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# Regulation and Logistics in Rail Freight Transport

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**Abstract**

The author pays attention to phenomenal importance of regulation in the sector of rail transport. The sector develops thanks to pro-competition regulation of access to the network (the infrastructure of rail transport), and also in consequence of more frequently used logistic solutions. In the second part of the article main assumptions of European Union's transport policy are discussed, which are orientated towards implementation of logistic mechanisms into the development process of freight transport sector.

**Keywords:** logistics, transport, railways, regulation, market access, infrastructure, competition

## 1. Introduction

Regulatory problems are an important matter for the rail transport market and logistic solutions. Regulation as a legally conditioned method allows the state to affect the economy by issuing administrative decisions binding enterprises to fulfil certain obligations related to the market. It is worth stressing here, that the subject matter does not concern single cases of competition infringement, but functioning of the market as a whole. Hence the regulatory body has to know by heart domain markets regulated by it and has to have elaborated market analysis methods. In essence it does not have to boil down to regulation being identified exclusively with an administrative and legal concept establishing and using administrative and legal standards. From the economics' point of view the premise for regulating business

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including sector regulation are the market's imperfections, and the justification is the theory of public interest based on so called regulatory economics.

## 2. Regulation – Dimensions and Tasks of Economic and Market Regulation in the Rail Sector

In the market of rail transport as a result of institutional separation of infrastructure (chief manager – PLK S.A.) into an independent entity a natural monopoly had formed. PLS S.A. in the market of providing infrastructure – the market share of PLS S.A. in the market of provided infrastructure accumulates to over 97% in terms of maintenance work performed and over 86% in terms of the number of started 1 train routes.

Due to multiplicity of carriers operating in the market of rail transport (almost 200 licences have been granted) there is a competition for access to the infrastructure, to the railways specifically in order to perform economic activity. The issue of access to infrastructure needs to be looked at in a broader context – for it is the problem of existing in the rail industry key equipments analysed within the framework of so called key equipment theory. Hence there is a need for providing – through administrative and economic mechanisms – parity of access to the monopolist's services and coercing it into effective operation. That is since costs of access services have a significant meaning for profitability of rail carriers' operation and development of competition in the market of rail transport. Presence in the market of both private and state sector puts an emphasis on meaningfulness and significance of the discrimination issue in terms of access to infrastructure and establishing anti-discrimination rules of market play in the area of fees charged for access to infrastructure. Regulation of the rail transport market, renders available operating capacity for professional rail carriers (in sense of entities through licensing), regulates access to the market (e.g. by endorsing charges for access and their monitoring), controls observance of competition rules etc. in order to provide an equal access to the market for all entities[1]. Regulation of this type is a so called state regulation resulting from the need for achieving certain, state-determined economic and social objectives. Amongst those objectives are the following e.g. supply of public goods or stimulation of competition in the area of natural monopolies. Regulation interpreted in that fashion as Szydło[2] points out has two fundamental dimensions: sector dimension and horizontal dimension. Sector regulation applies to individual areas of economy and is set to control certain issues e.g. new entries to the market, price levels etc. Special example of sector regulation is the regulation of infrastructural sectors e.g. in energetics or rail transport in terms of access to linear

[1] EC Harris: RTO Internal resources 2005, p. 9.

[2] M.Szydło: Regulacja sektorów infrastrukturalnych jako rodzaj funkcji państwa wobec gospodarki. Wydawnictwo Prawo i Praktyka Gospodarcza, Warsaw 2005 p. 48 and the following.

and point infrastructure of rail transport. The very essence of the regulatory function is its anticipating situation in the market character. In the European Union within the uniform transport market we head towards strengthening regulatory aspects in the area of rail transport and the institution of regulator itself. Indicative of the aforementioned is EU's draft directive[3] combining past regulatory directives of the so called First Railway Package.

An effective regulation of rail transport according to European Commission[4] ought to be based on i.a. following criteria:

- Effective monitoring of the market and competition,
- Independency of decision making,
- Employees' competences,
- Transparency of actions and accessibility for market participants.

In order to complete regulatory tasks in accordance with law provisions Member States of the European Union appointed regulatory authorities. In Poland in accordance with art. 10 of rail transport act, the office responsible for issues related to rail transport, licence granting, consumer rights protection is the Chairman of Rail Transport Office (RTO).

However, still significant technical resources are lacking, information tools in particular, which would aid fast-tracking the transformation processes and would allow to supervise on a regular basis the course of reforms in compliance with the policy and national and European strategies. Poland, being second major country in the EU in terms of rail freight transport intensity, requires particularly immediate actions to be taken in the process of further reformation of the rail market. Addressing those requirements are the Rail Development Program to 2015 and the High-Speed Rail Development Program. In year 2007, rail market in the EU became open to all carriers in freight sector. Since 1.01.2010 the market for international passenger transportation has been opened together with the right to cabotage.

Provision of collaboration and information exchange with individual participants of rail transport domestically and within the EU, with appropriate institutions of the European Union, European Railway Agency and regulatory bodies and protection authorities, operating in individual Member States constitutes a fundamental condition of correct execution of assigned to the regulator functions. For regulators substantially crucial is the aspect of decisional independence.

In network sectors preferred is the requirement of so called double independency of political authorities and regulated companies. In order to fulfil its role in that aspect it should adopt a proactive role related amongst others to neutral arbitrage in

[3] Proposal for a Directive of the European Parliament and of the Council establishing a Single European Railway Area, Brussels 2010.

[4] European Commission Report concerning implementation of the First Railway Package, May 2006.

the market, systematic opening of the rail market to aspiring entities, overlooking competition, so it should exercise appealing, controlling and monitoring functions[5].

It has to fulfil its role upon formal request and at its own initiative.

Practical experiences indicate that a correctly functioning regulatory body should satisfy the following requirements:[6]

- to be an independent entity with a transparent organisational structure and procedures;
- should not be the subject to political influences;
- should have at its disposal employees qualified in rail regulation and deal exclusively with regulatory matters;
- should have knowledge and be responsible in respect to regulatory objectives;
- should have legal tools in order to enforce regulatory decisions,
- methods and outcomes of regulator's actions together with the decisions made should be publically available, transparent and consistent;
- organisation of the body should be client-orientated, regulatory body provides services.

Assumptions of a regulatory system complying with the aforementioned provisions are shown in Fig. 1.

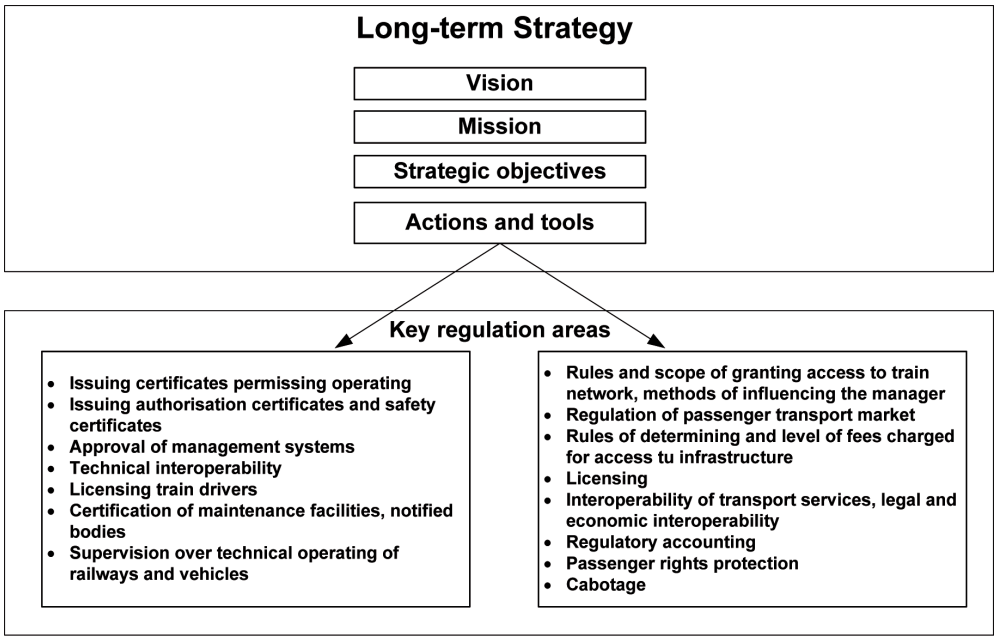


Fig. 1. Assumptions of the system regulating rail transport market
Source: own development

[5] Report entitled Regulacja rynku kolejowego w Europie, Rynek kolejowy nr 6/2005.
[6] Report IBM Business Consulting Services, 2006 p. 4.

## 3. Freight Transport Logistics in Transport Policy of the European Union[7]

European transport system is an essential element to social and economic development of Europe. It plays a key role in moving goods in the local, national, European or international context. The linear and point infrastructure of rail transport, its condition and quality has a decisive significance to proficiency of goods flow processes. It is explicitly emphasised also by PLK S.A. in their document[8]. Transport sector in Europe accounts for about 5% of total employment in the EU, 12% being 7% of the European Union's GDP. Demand for freight transport has been growing on average by 2.7% per annum. Tendencies and challenges facing transport in the EU had been clearly presented in 2009 in an EU document[9]. In order for the transport to grow in its significance an integrated approach is required, which would combine all modes of transport. Innovations are a chance for integrated transport. Their role should be creation of competitive transport solutions which would determine the transport in Europe to positively stand out. Freight transport is developing, what especially applies to road freight transport. It comes as a disadvantage from the point of view of natural environment, external costs or e.g. transport congestion phenomenon. An observation has to be made here, that the limitedness of infrastructural resources given the occurring distortions has a negative influence on European countries' economies. European Union acknowledging above mentioned problems after the review of 2001 White Paper had pointed to the growing role of logistics by claiming, that in order to optimise the European transport it is requisite to apply advanced logistic solutions, and logistics can increase the efficiency of individual modes of transport including combined forms. To express it in quasi-political terms, freight transport should be considered as the key component of an integrated logistic system. Hence the decisional choices made are decisive in terms of effectiveness and operational costs in run businesses. Freight transport in Europe can gain in significance through application of high-quality intermodal logistics. High-relevance components of it are i.a. standards of service quality, increase in role of rail and water transport and technical standardisation. Therefore logic thinking had to be incorporated into transport policy of the European Union. Elements of that thinking the European Union presented in July 2006 in a document entitled Freight transport logistics in Europe – the key to sustainable mobility. Underlying that thinking were general objectives of transport policy talking about necessity for optimising efficiency and utilisation of European transport system's resources. That

[7] Elaboration based on: Creating an Innovative Europe, European Communities, Belgium 2006, and Freight transport logistics in Europe – key to sustainable mobility, European Communities Commission, Brussels 2006.

[8] See Szanse i bariery utrzymania i rozwoju infrastruktury kolejowej w Polsce, PLK S.A. Internal resources Warsaw 2010.

[9] See a sustainable future for transport, Publication Office of the European Union Brussels 2009.

is since Europe needs efficient freight transport logistics combining together benefits of all forms of transport in order to sustain and increase Europe's competitiveness, in accordance with the Lisbon Strategy. Links between logistics and transport policy are expressed by i.a.:

- necessity of introducing logistic perspective to transport policy. Considerations of logistic nature are taken into account in the process of making transport decisions;
- granting logistics the role of a catalyst increasing competition and maintaining professional knowledge, skills and workplaces in Europe;
- meaning and role of logistic decisions in isolating development of transport in Europe from its detrimental influences;
- providing balance between safety of goods in supply chains (procedures of guaranteeing security) and free flow of goods and services.

Initiatives related to freight transport logistics are confined within 8 areas specified in the plan of action considering freight transport logistics announced by the European Commission in year 2007. Main areas incorporate:

1. Integration of logistics and transport policy. Logistics and transport policy should be strictly connected with each other. That rule should be in force both on European level and national e.g. upon making decision in the field of infrastructure and managing it;
2. Contemporary technology. Condition for efficient logistics to occur is utilisation of teleinformatic technologies, standardisation of communication between administration and transport and logistics entities. It regards e.g. tracking and tracing cargos. Those technologies are to usher in satellite navigation system GALILEO, or LRIT (ship tracking system, or ERTMS in rail transport). In order to avoid delays in supply chains the RFID technology has to be utilised and used. Necessary is elaboration and application of common standards of passing on messages and communications (e.g. EDI/EDIFACT). An extremely important element is integrated administrative service (so called one window rule). The underpinning for increasing efficiency of logistics have to be common standards adopted by producers, transport and logistics operators aimed at achieving synergetic effects between various systems. Changes should be driven by interoperability and mutual feed of information between market participants within the scope of so called open architecture;
3. Identification of bottlenecks in development of freight transport logistics. Market participants and stakeholders (e.g. logistic service providers, clients, trade unions), which care about development of e.g. train transport should monitor, probe and identify bottlenecks hampering development of logistics and transport and react to them.
4. Trainings in logistics. The European Union pays particular attention to skills, knowledge and competences of employees committed to transport and making related to transport logistic decisions. The commission debates supporting de-

velopment of mutual recognition of freight transport logistics rights. There is work in progress under the Leonardo da Vinci program;

5. Quality in logistic services and transport companies in Europe. Logistic performance of the freight transport market in Europe has to be monitored, analysed and compared in terms of indicators and gauges assessing the market in time and its structure. Examination of transport infrastructure's quality is important due to network planning (TEN-T) as well as funds expanding and improving quality of trans-European transport network. Indispensible are control and appraisal standards of service quality, which are provided by operating within the transport sector economic entities. Tools for comparative analyses, granting high quality symbols are required. In rail transport with intention of improving quality of freight transport is planned creation of dedicated transport corridors. Those corridors would aim at improving the reliability, efficiency and competitiveness of international freight transport services by rail;
6. Application of modular concepts allows for transport of 50 % more goods by a single vehicle. The concept of common loading standards and shipping units. According to the European Commission's opinion the transport industry needs a better shipping unit system catering to demands of intra-European transport in order to cut costs and better the competitiveness;
7. Multimodal logistics. Development of multimodal logistic terminals needs to be supported as they represent the most important nodes linking main European arteries of the European transport network. Terminals ought to be equipped with modern technical solutions and have efficient connections with the infrastructure. Tri-modal terminals of an open characteristic are attracting private investors and creating new workplaces.

   A crucial element of multimodality is the problem of responsibility in case of multiple systems. The problem of insurance covering the entire route of transport, or e.g. multimodal waybill.
8. Globalisation leads to an increase in transport and creation of congestion at nodes and transhipment facilities, especially in ports. Efficiency of such points needs to be increased (e.g. by building new container terminals) and the workload of road and rail infrastructure should be distributed in a proportional manner.

Transport is an integral part of the development of logistics and supply chains. Without proficient transport it would be difficult to talk about efficiency and patency of transport flows in the economy. Development of freight transport logistics is an action related to economic activity. State authorities are to play first fiddle in scope of creating adequate conditions for development and to include logistics issues in assumptions of transport policy e.g. in the aspect of financial leg up for construction of terminals for intermodal transport or open logistics centres. Rail transport in Poland seeks for holistic information solutions combining all business processes into single software. Track and Tracing becomes the determinant of quality. Without a shadow of a doubt favourable to rail transport's development will be the approved implementation plan of the European Rail Traffic Management System (ERTMS).

As the Fig. 2 depicts, in Europe there are already operational transport corridors which are equipped in ERTMS. It is the future for development of rapid rail transport connections in Europe.

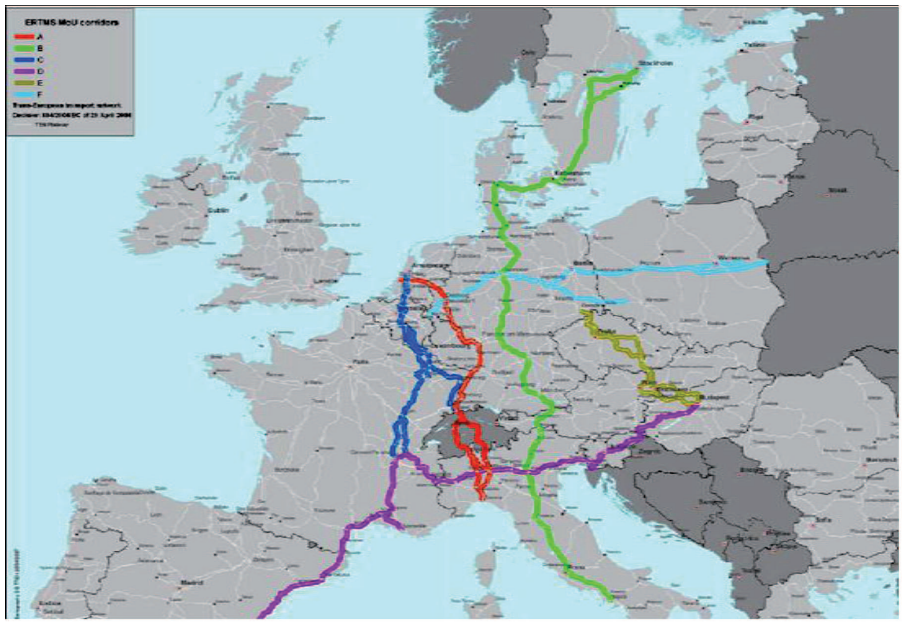


Fig. 2. ERTMS corridors
Source: KEYRAIL internal resources, Hague 2010

## 4. Chosen Logistic Problems – Market Regulator's Take

The role of logistics and logistic solutions for transport was presented by the European Union also in the document "A sustainable future for transport: Towards an integrated, technology-led and user friendly system" from 2009. From the standing point of the market Regulator attention has to be paid to:

- Systems for fixing timetables – fundamental key device in segment of rail passenger transport decisive of anti-discriminatory access to providing services and creating a complementary also intra-system logistic connections chart ensuring mobility and availability of cheap transport solutions;
- Participation of the Regulator in public coordination of the planning process for development of rail network infrastructure including:

1. In order to ensure an optimum transport system's operation a full integration and interoperability of individual elements and networks needs to be in place, requiring also intra-system connections within a network. The most important are network nodes, logistics centres offering a possibility of connection and

choice both for freight transport as well as passenger transport so called modal networks – example in the Fig. 3;
2. Transport documents and multimodal tickets;


Fig. 3. Rail Service Centre Rotterdam
Source: Guus de Mol, unpublished resources, Rotterdam 2010

1. Removal of bottlenecks from transport chains, clarification of responsibility, disputes resolution and complaints investigation, logistics trainings;
2. Public authorities guarantee to third parties access to infrastructure, Managers of transnational infrastructure – development of logistic infrastructure preventing congestion and loss of time – so called hard infrastructure and soft infrastructure, so e.g. (ITS – intelligent transport systems and intelligent prices in transport).

New rules of opening up the market and actual enforcement of existing legislative framework in the area of train transport (opening of international market of passenger transport along with rights to cabotage since 1. 01. 2010).

Areas of freight transport logistics complying with that new dimension are presented in the Fig. 3.

## 5. Summary

Modern and process take on issues of regulation and logistics, results from increasingly more extensive knowledge about the client and willingness to improve the rules creating rail freight transport market. Sector of economy, which is the rail market, becomes a highly integrated and evolutionary business area, of which

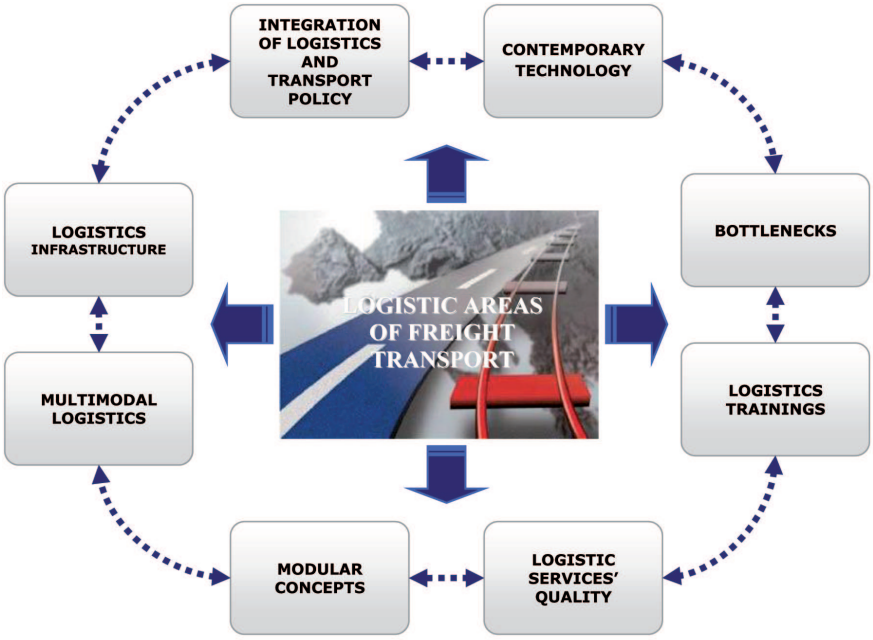


Fig. 4. Main logistic areas related to freight transport
Source: M. Antonowicz, B.Prudzicz: Own developments, Warsaw 2008

indicative is growing interest in the market. Creation of "friendly" administration in terms of access to market and rail transport market competition should be one of major objectives of the regulator.

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