

ASSESSMENT OF THE POSSIBILITIES OF TRANSFORMING RAIL FREIGHT UNDERTAKINGS AS A LOGISTIC OPERATOR

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Abstract: *Rail system in its nature represents a huge logistics potential. Due to increasing demand for international freight transport and logistics services, the biggest rail freight operators have recognized the needs of offering comprehensive logistics solutions in order to be positioned in the freight transport and logistics market as the leading logistics service providers globally. In the line with the European best practices, it is needed focus on the in-depth restructuring of the Western Balkan rail system. Development of modern dynamic rail freight system in the line with logistics concept by introducing new change management concepts, consistent implementation of defined measures for improvement of efficiency and enhanced services are crucial for the future sustainable development of the Western Balkan rail system. The aim of this paper is to assess the trends of logistic principles implementation in rail freight sector as the opportunity to create more competitive rails in the region.*

Keywords: *rail, freight, logistics, restructuring*

1. INTRODUCTION

Global logistics supply chains are becoming more complex and the requirements to implement coherent and consistent policies on safety, environmental and reliability are more demanding. In the last three decades the European rail sector has been faced with the deep restructuring, changing the concept of the traditional rail freight services into the logistic concept as core pillar of its development and competitiveness. Nevertheless, the rail liberalization reform and harmonization of the sector policies with the EU rail framework of directives and regulations is a slow process across the region of the Western Balkan, resulting in the poor performances of these rails and questionable financial viability. Inadequate financial architecture, fragmentation of infrastructure, technical and technological obsolescence of capacity, and low quality of rail services imply market un-competitiveness and the marginalization of the importance and potential of this system. The rail infrastructure facilities and equipment of rail freight system are key to develop logistics services.

2. RAIL LOGISTICS DEVELOPMENTS

2.1. Logistic performance indicators

Efficient logistics connects domestic and international markets through reliable supply chain networks. In general term, logistics performance depends on the availability to offer reliable

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supply chains and predictable service delivery. Logistic performance indicator (LPI) analyses six variables separated in two areas: (1) policy regulation indicating the main inputs to supply chain management (the efficiency of customs and border clearance management, quality of transport infrastructure and services), and (2) supply chain performance of time and reliability: timeliness, international shipments and the ability to track and trace consignments.

Table 1. LPI ranking per countries

WB countries	LPI rank	Infrastructure	International shipments	Logistics quality	Tracking and tracing	Customs	Timeliness
Albania	103	137	97	99	127	123	73
Bosnia and Herzegovina	85	76	111	92	94	71	79
Macedonia	109	79	127	108	122	126	101
Montenegro	113	111	89	125	107	105	120
Serbia	72	81	74	66	62	96	71
Croatia	50	54	60	48	53	45	64
Slovenia	43	37	53	37	43	48	49
Germany	1	2	7	1	1	2	2
Austria	11	15	9	9	5	16	12
Japan	10	8	14	8	10	12	8
France	14	14	12	8	13	17	11
Russia	98	90	114	76	83	152	83

Source: Logistics Performance Index 2016, World Bank

Logistics supply chains are determined by soft and hard infrastructure. The low quality of the Western Balkan countries transport infrastructure indicates persistence of the logistics gap (Table 1). These countries with the low logistics performance are facing with the high transportation costs and unreliable supply chains, gapping the integrating in global value chains.

2.2. Analysis of the rail logistics market

The total transport volumes transported in 2014 was in amount of 18,6 bn tonnes. Rail transport has participated with the 7%, what represent more than ten times less than the volumes transported by road (78%), shown in Figure1.

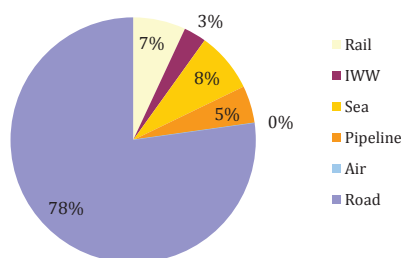


Figure 9. Modal split of European transport volumes in 2014

Source: Fraunhofer, 2016

The rail freight network has been experiencing difficulties for more than thirty years for a number of reasons: changes in industry, the development of motorways, and new logistic requirements on the part of companies.

In order to respond to these the EC has launched a policy for the revitalization of rail transport based on progressively opening up transport services to competition, effective for all freight since 1 January 2007, and developing the interoperability of rail systems. Regulation EC 913/2010 concerning a European rail network for competitive freight. The Regulation concerning a European rail network for competitive freight had a purpose of increasing international rail freight's attractiveness and efficiency in order to increase rails competitiveness and market share on the European transport market. Regardless of the EC rail policy, due to the

slow development of competition and interoperability and the lack of capacity of good-quality and reliable infrastructure allocated to international freight, the slow progress has been made with rail freight and the most of European rail freight undertakings cannot offer satisfactory services and cover their costs, that continue to lose market shares in favor of the road transport. Freight transport logistics is primarily a business-related activity and focuses on the planning, organization, management, control and execution of freight transport operations in the supply chain. Production and distribution networks depend on high-quality, efficient logistics chains to organize the transport of goods. Freight Logistics Action Plan (EC, 2007) as policy initiative aimed, among rest, to improve the competitiveness efficiency and sustainability of rail freight transport in Europe and beyond. Main actions are focused on: (1) e-Freight and Intelligent Transport Systems, (2) eliminating bottlenecks solutions, (3) improving performance in freight transport logistics chains, (4) benchmarking intermodal terminals, (5) simplification of administrative compliance through establishing a single window (single access point) and one-stop-shop for administrative procedures in all transport modes, (6) establishing a single transport document for all carriage of goods, (7) define green transport corridors and (8) developing a freight-oriented rail network.

Rail logistics is based on the wide range of services offered and demand-specific facilities availability, providing: (1) full-service for rail logistics of goods with special requirements single wagons and block train traffic, (2) innovative and flexible logistics solutions adapted to special transport demands, (3) freight management and operations monitoring, (4) warehouse logistics storage facilities, (5) on-site management, (6) value added-services (re-packing, labelling, picking, customs, waste disposal management, ect.), and (8) individual and personal support.

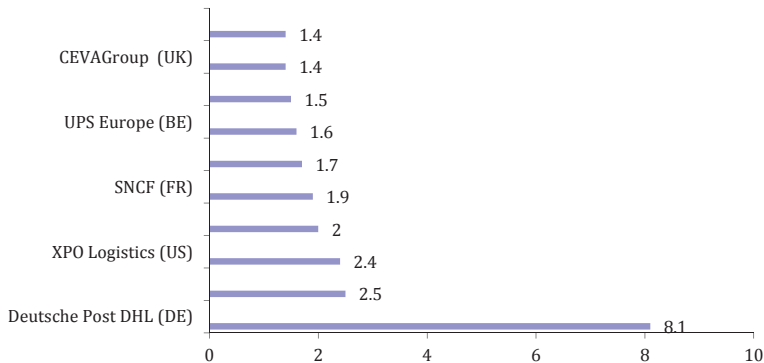


Figure 10. Market segment share in Contract Logistics (%)
Source: Fraunhofer, 2016

The processes of rail logistics system necessitating a high degree of cooperation and failures in effective communication between the stakeholders results in increased costs and inefficient operations for all partners in the system. Impacts failures within the rail logistics system will impact both rails and their customers.

Logistic economically optimised transport concept includes far-reaching and comprehensive optimization of the rail system. Due to the complexity of the rail system the key components to increasing the competitiveness of the freight rail logistics system are service quality and customer orientation, interfacing processes between rails and their customers. Improvements in quality and customer satisfaction must lead back to growth in the core business and increasing of efficiency what is important to offer services at competitive costs, as the rail in its nature has high fixed costs. Improvements in quality and lower production costs should increase rail network utilization.

The demand for international freight transport and logistics services is rising due to increasing internationalization and the shift towards cross-border production structures and flows of

goods in our customers' markets. The total European logistics market accounts in year 2014 was 960bn EUR, of what the transportation costs were 425bn EUR, representing 44,3% of total logistics cost (Fraunhofer, 2016). Market segment share in contract logistics in global context is shown in Figure 2. Rail freight undertakings implemented logistics concept offering comprehensive logistics solutions and global supply chain management in contract logistics are positioned in the freight transport and high growth logistics market leading logistics service customer-oriented providers globally (Table 2).

Table 2. Freight rail operators as logistics providers incomes in 2014

Logistics provider (Europe)	Logistics revenue in 2014 (bn. €)	Logistics provider (World)	Logistics revenue in 2014 (bn. €)
DB MOBILITY LOGISTICS (DE) diversified via DB SCHENKER LOGISTICS and DB SCHENKER RAIL	15,1	Union Pacific Railroad US	18,6
DB Schenker Rail (part of DB Mobility Logistics AG) DE	4,8	BNSF Rail Company US	18,4
		Indian Rail IN	11,1
SNCF SA FR	9,1	CSX Corporation US	10,1
Rail Cargo Austria AT	2,1	Norfolk Southern Rail US	9,6
Russian Rails RU	16,9	Canadian National Rail CA	8.1

Source: Fraunhofer, 2016

Further development of the rail undertakings as logistic operators is determined by: growth and dynamics of heterogeneous economic areas, well-developed rail infrastructure, regulatory framework, in order develop effective institutional mechanisms for integrated infrastructure development and integrated IT solutions implementation.

3. ASSESSMENT OF THE WESTERN BALKAN RAIL FREIGHT SECTOR

Regarding rail infrastructure, in terms of the density (Figure 3) of the existing network, it is more than two times lower (2,6 km/100km²) than the EU average which is 6,8 km/100km² (STAREBEI, 2016).

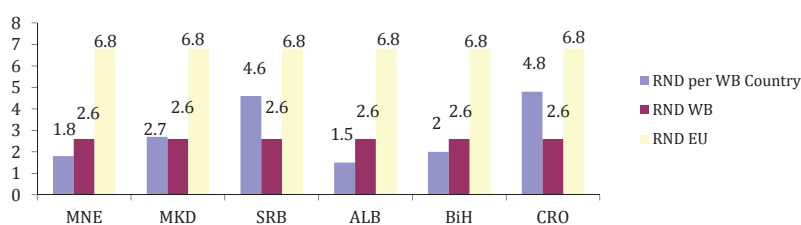


Figure 11. Rail network density-RND (km of rail / 100km²)

Source: STAREBEI, 2016

The low quality and density of Western Balkans rail networks influence the costs of inputs, production and distribution, and therefore low national competitiveness. It is evident that there is no consistent development for all modes of transport networks, what creates the huge inter-modal gaps. Namely, the trend of high investment in road infrastructure (almost 10 bn EUR) in the Western Balkans is present continuously from 2004, while the trend of rather small investments in rail infrastructure projects is changing slowly (just 1.6 bn EUR). For the same period in airport infrastructure has been invested four hundred million EUR, and for seaport Infrastructure just one hundred million EUR. Regarding the Bosnia and Herzegovina case, for 1.505 km of roads it has been invested 3 bn EUR, and in the same time for almost the same length of rail network it has been invested ten time less, just 385 mil EUR. The Western Balkan rail network rehabilitation needs are presented in Table 3.

Table 3. Western Balkan rail network rehabilitation needs

Rail network	Utilisation level	Action needed	km	% of total
Total length		-	3530	
Length with no capacity constrains	utilisation less than 40%	-	2262	64
Length with minor constrains	utilisation 40%-65%	Minor rehabilitation needed	788	22
Length with significant constrains	Utilisation 65%-80%	Major rehabilitation needed	178	5
Length with significant constrains	Utilisation more than 80%	Construction of new line is needed	149	4
Missing links	-	-	211	6

Source: SEETO, 2016

Maintenance of the rail infrastructure is still one of the major challenges in the region (Figure 4).

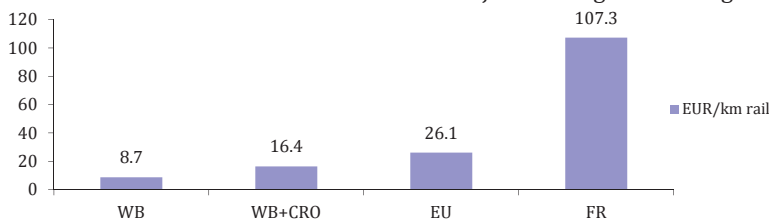


Figure 12. Rail infrastructure maintenance expenditures average for 1995-2011

Source: STAREBEI, 2016

The price of maintenance per km is greatly different among the region economies and there is no consistent methodology among them for defining maintenance costs based on the level of maintenance. Poor maintenance for a prolonged period of time resulted in a disastrous state of the tracks, the destruction of the infrastructure and a very limited average speed on a great part of the routes on the region rail networks.

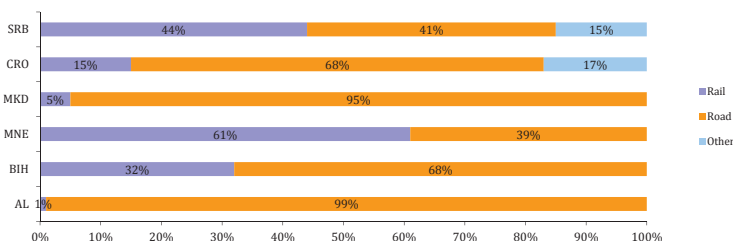


Figure 13. Freight structure in the Western Balkan countries (2013)

Source: STAREBEI, 2016

The deficiencies in the region rail infrastructure reflected on the limited rail service quality level, with average speed of trains which does not exceed 60km/h, common delays of trains, and limited efficiency resulted in decline in rail demand, even the rail freight transport is highly important for the economy of the Western Balkan countries. The mobile capacities for freight are outdated and poor maintained. The rail market in the Western Balkans is still closed facing with the low level of technical interoperability compared to the EU and further actions towards rail liberalization are needed. In the field of inter-modal transport solutions, there is a clear regulatory and institutional gap, as well as a lack of financial funds for their development. Complex and *long-lasting* cross border procedures directly decreasing the level of service quality and have a negative impact in terms of the rail market share (Figure 5). The general objective is the Extension of a EU rail freight corridor to one or more candidate countries of the Western Balkans (SEETO region) – transfer of best practice solutions. The main expected outputs are an

inventory of rail freight facilities on the Core Network Corridors in Western Balkan including Alpine-West Balkan rail freight corridor including an implementation plan¹ in accordance with Regulation EC 913/2010 concerning a European rail network for competitive freight, which will facilitate inclusion of the Western Balkans area into the Rail Freight Corridor initiative (SEETO, 2016). This will create additional possibilities for transforming the traditional rail freight undertakings in to the logistics rail operators.

3. CONCLUSION

In the paper there were assessed the trends of logistic principles implementation in rail freight sector and identified the main obstacles in the Western Balkan rails development. Fragmentation of the rail sector has resulted in huge gaps in infrastructure development levels, particularly between the EU and Western Balkan countries. These barriers contribute transport costs increasing reliability of logistics supply chains decreasing the economic potential of the region, as whole. By removing physical and non physical barriers and creating efficient rail systems on logistics principles can increase the volume of trade and movement of goods through decreased cost of trade, thus contributing to higher growth. An in-depth rails restructuring in Western Balkan countries will result in the organizational consolidation rail competences and create the conditions for increased efficiency and synergy effects in the logistics rail system as a whole, in order to increase focus on customer needs.

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