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The Liberalisation of Rail Transport in the EU

On 1 January 2007 the European rail freight market, which has long suffered from fragmentation and a declining share of total transport services, will be fully opened to competition. What will be the consequences for the transport sector and the economy as a whole? What further measures are needed to stabilise or increase the railways' share in the freight market?

Alexander Eisenkopf*

Opening the Rail Freight Market in Europe – an Economic Assessment

On 1 January 2007 we shall see the full opening of the European rail freight market – a crucial milestone in the history of railway transport in Europe at least in the perception of official observers. For many decades national railway markets have been closed monopolies – served by stated-owned companies which were unable to respond adequately to the challenges of the market. The rail freight sector was therefore unable to participate in the strong growth of the freight markets and to defend its market position in the passenger market. In consequence the market share of rail transport fell with regard to both passenger and freight transport. The financial performance of railway firms also declined significantly and EU Member States had to subsidise their national railways with considerable payments to keep them viable.

Since the end of the 1980s the European Community and the Member States have launched initiatives to stop the decline of the railway sector. The first essential initiative of the European Commission was the White Paper on "a Strategy for Revitalising the Community's Railways" in 1996. It was followed by the White Paper on Transport Policy for 2010 released in 2001. This White Paper included ambitious political targets for the development of the European railway sector. Railway firms should compete successfully in the growing European transport markets and reach their former market (modal) share of 1998 by the year 2010. To reach the goals defined in the 2001 White Paper the European Commission launched several legislative initiatives to liberalise the rail service markets in Europe and to develop a common European railway area. The "First Railway Package" was released in 2001. It consisted of three Directives regarding infrastructure access (2001/12/EC on the development of European railways amending Directive 91/440/EEC, 2001/13/EC on railway licensing amending Directive 95/18/EC and Directive 2001/14/EC on capacity allocation, railway infrastructure charging and safety certification) and the directive 2001/16/EC on the interoperability of rail systems.

The Directives providing access rights to the infrastructure (2001/12-2001/14) require the separation and independence of functions that are essential for ensuring non-discriminatory access, especially track capacity allocation and setting of track access charges. They also include the various conditions to be fulfilled by the railway firms to make use of the access rights for international freight services on the TERN network and cover the principles of slot allocation and infrastructure charging. Directive 2001/16/EC is dedicated to the implementation of common technical specifications to achieve the interoperability of rail services in Europe.

In May 2006 the European Commission adopted a report on the implementation of the First Railway Package. The report concludes that the legal implementation of the First Railway Package is completed – three years after the deadline to transpose the European Directives into national law (!) – but efforts have to be increased in some Member States to ensure an effective regulatory framework and the satisfactory

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functioning of the rail service markets. The assessment of the "Second Railway Package" adopted in April 2004 has to be done against this background. The "Second Railway Package" provides instructions on rail safety, an amendment of the interoperability Directives 96/46/EC and 2001/16/EC in order to gradually extend the scope of interoperability to cover the entire rail network and the setting up of a European Railway Agency (ERA). The ERA is supposed to provide technical support for the work on interoperability and safety of the European railway sector. More important in the context of this paper is the extension of the access rights for freight services to the whole infrastructure. The core message of the "Second Railway Package" is the free access to infrastructure for international rail freight services by January 2006 and the liberalisation of cabotage by 2007. Apart from the fact that the "Second Railway Package" has not been transposed into national law in every Member State until now, it shall provide the full opening of the European rail freight market. Every European railway firm will be able to offer freight services around Europe without legislative or institutional barriers.

Meanwhile, a "Third Railway Package" has been presented by the European Commission and discussed intensively. The proposal would allow open competition in cross-border passenger rail transport by 2010. Additionally, it covers the issue of passenger rights and the certification of railway staff. An agreement on the "Third Railway Package" is expected in the course of the year 2007.

An economic assessment of the opening of the rail freight market has to answer the question of the consequences of the liberalisation of the rail freight market for the rail freight sector and the economy as a whole. The main topics to be addressed are the efficiency and competitiveness of the future rail freight sector and the question whether liberalisation will be able to stabilise or increase the market share of railways in the freight market. A better market performance of rail freight should give the Member States an additional chance to cope with the future growth of the transport markets in Europe. The future of rail freight is also a key factor for the sustainability of the transport markets and the effectiveness of public funding for rail infrastructure.

Steps to Liberalisation and Development of Markets

When we try to make up our minds about the economic impact of rail liberalisation in Europe, we have to assert first that the trends in the transport markets have not changed fundamentally since the beginning of regulatory reform in the European Union. In its mid-term review of the 2001 White Paper on Transport in 2006 the European Commission was forced to concede that until now the targets of its transportation policy have not been met. Especially rail freight traffic only stabilised at a lower level. On the other hand, rail freight transport in those Member States that opened up the rail market early shows a bigger increase compared to the other countries. The (partial) opening of rail freight markets led to increased market entry in recent years. Entry of new rail freight firms was especially strong in countries with liberalised markets like the United Kingdom, Germany, Sweden and the Netherlands.

It can be observed that new entrants are relatively small compared to the existing railway firms but work more efficiently and provide attractive services for their customers – especially in the block train market. In the past, this market has been quite profitable for railway operators because there was little competition by trucks. Open access to infrastructure has changed this situation for the incumbent railway firms because the entrance of new competitors has driven down prices.

On the other hand, we have seen a slight general upwards trend in rail traffic for two or three years now – especially in countries with open rail freight markets. But we have also to accept that some national rail freight markets are still closed shops with a market share of the dominating railway firm of up to 100%. If we look at France, Denmark or Spain, we see that the incumbent rail freight operators reach a market share of 100%. But also in markets with a higher degree of liberalisation the market share of the dominant operator reaches at least 70% (e.g. United Kingdom). Some observers of the market take the relatively large number of (new) operators in the European market as an indicator of an increased intensity of competition. This observation, however, may be misleading because we have to bear in mind the distribution of market shares between incumbents and entrants. The market share of the new entrants is much more important for the assessment of the balance of power and the competitive strength of the new entrants than the number of operators itself. As a conclusion we should not look primarily at the "law in books" but at the "law in action", that means at the markets themselves and the entry options and obstacles that exist in reality.

This is particularly important with regard to the purpose of this paper – an economic assessment of the opening of the rail freight market in Europe. If we consider that the rules of the "First Railway Package" have been adopted into national law in all Member Coun-

tries but additional efforts of the Member States are necessary to ensure the satisfactory functioning of the rail service market, as the European Commission asserts, and if we look furthermore at the markets themselves, we have to be careful with our assessment of the degree of competition. A European Directive itself asking for open access does not mean that all Member States will automatically guarantee free and open markets after January 2007. Furthermore, if free market access including cabotage is part of national law, this does not mean that there are no additional entry barriers confronting newcomers such as national approval procedures for rolling stock or protective measures taken by established carriers. Time-lags of political and regulatory measures to open the markets seem to be a significant attribute of railway markets.

The Future of the European Rail Freight Market

The full opening of the European rail freight market on 1 January 2007 can be perceived as a dramatic threat or an outstanding opportunity. Incumbent operators will mainly fear declining profit margins due to the market entry of new competitors and the possibility of losing market shares. On the other hand former national railway operators get the chance to expand their activities to other Member States and to form international cooperations and alliances in rail freight traffic. This is especially important because rail freight transport is shifting from a national to a European business. At the moment, about 50 per cent of rail freight services in the European Union are international (imports, exports or transit) and international traffic is expanding with growth rates much above the market average. The general slight upward trend of rail freight traffic in some countries relies to some remarkable extent on the growth of international freight traffic in Europe, especially on the north-south corridor.

Because one of the main strengths of the rail freight system is the safe, scheduled and cost-effective transport of large quantities of goods over long distances, the internationalisation of rail freight traffic is one of the main challenges of the market. The growth of border-crossing, long-distance traffic will be the chance for the rail freight operators to take advantage of the dynamics of the transportation market in Europe and at least stabilise their market (modal) share. However, to benefit from the development of markets railways have to improve their performance significantly to better satisfy the logistical requirements of their (potential) customers, especially in the single wagon load market. Additionally, innovative private operators will increasingly offer more complex products like multiple block trains and intermodal traffic solutions. The liberalisation of the European rail freight market is the key to make use of these chances. Within a regulatory framework that allows everyone to offer rail freight services everywhere in Europe, rail operators should be able to provide the services needed on their own or in cooperation with other operators.

On the other hand, open access will boost competition for incumbent railway firms. New rail freight operators will enter the market. Market entrance will lead to intensified intramodal competition, especially in the block train market. One competitive scenario is that the single block train business of the dominating operators is undergoing a price erosion with the emergence of free market access. The consequence of this "cherry picking" could be additional losses in the single wagon load markets because profits from block trains can no longer cross-subsidise single wagon load traffic. But this argument does not pass a critical economic assessment. If single wagon load transport cannot be run competitively at the moment, the consequence must be to increase the productivity of this production method and its acceptance by customers and not to raise barriers against open access.

There is also the threat of the big state-owned railways that could enter the adjacent markets and push out smaller private rail operators. Markets will be in motion anyway: besides the market entry of additional competitors we shall observe a trend to higher concentration because of mergers and acquisitions. The economic assessment of this trend is ambivalent. Mergers and acquisitions may lead to higher efficiency. But they can also strengthen the market dominance of the big incumbent rail freight operators, which simply buy weaker competitors and thereby reduce the intensity of competition.

As a net effect one should expect that open access provides an opportunity for improving the efficiency of the railway markets by strengthening intramodal competition. To sum up, strengthened intramodal competition implies several positive developments for the European railways, such as:

- rail services will presumably become more attractive, especially due to more efficient organisational structures of railway firms;
- an important economic pattern prediction is that cost savings and productivity improvements will be detected and exploited because of intramodal competition;
- innovative, customer-oriented services should be developed to come up with the service quality of the intermodal competitors;

- incumbent railways can no longer excuse performance weaknesses by distortions of the intermodal competition.

Consequently, intensified intramodal competition is the key to increasing the intermodal competitiveness of European railways. Intramodal competition has to be judged as an effective measure to achieve a sustainable improvement in cost and service structures of railways and thereby increase their modal share in the international transport market.

Open Access – Is Competition Automatically Guaranteed?

There is widespread consensus among transport economists on the positive effects of intramodal competition in the rail freight market. The crucial question is, however, whether there will be a higher degree of competition on the tracks after the full opening of the market by January 2007. As already mentioned there are barriers to entry further on, not only with regard to economic factors like financial strength or economies of scale. You have also to consider the continuing reluctance of some European states and state-owned railways respectively to open up their national infrastructure or at least to hamper market access. European-wide open access requires at least a fully independent infrastructure and service facility management. There is also a need for powerful and independent regulatory institutions. Without the enforcement of non-discriminatory market access in business reality, open access enabled by law cannot generate the positive effects of intramodal competition.

Another question to be discussed is the separation of infrastructure and operations as a measure to ensure the independency of infrastructure managers from railway operators. This is especially important with regard to international freight transport. If there are entry barriers for railway operators planning to serve international markets in business reality, a solution can be horizontal cooperations with partners active in their targeted market. In general, a higher degree of horizontal integration of European rail freight operators can be seen as a chance for overcoming international rail freight's weaknesses in logistical services. But this seems not to be true in the case of cooperation between vertically integrated railway firms. Alliances of vertically integrated railways today represent alliances of the state-owned incumbent railway giants. Such cooperations will serve to push only the interests of these dominant, state-owned railways, also with regard to infrastructure policy. In a worst case scenario alliances or joint ventures of integrated railway firms could be a useful instrument to exclude independent operators from the market.

Altogether, open access without additional regulatory and/or structural reforms does not automatically mean more competition on the tracks and a higher competitiveness of the railway sector itself. Besides the problems of market access and competition addressed in this paper European railway policy has to reach interoperability by technical and organisational harmonisation and to promote a higher effectiveness of the infrastructure management. Therefore, the full opening of the European rail freight market means indeed an important step toward revitalising the European railways, but represents only a first step.

Christian Kirchner*

Legal Instruments for Liberalising European Rail Freight Markets from 2007

European rail freight markets have long been fragmented. On national markets monopolistic structures have prevailed. Thus, rail-bound freight transport has lost ground to road transport dramatically. Whereas in road transport markets have been opened up as part of the European integration process, rail markets have remained closed. In 1991, the first step in the direction of opening up and liberalising such markets was Directive 91/440/EEC. The Directive had the (long-term) goal of increasing the efficiency of European railways and of facilitating the integration of national railway markets. The decisive legal tool for attaining these goals was ensuring network access. In

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2004 Directive 2004/51/EC stipulated that railway undertakings shall be granted, on equitable conditions, access to the infrastructure in all Member States for the purpose of operating all types of rail freight services at the latest by 1 January 2007. This means in essence that from January 2007 on national borders should no longer be an obstacle to the development of European rail freight markets. In inter-modal competition, rail-bound freight transport services get a chance to bring into play their comparative cost advantage on long distances vis-à-vis road transport. New forms of combined road and rail freight services are expected to develop.

Rail Market Liberalisation as Part of the European Integration Process

In order to integrate the national markets of Member States of the European Union and to create a Single European Market legal instruments have been used to facilitate the free flow of goods, services, persons and capital including the right of establishment. The legal cornerstone is the four freedoms of the Treaty Establishing the European Community. They are directly applicable law. But the free flow of goods and services is not feasible if markets are closed due to national monopolies. In order to allow the free flow of goods and services such national monopolies have either to be abolished or to be modified. But such national monopolies may be justified in the light of the efficiencies of "natural" monopolies (examples are: telecommunications, electricity, natural gas, rail transport). From a (static) efficiency perspective it does not make sense to duplicate networks in the light of the declining costs of an existing network (subadditivity of networks). If national monopolies are being justified on these grounds this will lead to a dilemma. The integration goal of the Treaty Establishing the European Community (EC Treaty) conflicts with economically justified national monopolies. The only escape from this dilemma seems to be the formation of a Europe-wide monopoly. But since the European Community does not possess the corresponding competences vis-à-vis the Member States this is not a solution.

The other way out of the dilemma starts with a distinction between the network level (where competition in the railway sectors seems not be feasible) and the downstream level, where competition within a given network appears to be possible. The legal solution of the dilemma is a modification of the property rights of network owners by granting access rights to those undertakings which need network access in order to be able to compete on downstream markets, i.e. rail transport markets. The new legal instrument to cope with network monopolies has been developed as a tool of competition law. In order to deal with the problem of abuse of dominant market position (Art. 92 EC Treaty) access to "essential facilities" has been granted (essential facilities doctrine). In network industries such "essential facilities" may be defined as the bottlenecks controlled by network owners. Competitors on downstream markets need access to these bottlenecks in order to be able to compete.

The legal problem of opening up and liberalising rail markets in Europe may then be defined as follows: the integration goal of the EC Treaty in the field of rail markets cannot be achieved by the four freedoms as such. National monopolies in the rail sector have to be confined to the network level and have to be modified by granting access rights to undertakings which need these rights in order to compete on rail transport markets.

Creation of Access Rights as Instruments to Open up and Liberalise Rail Transport Markets

In the field of rail markets the existing infrastructure has to be opened up to enterprises which compete on rail transport markets. Such a competition-creating device serves two purposes simultaneously: competition in rail transport markets and the integration of formerly separated and closed national markets. It is the integration goal which brings the European Community as lawmaker into play. Community law has to define access rights on the level of directives. Directives are addressed to Member States, which have to transform them into their national law. The legal process takes place on three levels: creation of Community law, transformation of directives into national law and implementation of national law.

From an economic perspective the picture seems to be simple: legal instruments are utilised to accomplish economic goals (means-and-ends paradigm). But whether such goals are accomplished in practice depends on a variety of legal and non-legal factors. Legal instruments often work differently than expected (non-intended consequences of intentional activities). They produce side-effects. Necessary preconditions for achieving the defined goals are sometimes overlooked. Non-legal factors may play a decisive role.

Economists perceive the creation of access rights to existing networks as an attempt to reduce existing entrance barriers. As far as such entry barriers are of a legal nature – e.g. ownership of a network, existing monopoly rights – the modification or dilution of such rights appear to be suitable instruments to reduce en-

try barriers. But in the case of non-legal entry barriers the task becomes much more difficult. Nevertheless, the liberalisation goal can only be attained if the different kinds of entry barriers are successfully tackled.

The effective opening up and liberalising of European rail freight markets from 2007 thus turns out be a complex problem. In order to analyse the existing legal tool box which ought to attain the – legally – defined goals it is necessary to have a closer look into the various legal tools and to take into consideration non-legal factors of market foreclosure.

The Legal Tool Box

Directive 2004/51/EC provides in Art. 1 par. 2 sentence 2 that railway undertakings within the scope of Art. 2 of Council Directive 91/440/EEC (i.e. railway undertakings established or to be established in a Member State of the European Union, providing rail transport services for goods and/or passengers) shall be granted, on equitable conditions, access to the infrastructure in all Member States for the purpose of operating all types of rail freight services at the latest by 1 January 2007. Article 2 stipulates that Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 December 2005 at the latest.

These provisions of Directive 2004/51/EC – opening rail freight markets within the European Union from 2007 – are the decisive step in a process which was started – as mentioned above – in 1991 by Directive 91/440/EEC. Article 1 of the Directive defines its aims: to facilitate the integration process of European railway markets, and to increase their efficiency. The toolbox contained – amongst others – the following instruments:

- ensuring management independence of railway undertakings,
- separating the management of railway operation and infrastructure from the provision of railway transport services,
- ensuring access to the networks of Member States for international groupings of railway undertakings and for railway undertakings in the international combined transport of goods.

Directive 91/440 has since been amended in 1995 several times in order to sharpen the above-mentioned tools. [Directive 95/18/EC and Directive 95/19/EC].

Supplementing the directives, the European Commission in 1996 issued a White Paper on a "Strategy for Revitalising the Community's Railways" outlining a strategy to revitalise Europe's railways, pointing to the fact that railways have been insulated from the effects of market forces. The Commission suggested government support to relieve the railways of their debts. Access rights in freight transport play an important role in this strategy [paragraphs 34 – 40]. The White Paper stated in par. 35 that open access represents the application of the principle of freedom to provide services to the railway sector. According to par. 37 the Commission is committed to rapidly achieving completely open access for freight services. To make rights of access effective matters of licensing, capacity allocation and charging have to be tackled (par. 45). Beyond these issues the following points have to be covered (par. 46): infrastructure charges, allocation of train paths, safety certificates for specific services, interoperability, technical standards, conformity assessment, working conditions etc. It had become clear that provision of access rights as such could not solve the problem. In order to bring down existing market entry barriers a complex approach with a tool box of legal instruments was necessary. This tool box had to be developed and the tools to be sharpened in the three railway packages to come.

The First Railway Package contained three directives that: separate the railways from the state; divide the railway activities between the network and train operators; and regulate the network and licensing of train operators. [Directives 2001/12, 2001/13 and 2001/14)]

The decisive steps for reducing existing market entry barriers have been the following ones.

- Directive 2001/12 amends and restates Directive 91/440 on the development of the Community's railways. It is this Directive that contains the key provisions on the separation of railways from the state, the division of national railways into the functions of railway undertaking and infrastructure manager, and the general components of regulation of the infrastructure manager's monopoly assets.
- Directive 2001/13 provides for the licensing regime that applies to railway undertakings wishing to enter the rail market. It supersedes and replaces an earlier Directive (95/18) on the licensing of railway undertakings.
- Directive 2001/14 provides much of the detail needed to fill out the general character of monopoly regulation of the infrastructure manager that is outlined in Directive 2001/12.

The Second Railway Package aimed to create a legally and technically integrated European railway. The following four proposals are of utmost importance:

- developing a common approach to rail safety (Directive 2004/49);
- bolstering the fundamental principles of interoperability (Directive 2004/50);
- setting up an effective steering body: the European Railway Agency (Regulation 881/2004);
- completing the internal market in rail freight services (Directive 2004/51).

The Third Railway Package is important for:

- opening up international passenger services to competition including cabotage;
- regulating the quality requirements for rail freight services;
- regulating international rail passengers' rights and obligations.

The breakthrough for liberalisation for rail freight markets occurred in 2001 as part of the second rail package.

Practical Impact of Legal Instruments and Open Questions

The above-mentioned legal instruments aimed at opening up and liberalising rail freight markets in Europe are part of secondary European Community law. As far as regulations are concerned – e.g. Regulation 881/2004 setting up the European Railway Agency – they are directly applicable. But directives have to be transformed into the national law of Member States. Despite the fact that directives contain fixed dates for the transformation process Member States are often unable or unwilling to transform a Directive in due time. This poses the following problem: only national law is then applicable and binding. In the case of access rights the question arises whether they only come into being after the corresponding directive – i.e. Directive 2004/51 – has been transformed in a Member State or whether they are then directly applicable. According to the jurisdiction of the European Court of Justice such directives become directly applicable without transformation into the national law of the respective Member State, if they define the legal positions of the addressee in a manner that technically direct applicability is feasible. In the case of access rights this is the case.

But even if all the provisions of EC Directives and EC Regulations are applicable in a Member State, whether by means of transformation into national law or not, access problems are not eliminated totally. This has to do with the fact that absolute entry barriers have to be distinguished from relative entry barriers. Whereas absolute entry barriers are essential facilities in the legal sense – and regulated access can be managed – the question is much more complex with relative barriers, e.g. the access to repair facilities. If there are different types of repair facilities which a new entrant can use, existing repair facilities of incumbents are not an essential facility. Nevertheless the new entrant may face some cost disadvantages compared to the incumbent. What turns out to constitute a legal problem, namely the correct definition of an essential facility, is an economic problem as well: the definition of market entry barriers. Granting access to new entrants does not mean that all relative cost disadvantages have to be eliminated. If this were the case new entrants could easily engage in free-riding. Instead of individual cost-cutting endeavours they could hope to profit from the low costs of incumbents' facilities.

What was clear in the simple model of access rights for new entrants as an instrument to create competition on downstream markets turns out to be a very delicate issue in real markets. This insight has a disenchanting consequence: the fact that from 1 January 2007 on access to rail networks of the Member States of the European Union is being granted for entering rail freight markets does not mean that from that date on full competition will flourish in these markets. The empirical study of the relative openness of European rail markets in 2002 and 2004[1] has made clear that openness of such markets is a very complex matter. It is the result of how Member States, their bureaucracies, regulatory agencies and law courts handle not only the hard market entry barriers but the soft ones as well. The legal instrument – access right – is a necessary but not a sufficient condition in order to achieve the goal of open and liberalised rail freight markets. What will be necessary in the future is the empirical study of the actual weight of the different remaining obstacles to market entry into rail freight markets in Europe and the exertion of pressure on those Member States which are slow to effectively open up their markets. January 1, 2007, is a good moment for starting a programme for continuously watching the development of market openness in the various national European markets. From here to a state of open and competitive markets is still a long way to go.

[1] IBM Business Consulting Services in conjunction with Christian Kirchner: Rail Liberalisation Index 2002 and 2004.

Georg Jarzembowski*

European Framework for the Internal Market in the Railway Sector

At the time when the European Community was about to complete the internal market by 31 December 1992, the EC launched its first initiatives to open up the railway sector to competition and liberalisation. This was not primarily caused by the wish to apply EC principles such as the freedom to provide services but by the observation that the railway sector, especially freight service, was dramatically losing more and more market share to other modes of transport, especially road transportation.

At that time, and partly up to today, the railway sector has been organised at the national level.[1] Typically, the national governments were, and partly still are, the owners of national railway companies that control the national railway networks and that at the same time run the operating services. For that reason the Member States were, and partly still are, reluctant to accept the principle of the single internal market for the railway sector.

Nevertheless in 1989 the European Commission launched its first major initiative on the development of the Community's railways followed by the First Railway Package in 1998, the Second Railway Package in 2002 and the Third Railway Package in 2004. All these initiatives were, and are, aimed at establishing the legal framework for an internal market in the railway sector and thus to revitalise this generally environmentally friendly mode of transport. In the European Parliament the Commission has always found a competent and committed partner for establishing an internal market in this sector.

This article shall explain the evolution of European railway legislation up to now.

European Legislation

European railway legislation will first be described according to the various subjects of the legislation.

The first and basic Directive – the Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways[2] – required that the Member States reorganise the railway companies so that the railway companies have an autonomous management and separate accounting from the government budget. Furthermore the companies have to have separate accounting for the network infrastructure from accounting for the operational services, and for the latter they have to separate accounting for passenger and for freight services. Yet this legislation does not oblige the Member States to separate the networks and the operations into different companies.

By the Council Directive 95/18/EC of 19 June 1995 on the *licensing of railway undertakings*[3] – amended by the Directive 2001/13/EC of the European Parliament and of the Council of 26 February 2001 amending Council Directive 95/18/EC on the licensing of railway undertakings[4] – the European Community has set refined common criteria for the licensing of railway companies by the Member States.

By Directive 91/440/EEC and by Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on the *allocation of railway infrastructure capacity* and the levying of charges for the use of railway infrastructure and safety certification[5] the Communities' railway companies – state-owned or private – acquired the right to obtain access to the train paths of the national networks under certain conditions. This was the first step to overcoming the national train systems and to starting the European dimension in the railway sector.

Furthermore, the European Community set the first rules in which way the national network organisations can charge the railway companies for their usage of the train paths.

At last the Member States were obliged to establish regulatory bodies that might be part of the national Ministries but must be independent of the national railway companies. These authorities are the appeal institutions, especially for complaints about the appli-

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[1] There are no railway systems in Malta and Cyprus.

[2] Official Journal of the European Communities or of the European Union respectively (OJ) 1991 L 237, pp. 25-28.

[3] OJ 1995 L 143, pp. 70-74.

[4] OJ 2001 L 75, pp. 26-28.

[5] OJ 2001 L 75, pp. 29-46.

cation of the rules on access to the networks and on the charging of the infrastructure fees.

The development of an internal market for the railway sector is in reality often hindered by different national standards, especially concerning locomotives and rolling stocks. To overcome these different standards the railway companies, the railway industries and the European Commission have started to define common *technical specifications for interoperability* (TSI).

Especially by Directive 2004/50/EC of the European Parliament and of the Council of 29 April 2004 amending Council Directive 96/48/EC on the interoperability of the trans-European high-speed rail system, and Directive 2001/16/EC of the European Parliament and of the Council on the interoperability of the trans-European conventional rail system,[6] a clear system of responsibilities and objectives has been established to develop technical specifications that will – unfortunately only in the mid and long term – allow the production and use of, especially, common rolling stocks.

In line with the different national traditions the regulations on the *safety standards* are also quite different, which hinders the cross-border train services. Furthermore, the regulations were quite often set by the national railway companies themselves. Yet today in some countries there are already private railway companies besides the national ones, so that there is a further reason to set European safety standards for all companies – whether they are state-owned or private and from whichever Member State.

By Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004 on safety on the Community's railways, and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive),[7] the European Community has set out a system to develop common standards for the railway safety rules in the European Union.

The European Railway Agency

By Regulation (EC) No 881/2004 of the European Parliament and of the Council of 29 April 2004 establishing a European Railway Agency (Agency Regulation)[8] the European Community has set up the European Railway Agency that has been established under the authority of the European Commission. So far the main task of this agency is to organise and support the development of the technical specifications for interoperability as well as of the European railway safety standards.

The European Railway Agency started its work in Brussels and has now taken up its official headquarter in Valenciennes with conference facilities in Lille, France.

In order to enable cross-border services without the necessity of changing the engine driver, on 3 March 2004 the European Commission submitted – within the framework of the Third Railway Package[9] – a Proposal for a Directive of the European Parliament and of the Council on the *certification of train crews* operating locomotives and trains on the Community's rail network.[10] On 28 September 2005 the European Parliament adopted in first reading its position[11] calling for the extension to further train crew members and for some additional changes. On 18 September 2006 the Council adopted its common position,[12] primarily restricting the proposal to the engine drivers. This Commission proposal is now in second reading at the European Parliament.

Within the framework of the Third Railway Package, on 3 March 2004 the European Commission submitted a Proposal for a Directive of the European Parliament and of the Council on International Rail Passengers' Rights and Obligations[13] that mainly set rules for the *compensation of passengers in the case of train delays.* On 28 September 2005 the European Parliament adopted in first reading its position[14] extending the scope of the directive to the passengers on national train services. On 18 September 2006 the Council adopted its common position,[15] generally going back to the Commission's proposal – thus limiting the compensation rules only to cross-border passengers. This part of the Third Railway Package is also presently in second reading in the European Parliament.

The Opening of the National Railway Networks

In order to enable railway companies – whether state-owned or private and from whichever Member

[6] OJ 2004 L 164, pp. 114-163.

[7] OJ 2004 L 164, pp. 44-113.

[8] OJ 2004 L 164, pp. 1-43.

[9] Note that the Third Railway Package also included a Commission Proposal for a Regulation of the European Parliament and of the Council on compensation in cases of non-compliance with contractual quality requirements for rail freight services – COM (2004) 144 – that was already rejected by the European Parliament in first reading (T6-394/2005 of 25/10/2005 – not yet published in OJ).

[10] COM (2004) 142.

[11] OJ 2006 C 227, pp. 464-490.

[12] CSL 05893/5/2006 of 14.09.2006 – not yet published in OJ.

[13] COM (2004) 143.

[14] OJ 2006 C 227, pp. 490-508.

[15] CSL 05892/1/2006 of 24.07.2006 – not yet published in OJ.

State – to use the complete European railway network efficiently it is necessary to lift all national restrictions on the usage of the national rail network by railway companies from other Member States. The railway companies must be granted the right of access to the networks without any national restrictions.

As a first step the European Parliament and the Council have already agreed to open the networks for freight services. By Directive 2004/51/EC of the European Parliament and of the Council of 29 April 2004 amending Council Directive 91/440/EEC on the development of the Community's railways[16] the Member States were obliged to open the networks for cross-border freight services by 1 January 2006 and for all other freight services by 1 January 2007. This means that from the year 2007 on any railway company can operate cross-border or national freight services in the entire European Union.

For passenger services, on 3 March 2004 within the framework of the Third Railway Package the European Commission submitted a Proposal for a Directive of the European Parliament and of the Council amending Council Directive 91/440/EEC on the development of the Community's railways[17] according to which the national networks should under certain conditions be opened by 1 January 2010, but only for cross-border passenger services. On 28 September 2005 the European Parliament adopted in first reading its position[18] that calls for the opening of the networks for cross-border passenger services by 1 January 2008 and for all other passenger services by 1 January 2012. On 18 September 2006 the Council adopted its common position[19] on this proposal denying any opening for national passenger services and proposing the opening for cross-border services by 1 January 2010, and even that under very restrictive conditions. At present this Commission proposal is being discussed in second reading in the European Parliament.

Public Passenger Services

The proposed opening of the national railway networks for passenger services – as explained above – has a direct link to the European legislation on the public service obligations for regional and urban transport, since the Member States shall be authorised to limit the opening if such opening would endanger the economic equilibrium of an existing public regional and urban system.

The European legislation on public passenger services is still regulated by the Regulation (EEC) No 1191/69 of the Council of 26 June 1969 on action by Member States concerning the obligations inherent in the concept of a public service in transport by rail, road and inland waterway.[20] The provisions of this regulation spell out the conditions under which the Member States can grant exclusive rights to an operator – thus limiting the basic EU freedom for companies to render services in that area – and allocate public funds to the operator for the public service obligations.

Yet Regulation No 1191/69 has been under revision since the year 2000. On the original Commission's proposal for a Regulation of the European Parliament and of the Council on action by Member States concerning public service requirements and the award of public service contracts in passenger transport by rail, road and inland waterway[21] the European Parliament already adopted its position[22] in first reading on 14 November 2001 but the Council did not take up this Commission proposal. Only after the Commission presented a revised proposal in the year 2005 for a Regulation of the European Parliament and of the Council on public passenger transport services by rail and by road,[23] and the European Parliament insisted that it would only act on the Third Railway Package if the Council came to a common position on the regulation on public passenger services, did the Council finally act. On 8-9 June 2006 the Council agreed on a common position that has yet not arrived at the European Parliament. As soon as the official common position is presented – probably in January 2007 – the European Parliament will start its second reading on the basis of the common position and the Commission's 2005 proposal.

Failure to Implement the European Legislation

Although in the now applicable co-decision procedure of the European railway legislation the Member States decide all directives together with the European Parliament, some Member States are slow to transpose the European law into their respective national laws. The failure to implement European law both within the required timeframe and, occasionally, also in substance might also be considered as intent to

[16] OJ 2004 L 164, pp. 164-172.

[17] COM (2004) 139.

[18] OJ 2006 C 227, pp. 460-464.

[19] CSL 05892/1/2006 of 24.07.2006 – not yet published in OJ.

[20] OJ 1991 L 169, pp. 1-3.

[21] COM (2000) 7.

[22] OJ 2001 C 140, pp. 164-282.

[23] COM (2005) 319.

dodge the new European provisions and thereby to prolong unfair competition positions for the national railway companies.

As the guardian of the European Treaties, the European Commission has to watch over the implementation of European law by the Member States and, if necessary, take action. In line with this responsibility on 3 May 2006 the Commission presented a report to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the implementation of the first railway package.[24] In this report, that is presently being reviewed in the European Parliament, the Commission points out that some Member States have not – either punctually and/or correctly – completed the implementation e.g. on the restructuring of their national railway companies, on the establishing of the independent regulatory bodies or on the conditions for infrastructure access. On the other hand, the European Commission clearly states that in those countries that have implemented the legislative steps the railway sector has become more efficient. Furthermore on 12 October 2006 the Commission started infringement proceedings against 13 Member States for failing to notify the transposition of two key directives of the second railway package, namely the directives on safety standards and on interoperability. The European Parliament strongly supports these actions by the Commission and also insists that the Member States complete the implementation of the First and Second Railway Package immediately.

Finalising of the Legislative Framework

To complete the European legislative framework for the internal market in the railway sector it is vital that the Council and the Commission accept Parliament's position that the national railway networks should also be opened for national passenger services. If this cannot be agreed on within the legislative procedure of the Third Railway Package, there would be a need for a "Fourth Railway Package" to regulate this last subject of the European framework. But such a legislative project would then not come within the term of office of this Commission and this Parliament, that runs until 2009.

In my opinion it is not only generally time to complete the internal market in the railway sector – more than 14 years after the general completion of the internal market – but it is also very important for the railway companies and the infrastructure management organisations in the European Union in order to have enough time to prepare themselves for more competition in the national passenger services.

New Opportunities

The new European legislative framework – as described above – presents new opportunities, especially for the traditional national railway companies, to overcome the old national borders of action and horizons and to develop into European players. Some companies have already used the new opportunities but some are still hesitating and trying instead to defend their old territories against competition from railway companies from other Member States.

As the liberalisation in the aviation sector in recent years has proved, those companies that have seized the European opportunities have become very successful in growth and employment. At the same time new companies have emerged and added services for the customers. Almost all companies in aviation have become more cost-oriented, more customer-oriented and more efficient, and the fares for the customers have been going down, thus also increasing the usage of this mode of transport.

In this sense I believe that especially in the long-distance cross-border freight services the active railway companies have great chances to gain more customers and more transport volume. Thereby they will also become more competitive compared to road transport. In that way the railway companies can also change the modal split again in favour of the railway sector.

Need for the Reorganisation of Railway Companies

In order to be able to seize the new European opportunities at least some railway companies need to restructure their patterns of investment and employment. They should clearly decide in which way they want to offer services in the freight, long-distance passenger and regional passenger services in their Member State and in the European Union. Those Member States that are owners of railway companies will – according to the private investor principle – have to supply their companies with the necessary capital for new investments and for the restructuring process. If they do not want to spend the taxpayers' money they should partly or totally privatise the companies. Furthermore, the management and the trade unions should jointly shoulder their responsibilities for the adjustment processes.

Finally, the railway companies have to make up their minds whether they want to achieve the necessary European dimension by growing on their own, by buying

[24] COM (2006) 189.

up or merging with other companies and/or by establishing alliances with other companies either generally or on certain European corridors. The first railway companies have already decided which way to go.

Final Remark

Over recent years the European Parliament has acted in the forefront of establishing an internal market in the railway sector whereas the Member States in the Council have been, and are, trying to slow down the process. In the European Parliament especially the Christian-Democratic EPP-ED Group and the Liberal ALDE Group strongly believe that the completion of the internal railway market is the only chance to revitalise the railway sector and to give the railway companies a last chance to regain a larger share in the transport market.

Johannes Ludewig*

Market Liberalisation Alone Is Not Enough

The development of the single European market has radically altered the pattern of economic production and distribution activities between Member States. Opening the European freight market allows operators to better meet their customers' needs. It also improves the position of rail freight in its competition against trucks, which have been freely crossing borders in Europe for nearly a decade.

However, market liberalisation alone is not enough. The introduction of intramodal competition (i.e. competition within the railway mode) is an essential ingredient for successfully revitalising the railway sector, but this alone will not suffice. In order to achieve the long called-for modal shift from road transport to the cleaner and safer rail transport, the implementation of two other vital policy instruments is indispensable: creating a level playing field between modes through fair infrastructure pricing, and investments in new infrastructure.

The remainder of this paper will, with a focus on freight, clarify CER's vision on the current evolutions relating to intramodal competition, fair infrastructure pricing, and infrastructure investments. Given the mainly academic audience of this Forum, I will conclude this contribution with some suggestions for future scientific research.

Intramodal Competition

The recent European Commission report on the Implementation of the First Railway Package[1] shows that significant progress has been made by EU members States in creating a legal framework for market opening and fair intramodal competition. It also demonstrates, not surprisingly, that in a number of countries the implementation process is still under way.

For freight transport, the benefits of liberalisation already became evident in the last years. The report clearly states that rail freight market shares have stabilised since 2001. For the first time ever, the decline of the share of the railways in the total market of freight transport was stopped. Over thirty years, the railways constantly lost market shares: from 32% in Western Europe and 51% in Central and Eastern Europe in 1970 it went down to respectively 15% and 35%. Today, the market share of rail freight has stabilised and traffics are increasing again in absolute terms. In some countries, rail freight market share has even increased.

This encouraging development is the result of huge restructuring efforts of the companies. Impressive figures on productivity gains speak for themselves – in some cases a productivity gain of 170% was achieved in a period of ten years. The European railways know that they need to go further and that more needs to be done to improve their competitive situation – among themselves and against the competition on the roads.

While the picture is clear for freight, the future of liberalisation in the passenger sector is less so. Competition in the passenger transport market follows different and much more complicated rules. Discussions on the degree of liberalisation of the passenger market, on passenger rights, and on train crew certification are currently underway,[2] and some elements of

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[1] European Commission, COM(2006) 189.

[2] These three elements together make up the "Third Railway Package" .The second reading of this "package" by the European Parliament is foreseen for January 2007.

these discussions are closely related to the debate on Public Service contracts. In addition, practice shows that even before Europe is taking legislative measures, competition has already been set up in several Member States (such as Great Britain, Germany, or Sweden), sometimes already more then 10 years ago.

However, the most important message I want to convey with this paper is that creating the necessary conditions for market competition is on itself not enough for revitalising the railway sector. It is CER's firm belief that intramodal competition is an essential ingredient contributing to the development of the rail freight market, but it should be implemented in combination with two other vital policy instruments for fair intermodal competition, i.e. fair infrastructure pricing and investments in new infrastructure.

Fair Transport Infrastructure Pricing: Creating a Level Playing Field between Modes

With regard to transport infrastructure pricing, establishing fair and efficient charges for all transport modes is an absolute necessity for the success of Europe's transport policy. In this debate, the external costs of transport (costs for congestion, pollution, climate change, accidents, noise, etc.) play a crucial role. Infrastructure charges should include these external costs, in order to ensure fair intermodal competition between road and rail, and eventually lead to an optimal use of Europe's transport modes. Unfortunately, the principle of "getting the prices right" for all transport modes has remained a dead letter so far. Prices still do not reflect the real economic, social and environmental costs of products and services.

Europe should provide the framework conditions fur such a pricing system, allowing for actions which are harmonised across the different transport modes. The recent revision of the Eurovignette Directive,[3] which lays down common rules for on how Members States may charge heavy goods vehicles for using the road infrastructure, can therefore clearly be seen as a missed opportunity. Although this Directive allows road tolls to be based on infrastructure costs (the "user pays" principle), tolls based on external costs (the "polluter pays" principle) remain forbidden.

Conversely, the level of charges for rail infrastructure must be based on marginal social cost, with the possibility to charge mark-ups to allow cost recovery.[4] Against such a confused legislative framework, it is perhaps not surprising that, in practice, infrastructure charges along many international freight corridors make such little sense. The level of track access charges faced by rail freight operators along many international corridors, particularly in Central and Eastern Europe, means that they simply cannot compete with road transport.[5]

As observed in Switzerland, a fair pricing policy can have a radical impact on the ability of rail to compete with road along international corridors, as well as on the financing of transport infrastructure. A CER study from 2005[6] demonstrated that applying the Swiss level road charge across Europe (EU-15) would have a significant impact on rail freight share (an increase to 17%.)

The subject of Eurovignette will be back on the agenda of the European institutions in 2008. The European Commission has already started a study in preparation of this work. This study will consider all modes of transport and will establish a model for assessing external costs, reducing the wide range of existing cost estimations made by previous external cost studies.

In passenger traffic, initiatives to counter congestion problems in urban areas seem to emerge gradually. Outside Europe, the successful implementation of congestion charging in the densely populated cities of Singapore and Hong Kong (accompanied by substantial investments in public transport) could serve as a best practice model. A European example of "smart charging" is the congestion charge applied in the capital city of London. These examples are in line with the recent mid-term review of the European Commission's White Paper on Transport Policy which aims for a modal shift, and this "especially on long distance, urban areas, and congested corridors".[7]

Finally, given the strategic issue of "finding the funds" for investments in new rail infrastructure, which I will discuss further on in this text, the revenues generated by the road charges should be used as a source for cross-modal financing of new railway infrastructure. These new rail infrastructures are, together with the fair pricing for the use of infrastructure, a precondition for unleashing the full potential of the market liberalisation. The modal shift from road to rail will only be possible if the previous investment policy, reflected in decades of underinvestment in rail, is reversed.

[3] Directive 2006/38/EC.

[4] First Railway Package, Directive 2001/14/EC.

[5] Charges per train kilometer can be 5 or 6 times higher in these countries. See the European Commission report on the Implementation of the First Railway Package, COM(2006) 189.

[6] The Future of the European Rail Freight Market, McKinsey study, 2005, www.cer.be.

[7] European Commission, COM(2006) 314, Mid-term review of the White Paper on Transport Policy, "Keep Europe Moving".

Creating the Necessary Infrastructure

Today, the financing of rail infrastructure is under threat. Public budgets in all Member States are more and more solicited by increasing political demands notably on welfare (pension, healthcare, housing, security, education, etc); these new demands limit the public funds available for investments in transport infrastructure.[8]

The European Union can help to coordinate Member States' investments decisions. The first important step was a discussion in the early 1990s on developing a commonly defined Trans-European Transport Network (TEN-T). In particular, the European Commission was given specific resources to provide financial incentives for the development of the network. Fourteen priority projects were approved in 1994 (the so-called "Essen list"). The aim was to complete them by 2010.

By 2003, it was clear that only three of the projects had been completed and the remainder had little or no chance of being completed on time. Hence in 2004, a second attempt was made. The European Union, now also facing the prospect of eastern enlargement, extended the list of priority projects to 30, with 22 of these projects related to rail.[9] The date for completion of these projects was revised to 2020, even for the original Essen projects.

However, the recent reduction in the European budget for 2007-2013 has led to a substantial cutback in the TEN-T budget, in favour of other short term budget commitments. The TEN-T budget of € 20.35 billion (in 2004) was cut by two thirds to € 7.2 billion. It is clear that, given this budget reduction, the European Commission cannot fund all 30 priority projects. Rather, it is inevitable that hard choices have to be made between TEN-T projects, either explicitly or implicitly. It is likely that European funding will be focused to an even greater extent on cross-border sections of projects that Member States on both sides are prepared to finance. The challenge for the rail sector and for the Commission is to convince the relevant Member States to make firm financial commitments.

That is why CER particulary welcomes a recent positive evolution in this area. The first annual activity report by the six high level European Coordinators on the progress of five TEN-T corridors and the implementation of the European Rail Traffic Management System (ERTMS), clearly shows a positive evolution. These Coordinators[10] were nominated in the summer of 2005 by the European Union. These high-profile individuals can help to generate political support from the relevant national Ministers. Indeed, there is even a case for a permanent management structure to steer the development of each corridor. The organisation models for the ERTMS corridors Rotterdam-Genoa and Antwerp-Basel- Lyon, agreed upon in the Letters of Intent signed by the transport Ministers, create important and highly visible precedents.

Nevertheless, the estimated funding requirements raised by all Coordinator activity reports once more raise the question of infrastructure financing. The aforementioned "user pays" and "polluter pays" tolls, and the reuse of these tolling revenues for investing in the rail infrastructure, remain the crucial instruments in solving the infrastructure funding issue.

Also, starting from the message in the Commission's 2001 White Paper on Transport Policy which announced the concept of a Dedicated Freight Network with railway lines dedicated to freight trains, CER developed with its members the more pragmatic concept of a "Primary European Rail Freight Network". The "Primary European Rail Freight Network" (PERFN) is a network made partly of dedicated lines and partly of mixed traffic lines providing sufficient capacity to accommodate the future demand for rail freight services. The idea here is to identify infrastructure investments targeted in such a way that rail freight productivity can be boosted. The question whether infrastructure investing should be targeted for longer, heavier, or higher trains can only be solved by looking at the market demands. Current market trends indicate that light goods will take an increasing share in the European transport mix and CER believes that this will plead for the development of a rail infrastructure destined to accommodate longer trains.

To have a precise view on the market needs and the subsequent targeted infrastructure investments, CER intends to carry out several corridors studies in 2007. The aim of these studies is to define for each major freight corridor which infrastructure investments will allow the future Primary European Rail Freight Network (PERFN) to divert more road traffic and absorb future transport growth.

Suggestions for Academic Research

I would like to conclude this paper with some ideas for future academic research. Researchers should urge policymakers to provide more tailored statistics for analysing market developments and productiv-

[8] The Member States, which invested on average 1.5% of the Gross Domestic Product in transport infrastructure during the 1980s, now invest less than 1% (cf. the Report by the High-Level Group on the TEN-T network, chaired by Karel Van Miert, 2003).

[9] Decision 884/2204.

[10] Pavel Telicka, Péter Balász, Etienne Davignon, Loyola de Palacio, Karel Van Miert, Karel Vinck.

ity improvements. The availability of "more and better data" could open up the path for a wide range of socially relevant research projects. A first important example is the need for more disaggregated data on the market development of freight traffic. As railways are primarily competing with the road transports over longer distances, statistical monitoring of market developments should be possible for the segment of intercity statistics.[11] Currently all distance classes for rail freight transport are aggregated into one overall statistic, which leads to a biased view on market shares and modal shifts. A second important shortage of data (and research) is on the levels of investment in road and rail infrastructure, and the impact of these levels on the modal split. Here, more detailed cross-sectional and panel data sets are needed.

Also, as political fear for negative public perception is clearly one of the main obstacles for introducing new road pricing schemes, I plead for more research on the evolving attitudes of citizens towards these charges. A recent survey by the University of Dresden already provides some evidence on the positive changes in public perception on road charges, once the charging system is decided or is likely to happen, and citizens can no longer avoid it.[12]

As a final example, I would like to mention research on the efficiency of the different organisation models that developed across Europe, for more then 10 years. Some recent empirical research papers (e.g. Friebel et al[13], Growitsch and Wetzel[14]) have already investigated this issue, but this area remains severely underresearched, and more data and analyses would be more than welcome. For other examples of studies examining the organisation models, I refer to the CER book "Reforming Europe's railways: an assessment of progress" (Eurailpress, Hamburg 2005).

Summary

Since the liberalisation of European rail freight, the market share of rail freight has stabilised and traffics are increasing again. However, European transport policy needs more measures than market liberalisation alone. Fair pricing for the use of infrastructure, reflecting infrastructure costs as well as external costs, has to be implemented for all modes of transport. Moreover, to fully unleash the benefits of market opening, the necessary infrastructure has to be put in place. Although the recent pragmatic approaches introduced by the six European Coordinators make CER cautiously optimistic for future developments in this area, the crucial issue of financing these new infrastructures remains mainly unsolved. European policymakers should address the issues mentioned in this paper without further delay, and move forward in creating a truly competitive market for rail transport.

[11] In the USA, for instance, the much-quoted 40% share of rail in the freight market refers to the so-called "intercity market" (that is, over long distances).

[12] See Transport & Environment Bulletin, September 2006, and J. Schade: Akzeptanz von Straßenbenutzungsgebühren: Entwicklung und Überprüfung eines Modells, 2005, Pabst Science Publishers.

[13] G. Friebel, M. Ivaldi, C. Vibes: Railway (de) regulation: a European efficiency comparison, IDEI report no. 3 on passenger rail transport, University of Toulouse 2003.

[14] Ch. Growitsch, H. Wetzel: Economies of Scope in European Railways: An Efficiency Analysis, Working Paper Series in Economics, No. 29, University of Lüneburg 2006.

Werner Rothengatter*

Issues of Interoperability in the European Railway System

European trucks and passenger cars are moving without stops at the borders, they can fill their tanks everywhere and are controlled by widely standardised signs, signals and regulations. In air traffic there are common rules for piloting and traffic control as well as a common communication language for international understanding. In contrast to these transport modes the reality of railway systems is completely different. Technical systems such as gauges, control systems or electrical power supply may change even within a country, safety regulation is different and often requires time-consuming safety controls at the borders, and organisation rules and communication languages vary from country to country. The main roots of this heterogeneity are historical.

Railways: A History of Heterogeneity

There were no standards set at the beginning of the railway era, neither in Britain nor in Germany. The first railway lines (Stockton-Darlington in the UK 1825 and Nürnberg-Fürth 1835) were completely privately planned and designed, and the same holds for the new

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lines added until the middle of the nineteenth century when some of the private railway undertakings went bankrupt and the states came in. Unfortunately, state involvement did not lead to a standardisation, on the contrary: every state planned only for its own territory and because of the hostile relationships between various countries different technologies were consciously installed to prevent a neighbouring country from using the domestic rail network for its military forces. The result was a fragmentation of the European railway system according to national flags.

National flags were naturally bound to the domestic railway industry. In general the components of infrastructure and rolling stock were designed by national central offices for railway technology in detail according to the country-specific requirements and constructed by the industry according to plan. This was certain business for the suppliers, who had no problem with quality and price competition and made safe profits under the state-controlled regime. But the price for this convenience was high. Technical incompatibility and different regulations forced the railway undertakings to change engines and crews at every border, incurring time losses, higher operation costs, poor use of capacities and considerable over-manning.[1] Furthermore, the advantage of higher production scales could not be used, so that railway technology became extremely expensive.

When the railways were the superior mode of transport, being much faster than the horse cab and capable of serving a wider area than a ship on inland waterways, there was little economic pressure for change. But when competition by road vehicles began the railways lost market shares and the state budgets lost the profits from the state railway monopolies, which were their former cash cows. The first reaction of the states towards this threat was to introduce a rigid regulation for the trucking industry, which happened between the late 1920s and the early 1930s. After World War II the market situation of the railways got even worse and the states reacted by paying high subsidies to the railway companies. These subsidies were argued to be necessary because of the accessibility benefits and the lower external costs produced by railway services compared to other transport modes. But despite heavy subsidisation the railway lost market shares at a dramatic speed. The last shock came after the market liberalisation for the competing road freight transport, beginning with the judgement by the European Court of Justice in 1985, which implied that the transport sector could no longer be protected by the state in the EU member countries. The liberalisation process was completed in 1998 by granting cabotage (transport services of foreign companies in domestic areas) to the road haulage companies of the European Union. In reality the road haulage companies and the forwarders had already begun this process years in advance and won big market shares through better logistic quality at lower prices, in particular on the rapidly growing international transport market. At the same time the railways stagnated, lost market shares and increased their deficits as well as the corresponding subsidies provided by the state.

Even after 1995, when railway reforms had been started and policy was taking action to stop the vicious circle, the railways lost market shares: in freight they dropped from 19.6 to 16.4% (without coastal shipping) and in passenger transport they declined from 6.3 to 5.9%, and were even bypassed by the rapidly upcoming air transport which gained more than 7.5%.[2] Despite this dramatic market decline of railway development the European Union tried to revitalise the railways because it was found that the railways could again become the backbone of European transport under the condition that they became competitive. A series of Directives were decided, beginning with Directive 1990/41, and in 2001 the White Paper on a common transport policy, entitled "Time to Decide" was published by the Commission, which included a number of measures in favour of the railways, including infrastructure, liberalisation and re-regulation. The major policy actions following the White Paper were the revision of the Trans-European Networks (with a focus on rail investments), the rail re-organisation, capacity allocation, track pricing rules, interoperability issues, European locomotive driver's licenses and improvements of customers' rights. The aspect of environmental friendliness might be considered at a later stage of developing the Directive 1999/62 for motorway tolling, after the European Parliament had taken strong initiatives in this direction in the last phase of revising this Directive in early 2006.

The aspect of interoperability seems, at a first glance, to be a technical side-topic of the common railway development. A closer look at railway technology and the associated rules of control and management will reveal, however, that interoperability is a most important cornerstone on the way to revitalising

[1] Over-manning through inefficient operation planning is indicated by a figure which was published in the Commission's White Paper of 2001: while driving time for truck drivers is harmonised at a maximum of 48 hours per week the train drivers of main railway undertakings were actually driving between 22 and 30 hours per week.

[2] The European figures for passenger transport are given until the year 2003. See European Statistical Pocket Book for Energy and Transport, 2005.

the European railways, so that it is worthwhile to focus on this issue.

Cornerstones of European Railway Policy

The relevant European legislation is documented through the Directives 1990/440 and 2001/12-14. Directive 1990/440 initiated the common European railway policy and stated the following principles:

- clear separation of public and commercial parts
- freeing the commercial companies from old publicly induced debt
- separating infrastructure from operation companies, at least separate bookkeeping, accounting and balance sheets
- giving third parties open access to the networks in the EU.

This framework Directive was supplemented in the year 2001 by Directives 2001/12-14, which specified the steps of market opening and the associated regulations for the companies. These Directives were the base of the so-called railway packages which were issued to specify the general legal framework.

First railway package (2001):

- specification of open access, procedures in case of essential facilities
- specification of regulatory requirements in case that infrastructure and operating companies are governed by a holding
- obligation for member states to establish fully independent regulatory bodies with the necessary resources, competences and expertise
- common principles for charging railway track use on the basis of marginal costs plus mark-ups
- no cross-subsidisation between freight and passenger services.

Second railway package (2002):

- creation of a European Railway Agency in Valenciennes, France, planned for 2006
- opening of the market for international freight transport to the entire European rail network as of 1 January 2006
- opening of the market for national freight transport ("cabotage") as of 1 January 2007
- adoption of a Directive on railway safety.

Third railway package (2004):

- a further opening of the market for international passenger transport by rail
- a regulation of the rights and obligations for passengers in international rail traffic
- a regulation on rail freight quality
- a Directive for train driver's licenses.

Setting up a common framework for the railway markets in the European Union comes about one decade after the full market liberalisation of road freight transport, for which cabotage was granted in 1998. In contrast to the road transport markets, the rail companies are not eager to make use of the new degrees of commercial freedom. On the contrary: there are a number of companies which have influenced the corresponding governments to make the process of transposing the packages as slow as possible.

This underlines that the Commission is determined to provide a competitive level playing field for rail across the single market. The cornerstones of the political concept are:

- interoperable networks
- harmonised regulations and licensing
- harmonised slot pricing and customer rights
- common organisational structure (separation of infrastructure management)
- priority for railways.

Technical Interoperability Initiatives

Today big freight companies like Railion make more than 50% of their turnover from international transport. This is because bundled transport on long distances is the natural market segment for the railways. Although this figure looks rather high the railways do not by far exploit their market potential. Two examples, taken from the White Paper from 2001, shall underline the reasons.

- Louis Gallois, the former chairman of SNCF, said when addressing a meeting at the French National Assembly on June 2000, "I think the Charleroi-Paris route needs five driving crew members: two in Belgium and three in France." The distance is less than 300 km, which is driven on road by one truck driver.
- With all the various delays, the average speed of international rail haulage is only 18 km/hour, which is slower than an ice breaker opening up a shipping route through the Baltic Sea.

The reason for such inefficiencies, which can be extended to become a long list, is the lack of willingness to cooperate internationally paired with the lack of interoperability. Crossing borders is only possible with rolling stock which is licensed by the countries

concerned. While the UIC[3] has achieved a widely common licensing of wagons (for about 80% of freight wagons) it is still a matter of years and of complex negotiations to license a locomotive. The most tedious but most important negotiations on standards relate to the train control systems. About 20 different systems are presently applied in the member countries, which are more or less incompatible with each other (some countries even have more than one system). The EU Commission has – together with the UIC – defined the elements of a common standard, called ETCS (European Train Control System). Three different levels are suggested:

- level 1: conventional block control
- level 2: advanced block control (as applied with high speed technology)
- level 3: flexible control with distance sensors and automatic distance control.

It is the aim to implement level 2 on the main European rail axes. This would allow the application of a common signalling system and a common education for engine drivers according to a European driver's license. Progress with achieving this goal is hampering because the big companies argue that they have already invested in control systems which have a performance comparable to ETCS level 2. As a consequence, they are only willing to introduce ETCS if they get massive subsidisation. The EU Commission has recently decided to co-sponsor the installation of ETCS with a share of 50%. Furthermore, the co-sponsoring of new railway projects presupposes that ETCS is installed to foster migration to the standard technology.

The European Commission and the UIC (together with other associations) have founded the Association of European Interoperability (AEIF),[4] which has prepared the ground for a package of interoperable technology including technical specifications for interoperability (TSI) for train control (ETCS), telematics applications, freight wagons technology and noise protection installations. It has been shown in a comprehensive report[5] that a considerable social benefit would arise. Working groups of the AEIF found out, however, that costly investments are necessary to equip the complete European rail networks and rolling stock with the standardised technology. The companies would hardly break even for these investments in the next decades. However, a staged approach, starting with a backbone network, on which trans-European rail operations would be bundled, is expected to be profitable for the companies subject to the announced co-sponsoring of 50% by the Commission.[6]

Last but not least, safety regulations play an important role for getting access to the networks. In this field the national rail companies still preserve their old traditions and try to protect their territory by making the process of safety certification for foreign rolling stock as long and complicated as possible. Usually a mix of safety and interoperability arguments are brought forward by national railway safety authorities (which in most cases are not independent of the incumbent railway company) to refuse certification. Recent railway history is full of examples of this strategy. For instance, Austrian authorities refused certification of new German locomotives (old ones are certified) although technical standards in both countries are identical. The reason given was that the electronics would disturb signalling. The French and Belgian authorities refused to certify the German ICE 3 for the high-speed networks because it was argued that the engines integrated in the bogies would cause air depression and lift the gravel alongside the tracks. The second railway package includes two key Directives to break these national barriers. Directive 2004/49 defines new rules for an accelerated procedure for safety certification while Directive 2004/50 specifies the interoperability rules for border-crossing operations of high-speed trains. The majority of member states have not fulfilled the obligation to transpose these Directives by 30 April 2006. Therefore, the Commission sent a reasoned opinion in October 2006 to 13 member states for failing to notify the Commission of the transposing of these key Directives of the second railway package into national legislation.[7]

Tariff Harmonisation

Directive 2001/14 defines the rules for pricing the railway infrastructure. In principle prices should be set at marginal costs while add-ups to marginal costs are allowed. This means in practice that the tariffs may vary between the marginal infrastructure costs and full average costs including interest on capital invested. In case of linear marginal cost charging the revenues

[3] Union International des Chemins de Fer.

[4] AEIF will be wound up after the establishment of the European Railway Agency which will take over the associated responsibility for interoperability.

[5] ECORYS Transport, VTT Building and Transport and SCI Verkehr: Benefits of Interoperability. Study for the European Commission, Rotterdam 2004.

[6] A. Ott, A. Ricci, W. Rothengatter: Report to the AEIF Board on Technical Instruments to Foster Interoperability, Karlsruhe and Rome 2004.

[7] The 13 member states are: Belgium, Germany, Estonia, Greece, Spain, France, Italy, Luxembourg, The Netherlands, Portugal, Sweden, Slovenia and the Slovak Republic.

Table 1
Comparison of Track Charges and Competitive Situation

Country	Organisation	Charging Principle	Tariff	Cost Recovery Ratio	Number of Operators
Belgium	I	FC	linear	20%	3
Denmark	D	MC	linear	20%	10
Germany	I	FC	linear	60%	307
France	D*	MC	two part	63%	2
Italy	I	FC	two part	16%	14
Netherlands	D	MC	linear	12%	7
Poland	I	FC	linear	91%	32
Spain*	D	FC	linear		
Sweden	D	MC	linear	5%	12
Switzerland	I	MC	linear	30%	31
United Kingdom	D	MC	two part	50%	31

MC: Marginal cost, possibly plus mark-ups.

FC: Fully distributed costs, possibly reduced by state contributions.

I: Integrated company.

D: Disintegrated companies (D*: still under control of the incumbent).

*: No further information available.

Source: P. F. Texeira, A. Lopez-Pita, M. Sanchez, P. Ferreira: Heterogeneity of the Infrastructure Pricing System: A New Barrier to Overcome on the European Railway Network, 2006, Paper submitted to the TRB Conference, Madrid 2007.

are in general modest which relates to the fact that the share of marginal costs in the total costs is very low, estimated between 5 and 10% (see the Swedish case). Combined with mark-ups or with two-part tariffing the revenues grow (see the UK example). The different ratios of cost recovery indicate that the magnitudes and structures of rail track charges show a high variance for the member states. Table 1 gives an overview on the tariff components in some selected countries. Although the EU Commission has invested a lot of effort in the harmonisation of tariff structures and magnitudes there is a very heterogeneous picture in Europe. Again, one can draw the conclusion that the incumbent companies are not highly interested in coordinating their tariff structures because they follow different goals with tariffing.

The high variance of tariffs hinders the interoperability of networks insofar as it creates different conditions for infrastructure use. Information costs have to be invested to construct optimal routes on the European rail network – a precondition for competitiveness and reliability in the transport market. Paired with other incompatibilities the heterogeneous pricing system discourages smaller operators from entering the market and providing special services.

Interoperability as a Pre-condition for Intra-modal Competition

Intramodal competition can be regarded as a most important element of restructuring the railway sector. Comparable to other sectors competition will lead to higher productivity, lower prices and better quality. The US railway reform of 1980 has shown for the rail freight sector that a competitive environment and a sufficient entrepreneurial degree of freedom are more successful than permanent subsidisation, which was the European solution. Privatised companies will find the best adjustments to the changing market conditions – as the US rail freight companies showed for instance by employing double stock container wagons and advanced processing techniques at terminals, while they did not focus on higher speeds, which would require costly infrastructure.

It is well known that the US regime of private freight companies which own their network and allow only little competition on the respective networks does not fit the European market structure. The European model implies intra-modal competition on the rail networks to foster productivity and innovation. This is impossible without interoperable networks. Interoperable systems make it possible to operate on an international corridor with the same technology, with a harmonised control/organisation system, and with personnel educated for working on the whole process line. This will not only lead to better capacity use on the tracks and to lower transport costs, but it will furthermore increase the reliability of the logistic chain substantially. Today and in the future it is most important to provide scheduled transport services such that the world-wide production process can be supplied with exactly timed deliveries.

Deutsche Bahn AG has shown that the freight division can be organised efficiently by integrated transport and logistics services. The transport company Railion has grown more dynamically than the market in the last year and in 2006 a growth of about 13% is expected, in terms of ton km. This success is mainly due to the construction of a widely integrated North-South corridor from Scandinavia and the Benelux to Italy. In the coming years limits to growth alongside this corridor show up because of capacity bottlenecks. Implementing the interoperability measures mentioned can help to remove the bottlenecks associated with crossing borders. According to recent estimates a common control system would increase capacity by about 15% and compatible telematics or freight wagons would add to this. In the case of dedicated freight lines the progress would be even greater. The construction of rail wagons for double stock container transport would be a breakthrough for capacity extension because in this case technical and organisational optimisation would coincide.

To keep the main player busy, competitors are necessary, operating with the same railway technique but with a different market approach. This is presently the case for the Swiss SBB and the Rail4Chem company on the North-South corridor. Regarding the rapid increase of container shipping, boosted by the new mega-container liners, which in the future will serve Hamburg, Wilhelmshaven, Rotterdam or Antwerp, one can identify a big chance for the railways to organise and carry out the seaport hinterland transport. It would be an illusion to postulate that the railway system can become as interoperable as the roads in the next two decades. But it is realistic to expect that the main corridors in Europe can be prepared for standardised technology and control systems.

Future Strategy of the EU Commission

The Commission can foster this process by fiscal and regulation policy, as has been pointed out above. The success of this policy has been modest until now, but the first positive indications can be observed insofar as in some countries the growth of railway traffic is significantly above average. Therefore it is most surprising that the Commission is apparently about to change its own paradigms in the mid-term review to the White Paper, which was issued in June 2006.[8] The expectations concerning the development of the railways, documented in the forecast figures 2000 to 2020 are so pessimistic (e.g. dropping of the railway share for freight, including coastal shipping from 11 to 8%; decline of passenger transport from 6 to 5%) that the whole strategy has to be questioned. Putting in huge investment costs for the Transeuropean Network, with an 80% share of railway projects, and investing tremendous political efforts for the continuation of the railway reform appear highly irrational if no major change of transport patterns can be achieved. Therefore the Commission should remove uncertainty about the continuity of their common transport policy of investing in the future of interoperable and competitive railway undertakings. The trends of the past have to be broken and turned to a more sustainable path of transport development.

[8] European Commission: Keep Europe Moving – Sustainable Mobility for Our Continent. Mid-Term Review of the European Commission's 2001 White Paper, Brussels 2006.

Gerard McCullough*

The Liberalization of European Rail Transport: An American View

It is customary for a US participant in a forum such as this to begin by pointing to the differences between the European and US rail systems. I would like to begin here by pointing to an important parallel. The major rail systems in Europe and North America are both in processes of transformation which *could* facilitate significant increases in the roles they play on their respective continents. Full realization of the transportation potential of these systems will require concerted efforts by railroad system managers, users, and policymakers. Even this will not be enough. The fate of both railway systems is ultimately in the hands of those who decide general transportation policy.

European and US Rail Systems Compared

There are at least three major differences between the European and US rail systems.

- First, the European system is predominantly public (i.e. government-owned), while the US system is predominantly private.
- Second, there is a significant emphasis in Europe on passenger traffic, while the current emphasis in the US is mostly on freight.
- Third, political authority over the European system is shared between the European Union and member states, while in the US political authority over the rail system lies almost exclusively with the federal government.

The traffic differences between the European and US systems are worth emphasizing. In 2003 the EU-25 railways provided 364 billion ton-kilometres of freight service and 345 billion passenger-kilometres of passenger service.[1] Their modal shares in these markets were 10.1% and 5.8%. In the same year, US railroads provided 2,341 billion ton-kilometres of freight serv-

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ice and 22 billion passenger-kilometres of passenger service.[2] Their modal shares were 42.4% and 0.3%. European railways provided nearly 16 times as much passenger service as US railroads, while US railroads provided more than six times as much freight service as European railways.

Transformation of the US Rail System

It is important not to exaggerate the role that railroads play in the US freight market. Long distance coal movements by rail account for a significant portion of the ton-kilometres in North America. The US Department of Transportation estimates that railroads account for ten percent of freight movements on a tonnage basis and only three percent on a value basis.[3] Trucks dominate the freight markets in both Europe and the USA, and trucks have had a significant financial impact on US railroads.

Transformation of the US system began in 1970 when Congress faced a national railroad financial crisis. The huge Penn Central Railroad, which provided rail service to the entire Northeastern USA, declared bankruptcy and threatened to halt service. The first response was the National Rail Passenger Act which lifted the industry's passenger obligations and established a federally-subsidized AMTRAK to operate passenger trains. This was not enough. Congress then responded by authorizing a federal buyout of the Penn Central and ordering the executive branch to develop a longer term solution to the persistent financial crises. To the surprise of some members of Congress, who were expecting to provide larger subsidies, President Jimmy Carter's Administration identified the nation's longstanding regulatory regime as the culprit and proposed regulatory liberalization as the solution.[4] This led to the Staggers Rail Act of 1980.

In addition to giving railroad managers pricing freedom, the Staggers Rail Act facilitated the process of rail-line abandonment, streamlined the merger process, and (for the first time in US history) allowed for contract rate agreements between carriers and shippers. It retrospect, it is these latter three provisions which have probably had the most effect on the industry. Between 1980 and 2004 the size of the U.S rail network has been rationalized from 285,806 kilometres to 194,240 kilometres.[5] The number of Class I Railroads has been reduced from 38 to seven. The amount of rail traffic moving under long term contracts has grown to almost 70%.[6] Price flexibility actually led to a reduction in real rates on most commodities, but concurrent cost reductions improved net railroad operating incomes. These grew from $1.3 billion in 1980 to $4.1 billion in 2004.[7]

Liberalization of the European Rail System

In the second half of the 20th Century Europe's public railways also experienced a significant decline in their major market – passenger services. This did not precipitate an immediate financial crisis, as it did on private US railroads, but it did subject railways to the same economic scrutiny that has been directed to other large European network utilities. On 26 February 2001 the European Parliament approved the First Rail Infrastructure Package, a set of three directives aimed at converting the rail sector into a single, unified, European market. On 14 January 2003 the EU adopted a Second Rail Infrastructure Package which moved forward the date of market implementation and added several institutional provisions. On 29 April 2004 the EU adopted a Third Rail Infrastructure Package which opened international passenger services to Europe-wide competition.

Though the European Union's rail packages were not developed as a direct response to a financial crisis, they did mirror one basic economic assumption in the Staggers Rail Act. This is the idea that in freight markets it is competition among profit-seeking operating entities that will provide the most efficient levels of pricing, service and investment. The European proposals also adopt the idea that open access to network infrastructure is an essential component of competitive freight service. The Staggers Rail Act relies on the residual regulatory authority of the Surface Transportation Board (STB), successor agency to the Interstate Commerce Commission (ICC), to control excesses of market power.

Relevant Aspects of the US Experience

The STB has the authority to require a private US railroad to provide limited access to its infrastructure to a competitor, and has done so fairly often in connection with large mergers. Nevertheless, the majority of rail operations in the US are on and by vertically in-

[1] European Union: Energy and Transport in Figures 2005, Table 3.2.2 for freight, and Table 3.3.2 for passenger.

[2] Ibid., Table 3.4.15 for freight, and Table 3.4.16 for passenger.

[3] US Department of Transportation, Bureau of Transportation Statistics: Freight in America 2006, Table 1, p. 7.

[4] See US Department of Transportation: A Prospectus for Change in the Freight Railroad Industry, Washington, D.C., October 1978.

[5] Association of American Railroads: Annual Analysis of Class I Railroads, Line 335 Miles of Road.

[6] See Government Accountability Office: Current Issues Associated with the Rate Relief Process, GAO/RCED-99-46, pp. 3 and 16.

[7] Association of American Railroads: Annual Analysis of Class I Railroads, Line 5 Net Railroad Operating Income.

tegrated carriers. What relevance then does the American experience present for Europe? I would identify five possible items.

- First is the role that shippers played in the development and passage of the Staggers Rail Act and its subsequent implementation. In the US, as in Europe, rail policymakers (especially economists) were supportive of regulatory liberalizations. Railroad managers were ambivalent. A group of influential shippers from Dupont, General Motors, General Mills, and other large firms, organized themselves into a Committee of Railroad Shippers. This group convinced Congress that their firms would be better off dealing directly with the railroads than they would be using the political mediation of the ICC. Shippers might play a similar role in Europe.
- Second is the role that contracts have had in facilitating improving the overall efficiency of freight movements in the USA. A distinctive characteristic of the demand for rail shipments is that they are usually justified by large shipment sizes. This means that rail freight customers are often large firms that are capable of well-informed, bilateral negotiations with railroads. More than half of US rail shipments are now made under contract and rail managers claim that contracts have exercised a downward pressure on rates. Contracts might also be a potential key to the success of rail freight in Europe.
- Third is the degree to which US freight railroads have merged into large, vertically integrated regional systems. In an econometric study of US freight railroads Professor Marc Ivaldi of Toulouse and I found economies of scope *between* infrastructure-related activities and train operations.[8] This does not invalidate the requirement in Directive 2001/12/EC that the body which determines access not be the same body that provides rail transport services. It does put a burden of proof, though, on those who argue *a priori* that infrastructure provision and train operations must be provided by separate firms.
- Fourth is the role that diversified freight outputs play in accounting for the efficiency of large US carriers. In our econometric studies Ivaldi and I also found significant economies of scope *among* the various types of freight outputs – bulk, intermodal, and general freight. This suggests that even if there is vertical separation between infrastructure and operations, the trans-European operating companies that emerge may become quite large. Vertical separation alone may not guarantee effective competition.
- Fifth is the fact that a significant portion of the economic gains attributed to the Staggers Rail Act were at the expense of rail labor. Between 1980 and 2004 the average employment level on US freight railroads dropped from 458,332 to 157,699.[9] The share of freight service expenses allocated to labor dropped from 49% to 36%.[10] It is remarkable that while the Staggers Rail Act worked its way into law the US rail unions remained focused on their traditional issues of safety and work rules. It is still difficult to understand why these unions would gradually accede to a 65% reduction in their workforce. One wonders whether this could happen in Europe.

Relevant Aspects of European Liberalization

In recent years a number of US shipper groups have called for a reevaluation of the regulatory regime that has emerged in the 25 years since the Staggers Rail Act. In October 2006 the Government Accountability Office – an investigative arm of Congress – endorsed this idea.[11] Much of the focus of this reevaluation will be a technical analysis by the Surface Transportation Board of the stand-alone cost test which it has adopted as a means of evaluating rates in cases where railroads have demonstrable "market dominance".

GAO also recommended, however, that the US Department of Transportation consider strategies to "level the playing field" for all freight modes. The GAO implicitly recognizes here that the price mechanism alone may not guarantee optimal outcomes in the US freight market. In fact, there is little reason to expect that myopically regulated rail rates will lead to efficient prices, service levels and investment in a market characterized by interactions between rail natural monopolies and highway carriers whose infrastructure is subsidized. In this respect US rail policymakers could learn from the European Commission's decision to adopt a *quantity* goal as the basis for rail policy. The EU has adopted a goal of nearly doubling rail's freight share from eight percent to 15% and passenger share from six percent to 10% by 2010.[12] Americans should pay attention to such targets.

[8] M. Ivaldi, G. McCullough: Subadditivity Tests for Network Separation with an Application to U.S. Railroads, CEPR Working Paper No. 4392, Centre for Economic Policy Research, London 2005.

[9] Association of American Railroads: Annual Analysis of Class I Railroads, Line 14 Average Railroad Employment.

[10] Ibid., Lines 250 and 251 Labor Expenses, Line 260 Total Expenses.

[11] Government Accountability Office: Freight Railroads, GAO-07-94, October 2006.

[12] European Commission: White Paper, European Transport Policy for 2010: Time to Decide, p. 26.