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BARRIERS ANALYSIS OF RAIL TRANSPORT IN TRACECA CORRIDOR AND BLACK SEA COUNTRIES

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Abstract: The output of this paper is to identify the most important problem fields and define recommendations how to improve and strengthen transport relations between the EU and TRACECA corridor.

Keywords: railway transport, intermodal transport, TRACECA corridor

1. INTRODUCTION

A significant part of the transport between Central and Southeast Europe is generated by Black Sea and TRACECA¹ countries. The most important sources and destinations are Batumi, Poti (Georgia), Constanta (Romania), Odessa (Ukraine) as well as the Turkish Black Sea harbors and the Caspian ports Baku (Azerbaijan), Aktau (Kazakhstan) and Turkmenbashi (Turkmenistan). An extension of the Central-Southeast-European transport corridor (FLAVIA)² towards this region is highly economically relevant. Like the Great Silk Road the corridor links Asia and Europe. Recent developments show that some transport operators use this land bridge as an alternative to the maritime transport. Since the mid-1990s the economic power of the Black Sea and TRACECA countries has been growing, caused by the ever increasing international trade. Currently, there is a rapid growth of the gross domestic product. And also in the future a growth rate of 100% to 800% between 2007 and 2030 is expected. This economic development characterized by growing production and import-export activities, causes increasing transport flows.

¹ Armenia, Azerbaijan, Bulgaria, Georgia, Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, Tajikistan, Turkey, Ukraine, Uzbekistan

² The FLAVIA corridor includes Poland and Germany in the north, Czech Republic, Slovakia, Austria and Hungary in the middle and Romania in the south. FLAVIA is a project of the Central Europe Programme.

It is assumed, that between 2006 and 2020 the transport volume in the TRACECA-corridor will double. Most important export goods are raw materials like crude oil, natural gas, metals and food. Also the containerization in transport will continue to increase and requires new and improved infrastructure for the transshipment in the harbors and inland terminals. However, so far the transport infrastructure in this region is mostly underdeveloped.

2. BACKGROUND OF TRANSPORT SITUATION IN TRACECA CORRIDOR AND BLACK SEA COUNTRIES

The liberalization of a foreign trade policy and regional cooperation into the sphere of transport and transit are closely interconnected. Liberalization of a commercial policy in one of the countries will not lead to substantial growth of bilateral trade if the movement of vehicles and goods will be complicated by lacks of the transport infrastructure. E.g. Kyrgyzstan, Tajikistan and Uzbekistan are all relatively small economies and need to promote trade and integrate into the international trading system to achieve sustainable economic development. High unemployment and inflation will hinder government efforts to stimulate demand. In addition, a successful implementation of an anti-crisis policy will require measures of structural reforms including transport and trade.

The level of education has to be improved in order to get an international level through supporting cooperation among educational institutions. Especially in the field of logistics not all actors have the same level of knowledge. Therefore the harmonization process is difficult along the intermodal supply chain.

It is essential to mention that the facilitation of processes and documents needed when crossing a border (e.g. electronically standard developments and introduction of modern logistics tools) is a main problem in this area. The strong concentration on technical development and standards has to be mentioned here as well. It is essential, that technological harmonization is established in all of the relevant borders in the TRACECA region within a technological strategy plan as it serves as the main prerequisite supporting rail transportation. For intermodal transport, where the main run is carried out by rail, the transport quality is one of the most important issues/problems for the competitiveness. Interoperability, quality or reliability assurance and the lack of integrated information and communication systems are examples which hinders intermodal solutions. Consequently waiting times and costs for crossing the borders in the TRACECA countries are still huge problems.

Antiqued infrastructure is assessed as high obstacle, because in many TRACECA countries the infrastructure does not reflect the needs of transport market actors. In addition there are missing intermodal facilities like container equipment at ports and inland terminals. This causes infrastructural bottlenecks for the region. For example, the strategy for the development of the transport infrastructure for the Republic of Bulgaria mentions

that the technical situation and the level of maintenance of the current transport infrastructure are not satisfying, as well as the outdated transport technology and equipment.

The obligatory safety and security standards along an intermodal supply chain are not given. Risk factors are storage places, transport processes on risky routes and transshipment processes. Loading units and wagons are facing high potential of external manipulation due to low security standards. The analyses of cross boarder processes indicate that time consuming procedures have increased due to additionally security checks. Hence – an adequate mix of controls and quality level is not found yet.

Barriers includes aspects like access to infrastructure, open access to the network, complexity of homologating rolling stock (only rail), time for licensing, complexity of licensing and for getting a driver licence, power of the independent inspection authorities and the captain's certificate of competency. Here competitive disadvantages for intermodal transports are given. Especially for rail transport, as it is affected by long waiting times, additional costs, complex procedures, unclear responsibilities and a lack of planning reliability.

The lack of railway infrastructure where sufficient speeds for freight trains are not possible is a major problem. Further, many countries suffer from an insufficient number of specialized terminals and from the lack of modern logistics and information systems. Another point of interest is the maintenance of the existing infrastructure network. Due to a lack of maintenance funds and postponed repair works the infrastructure is in bad condition. Poor technical parameters cannot guarantee a high level of safety and security according to European standards.

Know-How support and transfer is not carried out in an appropriate way. An establishment of new structures and strategies for logistic concepts is difficult.

3. TRANSPORT CONDITIONS AND BARRIERS IN TRACECA CORRIDOR AND BLACK SEA COUNTRIES

The current trade and goods traffic relations in Central Europe (CE) are oriented very strong to Western Europe and Italy. However, through the accession of the South-Eastern European countries (SEEC) to the EU new exchange and supply structures arise, which have to be strengthened in the fields of trade as well as in goods traffic and logistics.

The TRACECA corridor consists of 13 countries. Additionally, Russia (south) and Turkmenistan are part of the defined country group. The resulting corridor reaches from East Europe to Middle Asia. It connects Central Europe with Asia via a land bridge.

Most of the countries are parts of the former Soviet Union. The most significant geographical landscapes are the Black Sea, the Caucasus and the Caspian Sea. They determine the direction of the transport flows to a large extent.

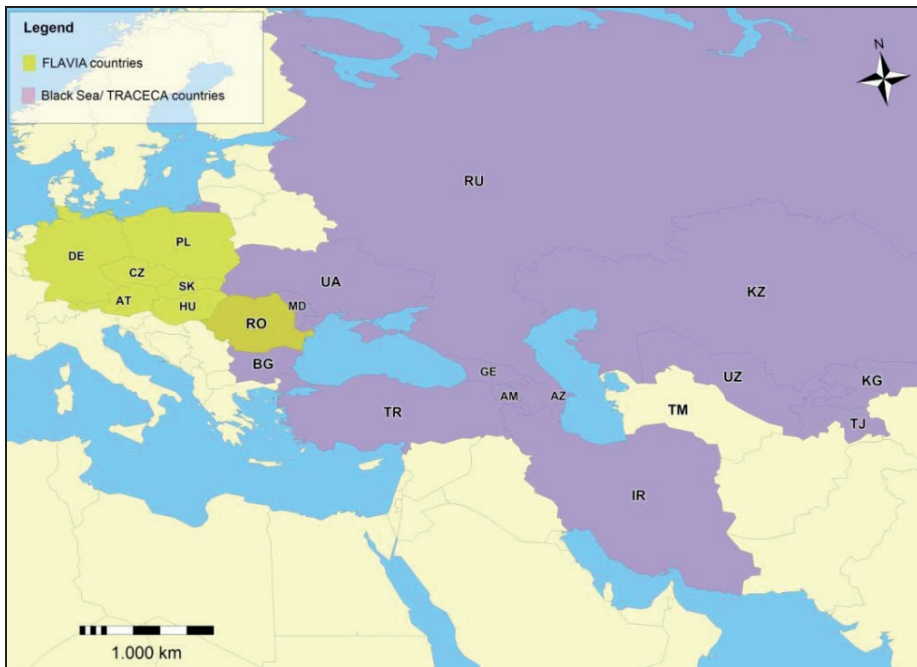


Figure 1. FLAVIA corridor and TRACECA and Black Sea Countries
(Source: Flavia report 6.1.1.)

Intermodal transport in the TRACECA-countries has a high potential to develop new trade and transport routes and it offers opportunities for the development of the FLAVIA corridor, too. But, to ensure efficient trade and transport relations in future the transport chains between the two regions have to be extended and developed. This concerns the establishment of reliable transport services to enhance the accessibility as well as the construction of an integrated transport network that enables multimodal logistics approaches. There was identified infrastructural, organizational and administrative measures. Infrastructural and technical measures are as follow:

- Terminals within the TRACECA corridor and some parts of the FLAVIA corridor have to expand their handling area.
- The number of inland terminals should be increased. Actually there is a low number and no dense network of terminals in the TRACECA / Black Sea region and the southern of the FLAVIA corridor (see map above, light green circles symbolise the coverage of the existing terminals).
- Modernization of existing multimodal infrastructure for overcoming cross-border problems and connecting the two continents Europe and Asia.
- Capacity of rail infrastructure is assessed as a high obstacle because in many countries the infrastructure does not reflect the needs of the transport market actors. Hence – usage of multimodal transports could have only supportive role in

organization of overall transportation solution. Therefore, the extension of the rail capacity should be moved in the focus of national transport plans as well as bi-/multilateral agreements.

- Rail tracks in former soviet countries are wider than those in the rest of Europe and locomotives have to be changed for different networks. Therefore, the planning and implementation of change-of-gauge border stations have to be strengthened.
- The rail management systems within the TRACECA corridor is far away from completion by the different national systems and built in the short and medium run a barrier for intermodal transport. This situation should be changed by a consecutive harmonisation.

For organizational measures are included:

- Waiting times due to inefficient organisational processes should be reduced for freight trains at borders within the TRACECA corridor and on the external borders. The main obstacles at the borders like inefficient cross border processes, heterogeneous licence and legislation within each country as well as interoperability issues should be addressed by bi- and multilateral negotiations and agreements.
- An increased efficiency of technical cross border processes is necessary. Actually, inefficient cross border processes are a great disadvantage for rail transport compared to truck transport. The most common problems of the investigated border crossing points in the TRACECA corridor are: technical inspection of the rolling stock, definition of the responsibility fields, certification procedure for locomotives, different electric current systems, different safety equipment systems as well as interoperability on the rail network and qualification of the employees.
- High costs at cross border are a problematic factor for exporting and importing transport issues. Costs for border crossing (rail) have to be reduced by bilateral agreements.
- Concerning the requirements of the market players, the costs of rail innovations are perceived as high. This probably is one of the major barriers to the successful adoption of the innovations in the rail transshipment market. In this market, costs are very important and cannot always be recovered through charging higher prices. For intermodal freight transport necessary innovations should be supported by national and international research and implementation funds.
- The inadequate quality and reliability assurance for freight services, particularly for international services has a negative impact on the attractiveness of rail. The issuing of appropriate new rail assurance offers should be supported by national policy makers.
- The actual process of opening up the European and TRACECA rail freight market is too slow to make intermodal transport more attractive in the short run. The underlying liberalisation process should be executed faster and with more political power.

As the last, administrative measure was identified:

- Licensing time and responsibilities as a major problem, policy stakeholders should start to create a common licence and legislation level within the TRACECA corridor as well as the EU. A lot of license and legislation still differ within each

TRACECA country and result in a lot of additional administrative and operative work which makes rail and intermodal transport unattractive.

- There is need of shortening and simplifying of train driver licensing process within TRACECA corridor. Driver will need no extra certification process in another country.
- Reduce waiting time and costs for crossing the borders between countries in TRACECA corridor, because it is still a huge problem.
- Also many different regulatory authorities; consolidation of all cross-border procedures in fewer agencies would speed up the border crossing process.
- Reducing of corruption and mismanagement: Corruption is inimical to a sustainable development of the transport sector in regard to funding of infrastructure (rail tracks, terminals, etc.), new processes and the creation of a fair legal transport framework.
- Customs formalities like certificates, import/export permits, inspection, payment of duties and taxes can be problematic for intermodal transport. An efficiency increasing of the customs administrations is necessary.
- The implementation of obligatory safety and security standards within intermodal supply chains (storage, transport process, turnover process, loading unit, wagons etc.) will increase the reliability of this mean of transport drastically.

4. TRADE CONDITIONS AND BARRIERS IN TRACECA CORRIDOR AND BLACK SEA COUNTRIES

The exported products respectively categories of goods are very similar within the FLAVIA corridor as mostly semi-finished and finished products are exported (machinery, chemicals and manufactured goods, etc.). The most important trade partners for the FLAVIA countries are Russia, Romania and Turkey with a total sum of 29 mln tons per year. On a national view the top 5 existing export trade flows between the FLAVIA corridor and the TRACECA/Black Sea countries are Russia with 11,5 mln tons, Romania with 9 mln tons, Turkey with 8,1 mln tons, Ukraine with 5,1 mln tons and Bulgaria with 2,1 mln tons. Based on the available forecast data the future export trade flows will increase between 37 and 97 percent with the respective countries.

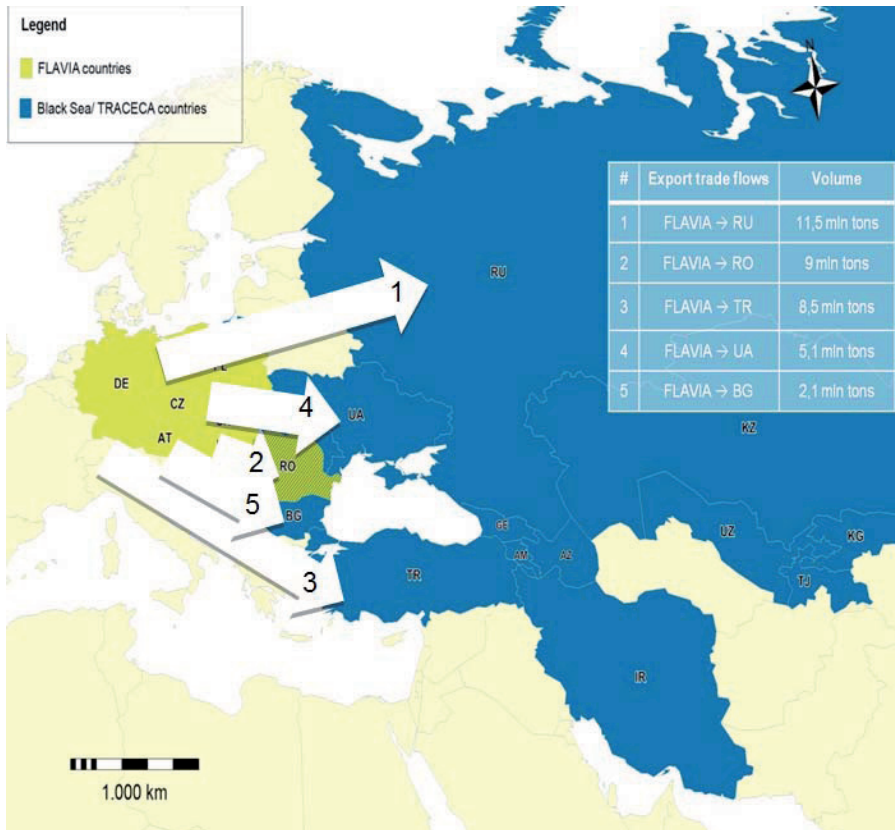


Figure 2. Top 5 export trade flows of the FLAVIA corridor
(Source: Flavia report 3.2.3.)

Mineral fuels, crude materials, energy sources and raw materials are the most important categories of goods concerning import flows. This shows that the economical success of the FLAVIA corridor depends partly on the supply of these goods from the TRACECA/Black Sea region.

As a consequence, the countries with large deposits of raw materials dominate the top 5 existing import flows between the TRACECA/Black Sea countries and the FLAVIA corridor: Russia (152 mln tons), Kazakhstan (11,9 mln tons), Ukraine (11,5 mln tons), Turkey (9,8 mln tons) and Romania (6,3 mln tons). Based on the available forecast data the future import trade flows could increase between 24 and 68 percent till 2015/2030.

The forecast data of the future export and import trade flows show the importance and growth potential of TRACECA/Black Sea region and highlight the responsibilities of the political and industrial sector and the corresponding stakeholders to emphasize the trade relations as well as eliminating the major bottlenecks.

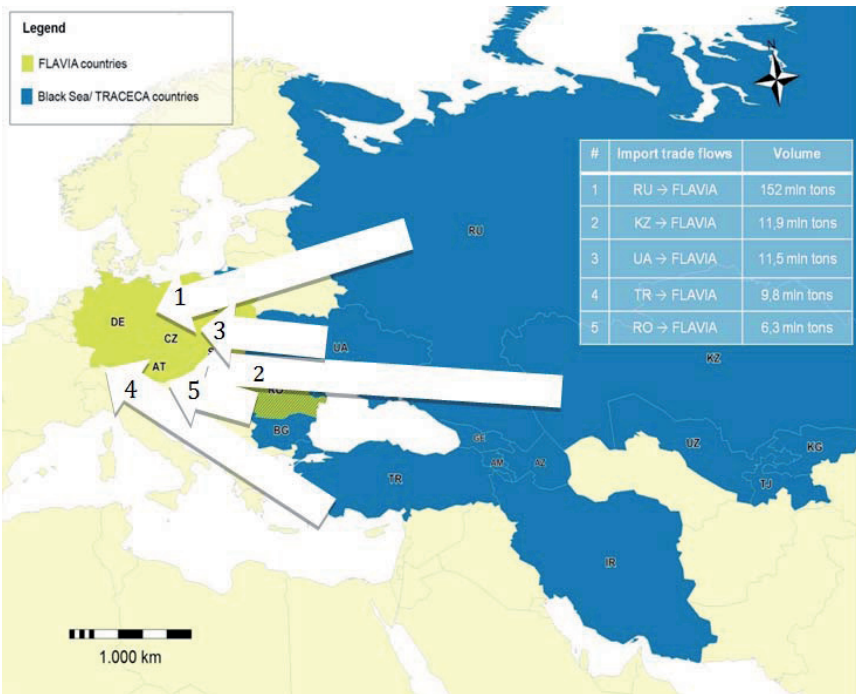


Figure 3. Top 5 import trade flows of the FLAVIA corridor
(Source: 3.2.3. Flavia report)

In the trade area was identified organizational and administrative measure. Organizational measure included:

- Establishing more cooperative structures between the chambers of commerce in the EU and the TRACECA corridor.
- Strengthening the bilateral relationships between market actor groups (e.g. transport operators, associations, rail undertakings, shippers, infrastructure owners) of the FLAVIA corridor and the TRACECA / Black Sea countries.
- Further and intensified cooperation regarding the linkage between the EU TEN-T and the TRACECA / Black Sea network.

Whereas administrative measure are as follow:

- A bi- or multilateral harmonisation of trade and transport documents will facilitate more and better trade relations.
- The impact of foreign exchange rate uncertainty (fluctuations) and the corresponding costs hinder intermodal cross-border solutions to be competitive, projectable and transparent. This is one of the biggest threats for the cooperation of partners within the FLAVIA corridor and the TRACECA countries. A longer validation of exchange rates would support continuous and increasing trade and transport flows.

5. POLICY CONDITIONS AND BARRIERS IN TRACECA CORRIDOR AND BLACK SEA COUNTRIES

The potential of regional cooperation in transport has achieved a significant level of awareness at the political level. Within the framework of the TRACECA programme, a number of technical assistance and investment projects have been implemented, which are financed by the European Commission. These projects are aimed at improvement and harmonization of the legal basis, border crossing procedures, tariff policy, institutional strengthening, capacity development, as well as improvement of transport infrastructure. The following measures were identified:

- The planning and implementation of common infrastructure projects shall be extended. A goal should be the elaboration of harmonised infrastructure development plans.
- A future harmonization of transport policy and legal structures in the field of transport among the policy makers shall take place.
- Important pillar of the common transport strategy is the integration and cohesion of transport infrastructure networks. The strategy states explicitly that the networks should (better) connect to the Trans-European Transport Network and Pan-European corridors, and should accommodate existing and future traffic demands. The execution of the transport strategy shall be evaluated from time to time and necessary changes shall be implemented.
- Know-how transfer (e.g. joint ventures, benchmarking projects) for establishing new and modernizing existing industrial and economical structures will support better understanding and reliable trade and transport flows.
- Rising the educational level (trade, regulations, languages, logistics) through supporting cooperation among educational institutions from FLAVIA corridor (e.g. universities, logistics associations, companies) with TRACECA/Black Sea institutions.
- Strengthening the bilateral relationships on high policy level between FLAVIA corridor and TRACECA / Black Sea countries.

6. CONCLUSIONS

The article intends to identify the most important problem fields and give recommendations which topics should be addressed in future negotiations with market actors and policy makers during the extension process of the FLAVIA corridor towards the TRACECA area. To support the actors an action plan shall be sketched. The plan shall show which problems have to be solved at first. With the help of a figure the most promising projects/measures (transport, trade and policy) are identified in terms of:

- Time horizon of the implementation.

- Expensiveness of the project/measure.
- Impact of the measure.

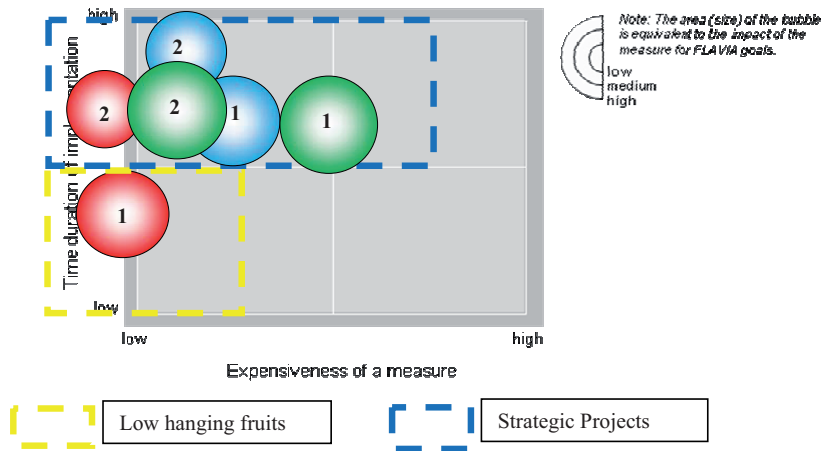


Figure 4. Measure portfolio

The measures with the highest impact within the “low hanging fruits” and “strategic projects” scope are described shortly below.

Transport (green bubbles)

- 1) Reduce waiting time at borders. Long waiting times at borders due to inefficient processes, heterogeneous licence and legislation as well as interoperability difficulties are still main obstacles for further growth of rail and intermodal transportation.
- 2) Modernization of existing multimodal infrastructure as well as building of new multimodal infrastructure capacities.

Trade (red bubbles)

- 1) Establishing cooperative structures between the chambers of commerce in the EU and the TRACECA corridor.
- 2) Facilitating administrative, legal and regulatory policy to provide a common basis for free movement of goods and working staff.

Policy (blue bubbles)

- 1) The rail liberalization process between the TRACECA countries and its trading partners is necessary to guarantee a substantial growth of bilateral trade. Actually big obstacles are complicated economic and organizational structures. These cause a lack of transport infrastructure and create physical barriers.
- 2) Rising the educational level through supporting cooperation’s among educational institutions from UE countries (e.g. universities, logistics associations, companies) with TRACECA / Black Sea institutions.

It is obvious that the EU and the TRACECA countries have a different historical background. Hence, the current situation in both regions differs a lot. The challenge is now

to initiate a harmonization process to set up common standards in trade, policy and transport:

- Establishment of a stable political and regulatory framework which enables trade and transport relations.
- Modernization and construction of a sufficient transport network which connects both corridors efficiently.
- Development of smooth organizational structures which accelerate the transport relations (cross border procedures, rail liner services, transshipment facilities).
- Establishment of cooperative structures and exchange programs between the regions (universities, chambers of commerce, associations, public authorities).
- Development of educational programs to create an experienced and well-skilled labor market in the long-term.

Euro-Asia rail transport requires support of new information system. In fact, there is no single, common information system which enables data exchanged between railway companies and their close cooperation. Currently, adequate systems for Eurasian transport of goods do not exist. However, the solution of this problem would be REAL-Bridge project (Railway Euro-Asian Land Bridge Data Base System), which is currently carried out by the Institute of Logistics and Warehousing. The main objective of the REAL-Bridge project is to gather information and develop software for the rail users. Examples functionality of software are as follows:

- Calculation of freight rates for the transport of goods.
- Searching optimal (shortest) route between stations.
- The calculation of tariffs, distances, export and import, determination of total and partial rail distance.
- The parameters of the railway infrastructure: track gauge, axle load, etc.
- Euro-Asian Railway Map, etc.

Together with railway companies was determined that there is a high demand for this type of information system. It is believed that the suppression of barriers, as well as new initiatives such as the development of IT tool will make that Euro-Asia rail transport is gaining more and more importance.

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ANALIZA BARIER W ROZWOJU TRANSPORTU KOLEJOWEGO W KORYTARZU TRACECA ORAZ KRAJACH MORZA CZARNEGO

Streszczenie: Celem niniejszego artykułu jest zdefiniowanie najważniejszych obszarów problemowych, a także zaleceń dotyczących poprawy oraz wzmocnienia relacji transportowych pomiędzy Unią Europejską, a korytarzem TRACECA.

Słowa kluczowe: transport kolejowy, transport intermodalny, korytarz TRACECA