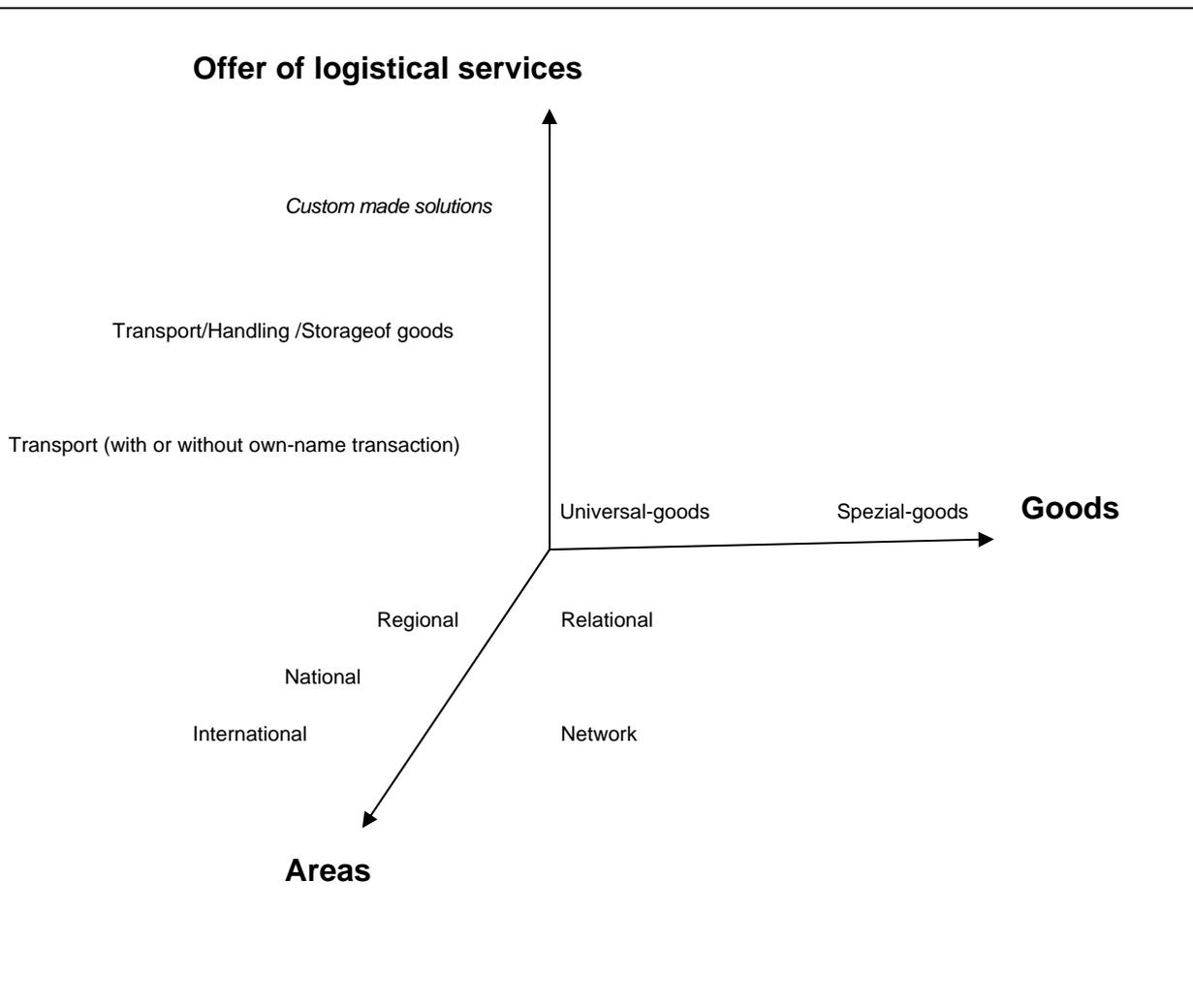
General Strategies

Different strategies are developed by sorting out the unpromising corridors following a very detailed analysis for the most potential areas.

Logistics play a central role in planning and realising profits. The process is split in different sections. External professionals can concentrate on special issues: organization, leading and checking transport (removers), transport (common transport companies) and managing goods distribution (storing, commission, managing). Logistic professionals can concentrate on special products, goods or markets.

The major logistic specializations are shown by the figure. Logistic professionals have to mix specialities according to the markets. But the specialization levels are in their own responsibility.

Figure 8 Strategies



Strategie for the vehicle industry

Possible strategies for logistic professionals could be to establish oneself as a component supplier for a single or few automobile companies.

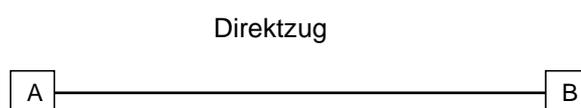
A cooperation with PKP Cargo, which manages 97% of the Polish railroad freight traffic, is imperatively. Actually, there are 21 traffic companies (EVU) with a licence for freight traffic. In general, these huge companies transport their mass goods or raw materials themselves.

Additionally, the railroad freight traffic will be liberated not earlier than 2012.

As shown before, the Polish deficits are the transborder checkpoints and archaic terminals. For thus, a cooperation with and an upgrade of Polish terminals could be intended. To offer a complete logistic system or to concentrate on certain parts is optional. A complete system should implement european standards and has to be a universal solution. It is not necessary for logistic professionals to perform the service themselves. Out-sourcing is an option also. To perform certain logistic parts, concentration on storing and goods distribution is possible. In that case, companies focus their service on limited responsibilities or/and limited areas.

Non-stop trains are best for big and periodical freight transports.

Figure 9 non-stop train



Volkswagen runs manufactories in Poland, Czech Republic, Slovakia and Hungary. Therefore, a train from Germany to Hungary via Poland, Czech Republic and Slovakia would be more effective than a non-stop train.

Additionally, the automobile sector has a need for waste management. Automobile demounting and recycling is of high interest.

Figure 10 Linienzug

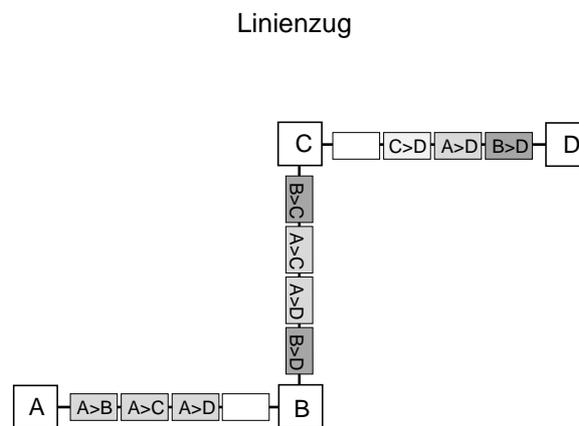
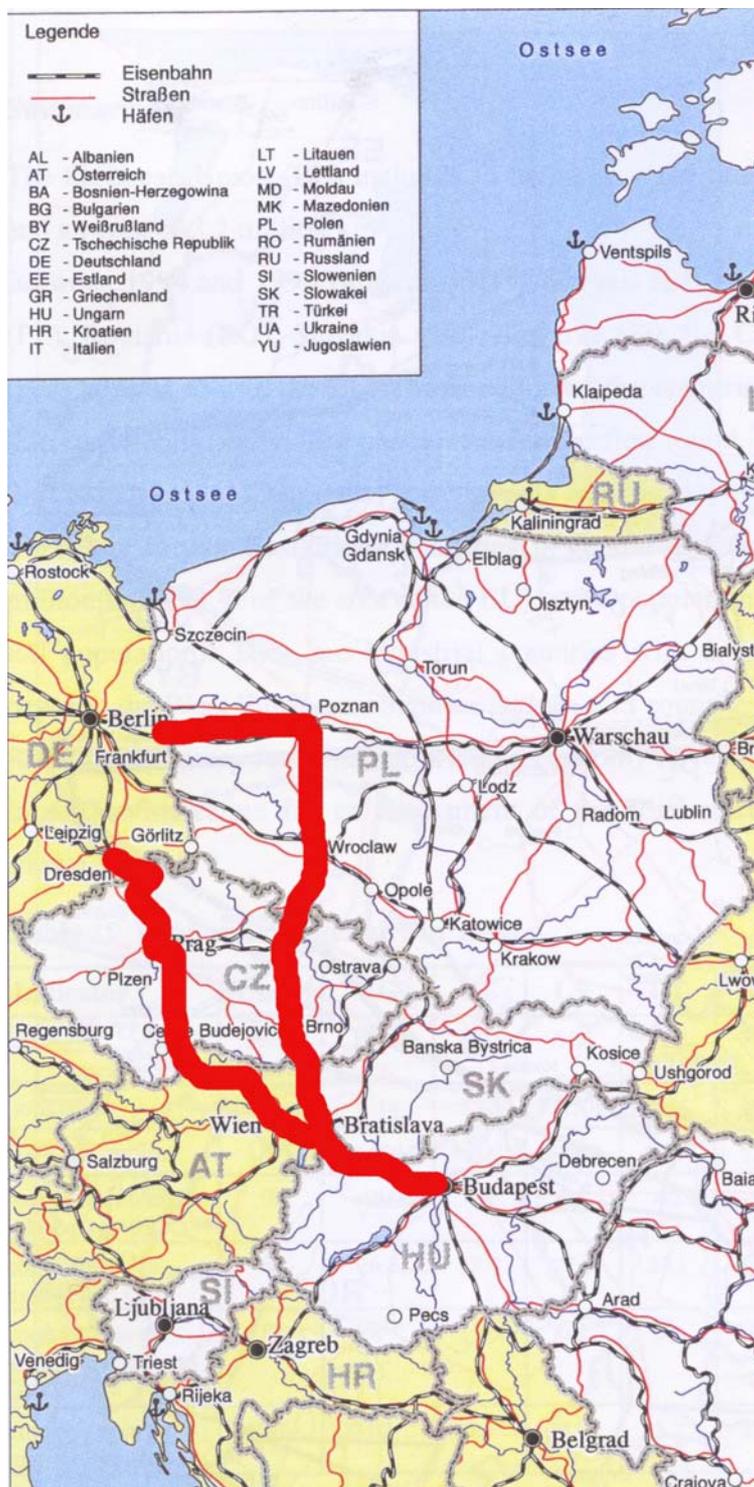


Figure 11



Source: Rohwirtschaftliche Länderstudien

Future plans

Future plans are to evaluate custom made strategies for East European markets as well as for each country. Detailed strategies are in progress.

Thank you for your attention. The presentation is open for discussion.