# INTERMODAL TRANSPORT IN THE STRATEGIES FOR THE DANUBE REGION

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***Abstract:*** *Intermodal transport (IT) plays a very important role in the EU transport policy. In order to achieve IT's more efficient and effective implementation, international and national development strategies are defined. The principles and objectives of the national strategies should be in accordance with international strategic documents, and at the same time adapted to the specific conditions. Logistics and IT play a significant role in achieving sustainability and high quality transport services in Europe. However, treatment of these areas vary significantly across countries, and in some strategies IT does not merit any attention. The aim of this paper is the analysis of IT in the strategic documents of the Danube region countries by placing emphasis on the mutual disagreements , advantages and disadvantages.*

***Keywords****: intermodal transport, logistics, strategic documents, Danube region*

## 1. INTRODUCTION

Sustainable and efficient transport system (TS) is the main objectives of the EU transport policy (EC, 2011). One way of achieving this goal is the development of intermodal TS and raising awareness of its importance. IT is the system which implies "door-to-door" transportation using at least two modes of transport, without changing the factory handling units, such as containers, swap bodies, parts of or the complete vehicles (Zečević i Tadić, 2015). In this way, the more environmentally friendly modes of transport such as rail and water transport are added to the road TS, which is now dominant.

In order to meet the industrial and individual needs in terms of transport, national and international institutions enact strategic transport documents. Attitudes, goals and measures can vary significantly depending on the strategy and its character. In order to achieve unity and overall efficiency of the entire transport network (TN), compatible infrastructures, adequate regulations and the precisely defined objectives and measures must be provided.

The Danube, the second longest river in Europe, connects Central Europe with the Black Sea via the Republic of Serbia. Danube, alongside the rivers Main and Rhine, makes the so-called European channel which provides a connection between the North sea and the Black Sea, where there are significant freight and transport flows. Countries of the Danube region are Germany, Austria, Slovakia, the Czech Republic, Hungary, Bulgaria, Romania, Slovenia, Croatia, Serbia, Bosnia and Herzegovina (BiH), Montenegro, Ukraine and Moldova. This part of Europe represents an important resource for the development of IT and efficient logistics. Economic,

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natural, traffic and other resources are underused, and with the aim of strengthening and increasing the attractiveness of the region there is a need to adopt adequate strategic documents which will be discussed in detail in this paper. The paper is organized in two chapters. The first one analyzes the importance of IT in the international strategic documents while the other one deals with the national.

## 2. INTERMODAL TRANSPORT IN INTERNATIONAL STRATEGIC DOCUMENTS

This chapter analyzes the importance and place of IT in international strategic documents that are the basis for further planning in the field of IT. The dominant makers of these documents are the EU and its authorities, but there are also various international organizations and associations.

White paper (EC, 2011), an umbrella strategic document in the field of transport, encourages the creation of a competitive and sustainable TS. The European Commission (EC) in this document focuses on safety, security and environmental standards in transport worldwide, defining the objectives to be achieved by 2050. One of those goals is to maintain climate change below 275K. As one of the measures to achieve this goal they plan to reduce gass emissions by 80 to 95% compared to the level of 1990, and to shift 30% of road freight over 300 km to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050. As a way of achieving an efficient TN they plan to invest in the development of remote and intercontinental transportation, fully functional multimodal trans-European Transport Network (TEN-T) across the EU by 2030, and a network of high-capacity and high quality by 2050 with a corresponding set of information services. In addition, one of the goals is to create the appropriate framework to enable the tracking of goods in real time, the use of IT and "clean" modes of transport, as well as providing support to institutions and promotion of railway, waterway and IT. It sets the framework for the future decision-making.

EC brings document which primarily analyzes the market of combined transport (CT). By analysing the previous and the current state of road, railway and water transport, the development of CT is predicted. There, it is stated that the state of CT is the following: most policy-makers wish to see it play a much greater role in addressing the freight-related issues of transport in the EU; many end users would like to see it become much more commercially attractive; but relatively few customers actually use it, and often without any great enthusiasm (EC, 2015). CT is promoted within the EU through the Council Directive 92/106/EEC of 7 December 1992 (CT Directive) on the establishment of common rules for certain types of CT of goods between Member States. The CT Directive is the main instrument to shift long distance road transport to other modes and contributes to the achievement of the White Paper transport's goal. CT Directive seeks to promote CT operations through inter alia liberalisation of road cabotage, the elimination of authorisation procedures for CT, as well as financial support through fiscal incentives for certain CT operations. The analysis of CT-related support programmes shows that two measures may not only deliver strong growth effects for CT operations but could be applied in every Member State as well: aids (direct grants) for CT operations and direct grants for the construction of CT terminal infrastructure. Both incentives can reduce the total costs of CT operations considerably-cut terminal-to-terminal transport costs by up to 50% or reduce transhipment cost by €30 or more per load unit handled at CT terminals.

IT is also the focal point of the Western Balkans Intermodal Study (City Net, 2016) which deals with Southeast European (SEE) region. Through discussing of potentials of IT of Albania, Bosnia, Kosovo, Macedonia, Montenegro and Serbia the integration of the main corridors and terminals of these countries is encouraged. In order to achieve an efficient TN and high-quality supply chain, a high degree of cooperation and coordination between these countries must exist. The poor, divided and heterogeneous infrastructure in terms of quality is seen as the main problem.

Another major problem cited is institutional obstacles such as bad traffic institutions, poor organization, lack of skilled personnel and lack of departments that will specifically deal with the issue of IT. Of all the countries in the SEE region, only Serbia has a department for IT, which is also integrated with the department of railway traffic. When there are no adequate institutions, the logical conclusion is that none of these countries has a high-quality transport strategy.

Some strategic documents even go a step further in addressing the problems of IT. The port is specified as the source of the problem and a place where significant changes and optimization can be made (Berg, 2015). Benchmarking is also mentioned as the main tool for overcoming the problems that arise during the implementation of IT. The methods and the problems that may arise in the application of this concept are introduced, presenting benchmarking as a key to access transport chain performance (OECD, 2002).

Referring to the White Paper (EC, 2011) the European Parliament conducts research and delivers a document that through analysis of the logistics activities and infrastructures of major European corridors initiates the integration and creation of a unified and efficient TN. It states that the existing state of IT is unsatisfactory and that this mode of transport will constantly develop in the future although very slowly and road transport will continue to be the dominant. The result of this research is the logistics action plan with 34 measures specified for its achievement (EP, 2016) . Measures are related to the improvement of the TS in the EU in six areas: intelligent transportation systems (ITS) and e-Freight, sustainable quality and efficiency, simplification of transport chains and vehicle dimensions, loading standards and green freight transport corridors and urban freight transport logistics. The objective is to develop a framework for an optimal integration of different modes so as to enable an efficient and cost-effective use of the TS through seamless, customer-oriented door-to-door services whilst favouring competition between transport operators (EC, 1997). Intermodality does not aim or relate to a specific modal split, but addresses the integration of modes at three levels: infrastructure and transport means ("hardware"), operations and the use of infrastructure (especially terminals), and services and regulation (from a modal-based to a mode-independent framework). For example, actions for infrastructure and transport means are intensifing intermodal design of the TEN-T enhancing design and functions of intermodal transfer points and harmonising standards for transport means. Final goal is to form coherent european TN (SETA, 2013).

## 3. INTERMODAL TRANSPORT IN TRANSNATIONAL STRATEGIC DOCUMENTS

Although the importance of IT is well known, countries treat this field differently depending on their development level. Motive for reasearch on this subject is unadequate treatment of IT within national strategic documents (NSDs). Danube region countries exept Austria and Slovakia were analyzed. Austrian NSD was not avaiable while Operational Programme Transport 2007-2013 of Slovakia (MoTPT, 2007) is outdated.

Strategic plans are implemented trough realization of defined objectives. Objectives of NSD should be in accordance with those of transnational but at the same time measures concerning objectives must vary depending on each specific situation within countries. It is not rare case that less developed countries copy parts of developed countries documents in ther own (MoTMT, 2010; Dornier Consulting et al., 2016). NSDs that paid the most attention to IT are German and Romanian, Slovenian and Czechian. German and Romanian differ from other NSD by aproach and extensiveness of analysis.

As the lieder in logistics, Germany is a step ahead when refering to defining objectives and their ineterconnection defining 5 high level objectives and from 4 to 6 lower level objectives for each one at the higher level. Concise and simple to interpret, Germany has following objectives: (1) efficiency of all modes and strengthening Germany as a logistics centre; (2) exploiting the strengths of all modes of transport; (3) promoting the compatibility of transport growth with

environment protection (FMoTDI, 2010). Unlike other NSDs it has the smallest number of measures relating to infrastructure. Attention is brought to enacting new and updated NSDs, promotion of modes and institutional framework, optimization of maritime transport and long-haul road haulage, operations at loading ramps and management on motorways. The most important objectives are to improve the framework for CT and fund innovations, capacity enhancements in IT and to analyze the potential for multimodal transport (MT). Proposed measures for those objective are: (1) the system of funding for CT placed on a new footing by means of amended funding guidelines; (2) programmes to fund innovative technologies; (3) comprehensive study conducted to examine the potential for (MT); (4) modal shift options. Institutional framework followed by strategic documents makes Germany stand out from other countries. In addition, documents review previous ones regarding achivenments of defined goals. Besides specialized assosiation for CT, Germany set „Federal Government Coordinator for Freight Transport and Logistics" and assosiations with main duty to promote eco-friendly modes. Assosiation for CT in Serbia is established as dependent company of Serbian Railways. Its services are not avaiable to find on the Internet unlike for those of Germany, Austria, Czech, Croatia, Romania and Slovenia. After the analysis it is concluded that Germany has got a regulated system and much more experience with NSDs and less measures on the operational level as opposed to for example Montenegro (146) and Croatia (180), Moldova (77) and Romania (91) (MoTMT, 2010; MoMTI, 2014; GovMD, 2013; AECOM Ingenieria SRL, 2014).

Examples of objectives that have priority over those of other NSDs are infrastructure efficiency and integration in EU TS, improvenment of connections within country borders and management of transport (MoTITC, 2010; MoMTI, 2014; GovMD, 2013). Infrastructure measures are defined per modes. For instance, measures concerning railways are: (1) build a private (industrial) track; (2) enhancment of maximum axle pressure; (3) electrification, reconstruction and building of new railway tracks in order to meet the requirenments of TEN-T network or EU standards (AECOM Ingenieria SRL, 2014; MoMTI, 2014; MoI, 2014; MoT, 2013; MoTTE, 2007). Evidently, objectives concerning IT directly are rare. Besides the aforementioned in German NSD, there are two within Hungarian document: Increasing the ratio of goods transported by CT and improving efficiency of intermodal LC.

Discrepancies regarding terminology must be noted. In some NSDs there are no differences among MT, CT and IT. Croatia defined „6 main strategic multimodal objectives and 28 specific multimodal objectives integrating each main objective evenly" (MoMTI, 2014). There are none conserning MT or IT as in German NSD although there are some measures relating to it.

Balkan non-EU countries, Serbia, BiH and Montenegro concur in their NSDs about investments and adjustments of infrastructure to meet EU standards (GovSRB, 2008; BiH Parliament, 2016; MoTMT, 2010). Main objectives of NSD of Serbia are: (1) freight flow planning and controlling; (2) reduction of environmental pollution; (3) increasing level of safety and TS efficiency (GovSRB, 2008), similar to BiH NSD. The difference is that the objectives in second are concretized. BiH NSD objective concerning improvement of TN efficiency is construction of motorways where higher speed limits will be allowed. Soft measures regarding it are definition of framework for implementation of EU freight corridor on Western Balkan (BiH Parliament, 2016). In order to attain efficient TN, Montenegro adds that government traffic institutions encouraging privatization of traffic companies, commercialization of services regarding maintenance and construction of transport infrastructure are needed (MoTMT, 2010). Thus, measures are setting connections between national transport sector institutions and institutions from other countries and providing adequate knowledge exchange. Among these countries, the minimum attention to IT was paid by BiH. NSD of Montenegro states that reconstruction and building of new IT terminals and provision of financial and economic incentives for use of IT are of much importance. In order for IT to be competitive, improvement of technical and technological process at border crossings and terminals as well as in railway infrastructure are

needed alongside with stimulation of road carriers providing services at the ending and starting parts of transport chains i.e. transport to and from terminal (GovSRB, 2008).

Each objective has to have the following defined: (1) responsible parties and authorities; (2) measures and actions; (3) time frame for implementation; (4) performance indicators. Although it is desirable for measures to have defined financial value and defined time frame for implementation, only few of NSDs have those covered (GovMD, 2013; MoT, 2013; FMoTDI, 2010).

Finally, IT needs to be viewed as a system that consists of standardized loading units and means of transportation, infrastructure and organization, network of terminals and LC, telematics and logistics strategies (Zečević i Tadić, 2015). Objectives and measures should be brought after the detailed analysis of aforementioned. If attention is not paid to all of IT subsystems, system has a weak link and is only strong as that link.

## 3. CONCLUSION

In order to solve the problems regarding IT, one has to be familiar with elements that IT consists of. TN shouldn't be observed only within the country borders since its purpose is international. Thus, NSDs have to be in accordance with transnational strategic documents and must make allowances for the development and support of IT since it is good for solving environmental and traffic flow problems but also cost effective. Based on the research, it is concluded that most of the countries i.e. their governments aren't familiar with the field of IT. Some of them have strategies that are similar to other countries and do not fit their own. Without support of regulatory documents and IT solutions, IT is harder to implement. Development strategy that does not consider IT basis could define neither problems nor solutions. Governments should pay greater attention to this field, conduct researches and consult private sector and scientists if improvements want to be achieved.

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## REFERENCES

[1] AECOM Ingenieria SRL, (2014). Romania General Transport Master Plan.

[2] Berg, van den, R., (2015). Strategies and New Business Models in Intermodal Hinterland Transport, Technical University Eindhoven, University of Technology.

[3] Bosnia and Herzegovina Parliament, (2016). Transport Strategy of the Bosnia and Herzegovina. (in Bosnian)

[4] City Net, (2016). Western Balkans Intermodal Study.

[5] Dornier Consulting, Expertise France, Egis International, (2016). Updated National Transport Strategy of Ukraine - Part 2: Transport Sector Analysis.

[6] European Commission (EC), (1997). Intermodality and Intermodal Freight Transport in the European Union. A System Approach to Freight Transport. Strategies and Actions to Enhance Efficiency, Services and Sustainability, COM (97) 243 in the European Union

[7] EC, (2011). White Paper. Roadmap to a Single - European Transport Area - Towards a competitive and Resource Efficient Transport System, COM (2011) 144 final.

[8] EC, (2015). Analysis of the EU Combined Transport.

[9] European Parliament, (2016). Research for Tran Committee - Logistics in the TEN-T Corridors.

[10] FMoTDI, (2010). Freight Transport and Logistics Action Plan - Logistics Initiative for Germany.

[11] GovMD, (2013). Transport and Logistics Strategy for 2013 – 2022.

[12] GovSRB, (2008). Development Strategy for rail, road, inland waterways, air and intermodal transport in the Republic of Serbia 2008-2015, Official Gazette of the RS 4/2008. (in Serbian)

[13] MoI, (2014). Transport Development Strategy in the Republic of Slovenia, Ministry of Infrastructure of the Republic of Slovenia.

[14] MoMTI, (2014). Transport Development Strategy of the Republic of Croatia 2014 – 2030, Ministry of Maritime Affairs, Transport and Infrastructure. (in Croatian)

[15] MoT, (2013). The Transport Policy of the Czech Republic for 2014 - 2020 with the prospect of 2050, Ministry of Transport.

[16] MoTITC, (2010). Strategy for the development of the transport system of the Republic of Bulgaria until 2020, Ministry of Transport, Information Technology and Communications.

[17] MoTMT, (2010). Traffic Development Strategy of the Republic of Montenegro, Government of the Republic of Montenegro. (in Serbian)

[18] MoTTE, (2007). Unified Transport Development Strategy 2007-2020, Ministry of Transport, Telecommunication and Energy, Republic of Hungary.

[19] OECD, (2002). Benchmarking Intermodal Freight Transport.

[20] SETA, (2013). Intermodal Transport and Terminal Evaluation in the SETA – Corridor.

[21] Zečević, Z., Tadić, S., (2015). Intermodal transport lectures, Faculty of Transport and Traffic Engineering, University of Belgrade, Serbia. (in Serbian)