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THE STRATEGIC DIMENSION OF LOGISTICS IN THE FOURTH RAILWAY PACKAGE

Abstract

The importance of the Fourth Railway Package for the development of rail transport is discussed in this article. Attention is drawn to the role of logistics in the aspect of interoperability and nodal infrastructure development. The importance of the technical pillar from the Fourth Railway Package for the rail freight logistics is indicated.

Keywords: transport economics, sustainable transport, logistics, Fourth Railway Package

Introduction

Investments in the transport infrastructure have a positive effect on the economic growth, they make it possible to create prosperity and jobs, expand trade, geographic accessibility and mobility of citizens. They should be planned in a way maximizing the positive effect on the economic growth and minimizing the negative impact on the environment (European Council, 2011).

The rail transport in Poland suffered a decline in the freight volumes for several years in the period from 2011 until 2017 (except for 2013 when a slight revival could be seen). Growth was forecasted in 2017. Increased freight volumes were predicted mainly due to the launch of infrastructure projects. These involve increased freight volumes of construction materials and rising imports of coal. The growing operating costs incurred by railway companies, the change in the railway organizational structure in Poland, market liberalization and the emergence of new carriers and infrastructure managers are just a few factors affecting the rail transport operations in Poland. There was also a change in the structure of the goods carried where the transport of bulk materials was reduced including but not limited to coal

or steel products. Significant promotion and financial support have contributed to the development of the intermodal transport market in the last few years. The development trends in intermodal transport are presented in Tables 1 and 2. The changes are significantly rapid and very beneficial both in terms of transport and the natural environment.

Table 1. Units in intermodal transport in 2015–2017

	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
2017	258 661	265 626	269 223	287 008
2016	206 599	227 287	243 387	273 685
2015	184 141	171 803	181 113	208 284
Change 2017/2016	25.20%	16.87%	10.62%	4.87%

Source: (study based on materials including an intermodal transport summary of the President of the Rail Transport Office, Warsaw, 2018)

Table 2. Mass of goods carried in intermodal transport (thousands of tons)

	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
2017	3 560.0	3 569.9	3 659.7	3 898.2
2016	2 831.4	3 176.3	3 262.8	3 559.3
2015	2 588.3	2 458.2	2 514.4	2 825.5
Change 2017/2016	25.73%	12.39%	12.17%	9.52%

Source: (study based on materials including an intermodal transport summary of the President of the Rail Transport Office, Warsaw, 2018)

Nevertheless, land transport has been dominated by road transport which has resulted in the emergence of new locations for manufacturing companies, warehousing centres and distribution companies with good access to the road infrastructure. All these circumstances directly translate into changes in the conditions of the transport sector operation. The European Union has been endeavouring to develop environmentally friendly transport modes in its policy for many years. This may be realized by the concept of ‘sustainable development’ that has been promoted recently and translates directly into potential developmental effects. The measures proposed by the EU are supposed to bring about a status where the needs of the present generation can be satisfied without downgrading the prospects of future generations to satisfy them. In line with this idea, the EU transport system should bring improvement, or at least non-deterioration of the environmental conditions and the quality of life of the current and future societies (including human health). The slogan of sustainable development in respect of transport came into being and was defined in 1987 in the report of the World Commission on Environment and Development (WCED) – Our Common Future (European Parliament, 2012). When analysing the history of the European Union’s policy, as well as the implementation executive tool, which is the EU legislation with reference to the effects of the European Union’s activities within the framework of the idea of sustainable development, it can be concluded that the actions taken have not yielded the expected results. The policy pursued by some Member States,

including Poland, was the reason why the transport system definitely fostered the development of road transport. Environmentally friendly railways were successively displaced from the market. We can wonder whether future generations will be able to function normally in a degraded environment if this trend persists. The European Union's transport policy, announced and also written in the strategic documents (e.g. the White Paper) sets a specific roadmap to be followed to a large extent, nonetheless, the implementation of some of the strategic guidelines by individual Member States and the reality of the transport market operation have caused this road to be substantial different. Although the *White Paper* does not refer directly to logistics, nonetheless, it refers to supply chains and to the concept of multimodality in particular (Hajdul, 2017). It is precisely by reason of the rapid globalisation of the world economy that logistics gains in importance in its international dimension. It is defined as the epicentre of business transformation. Increasing integration of the sources of supply, production and trade between companies from different countries and continents is observed. The integration and internationalisation of enterprises are considered as foundations for the creation and development of international logistics¹. New EU regulations are aimed at a fuller linearisation of the European rail transport market. This direction of development assumes that the rail transport operation will improve due to integration and interoperability by increasing the competitiveness resulting from the implemented changes.

The aim of the article is to show how the proposed new solutions stipulated in the Fourth Railway Package can affect the rail transport development within the logistics dimension.

1. Impact of the Fourth Rail Package regulations on rail transport and logistics

Implementing the European Union regulations stipulated in the Fourth Railway Package will be of key importance for PKP SA and the PKP Group in the forthcoming years. The Fourth Railway Package is supposed to lift the remaining barriers that have not been eliminated by the existing regulations and hinder the creation of a single European railway area. The legal acts adopted within the package belong to the two segments: the technical pillar and the market pillar.

The technical pillar, adopted on 11 May 2016, includes the following legal acts:

- a) Regulation of the European Parliament and of the Council (EU) 2016/796 on the European Union Agency for Railways;
- b) Directive of the European Parliament and of the Council (EU) 2016/797 on the interoperability of the rail system within the European Union;
- c) Directive of the European Parliament and of the Council (EU) 2016/798 on railway safety.

¹ International logistics is understood as processes of planning, controlling and implementing flows of goods and information between individual countries, as operating, on an international scale, on material flows originating from outside, between suppliers and subcontractors, taking place in-house (materials, raw materials, semi-finished products), recipient-oriented flows of ready-made goods, services and products.

The technical pillar is designed to boost the competitiveness of the railway transport by harmonizing the technical requirements and safety rules between railway systems of individual EU member states (Siudecki, 2017). At the present time, individual EU member states use different safety standards and different technical systems. In order to provide international transport services, it is required to obtain permits from various national authorities and have knowledge of the operation of various signalling systems, which is complicated and costly. The fragmentation of railway systems is a legacy of the national railway monopolies operating on the market before the liberalization being detrimental to the competitive position of the railways with respect to other modes of transport, especially in international traffic. The inconsistency of the regulations at the European level increases the administrative barriers and makes it difficult for new rail operators to enter the market. The technical pillar eliminates the administrative barriers by enabling the European Union Rail Agency to grant common permits for rail vehicles, permits for control subsystems and safety certificates for railway operators valid throughout the EU. The Agency has also been granted powers tightening supervision over the technical coherence of the implemented ERTM systems (the Agency approves the technical solutions before each tendering procedure – preauthorisation). Pursuant to the regulations, the Agency is supposed to act as a ‘one-stop-shop’, i.e. a point of comprehensive services for all processes related to certification and supervision. The Agency’s task will be to monitor the national railway regulations and the activities of national authorities in the field of railway interoperability and railway safety. The implementation of the Fourth Railway Package objectives in the technical pillar is illustrated in the figure below:

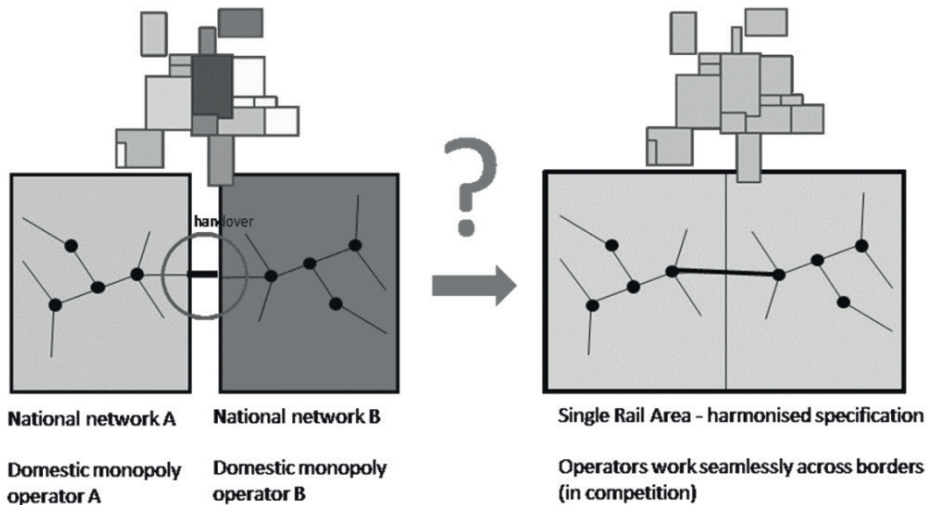


Figure 1. Implementation the Fourth Railway Package objectives in the technical pillar
Source: (Doppelbauer, 2017)

The market pillar, adopted on 14 December 2016, includes the following legal acts:

- 1) Directive of the European Parliament and of the Council (EU) 2016/2370 amending Directive 2012/34/EU as regards the opening of the market for domestic rail passenger services and the governance of the railway infrastructure;
- 2) Regulation (EU) 2016/2338 of the European Parliament and of the Council concerning the opening of the market for domestic public services by rail;
- 3) Regulation (EU) 2016/2337 of the European Parliament and of the Council repealing Council Regulation (EEC) No. 1192/69 on common rules for the normalisation of the accounts of railway undertakings.

The market pillar completes the process of opening up the rail passenger market to competition in terms of 'open access' and the public service obligation (PSO) (Raczyńska, 2017). The implemented regulations assume the full opening of domestic passenger transport for all EU carriers as of 1 January 2019, appropriately in advance before introducing the timetable effective as of 14 December 2020. In the context of PSO tenders, a transitional period has been established in which public service contracts can be executed on a non-tender basis for a period of up to 10 years (possibly up to 2033 at a maximum). The provisions of the Fourth Railway Package also introduce additional safeguards regarding the infrastructure manager's independence in the case of vertically integrated enterprises, including but not limited through:

- separated accounts of the infrastructure manager and other legal entities;
- no influence of other entities on the infrastructure manager's decisions regarding the basic functions;
- a ban on holding functions in corporate bodies of the company (boards of directors and supervisory boards) with the infrastructure manager and the carrier at the same time;
- the financial transparency in the integrated structure (including the ban on granting loans between infrastructure managers and railway undertakings). The amendment of Directive 2012/34 introduced by Directive 2370/2016 (European Parliament, 2016) also provides for strengthening the independence and impartiality of the railway infrastructure manager in order to guarantee equal treatment of railway undertakings (Engelhardt, 2017).

It is the technical pillar of the Fourth Railway Package that is of particular importance in the context of logistics. These regulations will increase the level of interoperability of European railways whereby cross-border transport within the European Union will be simplified. This is of major significance for Poland as it will improve the supply chains. The essence of the issue is presented in Figure 2. The implementation of common permits and safety certificates will accelerate introducing new rolling stock and rail transport technologies, including also combined transport solutions. It should also be hoped that greater supervision of the European Union Railway Agency over the implementation of the ERTMS/ETCS will accelerate the process of equipping the TEN-T network railways with this technology. An effect of introducing the ERTMS/ETCS system will be increasing the level of safety and reducing the risk of railway accidents. The railway traffic management will be more efficient, which will positively affect the capacity of railways and train

punctuality. This system is based on three levels of development and impact range. When the system is implemented, trains will be able to freely cross railway borders in Europe.

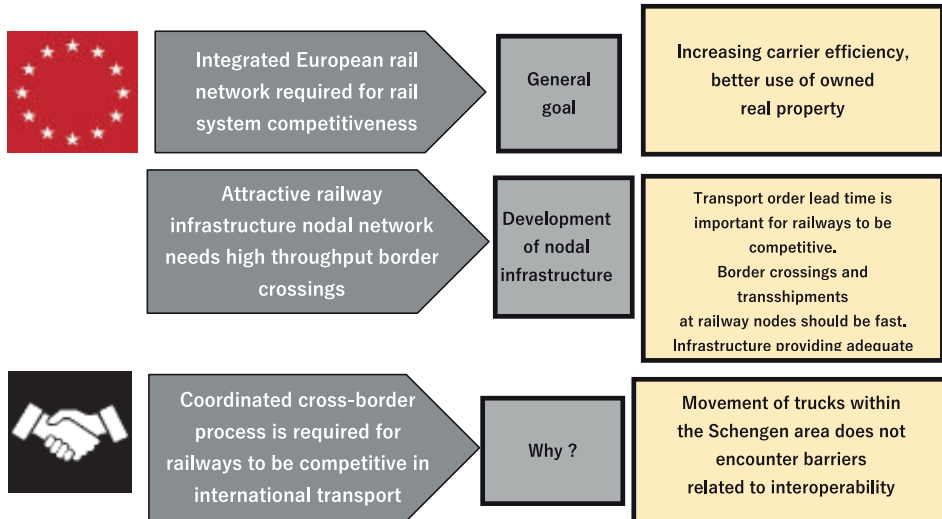


Figure 2. Improved interoperability on the eastern border

Source: (own elaboration based on a paper from a conference at the University of Gdańsk, 2017)

All the above factors will enhance the competitiveness of rail transport without the need for train operators to learn about different traffic control systems. Ensuring the interoperability of the European rail system is an important factor in its development and regaining the transport market. It should be remembered that there are 5 power supply methods for the conductor rail systems in Europe, 5 loading gauges for a 1435 mm track, 14 train control systems, 11 pantograph widths, 4 track gauges, different axle loads on the rail, therefore much time and considerable outlays are required to unify the railway systems.

A new plan (European Deployment Plan) for its implementation on the TEN-T core network in the Member States was established in the ERTMS Implementing Regulation adopted by the European Commission on 5 January 2017. According to the plan, about 50% of the lines located in the corridors of the core network should be equipped with ERTM systems by 2023, while all lines of the core network – by 2030. This is important for the development of the railway industry and it has been included in the Europe 2020 strategy – the Innovation Union (Góra, 2018). The assumptions of this strategy include the application of modern technologies improving the competitiveness of rail transport.

2. Development of nodal infrastructure²

It should be noted that some of the European rail regulations, important for the development of rail logistics have already been introduced by Directive 2012/34. Therefore, it is worth considering the Directive and the Fourth Railway Package (which amends it in part) jointly. It is the provisions of Article 13 of Directive 2012/34 that are of key importance. These provisions, which are coming into force in Poland now, define the conditions of access to the service facilities³ including the nodal transshipping and warehousing infrastructure. The Act of 16 November 2016 amending the Railway Transport Act and some other acts, which is aimed at adjusting the national legal system concerning railway transport to the changes stipulated in Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area, has introduced a number of new regulations in respect of the operation of the railway nodal infrastructure, including all types of terminals, both conventional and intermodal. As of December this year the service infrastructure will become publicly available for rail carriers. Before the changes in question were introduced, railway carriers had often decided to have different types of terminals, treating them as an element of a competitive advantage in the fight to win customers. In many cases an important factor to gain a competitive advantage is a comprehensive range of services. Any change in the regulations in this respect may make transport companies resign from providing these types of services, and thus limit their investment activities in a significant way. As the market of terminal operators has not developed in Poland so far, except for operators of intermodal and conventional terminals at railway crossings on the eastern border, it is very likely that there will be a gap in this segment of services. An additional factor favouring such a scenario is the fact that it is costly to build properly equipped terminals, and much time is required to commission them and use their handling capacities in an optimum way.

In the last few years, considerable funds originating from EU programmes have been expedited in Poland to improve the condition of the railway infrastructure. These activities are very important, however, they will not suffice for the rail transport to regain the position on the freight market. Many railway stations and customer service points were built when the market was divided in a different way at the time of the heyday of the bulk transport industry. The approach to organizing the supply chains was also different. At the present time, many facilities using the old technology have been shut down or restructured, and some stations have lost the sources of freight. This situation is the reason why these stations are less profitable as freight generation points. Limiting the operation of stations, or even closing them is the reason why the railway sector has significant reserves of land which can be used for projects related to the development of the logistics infrastructure. The change

² A nodal infrastructure is understood as spatially identifiable facilities for handling of loads (generally available unloading facilities, stations, transshipping yards and points, logistics centres).

³ Pursuant to the amended Railway Transport Act, a service infrastructure facility is a structure including the land on which it is located, and installations and equipment, intended in whole or in part for providing one or more services referred to in par. 2 and 3 of Annex No. 2 to the Act amending the Railway Transport Act. Pursuant to the provisions of Annex No. 2 to this Act the services are provided in service infrastructure facilities, e.g. freight terminals.

in the preferences for using the transport modes has been the reason why the logistic infrastructure for the modern industry is usually provided far away from railway lines, close to a well-developed road infrastructure and investment areas. The new economic conditions have a significant impact on forming the flows and segments of the transported freight, and thus on the transport infrastructure, which is why changes should also take place in respect of the railway loading yards in the broad sense of the term. Poland has good resources to provide a logistics platform for the neighbouring countries. Two rail transport systems i.e. railways with the track gauges of 1435 mm and 1520 mm have a point of contact on the eastern border. Broad-gauge tracks in Poland can be found not only in the form of the LHS line, but also as well-developed track systems at railway border crossing points. Poland is crossed by four pan-European transport corridors the routes of which were established during the Pan-European Transport Conference in Crete in March 1994, and then supplemented at the 3rd Pan-European Transport Conference in Helsinki in 1997. The European Commission have also set two railway transport corridors running through Poland, i.e. Corridor 5 and Corridor 8. At the request of several institutions including the Polish Ministry of Infrastructure and Construction, the European Union agreed to launch a new freight corridor, Corridor 11, the so called Amber Railway Rail Freight Corridor within the period of several forthcoming years which will supplement the already existing routes. Having in mind the trade exchange between China and Europe and the development of the New Silk Road, it seems reasonable to create a large international logistics centre close to the place where it is planned to build the Central Transport Port.

The containerisation of freight, mostly in international transport, has forced the development of the terminal infrastructure. Terminals of this type were built successively as the freight flows were forming on the already existing loading and unloading yards. Most of these terminals were makeshift, and then, they were upgraded and developed using the aid funds. There are currently 36 land terminals operating in Poland. The number of terminals is changing, as some operations are discontinued, while temporary terminals, often serving one client only are created on other sites. Points of concentration of transshipping operations and logistics services that would act as loading points for the so-called dispersed transport should be provided. The terminal operating at such a point should be universal comprising storage yards, small warehouses with loading yards, with the option of handling small intermodal freight flows. Systemic measures and consistently implemented changes in respect of using the transport infrastructure and creating state-of-the-art freight generation points are required to regain the position held by the rail transport several dozen years ago. The State aid for the development of the railway point-to-point infrastructure should be provided until the costs of access to the transport infrastructure are equal for all modes of transport. Activities of this kind can even be hardly called public aid, they should be regarded rather as an attempt to compensate for the unequal treatment in this field only. Quick introduction of the principle of full payment for transport operations would certainly affect the economy. A sudden increase in the cost of production would lower the competitiveness of EU products. However, ultimately, the principle of internalisation of costs should be introduced for the transparent operation

of transport modes⁴. When framing the transport policy of Poland, we have to consider the European Union's recommendations regarding the directions of changes in respect of the transport market division.

The directions adopted by the EU are rather long-term activities, however, they should be gradually implemented at every stage of planning already today. The development and subsequent implementation of the programme to increase the share of rail transport should be started as soon as possible as it will make it possible to avoid problems that will undoubtedly arise if this is delayed. It should be remembered that the direction of changes indicated by the EU requires many companies to reorganize to include the employed staff. A good example of the lack of a forward-looking approach to this issue is the fact that industrial areas are located far away from railways or no space is left for the rail infrastructure and future loading terminals at the stage of planning the development of these areas.

The decision on the future transport infrastructure and the intended purpose of specific plots of land for investment at the stage of planning is made by local governments. They play an important role in the shaping of the transport policy. Therefore, changes in the approach to the role of rail transport in Poland should take place at all levels of the administration. Many local authorities can see the road transport nuisance and actions aimed at establishing multimodal terminals are taken, nonetheless, without the State's support and financial instruments, they are not able to carry the financial burden related to the construction of multimodal ports including the accompanying infrastructure. Having in mind the new regulations introduced by the amendment of the Railway Transport Act, and particularly by Chapter 6, related to the service infrastructure facilities and the rules for providing these facilities to railway carriers, one of the directions of development of facilities of this type will certainly be that they are going to be constructed by entities in which a stake is held by the public sector, the private sector or the railway authorities, as they are independent with respect to the carriers. Access to the logistics infrastructure facilities will certainly be the most transparent in terms of equal treatment for all the railway market players.

Conclusions

The Fourth Railway Package is aimed at improving the competitiveness of the sector by way of lifting the barriers to the creation of a single European railway area. The existing fragmentation of systems is detrimental to the competitive position of the railways with respect to other modes of transport, especially in international traffic. The inconsistency of the regulations at the European level increases the administrative barriers and makes it difficult for new rail operators to enter

⁴ Internalization of costs, including external costs, consists in forcing the perpetrator to include the costs originated by him into his economic calculation. It is applied mainly in the environment protection economics, where environmental pollution costs should be covered by perpetrators (mainly the industry and business). Internalization of external costs (internalisation of the effects of one's own economic calculation). It is applied mainly in the environment protection economics, where environmental pollution costs should be covered by perpetrators.

the market. A number of both economic and social aspects, as well as the environmental impact should be taken into account when framing the transport market. Railways and water transport are among the most environmentally friendly modes of transport. This does not mean that only these modes of transport should be used when building the supply chains. State-of-the-art transport systems should use all types of transport in an optimal manner in terms of all costs generated in the process, including external costs. Nonetheless, modern points connecting individual modes of transport are needed to accomplish this task. The amendment to the Railway Transport Act has introduced a number of changes in the railway service infrastructure operation, including all types of terminals and loading yards. In addition to that, changes are needed in the approach to the construction and management of such facilities. The principle of independence of operators of these facilities from railway carriers indicates the directions for future solutions in this respect.

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