

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT



**EUROPEAN
INTEGRATION
OF RAIL FREIGHT
TRANSPORT**

**ROUND
TABLE**

125

ECONOMIC RESEARCH CENTRE

ECONOMIC RESEARCH CENTRE

REPORT OF THE
HUNDRED AND TWENTY FIFTH ROUND TABLE
ON TRANSPORT ECONOMICS

held in Paris on 28th-29th November 2002
on the following topic:

EUROPEAN INTEGRATION OF RAIL FREIGHT TRANSPORT



EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT (ECMT)

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1. EUROPEAN FREIGHT TRANSPORT MARKETS

Table 1 shows how, since the early 1990s, freight performance (tonne-kilometres: tkm) has been growing at a faster rate than Gross Domestic Product (GDP).

Table 1. Annual growth rates EU 15 (% change)

	1980-90	1990-97	1998	1999
GDP	2.4	1.6	2.6	2.1
Industrial production	1.8	0.7	3.4	2.0
Passenger transport pkm (5 modes)	3.1	2.0	2.1	2.0
Freight transport tkm (5 modes)	1.9	2.7	3.5	3.0

Source: European Commission (2001), *EU Transport in Figures 2000*, p. 11.

According to forecasts, this sharp increase in freight traffic is expected to continue over the period 2000-2010. The EU Commission White Paper on European transport policy for 2010 [Doc. COM(2001)370 of 12 September 2001] predicts a 38.4 per cent increase in the 15 EU Member States between 1998 and 2010. Forecasts compiled by the research institute Prognos AG in Basle show a 29 per cent increase in freight performance between 2000 and 2010 and a 42 per cent increase between 2000 and 2015. The forecasts relate to the 15 EU Member States plus Norway and Switzerland (Prognos AG, 2002, *Prognos European Transport Report*, Basle).

The main reasons for this sharp increase in freight traffic (tkm), which is much higher than the corresponding increase in passenger traffic (pkm), are:

- The reduction in manufacturing depth in industry;
- Global sourcing;
- The removal of customs barriers and non-tariff obstacles to trade and the internationalisation of economic relations;
- The drop in the share of end-product costs taken up by transport costs in the case of high-growth product lines;
- The steady increase in average transport distances in the case of growth goods.

The overall transport elasticity values recorded in the freight sector since the beginning of the 1990s (> 1) are also to be seen in the context of the growing importance of the service sector in the developed economies. Transport intensity (tkm per 1 million EUR GDP) in respect of traditional

services is very low, reducing overall transport elasticity, but this is more than compensated for by growing transport intensities in respect of other lines of goods with a disproportionately high growth rate.

So far, the frequent calls for the decoupling of (real) economic growth and the (overall) growth in freight traffic (Baum/Heibach) have not been answered. Comparisons with the energy sector, where such a decoupling has taken place, are not appropriate (Rommerskirchen, 1999, pp. 231 ff). Significant reductions in relative energy consumption and, to some extent, even absolute energy use were achieved thanks to technical progress, particularly in the electrical energy sphere, and efficiency improvements with respect to energy use and transmission. Such potential does not exist, however, in the transport sector. Even a parallel increase in real economic growth and the demand for freight services would be seen as progress.

2. THE MODAL SPLIT PROBLEM IN EUROPEAN FREIGHT TRANSPORT

2.1. The continuing decline in rail freight's share of the market

Despite a sharp increase in freight traffic generally, since the early 1970s the rail sector has experienced a relative decline in its share of the market and has even suffered absolute losses in terms of performance (tkm). Some transport elasticity values for the railways are therefore negative.

The following table shows the worryingly weak market position of rail freight traffic over the period 1970 to 1998.

Table 2. **Evolution 1970-98 EU 15**
Performance by mode (billion tkm)

	Road	Rail	Inland waterways	Pipelines	Sea (intra-EU)	Total
1970	416	283	103	66	472	1 340
1980	628	287	107	91	780	1 893
1990	932	255	108	75	922	2 293
1995	1 146	221	114	83	1 071	2 635
1996	1 152	220	112	85	1 073	2 641
1997	1 205	238	118	85	1 124	2 770
1998	1 255	241	121	87	1 167	2 870
1990-98	+ 35 %	- 6 %	+ 12 %	+ 17 %	+ 27 %	+ 25 %

Source: EUROSTAT, ECMT, UIC, national statistics.

Table 3. **Modal split for EU 15 (5 modes) in %**

	Road	Rail	Inland waterways	Pipelines	Sea (intra-EU)
1970	31.0	21.1	7.7	4.9	35.2
1980	33.2	15.2	5.6	4.8	41.2
1990	40.7	11.1	4.7	3.3	40.2
1995	43.5	8.4	4.3	3.1	40.7
1996	43.6	8.3	4.2	3.2	40.6
1997	43.5	8.6	4.3	3.1	40.6
1998	43.7	8.4	4.2	3.0	40.7

Table 4. **Modal split for EU 15 (4 modes) in %**

	Road	Rail	Inland waterways	Pipelines
1970	47.9	32.6	11.9	7.6
1980	56.4	25.8	9.6	8.2
1990	68.0	18.6	7.9	5.5
1995	73.3	14.1	7.3	5.3
1996	73.4	14.0	7.1	5.4
1997	73.2	14.4	7.2	5.2
1998	73.7	14.1	7.1	5.1

Source: European Commission (2001), *EU Transport in Figures 2000*, p. 61.

In a *trend scenario* the EU Commission predicts a further decline in rail freight traffic's share of the market in the 15 EU Member States, from 8.4 per cent in 1998 to 6.9 per cent in 2010 (with reference to the five modes: road, rail, inland waterways, pipelines and short sea shipping). According to this prediction, rail freight traffic will increase by only 12 per cent by 2010 compared with 50 per cent for road freight traffic and only 14.1 per cent for the inland waterways (European Commission, 2001, White Paper, p. 12). The absolute *growth* in road freight traffic (according to the trend scenario) of 627 billion tkm is 2.3 times the predicted *end* value for all EU railways in 2010. The figures are a clear illustration of the quantitative dimension to the modal split problem.

Table 5. **Forecasts and strategic scenarios for EU freight traffic in 2010**

Freight performance trends in billion tkm

	1998 situation	Trend	Scenario A	Scenario B	Scenario C
Road freight	1 255	1 882	1 882	1 882	1 736
Rail	241	272	272	272	333
Inland waterways	121	138	138	138	167
Pipelines	87	100	100	100	100
Short sea shipping	1 166	1 579	1 579	1 579	1 635
Total	2 870	3 971	3 971	3 971	3 971

Source: EU White Paper (2001), Annex, Table 3.

2.2. Causes of declining market shares

The causes of the decline are complex. This is because freight traffic demand is a derived value. The determining factor for the modal split is whether and to what extent the different modes are able to adapt to the new requirements of the transport industry.

These new requirements are the result of the following market features (Aberle 2000, p. 84 ff.):

- The “*goods’ structure effect*” (increase in consumer durables and industrial goods, to the detriment of primary commodities) favours transport modes which are able to offer flexibility, suitable conditions for the carriage of small consignments and transport safety.
- The “*logistics effect*” (i.e. just-in-time delivery concepts, supply chain management) favours modes which are able to offer flexibility, a very high degree of reliability and the ability to meet deadlines, as well as a capacity for integration in complex (including IT) networks and chains.
- As a result of the *globalisation* of supply and demand processes and manufacturing structures, international freight transport is developing much more rapidly than national traffic. The specific requirements in relation to the goods’ structure and logistics are therefore particularly relevant in respect of international traffic.

Above all, the steady drop in the railways’ market share in nearly all European countries is a result of the discrepancy that exists between customer requirements and the kind of services provided by the rail mode. Because of the specificities of the railway system, the railways find it very difficult to meet the quality requirements of the transport industry resulting from changes at the level of the goods’ structure and logistics. The characteristics of rail freight, which include bulk efficiency, timetabling constraints, lengthy order processing times, high costs in respect of part-load and individual wagonload traffic, problems with infrastructure access and user charges, as well as big firms with unwieldy organisational structures and an abundance of decisionmaking layers, are made more acute by the problems encountered with international co-operation between national railways

(lack of technical and organisational interoperability of rolling stock and infrastructure, different attitudes of national decisionmakers, differences in the railway policies adopted at the level of the national governments and a reluctance to abandon traditional railway practices). Then there is the additional fact that most of the railways dominating the market are state-owned, which until now has meant insufficient support for the basic structural reforms needed on the railways.

It is not surprising therefore that it is in international traffic, with its high growth rate, that the railways have the most problems with quality. The main problem from an economic perspective is that the railways are only able to control and influence the performance and cost factors crucial to their commercial success up to their national borders. Co-ordination processes are unwieldy, and the pace of the changeover to market-oriented solutions is set in international railway bodies by railways firmly rooted in old-fashioned railway philosophies.

The railways' very weak position on the international transport market is also disastrous insofar as most international traffic is concerned with products with high value added for which the cost of transport is also high and therefore commercially interesting. In 1996, for example, the 15 EU railways transported a total of 906.2 million tonnes, of which only 94.9 million tonnes (10.5 per cent), however, concerned traffic between Member States.

3. EUROPEAN INTEGRATION OF RAIL FREIGHT TRANSPORT – A MULTI-FACETED PROBLEM

3.1. Different ways of interpreting integration

The question of European integration of rail freight transport can be examined from four different angles:

- 1) Integration of railway infrastructure and the provision of rail freight services in the sense of *vertical integration within a firm*. Such integration could be extended by means of co-operation agreements or alliances with other vertically-integrated rail companies.
- 2) Integration of European rail companies in *co-operative associations* which involves a series of binding contractual provisions in respect of technical, organisational and marketing decisions. The individual railway undertakings retain their independent legal status.
- 3) Integration of European railways by means of their voluntary participation in a *European railway company*, set up under single management.
- 4) Integration of national railway infrastructure companies in an infrastructure company set up on the basis of pan-European co-operation or -- the ultimate step -- a European merger company.

No-one disputes the need for more intensive co-operation between European railways to boost their commercial performance potential. Traditional forms of co-operation within the context of supranational bodies, such as UIC or the CER, have so far failed to yield any lasting improvements in the railways' market position.

3.2. Analysis of different integration alternatives

Alternative No. 1 (above) has to be eliminated from the analysis of possible forms of integration. Vertical integration and, with it, control over a monopolistic bottleneck may well be the preferred solution of many big rail companies, but there is empirical evidence in Europe to show that the huge market losses sustained by rail traffic and the lack of interoperability are the result of decades of vertically-integrated railway management.

Alternative No. 2 has already been adopted by some railways. One such example is the co-operation between NS Cargo and DB Cargo in RAILION, which has now also been joined by the freight sector of the Danish state railways (DSB). RAILION's status as a joint venture ensures very close co-operation at an institutional level.

There is also co-operation between DB AG and the SNCF in the form of a strategic alliance. In addition, DB AG has entered into agreements with Switzerland's Lötschberg-Bahn (CH), in which it now has a 20 per cent share. Similar co-operation was planned between the Swiss federal railway (SBB/CFF) and the Italian state railway (FI) but has not happened.

Many forms of co-operation between the European railways were established back in the second half of the 19th century. They focused on standardization in the technical, legal and operational spheres, timetable agreements and selected joint products in the passenger and freight sectors. At an intergovernmental conference in 1922, the International Union of Railways (UIC) was set up with the aim of improving the level of supranational co-operation (Jäntschi-Haucke, 1991, p. 74 ff). However, the commercial impact of UIC's activities has proved to be very limited.

The benefits of such co-operation include opportunities for planning and implementing joint marketing strategies and for concluding bi- or trilateral agreements in the technical and organisational spheres in order to optimise performance and exploit market potential. However, a joint strategy adopted between co-operating railways, with the aim of protecting them against third-party railway undertakings, can be *problematic*. In general, there is a risk that strategic alliances or similar forms of co-operation will lead to cartel-like practices towards (new) intramodal competitors, as illustrated by experience with air transport alliances.

With respect to this particular kind of (international) co-operation in the rail freight sector, transport and competition policy measures therefore have to be taken in order to avoid any unwanted restraints on competition. The intention of the EU's Commissioner for Competition Policy, Mario Monti, to carry out a study of rail transport alliances in relation to competition policy (Art. 81 + 82 EC Treaty) also has to be seen in this context, and the planned study has met with strong criticism from some railways.

Alternative No. 3 (integration through the establishment of a supranational European railway company) would probably overcome the interoperability problem more quickly than Alternatives 1 and 2. It would probably also mean greater speed and efficiency as regards the necessary co-ordination procedures in respect of marketing strategies (business segment planning, investment planning, yield management, etc.).

However, this alternative also has major drawbacks:

- Even now, dominant national railway companies operate as large concerns with complex structures. Consequently, when it comes to competing with small and medium-sized rivals, both inside and outside the rail sector, they are at a disadvantage in terms of their reactive capacity as well as their ability to implement specific customer-oriented solutions. If several railways were merged, there is a danger that this lack of flexibility and tendency towards excessive bureaucracy, which come from the way the railways are organised, would merely be exacerbated.
- In the event of a supranational railway company, the only way of taking account of regional specificities at the level of freight traffic demand would be to set up regional marketing and operating divisions, creating a need for extensive co-ordination. Apart from the advantages of this alternative in terms of easier implementation of interoperable operating systems and the cost savings which result from a common procurements policy (increase in operating efficiency), there is also a risk that a supranational (and vertically integrated) railway undertaking will lead to higher inefficiencies (X-inefficiencies) in internal business processes compared with the situation before the merger.
- A merger of several vertically-integrated railway undertakings, most of which are state-owned, also raises other questions. What about the supranational company's entrepreneurial independence? Does it have contractually-defined access to national subsidies? And what are the criteria for making management-level appointments in the new railway undertaking?

Once the advantages and disadvantages of an integrated European railway undertaking have been weighed up, there are no convincing arguments in favour of a supranational railway company. It should also be noted that, because of the national railways' very different structures and performance characteristics, the co-ordination procedures needed in the event of integration would be not only extremely complicated but -- if they were to succeed -- also very time-consuming. It can reasonably be assumed that the whole process would take some five to ten years. Given that the railways' commercial situation is already critical, to postpone the benefits that can be expected from structural reforms could threaten their very survival. Moreover, reorganisation in the context of a merger would be likely to trigger considerable disturbances on the market, which is another reason for not opting to establish a supranational railway undertaking as a way out of the rail freight crisis.

Insofar as the merger would involve vertically integrated railways, the problem of third-party access to the market would be much more acute.

Concerning Alternative No. 4: Co-operation between national railway *infrastructure* companies, in connection with fiercer intramodal competition, has interesting potential for improving the railways' position on the freight market. Chapter 4 looks at this alternative in more detail.

4. INTEGRATION OF RAIL NETWORKS AND INTRAMODAL COMPETITION

4.1. The problem with vertically integrated railways

For reasons relating to infrastructure capacity and the environment, it is important, in the context of the rapid growth forecast in European freight traffic, for the railways to stabilize and increase their share of the market. Insofar as most of the growth will concern international traffic, any weaknesses in that sphere must be overcome.

Further separation of railway infrastructure from rail transport undertakings is essential for making the carriage of goods by rail more attractive. Admittedly, further separation of infrastructure from the rail transport undertakings dominating the market is the subject of controversy and, not surprisingly, the opposition comes from the large, integrated railway companies, which strongly defend their infrastructure monopoly. However, all studies show that it is extremely difficult to regulate the monopolistic bottleneck represented by infrastructure effectively if infrastructure and operations are vertically integrated in a dominant railway undertaking, particularly if at the same time the intention is to open up the infrastructure to third parties. This is the problem of the essential facility doctrine, as established in the US Supreme Court's 1912 anti-trust ruling (*United States v. Terminal Railroad Association of St Louis*; Section 2 of the Sherman Anti-Trust Act with respect to monopolizing).

According to the essential facility doctrine, the following four criteria must be met before the owner of an essential facility can be obliged to grant access to another railway undertaking under the same conditions as its own companies (Knieps, 1996, p. 128 f.):

- Control of an essential facility by a monopoly which also uses it to provide a service;
- Inability of competitors to duplicate this facility (reasonably);
- Denial of the use of the facility to competitors;
- (Technical) feasibility of providing the facility.

The European Conference of Ministers of Transport (ECMT) has also argued strongly in favour of increasing intramodal competition as a way of reviving European rail freight transport. The separation of infrastructure and operations is cautiously discussed in a positive light: *“The arguments against open access are weaker for vertically separated freight railways since there are few economies of scale or density in rail freight operations alone (i.e. excluding infrastructure provision). The benefits of competition are likely to exceed any losses of economies of scale in vertically and horizontally separated freight operations (and the problems of cost recovery occur in the separate infrastructure business) (ECMT, 2001, p. 31).”*

Railway infrastructure undertakings which are no longer controlled by the (national) dominant railway companies should be given incentives to sell as many network services (i.e. route kilometres) as possible. It is then in the interests of independent infrastructure companies to sell train paths not only to the dominant national railway undertakings but also to third parties.

4.2. Integration activities of infrastructure companies as a basis for improving rail freight's position on the transport market

Independent infrastructure companies also stand to gain from interoperability within and between networks. Independent infrastructure managers need to co-operate with each other and work closely together to develop and implement joint marketing and investment strategies.

The first signs of such co-operation are already emerging in western Europe. In 2001, the Association of European Rail Infrastructure Managers (EIM) was set up as a separate organisation alongside the Community of European Railways (CER) so that political expression could be given to interests which deviated from the specific objectives of the CER. The establishment of the EIM as a separate association met with harsh criticism from both the CER and UIC. Several infrastructure companies which are officially and organisationally separate from the rail transport undertakings, in accordance with Council Directive 91/440 EEC, found that they either could not or were not allowed to join the new association because, in practice, they were controlled by vertically integrated railway undertakings. It is not so much the legal status of the infrastructure companies which is the determining factor here as the extent to which they are effectively controlled by the integrated railway undertaking. France and Germany are good examples of such cases, where an independent infrastructure policy in respect of infrastructure charges, capacity allocation and infrastructure investment is not possible. The result is considerable potential for the established railway undertaking to discriminate against intramodal competitors on the network which (until now) has always been under its control.

Intramodal competition is potentially more important in the rail sector than competition between modes. This assertion may seem surprising at first but is backed up by empirical evidence which shows that, despite decades of fierce intermodal competition, principally from road freight traffic and in some countries the inland waterways, the railways have done very little to alter their traditional practices and improve their poor levels of efficiency. Above all, on many freight routes there has been hardly any improvement in international co-operation between railways, who, at the same time, have become increasingly reliant on subsidies for their survival. Governments' counter-measures in the transport and financial spheres have been carried out hesitatingly, if at all. To secure subsidies, the railways complained that they suffered from distortions of competition, while the governments, as the railways' managers cum owners, were (and indeed still are) keen to protect them and to that extent contributed, via the policies they adopted, to the railways' steadily worsening market position. Despite fierce rivalry between modes, such competition is not serving its original purpose, insofar as state subsidies mean the railways are effectively under less pressure to compete.

As a logical consequence of this situation, it is not surprising therefore that the EU Commission should be exerting external pressure for railway infrastructure access to be opened up to third parties (White Paper, 2001) and that, after lengthy debate, the European Parliament and Council should have issued a series of Directives (2001/12-14) aimed at promoting intramodal competition. The main advantages of such competition in the rail sector may be summed up as follows:

- Attractive rail services are provided, using the same or modified technology and with more efficient organisational structures;
- The potential for cost savings and productivity improvements is developed and exploited for commercial ends;

- Innovative service elements are implemented; particularly in the freight sector, the dominant railways suffer from a worrying incapacity for innovation compared with their intermodal competitors (road freight, inland waterways);
- Dominant railways cannot blame distortions of competition for their weaknesses in terms of performance and cost in comparisons with other railways.

Non-discriminatory intramodal competition is only guaranteed, however, if managers of infrastructure (an essential facility) are *independent from the railway undertakings in their decisionmaking*, particularly as regards:

- capacity allocation;
- infrastructure charges; and
- investment policy.

Article 6 of Directive 2001/12/EC and Article 4 of Directive 2001/14/EC are especially important in this context.

4.3. Structural types of intramodal competitors

Co-operating infrastructure companies offer intramodal competitors favourable operating conditions. It should be remembered here that such competitors will include foreign rail transport undertakings (which dominate the market in their own country), as well as:

- Railways which, so far, have only operated on a regional scale but which are now keen to tackle a wider market;
- Brand new railway undertakings, for example, set up by firms in the transport industry and/or haulage contractors, often in the form of joint ventures;
- Combined transport firms which set up rail transport undertakings, principally as a result of the very poor quality offered by the dominant national railway companies.

To date, third-party railways operating in the freight sector have mainly specialised in block-train traffic, which they regard as an interesting market from a commercial standpoint and relatively straightforward in operating terms. As another example, however, in June 2002, nine regional railways set up a co-operation-based structure, *Organisation Netzwerk Eisenbahnlogistik NRW* (ONE NRW), in North Rhine-Westfalia, Germany, with the intention of offering not only trainload but also wagonload services (individual wagons and sets of wagons). The organisation has the use of 160 locomotives, 2 250 wagons, six freight terminals and 14 inland ports (ONE NRW, 2002, p. 1).

5. CO-OPERATION AND STRATEGIC ALLIANCES IN EUROPEAN RAIL TRANSPORT: PITFALLS AND OPPORTUNITIES

This chapter looks in more detail at the co-operation strategies dealt with briefly in Chapter 3.

Basically, co-operation between European railways provides an opportunity to:

- develop co-ordinated strategies extending beyond the scope of the individual railway companies;
- devise a common policy with regard to rolling stock procurement;
- implement co-ordinated marketing measures; and
- improve technical interoperability.

Ultimately, this should help rail freight traffic increase its share of the market.

Providing the co-operating railways are rail *transport* undertakings, there is every reason to expect that the opportunities associated with such co-operation will be realised. Greater horizontal integration of European rail transport undertakings should be seen as an advantage here for overcoming international rail freight's weaknesses in the logistics field.

The expectation is different, however, in the case of co-operation between vertically integrated railway undertakings. Access to the different national networks forming an integral part of the railway undertaking means control of an essential facility. This results in a monopolistic bottleneck which, in the case of vertically integrated infrastructure and operations, is regulated internally. Potential entrants in the form of third-party rail transport undertakings, which are so important for raising the rail system's levels of performance and marketability, find themselves exposed to different kinds of *potential* discrimination, which, it should be noted, always has an economic impact. Whether, and to what extent such potential is exploited will depend on the situation both within the undertaking and outside. Consequently, it is rather immaterial whether dominant, vertically integrated railways claim that there is no need to make any adjustments to positions on the network insofar as no complaints have been lodged about discrimination. Furthermore, the relationship between potential new entrants and the established, dominant railways is often one of marked asymmetrical dependency, making it much less likely that third parties will want to complain about discrimination publicly and in court.

Experience of competition in other sectors of the economy (industry, trade) also shows that, when justified by commercial interests, the potential for discrimination is sometimes exploited.

From a commercial point of view, it is understandable that a dominant railway should defend its control over a monopolistic bottleneck. One example is Germany, where a very tightly-run railway holding manages the strategic and operational activities of all the participating companies and where all possible forms of political pressure are brought to bear to secure its monopolistic control of the network.

What does this mean for the different forms of co-operation, such as strategic alliances, between these vertically integrated railways? Comparisons with air transport alliances are not appropriate because airports are organised as separate institutions.

- Strategic alliances of vertically integrated railway undertakings focus exclusively on the business targets of the different parties involved. Ultimately, this also applies to infrastructure policies (investments, quality structure, access rules and charges), although in most countries the rail network is heavily subsidised by the taxpayer.
- There is a danger with strategic alliances of vertically integrated railways that railway policy will continue to be seen only in terms of the dominant (state-owned) railways, even though, especially where the need to revive rail freight transport is concerned, it is the whole rail transport *system* which is at stake and therefore the interests of all other railway undertakings also have to be taken into account.
- In the worst case scenario – from a general economic perspective - strategic alliances of vertically integrated railways can lead to a common policy to exclude third parties. This could be one of the main reasons why railways decide to engage in such co-operation.

Appendix: The aforementioned establishment of the Association of European Rail Infrastructure Managers (EIM) and its efforts to step up co-operation have met with strong reactions from the board of the holding set up by the vertically integrated Deutsche Bahn AG. In May 2002, a letter was sent to all the boards of the companies controlled by Deutsche Bahn AG but operating as separate companies, banning them from having any contact with the new association. The recipients of the letter included DB AG's infrastructure manager, Netz AG. At the same time, DB AG is the railway with the most extensive alliance activities in Europe.

DB AG's reaction is a striking indication of the total subordination of the infrastructure company, officially a separate entity, to the strategic and operating objectives of the holding that controls it. There is nothing illegal about this, but it shows the considerable potential for conflict in the case of vertically integrated railways. It is also contrary to the spirit and letter of EC Directives 2001/12 to 14.

6. EU ENLARGEMENT TOWARDS CENTRAL AND EASTERN EUROPE -- FURTHER COMPLICATIONS FOR RAIL FREIGHT TRANSPORT

6.1. Railway-specific problems connected with EU enlargement

Eight CEECs have joined the EU in 2004 (Poland, Hungary, Czech Republic, Slovenia, Lithuania, Latvia, Estonia and Slovakia) and by 2007, Bulgaria and Romania should also be candidates for accession.

The railway-specific problems connected with the accession of eight more countries, probably all at once, are considerable. However, little account is taken of them in the political debate:

- The modal split in the accession countries will continue to develop to the detriment of rail freight traffic, owing to changes at the level of the goods' structure and logistics, the organisational and qualitative shortcomings of the (vertically integrated) railways in these countries and fierce competition, particularly from the road. There are many different obstacles hampering the CEEC railways' ability to compete. Brown offers an impressive overview of the situation (2002, p. 98).
- Because of the distances involved, exchange traffic between the EU and central and eastern Europe should favour the railways. As experience in the EU has shown, however, it is questionable whether in practice rail freight's supply profile will allow it to exploit such opportunities to the full. It should be borne in mind that some of the long-distance traffic can also be taken up by short sea shipping.
- The weak position of western European railways on the market for international freight transport can be traced back to deficiencies in co-operation between the railways, most of which are vertically integrated. These deficiencies include a lack of technical and organisational interoperability, corporate culture differences and discrepancies between the railway policies pursued in each country by the state as the railways' owner. Enlargement of the EU to include eight more countries by 2004, with eight vertically integrated railways, will make the task of harmonizing the railways' operating conditions (technical and organisational) that much harder. Such harmonization is essential, however, for improving market performance.
- The vertical integration of the CEEC railways is in need of reform. *“With the changes in the structure of the railways, the separation between infrastructure and transport services will be more marked. As in the West, such a separation is the only way of ensuring fair competition for rail undertakings that are not state-owned. Competition between them and the major railways is supposed to generate higher quality and lower costs, and hence lower prices for the consumer (Siegmann 2002, p. 17).”*
- The railways in the accession countries also have a great deal of catching up to do in the investment sphere before they will be able to offer competitive levels of performance. It is estimated that EUR 37 119 million needs to be spent on railway infrastructure alone (ten CEECs) (TINA Report, 1999, p. 54). Nearly 40 per cent (EUR 14 612 million) of all restructuring needs concern Poland, the most important partner for rail traffic. A market-oriented approach means more problems for western European railways too, partly because of the unwieldy organisational structures typical of large railway undertakings. This problem is even more acute in the accession countries.

6.2. Ways of alleviating the problem

Many pitfalls stand in the way of commercially successful co-operation between railways after EU enlargement. However, there are two ways in which the problems could be alleviated:

- The organisational independence of infrastructure activities and setting up of a co-operative organisation structure to deal with investment policy, working towards infrastructure interoperability, opening up the network to all licensed rail transport undertakings, developing co-ordinated access charging systems (standardization of calculation methods), introducing a system of infrastructure quality management and developing marketing concepts which ensure optimum capacity use.

- Establishment of attractive conditions for infrastructure use, particularly by third parties, whose creativity and organisational flexibility, coupled with cost structures that are often much better than those of the dominant railways, offer an opportunity to provide commercially attractive rail freight services. Intramodal competition in the rail freight sector places the established railways under growing pressure to tailor their quality of service to suit their customers. This process, so important for the rail freight system, is much more difficult, however, when infrastructure activities are managed in vertically integrated railway undertakings.

If rail freight traffic is to stabilize its position on the transport market in CEEC countries, the decisions regarding railway reforms, their content and time scales, must not be left to the established state-owned railways. *“It is essential that the process of change should not be left in the hands of the existing rail undertakings, which are not inclined to upset their practices and face competition with profit objectives. To this end, the Round Table thought that measures should be taken to encourage new companies onto the networks, which was quite the reverse of granting ‘grandfather rights’ which favoured existing undertakings (ECMT, 2002, p. 136).”*

Also as regards EU enlargement, opportunities for rail freight traffic are not to be found in vertically integrated railways that are keen to develop co-operation but at the same time loath to relinquish their partial monopolies in the infrastructure field. What the sector needs are independent infrastructure providers who will press on with the necessary integration efforts and offer encouragement to third parties by eliminating any potential for discrimination. An essential facility under a competitor’s monopolistic control is a major obstacle for any would-be entrants.

7. CONCLUSIONS

7.1. Need for far-reaching policy changes

To pursue existing rail policies in western European countries as they are without making any changes would be to threaten the very survival of the rail freight sector. In addition to the partial restructuring taking place in some countries, other measures must be taken to effect a sustainable improvement in railway cost and service structures and thereby increase their share of the international transport market.

Railway integration in the freight sector as a means of improving the situation has to distinguish between transport services on the one hand and infrastructure services on the other hand.

Large-scale co-operation between freight railways, which may include joint ventures in respect of specialised product sectors or subsectors, facilitates the co-ordination needed for strategic and operational management and improves the chances of better interoperability of rolling stock. The same applies to the development of international tracking and tracing systems or joint rolling stock purchases.

An end to the vertical integration of infrastructure and operations is very important. The *potential* for discriminating against third parties is considerable, and the possibility of monitoring by external bodies to check for actual discrimination is inadequate. This is confirmed by competition theory and compounded by the fact that vertically integrated state-owned railways (or dominant railways) are both unable and unwilling to offer competitive national and, above all, international freight services. Vertically integrated railways have not stood the test of time. Consequently, their repeated and often aggressive attempts to perpetuate their monopoly position as infrastructure providers are not convincing.

For infrastructure managers, integration is more than a golden opportunity; it is also a necessity. There are many different ways in which they can break away from the vertically integrated railways, and the failure of Railtrack in the United Kingdom should not be quoted as an argument against separation because of basic mistakes made in that particular case (Böttger, 2002, pp. 273-277).

Infrastructure managers have a vested interest in optimum capacity utilisation and, consequently, given the importance of the international freight sector, in international co-operation. Extension strategies and technical standards can be planned and implemented using an integrated approach, which can and indeed must involve the network users, in other words, *all* rail transport undertakings.

The question of whether co-operation-based integration could lead to a supranational merger of national infrastructure managers remains to be answered. Obstacles to this are the substantial national subsidies paid to infrastructure managers, without which rail networks with high density and scale effects would be reduced to operating at a loss.

Co-operation-based integration of infrastructure companies would also seem to be the most promising strategy in the context of looming EU enlargement. If it is left to the existing, vertically integrated railways to open up the market, future prospects for the railways in the CEEC countries and in exchange traffic, particularly with long-standing EU Member States, are far from encouraging.

7.2. Burdening competitors does nothing to promote the integration of rail freight transport

The question of whether rail freight's integration in the markets for goods traffic could be improved with the help of more state subsidies or the levying of higher taxes on competitors (road transport and the inland waterways) has not been examined so far.

After decades of substantial government handouts, as their market shares have continued to decline, the idea of granting additional subsidies to the railways seems inappropriate. In Germany, for example, DB AG receives 4.6 billion EUR from the federal budget each year in capital appropriation. In addition, approximately 4.2 billion EUR are paid out each year in so-called "regionalisation funds" to finance short-distance passenger traffic by rail (public contracts). A further 6.1 to 6.3 billion EUR is paid to the Federal Railways Fund each year to settle the financial burden transferred to the Fund from DB AG, in the context of the structural reform in 1994. In addition, the *Länder* award investment grants to purchase rolling stock for regional passenger traffic (Aberle/Zeike, 2001). On top of that, many of the *Länder* are having to contribute large sums out of their tax revenue to pay for restructuring measures on the state-owned railways.

For many years, the demands typically made by vertically integrated state railways have been for higher taxes to be levied on competitors, and frequently national governments, as owners of the dominant railways, have answered such calls. Even the EU Commission regards higher taxes on (heavy) goods traffic by road to be an important regulatory mechanism.

Such considerations are rejected here. Better integration of the railways in the rapidly growing markets for freight transport can only be achieved by means of significant service quality improvements, particularly in international traffic. However, this is precisely the area where the vertically integrated railways operating on a national scale are at their weakest. Programmes relating to the Trans-European Network (TEN) or the development of interoperability and freightways have all proved difficult to implement, and their impact has been limited.

It also needs to be borne in mind that, because of the specificities of the railway system, the railways' ability to meet quality requirements in the freight sector, which have risen so sharply, is necessarily limited. However, integration processes, at the level of rail transport undertakings on the one hand and network providers on the other, can help to narrow the gap between commercial requirements and the quality of service actually offered by the railways.

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PLAYERS IN THE RAIL TRANSPORT MARKET AND LIBERALIZATION

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INTRODUCTION

Over the last few years, the attention of industry experts has primarily been taken up with issues raised by competition regulations, particularly regulations on open access to networks. In contrast, European and government authorities have been focusing their attention on the current and future impact of the liberalization of the rail freight transport market on modal shift. Crucial policy statements by the European Competition Authorities, such as Mr. Monti's speech to the Assembly of the Union of European Railway Industries (UNIFE) on 21 May 2002, give a clear indication that a key feature of the next phase of liberalization, which will include a third package of railway measures, will be market regulation measures closely linked to achieving the desired modal shift. In this next phase, the key problem will be how to dismantle economic barriers to the entry of new railway undertakings.

The debate on the liberalization of the rail market has assumed such proportions that commentators' interpretations of developments have tended to oversimplify the issues: with national rail companies defending their turf on one side, besieged by new entrants on the other. The danger with this analysis is not only that we may lose sight of the fact that the issues are complex but, more seriously, we may fail to ask a very fundamental question: is rail transport itself, as a part of the wider production/distribution process, now entering a phase of process innovation which will radically improve the way it operates and hence its productivity, or will we simply see new players make an entrance onto the same old stage? Further, will these new players take a radically innovative approach or will they be content with improvements to traditional technology and systems organisation? With this kind of question, an approach which could hold the answer is to recognise the dilemma facing national railways and the major players on the market, i.e. what is my core business? The fact that open access for traction companies is such an important issue has in a way reduced the question to its essentials. Is traction the core business of a railway company? Then again, are the barriers to entry which have to be dismantled really at traction level or are there other barriers that are equally important? Is traction the key field for innovation?

In this paper, the author would like to attempt to make his own contribution to the discussion from the standpoint of the area which, by its very nature raises the most complex problems: third-party logistics services. Clearly, in reviewing the attitudes of the players, it will be difficult to disregard this image of the "fortress under siege", as we have to recognise that it is the commonly held view.

In the field of third-party logistics services, the change that has had the most profound effect on the relations between the players has been the transition from company logistics to Supply Chain Management (SCM), in other words, from a system based on optimising and rationalising internal production/distribution system flows to one that is based on integrating the processes of all the actors involved, after standardizing operating technologies to a certain degree. With corporate logistics, operating technologies still played a fundamental role and flow optimisation was aimed at achieving a single pipeline, while with SCM the entire process is divided into segments, with each actor having a specific function and the main effort, even at the technology level, is focused on integrating the procedures of all the actors.

The transition from company logistics to SCM would not have been possible without the increase in outsourcing, a practice which has developed at an increasingly faster pace over the past ten years.

As a result, the logistics services market saw new players emerge. Some, such as freight forwarders, came from the old freight haulage industry and some described themselves as specialists in one segment of the chain or in a particular sector. We then saw the development of a complex, interconnected system of firms from different backgrounds, some of which had never been seen before (e.g. logistics real-estate specialists), while information technology services, now more interconnected and efficient than ever, began to concentrate increasingly on system integration. “What is my core business?” was the question which plagued all of the actors.

The outsourcing relationship was regulated by contract. An analysis of the most frequently used contracts shows that logistics services can be outsourced:

- totally (minority of contracts);
- partially (vast majority of contracts).

With partial outsourcing, only one segment of the chain is subcontracted -- for instance, product distribution to the point of sale may be outsourced -- or one segment may be contracted out to several operators for different markets (e.g. one for Europe, a second for the United States).

Whether totally or partially outsourced, the contract is normally for the provision of a set of integrated services, or a “package”. The advantages which industry can expect to gain by using logistics service providers are:

- Reduced logistics costs;
- Better overall system performance;
- Better customer service;
- Closer control of critical elements.

Logistics service providers hope to gain repeat business from customers, which will enable them to make long-term investments (in storage/distribution centres, for instance) and improve dedicated customer resources.

What part does transport play in outsourcing contracts?

Four of the main elements which go to make up a logistics service -- simplifying greatly, there are five of these (administration, order fulfilment/customer services, storage, inventory management, and transport) -- are now so standardized that their costs rule out any major differences in the prices that logistics service providers can offer their customers.

Providers therefore have to rely on flexibility in transport pricing in order to be able to offer a more competitive package than competing firms. Outsourcing contracts are therefore based on an overall package negotiated with the customer, with subcontracts negotiated by the main contractor and transport subcontractors. The players at the bottom of the contract hierarchy -- subcontractors providing traction services -- are less able to operate autonomously in the logistics services market and are in the weakest competitive position.

Railway companies, in this case, flag carriers, are in danger of finding themselves in the position of subcontractors. When they held the monopoly this was not such a serious problem, but now that they are being challenged by new entrant companies in the one area in which they could operate as a player in the third-party logistics market -- as hauliers -- they have no choice but to change their tactics.

According to many managers of rail freight divisions -- or rail freight companies, where these have already been set up -- this is exactly the problem that the liberalization of rail services (in this case, traction services) has faced them with.

Once traction can be provided at lower prices, what will be left for them? Once new entrants are able to operate in the only link in the logistics chain which still has some price flexibility, logistics service providers will turn to them.

Seen from the outside, this does not appear to be much of a problem today because most of these new rail traction companies are currently involved in intermodal traffic, where point-to-point shuttle train services are less of a risk than wagonload services.

Seen from the inside, i.e. from the standpoint of national rail companies under threat from liberalization, the situation we have just described and the thinking behind it may shed some light on the latest steps taken by the flag carriers (for instance, DB Cargo's bid for the Stinnes Group, whose outcome is awaited at the time of writing, pending a decision by the competition authorities).

1. NATIONAL RAIL COMPANY ACQUISITIONS IN THE THIRD-PARTY LOGISTICS AND ROAD HAULAGE DISTRIBUTION SECTORS

One might object to this interpretation, on the grounds that rail companies had been implementing strategies aimed at forming large groups of firms providing logistics and distribution services, well before liberalization had any impact, the main examples being SNCF-Géodis and SNCB-ABX. In the author's opinion, these acquisitions were made with a view, firstly, to exerting some control over road transport economics and, secondly, to investing in a promising market, rather than for the purposes of integrating services so as to be able to play a key role in the market for major outsourcing contracts in the long term.

The acquisitions which did go ahead have not always been a success -- for instance, the ABX takeover of Bahntrans or the takeover of United Distribution by Géodis -- and the use of resources which had been intended to rescue core business activities for the acquisition of logistics companies has prompted governments to take a stance which forced companies to be more prudent, change their approach or even reorganise and restructure (the most notable case was the SNCB-ABX, which prompted the Belgian Transport Minister to intervene).

While this interpretation may seem a little strained, in our view the only approach which rail companies can take in continuing their efforts to gain ground in the third-party logistics market will be much closer integration and greater product specialisation between the core business of rail transport and the activities of their subsidiaries, which will first require work on integrating information systems

and on interoperability in this field. Information system interoperability is a problem, even for freight tracking in so-called “conventional” international traffic, and will be harder to resolve once flag carriers begin to compete with each other on the different national markets and liberalization begins to threaten problems in co-operation between networks, with its obligations to allow access to movements arranged by another network and to assume the legal and financial liabilities which insurance systems require, etc.

1.1. Internal restructuring of rail companies in the freight sector

So that they can better cater for the specific characteristics of different logistics chains, be more in control of the competitive environment and in a better position to target their marketing and, finally, so that they can begin to control service costs and profitability, the freight divisions of rail companies (or their freight companies, where privatisation is well under way), have reorganised their services into Business Units (BU).

Trenitalia’s freight division has been split up into six BU (steel, chemicals, combined transport, *automotive* and Public Administration, international, other freight). SBB Cargo, an independent company, comprises seven BU for the main product categories (consumer goods, chemical products, construction materials, agro-food products, steel products, wood and paper, special transport). The subdivisions are more or less the same in DB Cargo and other companies. As a mere window-dressing exercise, this would be pointless, but experience shows that the positive advantages, in addition to better customer service, are closer links between the commercial and production structures, which is fundamental to cost control. The general view is that the restructuring process should aim at allocating rolling stock, locomotives and wagons, in order to achieve more reliable cost control, be able to provide a customised service and, ultimately, have separate companies. Each Business Unit will then become an independent operator, specialising in its own logistics chain, possibly with private sector participation or with resources from state-controlled companies. At the moment, a development of this kind does not appear to be on the agenda and the question of resource and system integration remains open. It is precisely in the area of resource integration that we could see major process innovations.

1.2. The position of rail companies in conventional transport logistics services

Rail transport can be split into two market segments, one that utilises conventional wagonload (*Wagenladung*) technology and the other, intermodal technology. The two segments have very different characteristics, not only from a technical standpoint but particularly as regards:

- The organisation of the logistics chain;
- The profile of the actors involved;
- The relations between those actors.

Market liberalization and the entry of new rail traction companies will therefore have a very different impact on each segment.

This section focuses on the problems of conventional transport, which serves markets such as steel, chemical, food and energy products, new vehicles, paper and wood, etc.

What makes conventional rail services so different to intermodal rail services is the relationship between the rail company and service users. In conventional rail services, the relationship is a direct one as the basic infrastructure, a siding, puts the user's production structure directly in contact with the rail company's production structure. Loading and unloading operations and the conditions needed to carry out these operations efficiently (platform layout, suitability of wagons, performance of handling equipment) require very close liaison at operational level between the user's staff and railway staff.

This type of "fusion" between the two structures has helped to ensure customer loyalty to the railway companies. The market segments handled by the railways are less exposed to competition from road than is intermodal transport, since quite a large proportion of the traffic is plant-to-plant traffic, most often siding-to-siding movements. Being able to avoid load transfers -- unlike intermodal transport, which always involves a road haul leg -- has helped make conventional transport profitable, although the fact that the vast majority of such traffic is one-way and empty return journeys are the norm is threatening its profitability.

Here, too, the trend towards outsourcing is introducing the same kind of wedge between rail company and user that we have mentioned above and has given a more important role to the logistics service provider. More specifically, the outsourcing trend has given greater autonomy to the specialist companies, which for some time now have been gaining experience in the different market segments -- often these are spin-off companies, set up by the rail industry itself -- and especially to companies with expertise in the primary resource of this type of traffic, i.e. wagons. So, the main players in conventional rail transport (apart from industry itself, which often owns the sidings) are: the large freight forwarders which have now become general logistics operators or *Generalisten*, to use the German term which better reflects their role; companies which own special-purpose wagons; and the rail companies. Formerly, these four categories of actor were not in competition with each other, as they each operated in their own particular segment, in line with the division of labour. The development of outsourcing -- which requires service providers to provide a package of integrated services, some of which will not be among the individual firm's traditional best practices -- has forced them into competition. Basically, the biggest impact of outsourcing and the rationale behind it has been that it has forced the actors to take on a new role and not simply be content with the existing division of labour. This is precisely why the issue of core business is a recurrent preoccupation.

All of which brings us back to the basic premise outlined at the beginning of this paper and that we can now formulate more clearly thus: *greater competition between players in the rail market is also affected by phenomena which have been observed in the logistics market and in the liberalization of traction services*, or, to put it another way, *liberalization has helped to step up the pressure to compete which was already inherent in outsourcing trends*. It would be quite unrealistic to view liberalization as the only factor explaining increased competition in the rail market or the scale of the initiatives taken by its actors. If we were to take this narrow viewpoint, we would be forced to the conclusion that competition between new entrants and national rail companies was the only significant factor. In fact, the field in which competition in rail freight transport services is being played out is much more complex and multifaceted.

1.3. The primary resource for conventional traffic: the special-purpose wagon

The availability of traction on better financial terms than proposed by the flag carriers does not solve the problem confronting actors on the market, who want to provide a service which will earn them the loyalty of their customers.

Let us begin by considering that the primary resource of conventional rail traffic is the special-purpose wagon, in which case, the actor who controls this resource is in a position to dominate the market. This would explain why flag carrier railways stepped up their acquisitions of companies which own fleets of wagons: SNCF took control of Ermewa, while DB Cargo bought up numerous private wagon-owning companies on the market or the wagon fleets of industries in the automobile sector (Opel). Of the four leading wagon-owning companies in the new vehicles transport sector, ATG, with more than 7 000 units, is owned by DB, STVA is owned by SNCF, Gefco is owned by the PSA manufacturing group (Peugeot-Citroen). Only the fourth, SITFA -- which since its takeover of Brambles Italy now owns a fleet of 2 400 wagons -- is in a position to become an independent logistics operator, following the break-up of the Züst Ambrosetti Group, which is now wholly owned by SNCF. There are also small and medium-sized companies with fleets of 600 to 1 000 units, which could operate as logistics providers in partnership with others and thus compete with the railway companies.

Control over this primary resource, through owning the assets, is still not enough in itself for entry into the lucrative logistics market. Expertise and organisation are even more important. To return to the automobile sector, balancing traffic is the main problem to be resolved, even in this very large market (of the 14 million new vehicles sold in Europe, an estimated 10 million at least will be transported part of the way by rail, generally including a maritime leg, bringing rail's share of the automobile transport market to 17 per cent). Real know-how in this market means being experienced in organising "triangulation" so that wagons will operate more profitably. Again, in the automobile sector, a glance at the Annual Report of the European Car-Transport Group of Interest shows that outsourcing has seen "automotive logistics" operators spring up like mushrooms. The major asset of these operators is not wagons, but a multi-client logistics platform. Some have also become rail operators (e.g. Bertani in Italy, which ran 1 620 rolling-road trains through the Brenner Pass in 2002). Balancing conventional traffic is a chronic problem which will have to be resolved if operators are to make a profit, but the mere fact that they own wagons is not enough to enable them to do so. Therefore, if the railway companies wish to enter the logistics market and, at the same time, avoid losing money, they will have to move beyond what has typically been a purely financial rationale, whether in the acquisition of logistics/distribution companies or wagon-owning companies, and begin to integrate services capable of providing high-quality package solutions for major clients.

If they confine themselves to operating as haulage subcontractors, they will be doomed to providing services on less profitable links and will lose ground to the new traction companies in the "lucrative" segments of the market with the least risky types of traffic, better consolidated links and more balanced flows.

1.4. Private wagon owners, logistics and leasing

Private wagon-owning companies have traditionally focused their business on leasing and the railways were their biggest customers. Industry, too, as well as the large *Generalisten* (Danzas, Schenker, Kuehne & Nagel) also lease wagons. Nevertheless, with the liberalization of the rail market, these companies (Transwaggon, for example), which have gained experience either in relations with networks or customer relations and needs, have a much broader expertise than the client companies mentioned above. They have experience in the flows of several industrial sectors, particularly if they own multipurpose rolling stock (series-H wagons, for instance), they know the competitive environment in each of the sectors, they know their manufacturing processes, they know the specific characteristics of each network and of each of the flag carriers, they know the problems with sidings and, above all, they know how to control rail transport costs, which cannot be said of the monopoly companies. Of all of the potential players in the rail transport logistics market, they have a unique store of expertise and information. Once liberalization enables a "free-for-all", companies

which own multipurpose rolling stock may well take on a new role as specialist logistics operators in the rail transport sector and, instead of leasing their rolling stock as in the past, use it in the most efficient and cost-effective way possible as a means of providing a direct service to industry. Combining flows to balance traffic and ensure better utilisation of rolling stock, in other words, combining the flows of different sectors, is a prerequisite for staying in the market. They will have to set up a commercial structure as well as customer interfaces, which will require major investment.

With market liberalization, this type of operator could well become a formidable competitor for flag carriers keen to enter the market for large outsourcing contracts; much more formidable than the new traction companies, because they, unlike traction companies, are able to negotiate directly with shippers (and to subcontract traction).

The approach taken by companies which do not have multipurpose rolling stock, only special-purpose wagons such as tankers for chemical and energy products, is quite different. On the ground, we are seeing phenomena which, while similar in some ways to what is happening in the automotive sector, are also very different. Industries (such as BASF), just like vehicle manufacturers, cannot dispense with rail and are prepared to invest in sidings and very sophisticated equipment for handling hazardous materials and indeed to set up traction companies for plant-to-plant, plant-to-port or plant-to-inland terminal hauls. The structure of the sector and technical constraints foster integration and stable relationships between actors. The creation of integrated companies, such as the Germany company Rail4Chem -- which holds a rail traction licence through partnerships between industry (BASF), wagon-owning companies (VTG-Lehnkering) and sector specialists (Bertschi, Hoyer) -- transposes the vertical integration traditionally seen in the chemicals sector to the logistics field with its strict division of labour, i.e. a very different model than has been examined up to now.

This is a very clear example of the only type of partnership which could create a genuinely “alternative” rail freight transport market, i.e. one in which the producer, the owner of the primary resource (the wagons) and the sectoral logistics specialist together create the conditions required to provide a full service. The problem of traction thus becomes almost a secondary issue. A partnership of this kind concentrates all the know-how required to enable the introduction of process innovations.

1.5. Rolling stock specialisation and the manufacture of purpose-built vehicles

The general trend towards bespoke logistics services and special-purpose rolling stock is becoming steadily more widespread in the rail transport sector.

- SBB Cargo’s wagon fleet has 39 different types of goods wagons available for its customers;
- DB Cargo, in co-operation with Transwaggon, has developed an extra-wide Himrrs-type wagon for hauling car body parts for Daimler Benz;
- Railcargo Austria has developed a dedicated wagon for steel industry products, in conjunction with Voest Alpine;
- Fehring, a logistics service provider specialising in the timber sector, has built a dedicated wagon for transporting waste wood in conjunction with a producer, etc., to give just a few examples.

Customised solutions are becoming increasingly common. One might wonder how profitable this type of investment is, especially for logistics operators whose profit margins are normally quite small, but in fact the risks are lower than for investing in multipurpose tools, because contracts between customers and bespoke service providers are long-term contracts (six or seven years), and it is not difficult for providers to secure bank loans to finance investment on the basis of this type of contract.

The trend towards manufacturing purpose-built rolling stock for a specific type of traffic should be regarded not as a negative development, on the grounds that it recreates niche markets and fragments supply, but, on the contrary, as providing the impetus towards the only future which could bring vast volumes of traffic to rail, i.e. the impetus towards technical innovation and, more particularly, the type of innovation which, using new tools, can change production processes in the rail sector. At the same time, dedicated rolling stock guarantees customer loyalty and is the best defence against competition from road haulage. One example illustrates this: side-loader wagons for road loading units (some models can use a turntable), to facilitate loading and unloading operations at an ordinary station, are used by MacDonald's in Switzerland and do not require terminals. This could revitalise wagonload traffic, in which the Swiss are the leading specialists.

1.6. Pure lessor companies

Private wagon-owning companies who wish to abandon their core business and enter the logistics market are faced with major risks. The profitability of conventional transport depends not just on balancing flows but also on the wagon cycle, i.e. on hours operating at load, on reducing dwell time, dead time, etc., to a minimum. These conditions are beyond the control of the wagon owner, as they depend on the quality of service of the rail company organising the traction service. Now, if the railway company then enters into competition with the wagon owner on the logistics market, co-operation becomes problematic and the risks for the wagon owner will be greater.

In view of the risks involved in this approach to the market, another type of actor has elected to position itself exclusively on the leasing market. The most interesting example of this is AAE (Aaahas Alstätter Eisenbahn). This company has seen remarkable growth, from 1 400 wagons in 1991 to over 15 000 in 2002, approximately 6 000 of which were leased to the German flag carrier. The leasing contract, ordinarily annual, provides for the customer to take possession of the wagon and register it with its own fleet and for an agreed maintenance and overhaul schedule. The wagon owner thus reduces its commercial and operating costs to the strict minimum. The success of AAE's formula owes much to its having invested heavily in intermodal transport wagons (swap bodies and sea containers). A company which specialises in providing just one service is also able to focus its efforts on technical innovation: AAE's multipurpose Megavan and Multiloader are among the most modern, high-performance wagons available. This is an example of a company that really knows what its core business is.

The field of conventional rail transport contains a wealth of actors and businesses. Users can find solutions to suit their exact requirements. The need to reposition themselves on the market is forcing the actors concerned to abandon the "business as usual" mindset and bank on either the product or process innovations necessary for service provision. The liberalization of the market has highlighted the need to invest in innovation in much more than just traction services. However, the resources needed are often beyond the financial reach of the actors, while the national railway companies -- who could make such resources available -- are at the moment concentrating on internal restructuring of the groups that their acquisitions have helped to form. Furthermore, the "unlearning" process is inherently

a difficult one for large organisations. They still have a long way to go and real innovation in the rail transport mode is not yet in sight. This said, liberalization has also posed problems which will have to be solved. We would like to mention one of them briefly.

1.7. Regulations on technical standards

Of the barriers that are still posing problems for interoperability, the survival of old regulations and traditional practices are not the least. The validity of numerous technical standards is still based on a system of mutual agreements between railway companies which are members of the International Union of Railways (UIC), until now the *de facto* authority for interoperability issues.

However, major innovations are now having an impact. The new 2001 regulations governing the reciprocal use of wagons in international traffic (the RIV regulations), which supersede the 1989 regulations, contain some amendments which private wagon owners consider important:

- Alignment of technical standards for private wagons or flag carrier wagons;
- An end to the prohibition on running empty wagons to another country (possibility of picking up loads abroad);
- Authorisation to retain control of wagons;
- Recognition of the network manager’s liability in the event of damage to a private wagon, even if not involved in the transport operation.

Following the amendments to the RIV, the new Convention on International Rail Freight Transport (or COTIF, as it is known), signed in Vilnius in 1999, is expected to enter into force in 2003-2004. It covers:

- The creation of an International Register for Wagons and free movement of wagons on all networks which have signed and ratified the Convention, regardless of the nationality of the owner;
- The introduction of uniform regulations for the carriage of dangerous goods (new RID);
- The transfer of the responsibility for technical standards from the UIC: up to now these have been set out in “UIC leaflets”;
- The introduction of uniform regulations on rolling stock transport, maintenance and repair.

1.8. Transition from the compulsory to the contractual system

The changes which the new COTIF amendments could make to contract law are even more far-reaching. A very clear analysis of the problem is given in a publication by the International Rail Transport Committee (CIT), which has worked with the UIC on legal issues. It reads as follows.

“Ever since 1st January 1893, the date when the International Convention for the Carriage of Goods by Rail (CIM) came into force, international carriage by rail has essentially been based on ‘the obligation to carry’ imposed on the national railway undertakings of the various states which have

ratified or acceded to the Convention. Performance of an international movement by rail obliges the railway undertakings concerned to co-operate; in taking over the consignment note and the goods, they become contractual carriers, accountable to the consignor or the consignee for the complete movement over the whole transit right up to delivery.

Within this framework, railway undertakings do not have freedom of choice. (...) In this system, railway undertakings are not only obliged to carry acceptable goods, but they must also all co-operate in providing carriage as 'contractual carriers' which means that as such every undertaking taking part in the carriage, carries all the commercial and legal risks.

'Liberalization' will force the abandonment of this obligatory monolithic co-operation and will allow railway undertakings a freedom of choice, including not only the right to accept or to refuse a traffic but also to choose the form in which they will co-operate (CIT Info, No. 3, October 2001).'"

According to the CIT, dispensing with the obligation to carry should put relationships on a contractual footing. The Committee is currently considering four basic types of contract:

- Hire contract for a loco with driver;
- Traction contract;
- Subcontracting carrier contract;
- The contract for services.

We have reported the CIF's view on this issue without further comment, simply to show that the interoperability problem is not just a technical but also a legal problem. The law can be used to protect strong positions or to dismantle them. If national railway companies -- as we have just explained and will explain more thoroughly in the section on combined transport -- intend to follow a policy of competing on other countries' domestic markets, the new COTIF, which drops the obligatory system, will be to their advantage and they will be free to reach private agreements whenever it is convenient for them to co-operate with other flag carriers.

The issue is not so straightforward for new entrants or for private wagon-owners. They are faced with the prospect of assuming commercial and legal liability for rolling stock and the safety of goods, particularly dangerous goods, when experience has shown that, more than differences in national legislation and its lack of standardization (the Geneva Convention of 1980, defining the liabilities of Multimodal Transport Operators, was never ratified), it is the interpretation of the law by the courts (jurisprudence) which raises problems for operators and insurance companies. Over the past few years, according to legal experts, the trend has increasingly been for judges to give much greater consideration to extra-contractual rather than to contractual liabilities, because protecting the interests of the community and the environment seems to take priority over protecting the interests of the signatories to the contract. Operators responsible for providing the transport service, in the event of accidents where there is no physical injury, are faced with fines which far exceed the amounts covered by their insurance policies. Following the attack on the Twin Towers on 11 September 2001, insurance companies, in turn, are having to review their policies and regulations in several areas, including the field of third-party logistics, which poses risks quite simply because logistics service providers are liable for goods which have not yet been sold and their value is therefore open to question if damage occurs. This brings us to the increasingly pressing problem of the commercial risk of actors in the third-party logistics market, and therefore of transport operators. For those wanting to break into the rail market or for rail operators who want to take on logistics operators, this could be a much bigger barrier to entry than the availability of traction. At the same time, if the commercial risk increases, the trend towards concentration will continue and larger companies (in this case, national rail companies) will be in a stronger position.

1.9. The European Railway Agency (ERA) and the European Agency for Railway Safety and Interoperability

While it is clearly urgent that we overcome the difficulties we have just mentioned and that we find solutions to the problems created by liberalization, it would be unrealistic to assume that, once the Agency is set up, the new system of regulation will be effective right away. There is a transition period in front of us, during which the new regulations will not yet be in application and the old regulations will not yet have disappeared.

Actors in the rail transport sector will necessarily be represented on the new bodies: some P-wagon associations have already proposed that the definition “railway undertaking” include the owners of traction or unpowered vehicles. MTOs have already put forward a proposal to allow the holders of goods (who take over responsibility for transport from the shipper) to buy paths, even when they are only acting as agents or forwarders.

The ERA calls into question the powers and responsibilities of network managers in the areas of interoperability and safety, shortly after widening them under *open access* regulations. History shows us that when we have just given someone greater power, it is very difficult to ask them to relinquish it.

2. INTERMODAL TRANSPORT OF SWAP BODIES, SEMI-TRAILERS AND HEAVY GOODS VEHICLES

2.1. Intermodal traffic

Trends in intermodal traffic carried by members of the International Union of Combined Road-Rail Transport Companies (UIRR) for the ten-year period 1990-2000, show three distinct phases: quite low growth for the period 1990-93; a high growth rate for the period 1994-97; with traffic static and even showing a decline over the period 1998-2001, which was staved off only by the strong performance of the economy in 2000 but recurred with a vengeance during the economic crises of 2001, when UIRR members carried a total of just under two million consignments or 5.11 million TEU (one consignment = 2.3 TEU). Of these, 650 231 were domestic consignments and 1 286 673 international consignments. While international traffic remained steady from 2000 to 2001, domestic traffic fell by 4 per cent as some companies saw their business decline sharply: Cemat (-16%), Hupac (-11%) and Novatrans (-6%).

From the standpoint of the countries concerned, there were marked differences in the performance of their national carriers, depending on the classification criteria used. In absolute terms (total number of consignments), Germany’s Kombiverkehr held on to its lead (with 533 950 consignments in 2001), followed by Italy’s Cemat (321 895 consignments in 2001), Austria’s Oekombi (298 067 consignments in 2001), France’s Novatrans (239 050 consignments in 2001) and Switzerland’s Hupac (237 955 consignments in 2001). Although Kombiverkehr also led the field in international traffic, Hupac was in second place, followed by Oekombi, Cemat and Novatrans, while in the domestic traffic sector Novatrans took the lead, closely followed by Cemat, Kombiverkehr, Oekombi and Hupac. Italy also has a presence on this market through the private sector company, Ambrogio (approximately 350 trains per year and a total of almost 7 000 consignments), which is not a member of the UIRR but

uses its connections to Intercontainer networks. After these five major companies came a series of small companies with 80 000 to 60 000 consignments per year (in 2001). Two of them, Bohemiakombi and Hungarokombi, specialise in accompanied traffic, while TRW (Belgium) handles no accompanied traffic.

The trends in traffic for these companies varies widely, with Novatrans reporting international consignments down by around 15 000 from 1997 to 2001 and domestic traffic down 6 per cent in 2001 compared with 2000 (in 2001, CNC's business was also down by 10 per cent on 2000 as a result of the SNCF strike). More recently, Hupac seems to have put in the best performance, with quite high growth rates that came to an abrupt halt in 2001 (-11 per cent for domestic traffic and -3 per cent for international traffic); Cemat also showed quite strong growth in the period 1990-2000 but is currently reporting major declines in domestic traffic which it attributes to short sea shipping on routes to Sicily (-16 per cent over the last year), while on international routes it has reported an increase of 7 per cent over the last year. Kombiverkehr's figures have been uneven, with major declines in traffic in 1998-99 and more recently an increase, which seems to have come to a halt in 2001 (with a decline of one per cent in its domestic traffic but international traffic that looks to be more stable or growing, if the 18 770 consignments by RAlpin between Novara and Fribourg, which do not appear in the UIRR statistics, are included).

As regards flows, the UIRR has identified 140 international links in Europe (e.g. Italy-France: two 2-way links), of which 14 are one-way links, accounting for 1 286 673 consignments in 2001, with Italy as the origin or destination point for 688 906 consignments or close on 55 per cent of European international combined transport traffic. If we count the 18 770 consignments carried out by the rolling road company, Ralpin, in 2001 and all traffic carried by Ambrogio, approximately 7 000 consignments, the figure rises to 60 per cent. The problem of cross-border combined transport in Europe is therefore closely related to Alpine transit.

This being the case, the role played by CT in Europe can be summarized as follows:

- A role, albeit a limited one, in domestic transport in France, Germany and Italy;
- A crucial role in Alpine transit, which enables transit countries like Switzerland and Austria to play a key role (and to turn an unavoidable problem to their advantage);
- An increasing role, though still a limited one, in long-haul North-South links, for the moment to Belgium and Scandinavia;
- A major role in links to the United Kingdom, although problems with the Channel rail crossing is putting this to the test at the moment (with the UK company, CTL, registering a 47 per cent decline in consignments in 2001);
- A minor role in links to the Iberian peninsula [Combiberia's traffic down or static and major services (such as Ambrogio) stopping at the Spanish border].

CT is experiencing some difficulties, in that it seems to be growing only:

- where there are physical or regulatory constraints on road transit through a country (as is the case in Switzerland and Austria);
- where governments are committed to supporting this mode;

- where rail companies are committed to investing in infrastructure, rolling stock and ancillary services and in innovation;
- where very high-quality services (reliability and frequency) are provided.

However, these criteria, especially the last, are not always met.

Regarding the third criterion (commitment by rail companies), it must be said that until recently rail companies were wary of combined transport. From 1997 to 2000, DB, FS, SNCF and SNCB viewed combined transport as a major contributing factor to the losses made by their freight divisions, although in the preceding decade they had viewed it as a strategic tool for achieving a modal shift. The crisis in relations between rail companies and CT firms led to declines in traffic which prompted a political response in the countries concerned. This has now given way to renewed interest from rail companies, particularly in Germany, where DB Cargo has increased its holding in Kombiverkehr, in Italy, where Trenitalia has increased its equity stake in Cemat from 33 per cent to 42 per cent and to some extent in France, too, where SNCF has scheduled investment to strengthen its network of terminals and, together with Lhor, has formed a company to design a new wagon for use on rolling roads.

2.2. The decision to introduce rolling roads

A careful review of UIRR statistics for 2000-01 reveals astonishing growth in international rolling road traffic, which in 2001 accounted for 30 per cent of total international traffic in terms of the number of shipments and 24 per cent of total traffic. This is due to the almost exclusive use of rolling roads on major links such as those between Germany and Austria, Austria and Hungary, Germany and the Czech Republic, Slovenia, Austria and Hungary, as well as to subsidies to this mode of transport by Switzerland, Austria and border regions. These latter countries have created relatively favourable pricing conditions for road hauliers on Alpine crossings, following the introduction of the mileage-related tax on heavy vehicles (RPLP), and a major source of revenue for combined transport operators.

The issue of rolling roads is central to the future of combined transport. Rolling roads were designed to allow rail transport to broaden its market base in order to compete with road haulage in the fast-moving consumer goods sector; that is to say, goods dispatched directly to points of sale, which calls for rapid transit times, punctual services and a pick-up cycle based on stringent delivery conditions and tight schedules. The basic problem here is that a transport company changing over to combined transport has to change its mode of organisation and transport facilities, and a combined transport company must acquire dedicated infrastructure (terminals, handling equipment, etc.). None of this is required in the case of rolling roads, even if:

- productivity is far less than that of unaccompanied transport (one tonne of rolling road equals two tonnes of combined transport), but rolling road can accommodate the largest vehicles currently in use (detailed analysis by RFI of lorry fleets arriving at the port of Trieste by RoRo vessel from Turkey and loaded onto the rolling road between Villach and Wels has shown that the number of articulated lorries over 4 metres in height is starting to rise, particularly for the transport of textiles, that the regulatory width of 2.5 m can reach 2.6 m and that the length of lorries can reach 13.7 m and 16 m for full rigs);

- distances between modal transfers are lower than the European average for combined transport (746 km);
- the use of rail/road remains concentrated within mountainous regions.

Governments are nonetheless more willing to invest in rolling roads, in terms of subsidies, support for technical research and rail capacity, than to invest in innovation and research into rail freight transport.

It is easy to understand the need for rolling roads when accidents such as those in the Mont Blanc and Gotthard tunnels occur; but if conceived solely as a means of achieving intermodality, the development of rolling roads amounts simply to the surrender of rail transport to the road sector.

The rejoinder that could be made to these observations is that the refusal of the road sector to accept the reorganisation required for combined transport is an insurmountable obstacle. This refusal is apparent in the statistics, broken down by technique, for international shipments by UIRR companies: 30 per cent rolling road, 11 per cent articulated lorries; i.e. over 40 per cent of international combined shipment movements do not make use of intermodal transport units (ITU), swap bodies or containers. A closer examination reveals an even more astonishing situation in that the percentage of articulated lorries leaving the Verona Quadrante Europa hub for the Brenner Pass and returning on combined transport trains has risen, according to reports by operators, from 30-35 per cent to 40-45 per cent. If the market is opposed to it, why continue?

When considered from an organisational standpoint, combined transport, designed to allow rail to enter the market for just-in-time shipments, requires a quality of service far beyond their current capabilities. On the other hand, pressure on prices from the road sector is forcing combined transport companies to pare rail operating costs to the bone by giving ever greater priority to shuttle services using block trains and by concentrating traffic flows within a small number of megaterminals from which pick-up and delivery services by road will probably become increasingly “long”.

Such a system could be effective if combined with a very high frequency of departures. In practice, for reasons ultimately relating to either supply-side rail capacity or, above all, demand, services are organised, particularly in the Alpine region which accounts for the vast majority of such services, in accordance with the *Nachtsprung* system, with shipments timed to depart around 22.00 hours on day A to arrive between 5.00 and 8.00 hours, depending upon the distances involved, in the morning on day B. The concentration of services within such a short period of time reduces the infrastructure capacity available, sharply reduces terminal productivity and often makes it impossible to meet demand, with the result that capacity remains unused, even at the border with the Alps, for relatively long periods of time.

For once, according to the operators consulted, the blame in this case cannot be laid on the railway companies or infrastructure operators but on customers who, for cultural reasons, demand delivery times of less than 24 hours even in cases where the goods transported do not need to be expedited swiftly, either because they consist of goods, such as certain chemical or steel products, which do not require just-in-time delivery, or because in many cases -- and this is far more frequent than generally thought -- goods are not actually being shipped directly to the point of sale (e.g. a department store) but to a warehouse, where they will be stored for several days or even weeks.

“The pointless challenge of speed”, to quote one of the rapporteurs at the last conference held by our Logistics Association, encourages forwarders to waste transport services, to overload transport capacity, to blame all production inefficiencies on transport, to increase the number of empty-load

movements and, lastly, to increase infrastructure congestion. All transport operators would be well advised to seek greater dialogue with logistics managers in firms in order to facilitate self-critical review of the “speed” component. If, as part of the process of innovation, major firms find the “unlearning” component difficult, then so do transport professionals.

Lastly, the rail/road combined transport sector needs to address the issue of the role of private rail companies and generally that of new entrants to the market, which was the first to be liberalized by the European Union.

The independent traction companies are now starting to accumulate a wealth of experience (in the case of combined transport, RTC and Locomotion on the Brenner route, and BLS and Ferrovie Nord Milano on the Letzburg route).

The new traction companies are in a particularly advantageous position in a market in which the product is increasingly orientated towards point-to-point movements (block train shuttles), whereas the companies controlled by national rail companies have an advantage with regard to products requiring a network. The configurations adopted by new market entrants vary from one company to another. On the Brenner route, DB Cargo currently (June 2002) acts as the general contractor for Kombieverkehr, buys paths and chooses traction company and in this capacity attempts to differentiate services between Trenitalia and private operators (RTC) or indirectly controlled operators (Locomotion). The quality of service has improved and the law of competition has been satisfied. However, the issues that need to be considered in the future are as follows:

- Will liberalization increase the clientele of rail transport or will the new traction companies simply replace traditional traction companies without changing the volume of transport?
- Will liberalization bring about wider use of rail/road techniques that will encourage a modal shift in which competition will remain concentrated on the most important routes under “cut-throat” pricing conditions?
- What would be the way most compatible with the rules of competition: either to give new market entrants access to strategic terminals or to ensure that flat carriers or their combined transport subsidiaries are not obliged to simply abandon, free of charge, assets in which they have invested?

New regulations should ensure the availability of a network of “European” terminals, which will be an integral component of trans-European freeways, without jeopardising the private status of terminals forming part of infrastructure in which existing combined transport operators, regardless of whether or not they are controlled by flag carriers, have invested.

At the level of terminals, however, the problem appears to be more of a material one, consisting in the scope available for extending platforms and increasing the capacity of train parking and unloading sidings. In a “European” terminal, provision should theoretically be made for several areas equipped with plant for a number of operators, each of which would have its own handling equipment as in port terminals, and a regulating authority similar to a port authority, responsible for co-ordinating traffic convoys. However, the land areas available and traffic control, particularly in the case of road transport, are harder to manage in inland infrastructure than they are in a port, notably in terms of departure and arrival schedules. The constraints on rail infrastructure in terms of space and time cannot be overcome simply through the introduction of regulations broadening free access to facilities.

Another issue concerns combined transport users. A rapid review of the customers of the largest companies reveals the significant role played by a number of major customers who, in some instances, Hupac-Bertschi for example, are also shareholders in the transport company and in others can account for a large share of the transport company's turnover (Hangartner in the case of Kombieverkehr, LKW Walther in the case of Cemat). Such concentration is a logical outcome in a market where operators have difficulty in accepting the reorganisation of the company and the working methods imposed by the use of ITUs.

In conclusion, it would seem that neither production nor process innovation appears to be on the agenda for combined transport. Products are increasingly standardized on the basis of the shuttle model and the technique may well start to lose ground unless governments give priority to rolling roads. The profitability of rail/road combined transport still relies on haulage legs, and the concentration of services within highly constraining time periods limits the capacity of infrastructure and the productivity of terminals. The limited productivity of terminals has a knock-on effect on the profitability of haulage legs. With regard to the concentration of movements within limited periods during the day, apart from the obsession over speed, which is a cultural factor, significant improvements could be made either by introducing sliding scales for tolls or by adjusting subsidies to border regions to promote the use of infrastructure during off-peak hours.

However, rail/road combined transport in certain logistic chains, such as the chemicals industry, has been able to achieve very high performance levels, even in terms of ITU tracking. There still remains scope for innovation in the unaccompanied combined transport sector.

3. RAIL TRANSPORT OF MARITIME CONTAINERS

Since the ECMT Round Table on *Land Access to Sea Ports* in 1998, there have been a number of noteworthy developments in the market. In some cases, these developments bear out trends already identified at the time, in others they are new.

The trend towards changes in the roles played by actors had already been identified, but emphasis has primarily been placed on the interest of major shipping companies to broaden their carrier haulage activities in order to capitalise on the liberalization of the rail market, and on the interest of MTOs and logistics operators in forwarding companies to counter this trend in order to retain control over the logistics chain (the market in Europe is currently estimated to consist in 70 per cent merchant haulage and 30 per cent carrier haulage).

3.1. Growth in the number of actors

Developments have been far more complex with regard to the actors involved. So precisely who are these actors?

- Shipping companies (Maersk, Evergreen, P&O, MSC, SP Ships, CGM, Hapag Lloyd, etc.);
- Port managers (ECT, Hessenatie, Eurogate, HHLA, PSA, Hutchison Whampoa, etc.);
- National railway companies (flag carriers);

- New rail traction companies (Short Line, Box Express, EBV, Connex, etc.);
- Port administrations, owners of the infrastructure inside ports, which establish rail traction companies or help to set up such companies (e.g. HGK of the port of Cologne);
- Traditional container transport operators (e.g. Intercontainer);
- Traditional combined transport operators who have also entered the container transport market (e.g. Hupac Intermodal);
- New operators who have entered the maritime port-land link market (e.g. ERS);
- Companies specialised in the leasing of wagons (e.g. AAE);
- Logistics operators and long-established freight forwarders (e.g. Schenker-BTL, Kühne&Nagel, Panalpina, Danzas);
- Forwarders capable of organising a transport chain without intermediaries or with companies within the same group, primarily for inter-factory traffic (e.g. multinational car manufacturers) or between distribution centres (e.g. IKEA);
- Inland terminal managers (Buss-Trans Container Service, CSX World Terminals, etc.).

There are therefore twelve different categories of actor who may combine in any number of different configurations but who, at the same time, can still remain in competition with each other.

This competition concerns a growing volume of traffic and therefore a market in which there is apparently “room for everybody”. The number of containers handled by European ports is estimated to have amounted to 53 million ITUs in 2001, of which between 20-22 per cent were shipped by rail. While the rate of growth has remained stable in recent years (7 per cent on average), container shipping is a very attractive market in volume terms but one with fairly unpredictable margins on income. For example, in the case of a shipment from a port in the Far East or the West Coast of the USA to a destination within Europe, there are three cost segments that transport operators must take account of in their prices (shipping company, terminal operator, agency or MTO):

- Freight rates for the sea crossing;
- Terminal handling charges, costs of ex-works delivery of goods and issuing of customs documents, cost of transport from the port terminal to the rail terminal (with or without a haulage or barge leg);
- Rail traction and delivery by road.

With regard to freight rates, the depressed prices in the market, despite a recent increase, afford little scope for achieving significant margins or for exploiting the competition (to quote the example given by the Vice-President of the group AP Moller, “it costs 10 dollars to ship a television from the Far East to Europe and one cent to transport a beer can from Europe to the United States.”).

Terminal handling charges as a whole amount to around 180-200 euros per ITU, with some differences between port ranges which would not seem large enough to warrant choosing one port rather than another within the same range.

It is therefore only on the third segment that operators can make a difference in terms of price levels.

A paper given at the Logistics Forum in Duisburg, organised by the German Logistics Association, BVL, and drafted by Mr. Notteboom of the Institute of Transport and Maritime Management, contained the following breakdown of costs for the ports of Rotterdam, Antwerp, Hamburg and Bremen:

	Europe/ Far East trade	Europe/ USA trade	Average
Sea transport	35%	23%	29%
Land transport including logistics costs	16%	48%	32%
Terminal services in seaports	28%	16%	22%
Sales	17%	11%	14%
Other	4%	2%	3%

The inland transport market therefore accounts for the greatest share of the total turnover for door-to-door transport of a shipping container and, because of this, amply justifies the interest shown by actors in breaking into this market and, if necessary, moving out of their usual core business in order to do so.

There are two other major reasons prompting actors to abandon their traditional roles in order to enter this market in cases where they had not already done so, or to increase their activities if already established there:

- The fear of being relegated to the sidelines or excluded from this market (particularly shipping companies and flag carrier railway companies);
- The need to have full control over the logistics chain in order to be able to guarantee the quality of their services to customers.

However, to gain a better insight into the behaviour of actors in the maritime container rail transport market, it is worth recalling a number of developments upstream.

In the author's opinion, there are two that are particularly important:

- The formation of large groups of port terminals under a single parent company (PSA, Eurogate, P&O Ports, Hutchison Whampoa) and the concentration of terminal operators within a single port (merger between Hessenatie and Noord Natie);
- The direct takeover of container port terminals by the major shipping companies (Maersk, Evergreen, MSC) and RoRo terminals (Grimaldi in the port of Antwerp, Verrebroek Dock).

3.2. Terminal operators or stevedore companies

The largest terminal operators have broadened their efforts to secure direct control over an international network of terminals that are not only transit points but also points at which the terminal operators can monitor the goods of customers to whom they can now offer logistics services. A fine example of this is provided by the Hamburg-based Eurokai group, which has consolidated its alliance with the Bremerhaven terminal (containers and new vehicles) in the Eurogate company and which has acquired the company managing the Gioia Tauro transshipment port and the La Spezia container terminal. The group subsequently strengthened its position in Italy by acquiring facilities in the ports of Salerno, Leghorn and Ravenna, and in the Mediterranean as a whole through acquisition of the Lisbon terminal, which thereby allowed the Eurogate group to handle 8.6 million shipping containers in 2001. The resultant network, incorporating the northern and southern ranges, the North Sea and the Mediterranean, can then be further integrated and supplemented in terms of inland transport both by

road haulage and rail services on existing major links (Hamburg/Bremen, Munich/Stuttgart/Nuremberg) and subsequently on links capable of serving markets in southern Germany, Austria, Switzerland or eastern Europe from ports in Italy rather than from ports in Germany or the Benelux countries. The main problems facing an operator attempting to move into a new business area are clearly liquidity, know-how and access to a business network. In order to put inland transport links in place, that is to say, to move beyond its traditional role, a terminal operator needs a partner such as a flag carrier railway company, new entrant traction company or an MTO willing to share transport capacity.

In the example given above, the Eurogate group opted for several solutions, depending upon the markets and periods concerned.

On its “major” links in southern Germany, the group entered into an alliance with its largest customer, Maersk, the intermodal services company European Rail Shuttle, and a logistics and network management company (TX Logistics) to create the Box Express service, which is based on the traction provided by the Siemens locomotive fleet, the rental of specialised wagons from AAE and train crews from MEV Eisenbahngesellschaft and which can thereby compete with either DB Cargo or Transfracht on routes linking the economic and industrial centres of southern Germany. In 2001, Box Express carried 197 000 ITUs and provided five overnight services a week in southern Germany, a service to Hungary via Budapest in 36 hours, the Czech Republic in two days and Slovakia in four days. For services to the ports of La Spezia and Gioia Tauro, Salerno, Leghorn and Ravenna in Italy, the group can call on the services of the combined transport company SOGEMAR (formerly part of the Contship group), its own road haulage services and inland terminals, and the Trenitalia Cargo traction company. The group's terminals accounted for 46.7 per cent of all container traffic by rail in Italy and in 2001 its intermodal services carried 28 per cent of the 964 452 ITUs carried by rail in Italy.

At the time of completing this report, however, there are plans for a new alliance between the Eurogate group and DB Cargo, which could lead to close integration of the services of the two actors in the German market and a change in alliances either in the domestic market, where Eurogate might abandon the use of private traction companies, or the Italian market, where DB Cargo might make use of private traction companies for the shipment of containers, as it already does for swap bodies, articulated lorries and trucks on the Brenner route.

The following factors may have helped to speed up the integration of the alliance between Eurogate and DB Cargo (at the time of writing this report, the Anti-trust authorities had not yet issued a statement of position):

- The account taken by Eurogate of the fact that its main competitor in the port of Hamburg, the public company HHLA, had signed, in early 2002, an agreement to acquire a share in the capital of Transfracht under the aegis of DB Cargo, the main shareholder in Transfracht;
- The account taken by DB Cargo of the fact that use of the share of the Eurogate group in the Box Express traction company had brought down prices of the routes served by over 30 per cent, according to confidential information supplied.

We have reviewed the case of Eurogate in some detail because it provides an example of behaviour in the sector and because no similar examples exist at the European level. The major terminal operators in Rotterdam, Antwerp or Zeebrugge have been unable to put in place an upstream network of port terminals at the European level to provide a framework for the introduction of rail services managed by operators either directly or through controlled companies. They tried but they failed, as in the case of ECT, which moved into the port of Trieste only to withdraw later. ECT opted

for a strategy aimed at securing control over inland terminals (Venlo, Duisburg, Willebroek) and on distriparks or on increasing the volume of well-established rail traffic on long-distance routes, notably to the region of Milan and Padua, in Italy, which can now be reached in 24 hours. (Once again, Italy is the foremost intermodal customer of the major ports in the northern range.) ECT recently signed a number of agreements with the traction company, Short Lines, for shuttle train services between Rotterdam-Maasvlakte Emmerich and Venlo. Another major group at the world level in container handling, PSA, despite its dominant position in Genoa (Voltri Terminal Europa) and Venice (containers and new vehicles) and shareholdings in Zeebrugge and Antwerp, does not appear to have adopted the same stance towards rail services as Eurogate. Companies such as PSA, Hutchison Whampoa or P&O Ports seem to be more interested in extending their control over port terminals at global level than in strengthening their position in Europe too as intermodal transport operators.

The Eurogate Group must measure up against the other major handling company in the port of Hamburg, HHLA which, before acquiring a 50 per cent stake in Transfracht, had gambled on growth in relations with eastern Europe, Russia, Ukraine and the Baltic States by acquiring shareholdings in the companies Polzug, Metrans, Hansa Hungarian Container Express and Combispeed, in order to develop shuttle train services to inland terminals in Poland, the Czech Republic and Hungary.

3.3. Shipping companies

The second major category of actors consists of the shipping companies. The erosion of profit margins on freight rates prompted the shipping companies to focus their efforts on the optimisation of shipping routes and fleet operation, the development of dedicated feeder services and the direct management of terminals, in order to:

- control costs;
- maintain control over goods to ensure that operations are transparent to customers;
- ensure that inland transport services are as efficient and profitable as possible.

The major investment that has been made in proactive computer systems, currently the most competitive means of increasing the number of multinational consumers from the manufacturing and distribution sectors, may well be cancelled out once the container enters the rail transport leg, due to the particularities of each network, but may well be cancelled out twice over if the container is shipped on the inland segment by another operator, such as a terminal operator who is both the supplier of a service to the shipping company and a competitor in the integrated logistics market.

What type of logistics services? To take yet again a distribution proposed by the Vice-President of AP Moller, the group which controls the shipping company Maersk, the services are based on:

- physical assets, including shipment, transport by sea, train or road, warehousing, distribution, pick-up, packaging, assembly, recovery of materials;
- information, including track & trace, order management, sales forecasts, inspection of procurement and production flows, stock management, documentation, incident management, decisionmaking instruments, sales analysis, statistics, performance indicators, etc.;
- financial resources, including auditing, payments, customs declarations, insurance, exchange operations, capital management, letters of credit, invoicing, financial intermediation, etc.

However, analysis of the approaches adopted by shipping companies to enter directly into the rail services market reveals that the results fall well below expectations; compared with the level of sophistication reached in the management of vessels and routes, with the level of investment in oversized vessels that shipping companies always seem prepared to underwrite and with the efforts made to set up dedicated feeder networks, the attitude of shipping companies to rail transport, train management and investment in rolling stock of inland terminals can hardly be described as innovative.

The strategy which appears to be pursued towards the provision of logistics services to customers in the inland segment, outside the port, is comparable to that of Fourth Party Logistics (4PL).

The maritime carriers have failed to forge a strategic alliance with their natural partners, the rail flag carriers; they have not made large-scale investments in rail traction companies operating at the European level, nor in an inland terminal network; and they have not entered into strategic agreements with other major actors in other categories, which could accurately be described as agreements of a new type.

The most important initiative remains that of the alliance between Maersk and P&O for the introduction of ERS (European Rail Shuttle) services to Rotterdam. The most important links served by this shuttle are to Italy (the inland terminal at Melzo near to Milan and Padua) and Germany (Neuss, Germersheim).

The replies to the question "why are approaches so different?", given by those familiar with the problem, through having already tried to establish strategic alliances with shipping companies in this area, vary substantially: (a) some point to the fact that major shipping companies see rail feeder services more as a means of cutting costs than introducing innovative services; (b) others explain that the shipping companies must first establish a presence in ports in order to manage loading and unloading operations directly and that it is only once they have consolidated this presence that they can start to invest in an inland network; (c) the rigidity of an inland network compared with the extreme flexibility of shipping routes is also cited, as well as the almost daily fluctuations in freight rates compared with the rigidity of rail tariffs; (d) lastly, some actors emphasize the difficult relationship with shipping agents which arises when the distribution of income from THC/ancillary operations is challenged.

In our opinion, carrier haulage is not structurally matched to the European market. The ERS cannot be readily reproduced elsewhere. The reasons for its success lie in the fact that it is located in a port which handles sufficient volumes of goods to be able to fill trains and ensure balanced traffic flows, a prerequisite for profitable rail transport for containers; that it is supported by leading shipping companies; that a good agreement has been struck with the Dutch flag carriers within the Railion structure; and above all that its services have been organised on very well-established links to inland locations possessing excellent facilities, including the Italian terminals in the Milan and Padua regions, which generate excellent volumes of traffic but whose capacity is now limited, due to saturation. In 2002, 1 350 ERS train movements have been scheduled on the Rotterdam to Italy route, which is still far fewer than the 5 625 Intercontainer train movements or 3 285 TRW train movements on the links between Belgian ports (Antwerp, Ghent, Zeebrugge) on the same route, but which is nonetheless a substantial number.

3.4. Specialists in combined rail/road transport

The reasons for which the use of rail/road combined transport for swap bodies appears to be undergoing a crisis, or even to have been abandoned in favour of road haulage units, have already been explored in the previous paragraph. It is for these reasons that certain companies in the UIRR fold have decided to enter the far more promising maritime container market. While there are some operators who took this decision early enough and who have already achieved very good results by establishing a presence on strategic routes, there are others who have not yet made a move. Of the former, the example of Hupac Intermodal is worth noting.

What competitive advantages can companies of this type offer?

- A properly structured network of inland terminals, offering good geographical coverage;
- The status of major customer vis-à-vis the flag carrier railway companies, which allows such companies to acquire rail capacity on the best train paths at competitive prices;
- The status of major customer vis-à-vis wagon-leasing companies;
- Consolidated know-how regarding overnight services, and express services in particular;
- Familiarity with the European network as a result of the scale of their international services;
- A very strong link with shipping companies and carriers, which in some instances are also shareholders and in all cases their sole customers.

The last point above is important, and in some respects is the most important point, in terms of whether or not the company decides to enter the container market. Among the actors to have suffered from this change in their role, apart from Intercontainer, mention should be made of the shipping companies and all actors involved in merchant haulage. Historically, Switzerland was the country where the profession of forwarder developed in the most interesting way and where some of the largest companies of this kind have developed.

The Swiss association of forwarding companies carries more weight within the national transport sector than comparable associations in other European countries. It is therefore hardly surprising that the first company to move decisively into the maritime container market, where the forwarding company has retained control over the LCL segment, was Swiss. According to the Notteboom study mentioned earlier, Switzerland has the lowest percentage (10 per cent) of carrier haulage in Europe.

In terms of volumes and links, Hupac Intermodal and its subsidiary, Trailstar, located in Rotterdam and bought out in 1998, does not offer the customary range of service but instead serves niche markets on “major” routes, which this year will be supplemented by services from ports in northern Italy to destinations on the other side of the Alps. Even though the supply is limited, it challenges the systemic view that Italian ports could not compete with those in the northern range in markets in Switzerland and southern Germany.

The strategy pursued by Hupac Intermodal is to establish itself on the all-important Rotterdam/Antwerp/Zeebrugge to Italy route. The need for a partner who was also manager of a major infrastructure network, based at a central point on the route in question and licensed to provide rail traction, prompted Hupac Intermodal to forge close links with HGK (Häfen und Güterverkehr

Köln AG) and subsequently, in June 2002, to set up Swiss Rail Cargo Köln (SRC Köln), in which the Swiss flag carrier, SBB Cargo, has a 51 per cent share and Hupac Intermodal a 5 per cent holding; the third shareholder is HGK. This has allowed the company to develop shuttle services between ports in the Benelux countries, Cologne, Basel and Italy (the Busto Arsizio and Pomezia terminals near to Rome). Cologne also acts as a gateway to Scandinavia through Hamburg, Taulov and Malmö.

This is a striking example of competition between one flag carrier (SBB and Hupac Intermodal) and another (DB) on the territory of the latter in the market of its subsidiaries (TFG). DB Cargo, on the other hand, can make use in Switzerland of traction provided by BLS, in which it has a 20 per cent shareholding, on the Letzberg route. To increase its “autonomy” in Switzerland, DB Cargo could acquire a shareholding in Mittelhurgau Bahn and increase its shareholding in Hangartner, which owns a major terminal in Domodossola in Italy and which for many years has been the leading combined transport operator on the route between Italy and Scandinavia via Rostock.

The removal of the monopoly on cross-border traffic, the initiatives taken by new competitors and the diverging approaches adopted by the railway companies have posed problems for Intercontainer, which still remains the largest intermodal operator at the European level and whose strong points consist in:

- Its expertise in dealing with problem areas in the European rail network;
- The port of Antwerp, where it controls most routes to France, Italy, Spain, Scandinavia, eastern Europe and the Balkans, with routes to Germany controlled by Transfracht;
- A network comprising over 7 000 links;
- A hub-and-spoke system serving a high-quality network for 60 trains and eleven countries;
- A variety of products (shuttle, block, feeder and distributor trains), which makes it the sole operator with a fine-mesh network;
- A wagon fleet with a capacity of 17 000 itus;
- A large network of terminals.

ICF is the sole operator on the trans-Siberian landbridge.

The agreements between the railway companies which are members of this co-operative enterprise will be crucial to the future of ICF. The strategy pursued by DB Cargo and its links with port operators do not appear to be heading in a direction that is favourable to ICF, while it is in the interests of Trenitalia to maintain its relationship with ICF and develop it even further, since it is the sole instrument for its activities in the container sector.

ICF set great store on its relationship with SNCF, and the performance of its hub in Metz depends upon the quality of the services provided by that company. However, the adverse impacts of the strikes in France in 2001 prompted ICF to create a second hub in Herne in Germany, which may ultimately replace the one in Metz.

3.5. Competition in infra-European maritime cabotage

One of the issues to merit analysis is that of infra-European shipping services, which currently do not provide a comprehensive alternative to inland transport but which are rapidly making ground in the direction endorsed by the European Union with a view to achieving a new balance in the modal split.

Once again, we must turn to the example of the Mediterranean, where we now have highly exhaustive data as a result of an analysis of output during the first part of this year. This analysis took account of all full-container, multipurpose and RoRo scheduled shipping services to over eighty Mediterranean ports, the frequency of such services, their destinations and their transit times. Compared to 1998, the first year for which such an analysis was carried out, the surprising fact is that services on routes between ports in the UK and the Benelux countries have grown at a faster pace than services to destinations in the Far East, the east coast of the USA, the Middle East/Indian Ocean, etc., and in absolute terms, together with services to the Far East (a natural target for services from the Mediterranean), account for the bulk of services from Mediterranean ports. In 1998, there were forty ports with regular weekly services to Benelux ports. By 1991, this number had risen to 61 and the average number of weekly sailings rose from 64.61 to 103.41 for the west Mediterranean range, from 139.02 to 174.18 for the east Mediterranean range and from 22.9 to 56.98 for the North African range.

Over the same period, the number of ports with regular weekly services to the UK rose from 40 to 57.

Transit times are also highly competitive, as may be seen in the following examples for services from Benelux ports: Barcelona via transshipment ports, 11-18 days in 1998 compared with 9-10 days in 2002; Piraeus via transshipment ports, 10-14 days in 1998 compared with 9-10 days in 2002; Haifa via transshipment ports, 13-15 days in 1998 compared with 10-12 days in 2002; Naples via transshipment ports, 11-18 days in 1998 compared with 9-10 days in 2002.

It is clear that most of the goods carried by full container vessels neither originate in nor are bound for the Mediterranean and therefore cannot be considered to be infra-European traffic but as traffic using Mediterranean transshipment ports for intercontinental links between the northern range and the Far East, the Indian Ocean or South America. Such traffic nonetheless represents a major ceiling for additional supply in infra-European traffic, which can be sold at marginal price to fill up vessels.

Scheduled RoRo services using short sea shipping vessels, as in the case of the Grimaldi shipping company (Naples), were introduced to carry infra-European traffic in specific items such as new cars, various goods carried in articulated lorries or exceptional consignments. The acquisition of a port terminal in Antwerp by Grimaldi is a sign that over the next few years the market in north-south infra-European transport movements is set to develop into a genuine alternative for goods currently obliged to cross the Alps or Pyrenees as well as goods transported to or from the eastern Mediterranean. While comprehensive data on the volumes transported are not yet available, the fact that the average number of weekly services from the eastern Mediterranean to the Benelux countries and the UK has risen to a level far beyond comparison with the other ranges within such a short period of time, even if account is taken of the size of vessels and the rationale of shipping routes, is a clear indication of the size of the market. In this case, the competition lies with road and not rail. However, in cases where rail competes directly with maritime cabotage using RoRo, the latter is overwhelmingly superior (see, for example, links between Sicily and northern Italy, where combined transport has lost more than 20 per cent of its traffic in two years since the introduction of efficient RoRo services).

CONCLUSIONS

To return to the question we posed at the beginning of this discussion, namely, whether the current phase of liberalization of the rail market has helped to encourage innovation in the rail transport product and in organisational processes, the answer can only be partly negative. On the other hand, the liberalization of traction services has resulted in increased efforts to make the traditional product more efficient. But so much progress still remains to be made, in terms of the current organisation of the railways to make more effective use of given resources, that it will be years before it will be possible to think “the other way around”, that is to say, to think in terms of a more flexible system which is capable of competing with road haulage. The concentration of services on certain products (e.g. shuttle trains), a limited number of corridors and a similarly limited number of terminals has laid the basis for the creation of a system which is at once highly efficient and extremely vulnerable.

The need for innovation seems greater in the conventional transport sector, for the simple reason that the industry is involved more directly in transport, that transport at such a level becomes an extension to the production chain and that the modal choice is part of the corporate strategy of the forwarder, which ultimately remains the most important actor in this market. In the case of IKEA, for example, modal choice is a fundamental part of a business philosophy and an important aspect of the image that the firm wishes to convey of itself. The search for dedicated solutions in terms of transport resources (wagons) is constant. Closer co-operation between the railway companies and industry is therefore the path which needs to be followed. Because forwarders play a secondary role in the combined transport sector, market actors remain subject to price constraints and are therefore more interested in improving their exploitation of a traditional product using given resources than in seeking innovative solutions. With regard to co-operation between railway companies and the suppliers of logistics services, which could potentially prove highly rewarding, the problem in determining what their core business actually is puts the parties on a footing where the arguments in favour of control outweigh those in favour of co-operation. DB Cargo, the largest and most active actor in the rail freight sector in Europe at present, appears to be pursuing the same strategy as that adopted by Deutsche Post in the logistics market. But surely it is not by chance that the most active actor also happens to be located in the country which has the most open rail market with the highest number of new entrants? Is it simply a coincidence that the country, namely Sweden, which has produced the most innovative logistics systems (Volvo, Sora Enso, IKEA) also happens to be the country with the most progressive rules on the liberalization of the rail sector?

The concentration of services within a limited number of corridors may well impoverish the European rail network and relegate regions and territories to the sidelines, and the cost constraint may well prompt operators to give priority to income over volume transported. While we should not expect to see the current liberalization fuel growth in rail traffic or a change in the modal split, there can be no doubt, even on a cursory examination, that the rail sector is recovering. But will this recovery prove irreversible?

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(abbr.: IVW, Internationales Verkehrswesen. VAP, Verband Schweizerischer Anschlussgeleise- und Privatgüterwagenbesitzer)

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RAIL PRIVATISATION IN BRITAIN – LESSONS FOR THE RAIL FREIGHT INDUSTRY

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1. INTRODUCTION

Until 1994, the rail industry in Britain -- as in most of Europe -- was organised in the form of a single, integrated, state-owned company providing passenger and freight services, and the infrastructure on which they ran, throughout the country. It is true that significant reforms did take place in the 1980s, grouping rail services into a number of sectors (InterCity, London and South East and regional passenger, and trainload, distribution and parcels for freight) with their own objectives, management and accounts (Nash, 1988). Also activities such as hotels and rolling stock manufacture were hived off and privatised.

However, by the early 1990s, the Government was determined to go further and privatise the entire rail network. After much debate about options, they determined on a pattern which had come to be seen as the norm for network industries -- a regulated monopoly infrastructure provider with competitive operators using it. The infrastructure was placed in the hands of a new infrastructure company, Railtrack, which levied charges to cover its costs and which was subsequently privatised. Operations were divided into a number of separate companies and also privatised. However, for a mixture of good and bad reasons, they were not willing, at least initially, to leave the question up to the market of what passenger services would be provided at what charges. Thus passenger services were franchised out, with franchise requirements as to minimum levels of service and regulation of some fares.

In the case of freight services, the Government's approach had long been that services should be run on commercial principles, with specific subsidies for flows of traffic which would otherwise use road and where this would impose sufficient social costs that the subsidy was justified. This was essentially the approach carried through into privatisation. Thus the policy for freight was to implement complete open access for any licensed train-operating company, and to seek to create a number of competing freight-operating companies by splitting up and privatising the former freight business of British Rail.

This paper will proceed as follows. First, the history of rail freight privatisation in Britain will be charted, sector by sector. It will be seen that there has been relatively little entry into the industry, and the reasons for that will then be explored. The particular issues of the price and availability of track access, and of the availability of government grants will then be discussed. Prospects for the rail freight business in Great Britain are then considered. Finally, we draw together some lessons which may be learned for other countries embarking on the privatisation and/or deregulation of rail freight. An appendix presents detailed estimates of trends in rail and road freight in Great Britain.

2. THE PRIVATISATION PROCESS

Table 1 presents some data on the volume and profitability of rail freight in Great Britain for the year to 31st March 1992 (i.e. directly prior to the start of the privatisation process), which we have grouped in order to aid an understanding of what happened. The grouping codes and titles are our own, there being changes over time to official nomenclature.

Table 1. **British rail freight data for the year to 31-03-92**

Group	Title	Tonnes (million)	Net tonne-km (million)	Turnover (£ million)	Profit (£ million)
A	Mail and Parcels	N.A.	N.A.	101.5	-34.7
B	Less than Trainload	15.2	2 421	174.9	-118.7
C	Trainload	120.6	7 115	505.3	+67.5
D	Infrastructure	N.A.	N.A.	N.A.	N.A.

N.A. = Not available.

Source: BRB (1992) annual report and accounts.

It will be noted that the data is not complete, as will be explained below, and that profitability varied by grouping. Two points leap out from the table. The first is that a commercial firm would only take on one of the loss-making groupings if there were prospects of making it profitable, or if there were to be a subsidy in some form or other. Given the scale of losses in the less than trainload business, the Government would almost certainly have either to face up to a large reduction in rail freight in this sector or to provide direct subsidies. The second point is that any commercial firm operating in or entering the rail freight market will seek to move to increase its operations in grouping C, regardless of the firm's name or history, unless prevented by controls. Consequently, if the Government were to permit more than one rail freight operating company, competition would reduce prices for trainload traffic and remove the cross subsidy from that to other forms of traffic. Transitional arrangements and the lack of a strong second-hand rolling stock market could moderate the position for a few years.

In preparation for privatisation, the Government ordered a major pruning of unprofitable freight services, with the objectives being that all traffic should earn at least a 5 per cent rate of return on capital employed. Nevertheless, some of the businesses were still in a serious financial position at privatisation.

We will now discuss the traffic groupings in turn.

A. Mail and parcels

Historically, much of this traffic was conveyed on passenger train services, so sharing much of the cost. Parcels might be recorded by number rather than exact weight, and major contracts might state volumetric requirements rather than weight. In consequence, the tonnes and tonne-km data is not very reliable. In 1971, there had been 13.4 million specially-run train miles. By the beginning of the 1990s, many customers, notably the newspapers, had deserted rail. Some 150 dedicated trains were run each night, with the Post Office having an option to carry mail on around 3 000 passenger trains each day. In 1991, the operation was relaunched under the brand name, Rail Express Systems (RES). A new contract with the Post Office saw the end of the carriage of mail by passenger train, simplifying the privatisation process. In December 1995, grouping A was the first part of the BR freight operation to be privatised, being sold to English Welsh and Scottish Railway (EWS), a grouping headed by the US Wisconsin Central Railway but largely owned by banks. EWS therefore took over the Post Office contract, which is due to last to 2010. EWS provided new locos in order to be sure of meeting the exacting performance agreement, and reduce operating costs. EWS have claimed that the Post Office contract is its most profitable; in 1999 it lifted some 300 000 tonnes of traffic. However, a safety requirement to withdraw the vans used for on-the-move sorting, together with network performance deterioration in the wake of the 2000 Hatfield train derailment, is currently resulting in a cutback in the number of services operated. Other than the Post Office contract, the activities of RES largely involve the hiring out of locomotives.

B Less than Trainload

The figures for this group in Table 1 are actually for what was then known as Railfreight Distribution. This comprised three parts:

- B1 Domestic and Maritime Container operations undertaken under the Freightliner brand name;
- B2 Wagonload traffic;
- B3 Non-bulk trainload services, principally automotive and edible products.

We will consider these three in turn, followed by a new traffic group, B4, Channel Tunnel intermodal.

B1 Freightliner

The 1963 Report, “The Reshaping of British Railways” (BRB, 1963), is principally remembered for the large-scale closure programme it proposed for passenger services and lightly-used stations, both passenger and freight. However, the report sought to greatly increase the quantity of freight handled by rail. The principal method of attracting less than trainload traffic to rail was to be the Freightliner network of container trains. These were to carry 8-foot-high containers in 10-foot, 20-foot, 30-foot and 40-foot lengths between a limited number of terminals -- between 50 and 100 being envisaged -- with road collection and delivery.

However, this density of network was never reached, and the whole operation became increasingly uncompetitive for domestic traffic as the road freight alternative became ever cheaper. Nevertheless, growth was initially good, with Freightliner becoming the world’s largest overland container haulier. By 1981, Freightliner operated 25 terminals and served 18 privately-owned

terminals, mostly ports. Two hundred trains were run each day, moving over 800 000 TEUs per annum. However, the trading profit of £0.1 million on turnover of £72.1 million was insufficient to fund further expansion. Domestic traffic was gradually lost, being replaced by maritime boxes, which only had to be collected/delivered at one end of the rail journey, thereby being more cost-competitive with road.

By 1992, little domestic container movement remained. The profitability of moving maritime boxes was hindered by the increase in height of ISO containers, latterly to 9 feet 6 inches, which either required expensive route-gauge enhancement or special low wagons having limited payload capacity. In order to improve profitability prior to privatisation, services were recast in 1992 into an essentially hub-and-spoke operation of roundly 80 trains per day. It was claimed that the business was making a loss of roughly half of its £70 million p.a. turnover (Abbott, 1994). Freightliner were then operating just nine terminals and were serving just five privately-owned port terminals.

It is understood that there was little interest in purchasing the company when it was offered for sale, and privatisation was achieved via a management buyout, which took control of the operations and assets in 1996. In order to induce the management to take Freightliner, a block £75 million Track Access Grant was offered to cover the charges raised by Railtrack for the period up to 2000.

Following privatisation, there was a 23 per cent increase in traffic volume, and a modest profit was returned. In March 1998, Freightliner was awarded the title “European Rail Operator of the Year”. The market for maritime freight movements is, however, dominated by the state of world trade, recent falls in which have been reflected in Freightliner’s carryings. Crucial to the company’s future success in this activity was renegotiation of the Track Access Grant in 2000. In the event, there was an unsettling delay, but the matter was resolved and a “Company Neutral Access Grant” was established, open to any company wishing to move containers, not just Freightliner. Indeed, after a wary start, EWS has been competing for container traffic. Conversely, there being little prospect of substantial profit from container traffic, Freightliner has moved aggressively (as we shall see) into the bulk freight business and the infrastructure business.

B2 *Wagonload traffic*

By the 1980s, British Rail had become heavily concentrated on moving traffic in full trainloads, and there were calls for the complete abandonment of the movement of individual wagonloads as being inevitably unprofitable, in a country where lengths of haul in excess of 500 kilometres are rare. During the 1980s, BR instead tried to develop a new, high-quality wagonload service, branded Speedlink, to handle traffic which could not profitably be moved in full trainloads. By 1984, there were 150 daily trunk services serving 12 main centres and 12 secondary centres, plus a myriad of feeder services capable of reaching 800 sidings. Harris (1983) claimed that: “*At present, taken on its own, Speedlink is profitable; this at a time when 40 per cent of road hauliers have been operating at a loss.*” However, the basis for this calculation was not given, but is believed to have involved Speedlink charging its full cost to other BR sectors for moving their traffic regardless of what the customer paid. Speedlink moved some 8 million net tonnes of traffic in 1984, but expansion then stalled, with some BR commodity sectors preferring to confine all traffic to their own trainload services. In late 1988, Railfreight Distribution (RfD) was formed from the amalgamation of Freightliner and the chemicals, automotive, industrial minerals, edible products, general merchandise and international activities, incorporating the Speedlink wagonload network (Freeman Allen, 1989). Little progress was made in gaining economies by merging Freightliner and Speedlink operations, partly due to their using a slightly different braking system. It was soon decided to close Speedlink, as having no prospects of becoming profitable, though some profitable domestic wagonload movements

were catered for on a new network, Connectrail, set up to handle wagonload traffic moving via the Channel Tunnel. This residual wagonload traffic was privatised by sale to EWS along with the new cross-Channel intermodal services (see B4 below), there being nobody else interested in purchase. EWS combined the Connectrail network with its own wagonload network (Enterprise), which had been set up by one of the trainload companies it bought. EWS were initially bullish about the prospect for its Enterprise wagonload network, and major traffic gains were made. However, Enterprise is still not a large operation compared to Speedlink. In 1997, it moved some 1.5 million tonnes, and in 1999 some 3.0 million tonnes. In recent times, EWS has sought similar financial support regarding its wagonload traffic to that which Freightliner has received regarding its container traffic, though the SRA did that on a company-neutral basis. Very recently, EWS have claimed that at least parts of the Enterprise network may be under threat, as Freightliner has won a contract for one of the key commodities (cement) moved in Scotland, without which the Scottish enterprise routes may be unsupported. The future for wagonload traffic looks very uncertain.

B3 *Non-bulk trainload services*

These were included in the formation of Railfreight Distribution in 1988, as discussed in B2 above. In 1993, as RfD Contract Services, they carried some 6 million tonnes of traffic. However, they were particularly badly affected by the Government's instruction that all railfreight movements should make a profit at least equivalent to a 5 per cent return on capital. It was decided to transfer the remaining traffics to the trainload companies being formed for privatisation, as will be discussed in C below.

For reasons which are not totally clear, though said to be due to its European emphasis, automotive services were retained within RfD and privatised along with B2 and B4. In the event, European automotive services have not been as successful as hoped, and most of the specially built wagons have lain idle.

B4 *Cross-Channel intermodal services*

These were introduced with the opening of the Channel Tunnel in 1994, taking over traffic which was previously handled by Freightliner through Harwich. Substantial traffic growth was foreseen, partly via forecasts predicated on 84 per cent on-time reliability and frequent service to a range of destinations, including Germany. In the event, service quality struggled to get anywhere near that which had been assumed, and German Railways routed traffic through German ports rather than via the Channel Tunnel. The situation was not helped by frequent strike action (most notably on SNCF) and the closure of the tunnel for several months following a fire on a Eurotunnel freight shuttle. The diversionary possibility represented by the rail ferry between Dover and Calais had been quickly withdrawn.

The business was sold along with residual elements of B2 and B3 (largely automotive) to EWS in November 1997 after long negotiations, and awaiting EC approval of the financial arrangements. It appeared that there were no other serious bidders. EWS only agreed to take over these services if the rather high charge for using the Channel Tunnel was underwritten for ten years, i.e. EWS were to pay zero tolls to use the tunnel unless it more than tripled the freight it moved through the tunnel. After 2007, the deal which BR made with Eurotunnel will end and a new agreement will need to be negotiated.

Rail freight through the Channel Tunnel has never come close to what was forecast, and in the last year has collapsed, largely due to the problems of illegal immigrants boarding trains at Sangatte, leading SNCF to restrict operations to only a fraction of the already limited amount of traffic on offer.

C Trainload

Table 1 shows that this sector was where there was profit to be made from railfreight in Great Britain. However, at the time of privatisation, the Government did not wish to maximise its revenue from the sale by selling a monopoly to the private sector. Instead, they wanted to introduce competition within the rail freight market, which would clearly result in any excess profits being competed away. To this end, the trainload sector of BR was split up into three regional trainload companies, with a remit to compete with each other, and there was to be open access to the industry.

BR had made a profit from certain segments of the freight market where rail had a competitive advantage by charging a monopoly price, as only one train operator was permitted. The trains themselves were often formed of privately-owned wagons and latterly even privately-owned locomotives, but crews were supplied by BR, who determined the price for the movement. With competition, the monopoly rents were very largely competed away.

The three trainload companies began operating as separate entities in April 1994. Initially dubbed North Freight, West Freight and South-East Freight, they lost no time in rebranding themselves as Loadhaul, Transrail and Mainline, respectively. Locos were rebranded and many completely repainted, and some wagons were dealt with similarly. Each was allocated a number of flows from Trainload Freight's portfolio, as well as receiving some of Railfreight Distribution's Contract Services, see B4 above. Flows were generally allocated to the company in whose area the traffic originated, but the reverse was the case for Power Station coal, for which the source of supply often varied at short notice. Each company was free to bid for new traffic in any area.

Underlying this method of privatisation was empirical evidence from US railroads (Caves *et al.*, 1987) that, beyond some "minimum efficient size", there were constant returns to scale. There were, however, thought to be diseconomies of scope, a rather more vague concept. In this case, it was interpreted as suggesting that there were benefits from a tighter geographic spread as well as a smaller range of activities and customers. It was therefore felt that a localised, focussed, open-access operator might well be able to operate at full efficiency with only a handful of locos and trainsets.

In the event, there was strong argument from many within the industry that economies of scale were lost by having companies which, although strong in a particular region, would operate long-distance flows into regions where they had little other traffic. When the three companies were privatised, the most attractive bid was for all three companies from EWS, who merged them again, as discussed in the next section.

CI EWS

As discussed above, having been split into three regional companies, BR's former Trainload sector was offered for sale. Each company's management was obliged to bid for their company and the two other companies. This yielded nine bids. A tenth bid came from the grouping which became known as EWS Railways. American railroads had been specifically targeted by the British Government to bid for freight companies, and EWS had already acquired RES (see section A above). They now checked with the Rail Regulator that they would be allowed to take over all three trainload companies together. Being given the green light, they bid for them all as a job lot and were successful,

taking over the three companies in February 1996. The expense of splitting the companies and rebranding them was therefore wasted. The possibilities for competition were greatly reduced, and reduced still further once EWS had acquired the European and residual domestic wagonload traffic described in section B above.

EWS was quick to re-equip with 280 modern US-designed locos and over 2 000 new wagons. Anecdotal evidence suggests that there has been some improvement in service quality; and traffic growth further suggests that the privatisation was successful. However, profit at EWS was not high, and share price falls in Wisconsin Central led them to try to sell their share in EWS. Wisconsin Central was taken over by Canadian National in 2001, but no buyer for EWS has yet been found. In the meantime, service quality has deteriorated, particularly following the Hatfield accident and some contracts have been lost to other operators. The future for EWS is therefore somewhat uncertain, although it will have been helped by the reduction in track access charges discussed in Chapter 3 below.

The trainload traffic included in the data in Table 1 were latterly run by BR as four commodity subsectors of Trainload Freight. We now deal with each in turn.

A small amount of coal traffic in GB moved in wagonloads or containerloads for domestic or industrial use, but this was a declining traffic. Latterly, it was managed as part of Trainload Coal. Also included in this sector was the nuclear traffic discussed in C2 below and later taken over by BNFL. Of the actual trainload coal, most was destined for the electricity supply industry. About half ran less than 50 kilometres, but was profitable due to the automated loading and unloading. The pit closure programme of the early 1990s, coupled with the associated “dash for gas”, greatly reduced tonnages carried. Initially, tonne-kms fell too, but the longer hauls of imported coal from deep-berth ports to inland power stations eventually reversed this, so that substantial growth in coal traffic materialised. This was facilitated by EWS adjusting its charging rates to competitive levels. As we will see in C3 below, National Power, who had set up an open-access operation to carry coal to their Drax power station, sold out to EWS in 1998. However, competition did arise, in the form of Freightliner who wanted to diversify into the potentially lucrative bulk freight market, using brand-new locos and wagons. This competition appears to have stimulated traffic growth in this area.

The oil and petroleum sector of the market has been declining, partly due to competition from pipeline and partly due to the consequences of new safety measures. EWS initially had the market to itself, but latterly Freightliner has bid for contracts as they have come up, and won a few, again using new locos but this time hauling the company’s own wagons.

The metals sector includes the movement of ore and limestone to blast furnaces, as well as the movement of finished and semi-finished products. GB steel production has faced difficult conditions, but imports have often been rail-hauled. Where blast furnaces, etc., have been closed, the flows of inputs have been lost to rail, and this is a continuing problem for rail. EWS concentrated on improving the quality of service for finished and semi-finished steel, ordering many additional telescopic, hooded wagons to improve the service. The figures suggest that this has been successful.

Construction is subject to larger than usual cyclical effects, since it relates more to investment than consumption. Much of the traffic is stone used in road schemes, the programmes for which have been speeded up or slowed down for political reasons. Prior to privatisation, most of the major stone flows in the south of the country were moved by an organisation now known as Mendip Rail, which owns its own locos, wagons and maintenance facilities, but uses EWS crews. Mendip Rail seriously

investigated the possibility of becoming a fully fledged open access operator, but found it too difficult. It is presumed that EWS's charging policy has played a part in this decision. Freightliner has provided additional competitive pressure, securing most of the cement traffic.

C2 BNFL

Two companies did take up the challenge of operating trains to move their own traffic. One of them was British Nuclear Fuels Limited (BNFL), which had to move radioactive materials around the country, with severe limitations on what could be moved by road. Most traffic was therefore captive to rail by law, and so BR were able to charge a profitable rate. BNFL envisaged increasing traffic levels and decided it could reduce its costs, and possibly gain an improved service, by forming its own train operating company, Direct Rail Services (DRS). Some locos, which had been sold by BR for use in constructing the Channel Tunnel, came on the market at the right time and these were purchased and some refurbished for use. The failure of the proposed Nightstar sleeper services through the Channel Tunnel made further locos available. These provided more than sufficient motive power for all the nuclear material trains, allowing DRS to bid for (and win some) general freight work. This has caused some ill-feeling with competitors, since BNFL is a nationalised industry.

C3 National Power

The other company to use open access to move its own traffic was National Power (NP), a company set up when the Electricity Generating Industry was privatised, owning about half of the coal-fired power stations. NP began with just one loco and trainset, to supply limestone in connection with Flue Gas Desulphurisation at Drax power station, the biggest in Great Britain. It then progressed to buy five more locos and sufficient wagons to operate a 45-minute interval service, supplying Drax with coal from local coalfields. The locos were new-build, to a US design previously used for their traffic by Mendip Rail (although operated by BR). Although the operation was generally agreed to be satisfactory, and there was a considerable saving relative to BR charges, it appears that EWS soon dropped its price to a competitive level. National Power then sold out its operation to EWS in 1998.

D Infrastructure

Historical data on rail movements of infrastructure materials, principally track components and ballast, are not available, being a purely internal matter for the railway. However, following privatisation, the freight train operating companies are no longer carrying this infrastructure traffic on their own account, but on behalf of Railtrack (or its successor). Originally, it had been intended to leave Railtrack in the public sector and for it to operate its own infrastructure services. Once it was decided to privatise Railtrack, it seemed sensible to pass the traffic to the three Trainload Freight companies, together with the assets used. There were some understandings regarding future traffic, but Railtrack were subsequently to be free to give traffic to other freight train operating companies, or to operate on own account.

As we have seen, EWS took over all three Trainload Freight companies in early 1996. It therefore took over the infrastructure traffic. There was a fraught relationship between EWS and Railtrack, as each was a major customer of the other! EWS bought train paths from Railtrack and Railtrack bought infrastructure train services (locos, wagons, crews) from EWS. Possibly fearing a move by Railtrack to diversify its infrastructure train suppliers, EWS began a bold plan of updating the engineer's wagon stock used (referred to by BR as Departmental) and promised to use its best

locos on infrastructure work (contrary to the BR practice of using its best locos on revenue-earning traffic). Despite that, EWS was subsequently hard hit when Railtrack diversified its train suppliers and invested in its own wagons, leaving some of EWS's newly purchased wagons to stand idle.

Yet more damaging to EWS was that Railtrack's long-term contracts with the new entrants to the infrastructure market enabled these companies to purchase locos identical to those EWS had bought. These locos, being sufficient for Railtrack's peak requirement within each contract, had sufficient spare availability to allow these companies to bid against EWS for general freight work, thereby enabling real competition in the market place and overcoming the main barriers to entry.

Initially, Freightliner received a contract for infrastructure work, thereby diversifying from container train operation. Twenty locos were dedicated to this work, but additional locos were ordered, allowing further diversification and updating of Freightliner's loco fleet. Further orders were placed, with the additional locos totalling 57 at the time of writing. Consequently, Freightliner will have at least 77 large freight locos, as against the 400 or so operated by EWS.

More recently, a passenger train operating company, GB Railways, successfully bid for a Railtrack contract. This funded seven dedicated locos, which nevertheless found time for other work, allowing the winning of a container train contract which is funding a further five locos. The effect on EWS of these two companies entering the freight market on the back of infrastructure work, is that it is having to mothball many of its own large freight locos. EWS has been extremely reluctant to sell them off, due to fears that they would facilitate further competition. Nevertheless, in 2001, it did (following the intervention of the Rail Regulator) sell off many smaller locos and several of these are returning to operational status in some guise or other. Latest indications are that GB Railways' contracts are now sufficiently attractive that its freight arm, GB Railfreight, may be bid for by Freightliner. Clearly, it is still too early to say whether a stable market will result, but indications are that the privatisation has been successful in this area.

In summary, then, despite having been placed on the market as six separate companies, the privatisation process was completed with these companies being amalgamated into just two, with a dominant general freight train operator (with some 85 per cent of the rail freight market) and a specialist container operator. In the years since privatisation, these two operators have increasingly been competing, particularly in the infrastructure and bulk markets, and three new open-access operators have entered the market, of which two are still operating. There is little doubt that this limited amount of competition has had a substantial impact; the fact that customers can go to alternative operators when contracts come up for renewal clearly puts pressure on existing operators. Yet the extent of competition in practice has been rather limited. The next chapter explores the reasons why more competition, particularly from new open-access operators, has not taken place.

3. BARRIERS TO COMPETITION

At the time of rail privatisation, the Government was very keen to encourage new entry into the rail freight business as one way of improving the efficiency and competitiveness of rail freight by increasing competition. Other commentators (Nash and Preston, 1992; Brewer, 1996) foresaw considerable barriers which a new operator would have to overcome, principally:

- The difficulty and cost of recruiting staff with appropriate experience and of training new staff, including providing train crew with the necessary experience and route knowledge;
- The acquisition of locomotives and rolling stock, given the existence of a very limited second-hand and short-term leasing market;
- Economies of scale, particularly in terms of the ability to maintain high levels of asset utilisation whilst keeping sufficient spare vehicles to maintain reliability, meaning that a new entrant would incur a cost penalty unless it entered on a substantial scale;
- The difficulty and price of obtaining appropriate paths on the infrastructure.

Subsequently, Whiteing and Brewer (1998) report the results of interviews with actual new entrants (namely, National Power and Direct Rail Services). To some extent, all of the above barriers were found to exist in practice. Operators had some success in recruiting staff with appropriate experience from British Rail, but also had to undergo costly training exercises themselves, and Direct Rail Services in particular found it costly to maintain a wide route knowledge (the latter is obviously less of a problem with a specialist operation running a very limited set of routes than with a more general operator). Whilst Direct Rail Services had made use of second-hand locomotives, National Power found it necessary to buy new. Both suffered somewhat from the small scale in terms of costs, but found entry worthwhile as they felt they faced a monopoly operator who was charging an excessive mark-up over costs. The cost and availability of paths was a concern to both.

These problems suggest that if the European Commission and Member States wish to promote entry into the rail freight market, they need to think about ways of improving the functioning of labour and asset markets in the rail industry. An extreme solution might be to give new entrants rights to use the train crews and rolling stock of existing operators at a regulated price.

An additional cost which proved much more significant than had initially been anticipated was the cost of preparing and getting a “safety case” accepted, a necessary condition for obtaining an operators’ licence. It was necessary to employ consultants to do this and it is believed that the costs typically amount to several million pounds as well as much senior management time. Clearly, this is a substantial start-up cost for a small operator.

But as anticipated, it was the price and availability of paths on the infrastructure which proved to be one of the most contentious issues. The original approach to rail access charges in Great Britain was determined by the Government prior to privatisation and set out in report of the Department of Transport (1993). What this paper proposed was that freight and open access passenger operators should pay a negotiated charge, at least covering their avoidable costs and making as large a contribution as possible to fixed and common costs. Franchised passenger operators should pay a variable charge equal to the cost implications of running additional trains, and a fixed charge equal to their other avoidable costs, plus a share of fixed costs not covered by freight and open-access operators or other sources of revenue.

The aim of this structure was to reconcile the fact that the majority of infrastructure costs were found to be common between operators and -- at least in the short to medium term -- fixed with a belief that the efficiency of the infrastructure provider would be promoted if all its costs had to be covered through revenue from train operators. However, this could not be done simply by raising charges above marginal cost without major distortions to the efficiency of use of the infrastructure (para. 3.3).

“If Railtrack were to charge all operators a proportion of common and fixed costs through a standard tariff, it would drive off the railways traffic which was in a position to pay for its avoidable costs...”

The recommended solution was therefore that:

“The long term health of the railway industry will be best secured if Railtrack pursues a policy of market pricing, subject to the avoidance of unfair discrimination between competing operators in the same market. All operators should therefore pay the avoidable costs which can be attributed directly to them, and should contribute to common costs differentially, reflecting their ability to pay.”

It became the duty of the Rail Regulator to review all aspects of access agreements, including infrastructure charges, and he put forward his policy in Office of the Rail Regulator (1995). Broadly, he considered that the proposed approach to negotiation of charges, backed up by his powers to investigate and prevent alleged discriminatory charges between operators, was the best approach to the development of rail freight. Evidence that he was prepared to use these powers is provided by the fact that in at least one of the cases of new entrants, he is known to have intervened and obliged Railtrack to lower its charges.

However, the major freight operator, EWS, soon found that the necessity to negotiate separate access charges for each flow of traffic was time-consuming and led to uncertainty in the negotiation of new contracts. It therefore negotiated with Railtrack a two-part tariff, somewhat similar to those of the passenger franchisees, under which it paid a large fixed sum plus a lower fixed charge per gross tonne-kilometre of freight traffic. The Regulator consulted widely as part of his review of this agreement and found, not surprisingly, that other operators feared that this would put them at a disadvantage, as for new traffic EWS would be able to price down to the variable part of the charge, whereas Railtrack would expect to charge another operator something above the variable charge. Moreover, customers were concerned that, for this reason, they would become more captive to EWS.

In the event, the Regulator accepted that the advantages of the new structure to the development of rail freight as a whole justified its introduction, and considered that his powers to look at all Railtrack’s charges and to prevent discriminatory behaviour on the part of Railtrack, were sufficient to prevent this problem (Office of the Rail Regulator, 1997a).

The first periodic review of track access charges started with the publication of a consultation document in December 1997 (Office of the Rail Regulator, 1997b). The Regulator considered that charges should:

- motivate Railtrack, train operators and funders to maximise the efficient use and development of the network;
- avoid undue discrimination between operators;
- appropriately reward Railtrack for changes in the level of output;
- meet the Government’s overall transport objectives.

Problems with the existing structure of charges were:

- Negotiations for freight (other than EWS) and open access operators were complex and time-consuming, whilst negotiations on variation of access rights for franchisees were simply not working;

- The charging structure for franchisees gave no incentive for economy in the use of scarce capacity and no adequate mechanism for the replacement of existing low-value services by higher value ones. Operators were not adequately charged even for wear and tear, and not charged at all for congestion and opportunity cost of slots;
- Circumstances had changed significantly since the charges were originally set. There had been a rapid growth in both rail traffic and train kilometres, leading to much greater congestion and requirements for investment in new capacity than had been anticipated, and it was the policy of the new government that this should continue. However, incentives to expand the network were poor;
- The ability of Railtrack to negotiate charges according to the ability of a TOC to pay, led to extreme secrecy about demand on the part of TOCs, to the detriment of service and investment planning.

During the review, Railtrack provided evidence of substantially higher wear-and-tear costs than allowed for in the existing charges, and quantified congestion costs in fine detail by track section and time period (Gibson, 2000). It should be noted that the direct delays caused by an additional train, for instance, due to locomotive failure, were already charged for through the performance regime (under which operators compensated Railtrack for delays they caused, and *vice versa*); what was costed here were the additional delays to subsequent trains simply due to the train in question taking up capacity and thus reducing the ability of the system to recover from delays caused by other factors. Congestion charges, in the event, fell predominantly on passenger operators, since freight tends to operate away from the passenger peaks in demand.

Consideration was given to improving the incentive of Railtrack to expand the network by also incorporating the capital costs of expansion into the variable element of the access charge, on the basis of a calculation of long-run marginal cost; however, it was found that this varied enormously with the location, size and nature of the additional capacity required, and no feasible way of including this in the tariff was found. Instead, attention concentrated on quantifying the congestion cost of adding additional trains to the network. Arguably, this was sensible, given the long time periods and indivisibilities involved in many plans to upgrade capacity.

The recommendations of the Regulator at the end of the process were (Office of the Rail Regulator, 2000; 2001):

- An increase in the variable part of the track charges to reflect the full wear-and-tear cost and 50 per cent of the quantified congestion cost. It appears that the Regulator was concerned that including the full congestion charge would give train operators too much incentive to cut services;
- A move to a published tariff for all operators, with franchised operators continuing to pay on a two-part tariff, but freight and open access operators paying only the variable element of the tariff;
- An incentive payment to Railtrack, based on increases in traffic, in order to encourage expansion of the network. This was paid for directly by the Strategic Rail Authority, and hence did not add to the costs of the train operators.

The Strategic Rail Authority agreed to bear the infrastructure costs of freight operation over and above the variable element of the charge, thus halving the charges paid by existing operators and removing any competitive problems posed by the previous two-part tariff of EWS.

Table 2 gives some idea of the proposed level of charges for bulk and other freight, and how they relate to operating costs and revenues, as in 1998. The table also shows estimates of external costs, namely, air pollution, noise and global warming. Although these are much smaller for rail than road, it is clear that they are typically significant relative to the marginal infrastructure usage costs and should therefore be included.

Table 2. **Infrastructure, operating and external costs for rail freight, 1998**

Category	Costs						Revenue	Difference Cost - Revenue
	Marginal infrastructure re usage	Vehicle operating cost	Air pollution	Noise	Climate change	Total		
Bulk	1.79	8.60	0.166	0.170	0.131	10.86	13.01	-2.15
Other	0.88	9.70	0.166	0.170	0.131	11.05	13.61	-2.56
Freight Sector	1.19	9.28	0.166	0.170	0.131	10.94	13.41	-2.47

Note: low cost estimates apply to environmental categories only.

Source: Sansom *et al.*, 2001.

The price of track access was only part of the issue, however. The other part of the issue was the availability of paths and their quality. This has been an issue in specific cases, such as the West Coast Main Line upgrading, as well as more generally. The problem is that, whereas passenger services are run under reasonably long-term franchises and passenger operators can foresee reasonably accurately their track access requirements many years ahead, the same is not true of freight. Freight access requirements change with little notice, and freight operators are frequently in the position of effectively having to seek to obtain paths on the “spot” market. Inevitably, this tends to mean that passenger services get priority in the allocation of slots. The fear was that, in the West Coast Main Line case, there would be so little capacity left for freight that the potential growth of rail freight would be impossible. Whether this makes sense in terms of the relative value of the two types of service is questionable.

The issue came to a head when EWS sought to negotiate renewal of its track access agreement. It applied for a contract guaranteeing it certain amounts of capacity, and running for ten years, with the possibility of extension at EWS’s request for up to fifteen years. Railtrack argued that such an agreement would become illegal under Directive 2001/14 (which imposed a normal five-year maximum on such agreements, except in the case of major investment) and that it could not possibly guarantee capacity over such a long period. In the event, the two sides compromised on, and the Regulator sanctioned, an agreement for five years, with the possibility of extension for a further five (Office of the Rail Regulator, 2002).

Clearly, if EWS succeeded in tying up all the paths available for freight over key main lines, this would be a major constraint on competition. The Government had tried to guard against this at the time of privatisation by enabling customers to negotiate directly with Railtrack over paths and to secure the rights to the paths they needed, regardless of which operator they used. However, as customers generally preferred to leave this to the operator, the regulator felt obliged to strengthen the ability of customers to change operator by including “use it or lose it” clauses in access agreements

and - because these would generally only come into effect after a path had not been used for some months – by providing that if a customer switched operator, the existing operator would be expected to transfer the path to the new operator.

In terms of quality, freight does appear to have achieved better access to paths than under the old regime, in which passenger services received clear priority. For this reason, the Rail Freight Group (a pressure group for the industry) has been strongly opposed to any suggestion of integration of rail track with the passenger operators, which would be likely to worsen their position. But the relationship between freight operators and Railtrack has not been entirely happy. Some operators reported finding Railtrack arrogant and unhelpful (Mercer, 2002) and the American owners of EWS found the situation in which they did not control their own infrastructure strange and alarming:

“The whole Railtrack thing bothers me, as it’s a major cost element which under the worst conditions could be out of control. It could have the ability to destroy the competitiveness of any rail operating company.”

(Burkhardt, quoted in *RAIL* magazine, No. 271, January 1996, p. 28)

The succession of events since then, in which the Hatfield accident led to severe speed restrictions across the network and the resulting increases in costs and compensation payments led to the bankruptcy of Railtrack, are too complex to analyse in detail here. Suffice it to say that these events do not necessarily indicate the inappropriateness of the separation of infrastructure from operations and, indeed, in a passenger-dominated European network such separation is still likely to work to the interests of freight operators. What went wrong at Railtrack was very much more the consequence of how Railtrack managed its business, and of problems in the relationship between Railtrack and its engineering contractors, than evidence that such separation cannot be made to work. What is clear, however, is that the separation of infrastructure from operations in Sweden, where the infrastructure organisation is a public body following cost-benefit criteria in its decisions, has been very much less problematic than that in Britain, with a fully privately owned and commercially oriented infrastructure company.

4. INTERMODAL COMPETITION AND THE FREIGHT GRANT REGIME

A further obvious reason for the limited number of new entrants into the rail freight business is the relatively poor profitability of rail freight in Great Britain. As we saw in Table 1, in 1992 before privatisation, the freight operations of British Rail were, in total, heavily in deficit although trainload freight was operating at a profit. Following privatisation, Table 3 shows a better situation, with all three freight operating companies moving into profit. But apart from some dense flows of bulk commodities, Great Britain is not a particularly attractive place to operate rail freight services, being characterised by rather short lengths of haul, a lack of international traffic (the failure of the Channel Tunnel so far to alter this situation was discussed above) and an intensely competitive road haulage business, which was fully deregulated as long ago as 1968.

Table 3. Profitability of the Privatised Rail Freight Industry in Great Britain (£m)

		EWS	Direct Rail Services	MCB Ltd*	TOTAL
Turnover	97	618.1	0.4	96.6	715.1
	98	540.6	2.1	124.6	667.3
	99	533.7	5.3	128.6	667.6
Operating Costs	97	539.7	0.8	94.4	634.9
	98	472.5	2.0	117.3	591.8
	99	483.9	5.0	122.6	611.5
Operating profit	97	78.4	-0.3	2.2	80.9
	98	68.1	0.1	7.3	75.5
	99	49.8	0.3	6.1	56.2
Other expenses	97	17.9	0	3.7	21.6
	98	11.3	0	4.3	15.6
	99	13.2	0.1	5.0	18.3
Pre-tax profit	97	60.5	-0.3	-1.6	58.6
	98	56.8	0.1	3.0	59.9
	99	36.6	0.3	1.0	37.9
Profit	97	-1.8	-0.2	-3.6	-5.6
	98	48.4	0.1	2.1	51.5
	99	32.8	0.2	0.2	33.2

*Parent company of Freightliner.

Source: TAS Rail Monitor, 2000.

Prior to privatisation, for many years, British Rail had been ordered to run its freight businesses on a purely commercial basis, without subsidy. This had been interpreted to mean that freight should at least cover its avoidable costs; it was not expected to contribute to the joint costs of the rail system. To the extent that there were, however, joint costs between different flows of freight traffic, individual flows would have to be priced sufficiently above marginal cost such that, collectively, they covered that joint cost.

To the extent that the rail operator is able to practice price discrimination and capture the benefits to users of additional traffic, the need to earn a surplus above marginal cost may not be a problem in terms of economic efficiency. Indeed, if perfect discrimination may be applied then it is only worth maintaining services which can cover total costs in this way (Joy, 1971). This is more likely to apply for freight traffic -- provided that there is no regulation preventing negotiation to obtain the best price for each traffic flow -- than for passenger, where such negotiations are naturally impossible. However,

as noted above, the introduction of competition within the rail freight market made such price discrimination more difficult, since the customer charged above marginal cost by one operator could go to another.

Moreover, the result that, with perfect discrimination, only services which can cover their avoidable costs from revenue are worth retention, depends on the competing modes -- in most cases in Britain, road transport -- being appropriately priced. As at present road haulage is charged for the use of the roads solely through two taxes, an annual lump sum vehicle excise duty and fuel tax, it is not possible for road haulage to be appropriately priced everywhere. The fixed lump sum bears more heavily on vehicles engaged in short-distance work than long, whilst fuel tax does not vary adequately with the weight and axle weight of the vehicle, nor with the nature of the roads on which it runs, in terms of the degree of congestion and the sensitivity of the location to pollution and noise.

But a number of studies have suggested that road haulage does not even, on average, bear the costs that it causes, in terms of wear and tear and environmental and congestion costs. For instance, compare the figures for road haulage in Table 4 with those for rail in Table 2 above. Whilst rail is paying slightly more than marginal cost, on average, road haulage is paying substantially less. These figures apply to 1998; since then, taxes on road haulage vehicles have been substantially reduced as a reaction to the fuel price protests of the year 2000.

The Government has long given capital grants towards facilities for freight to move by rail (or water) in situations where road haulage is not paying enough to cover its environmental costs. At privatisation, these grants were supplemented by a grant towards the costs of track access charges, given initially to specific operators, arguably, to make them profitable and therefore saleable. In particular, the major recipients of the initial grants were the operators of container and other intermodal services, where it was believed that the full track access charges would make them unprofitable. These grants were originally administered by the Department of Transport and its successor government ministries, but when a new Strategic Rail Authority was set up in 2000 to implement government policy across both freight and passenger services, responsibility for rail freight grants was handed to the SRA. As noted above, the SRA has since moved towards providing such support for particular flows of freight on a “company neutral” basis (SRA, 2002).

Table 4. Rail percentage of rail plus road total

Categories	Costs										Revenues					Difference Costs - Revenues
	Infrastructure operating cost & depreciation	Vehicle operating cost (PSV)	Cong- estion	Mohring effect (PSV)	External accident costs	Air pollution	Noise	Climate change	VAT not paid (PSV)	Total	Fares (PSV)	Vehicle excise duty (part)	Fuel duty	Value added tax on fuel duty	Total	
Car, peak	0.05	-	13.22	-	0.78	0.18	0.01	0.12	-	14.4	-	-	3.86	0.68	4.5	9.8
Car, off-peak	0.05	-	7.01	-	0.80	0.18	0.01	0.12	-	8.2	-	-	3.86	0.68	4.5	3.6
LDV, peak	0.06	-	13.99	-	0.52	0.76	0.02	0.19	-	15.5	-	-	3.86	0.68	4.5	11.0
LDV, off-peak	0.06	-	7.07	-	0.53	0.68	0.02	0.18	-	8.5	-	-	3.86	0.68	4.5	4.0
HGV-Rigid, peak	3.82	-	26.00	-	1.40	1.84	0.06	0.44	-	33.6	-	2.25	13.11	2.29	17.6	15.9
HGV-Rigid, off-peak	3.77	-	12.75	-	1.39	1.57	0.06	0.43	-	20.0	-	2.25	13.11	2.29	17.6	2.3
HGV-Artic, peak	7.57	-	33.45	-	0.99	1.42	0.07	0.72	-	44.2	-	2.50	14.47	2.53	19.5	24.7
HGV-Artic, off-peak	7.55	-	19.81	-	0.99	1.41	0.08	0.71	-	30.5	-	2.50	14.47	2.53	19.5	11.0
PSV, peak	5.74	78.73	20.31	-14.43	3.82	3.17	0.09	0.58	13.33	111.3	76.19	0.61	5.26	0.92	83.0	28.4
PSV, off-peak	4.93	80.10	12.31	-14.86	3.69	3.15	0.09	0.55	13.49	103.5	77.10	0.61	5.26	0.92	83.9	19.6

Source: Sansom *et al.* (2001).

Table 5 shows that the total amount of money allocated as rail freight grants has risen substantially since privatisation. Whilst this may have started simply as a way of offsetting the loss of cross-subsidy, as explained above, it has increasingly become necessary to counter the undercharging of the road competitor. Although the Government is now moving towards introduction of a kilometre-based charge for heavy goods vehicles, based on a gps system which would ultimately be capable of differentiating in time and space, it has so far pledged that the changes will be revenue-neutral, so the undercharging of road freight is set to continue.

Table 5. **Rail freight grants (£M)**

1985-86	7
1986-87	6
1987-88	2
1988-89	2
1989-90	1
1990-91	4
1991-92	1
1992-93	2
1993-94	4
1994-95	3
1995-96	4
1996-97	15
1997-98	29
1998-99	29
1999-2000	23
2000-01	36

Source: SRA National Rail Trends 2001-2002, No. 3, 2002.

5. PROSPECTS FOR RAIL FREIGHT IN GREAT BRITAIN

The figures in the Annex show that there has been a remarkable growth of rail freight since privatisation. The total volume in terms of tonne-kilometres has returned to that seen in the 1970s. Moreover, rail has gained market share substantially overall and for all commodities except petroleum and chemicals. The reasons for this differential performance have been explained above. How long can this impressive growth continue?

The current target which the Government has set the SRA is an 80 per cent growth in rail freight tonne-kms between 2000 and 2010. Historically, total freight tonne-kms have risen slightly more slowly than GDP. The accepted view is that GB GDP has a trend growth of about 2.5 per cent per annum, or 28 per cent over ten years. Therefore, if rail can maintain its share of freight tonne-kms, market growth should account for some 25 per cent out of the 80 per cent target growth for rail freight, leaving 55 per cent to be achieved by transfer from other modes (principally road). Our exposition here will assume just two modes, road and rail.

Transport economists model freight mode choice in terms of generalised cost, i.e. for each mode we consider the sum of monetary cost and the monetised values of all other attributes of the movement which differ by mode. The main attributes which have been considered are journey time and reliability. For these, rates of conversion to money have been determined. All other attributes are handled by adding into the generalised cost of one of the modes a “penalty”, representing the net monetary effect of all attributes not individually valued.

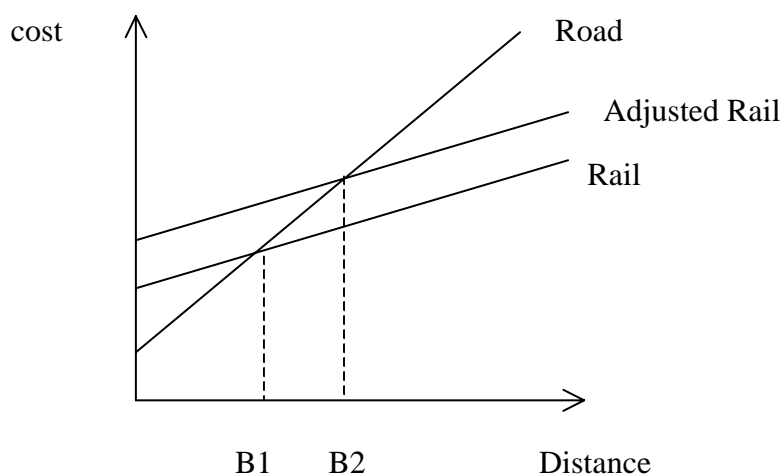
How are the desired monetary valuations derived? The value of a travel time saving for a lorry has, in Great Britain, been taken to be the saving in the driver’s time plus any savings in vehicle operating cost. No such simple, direct approach is available, however, to value reliability or the modal penalty referred to above. Neither is it easy to find data on sufficient actual cases of mode choice to determine the “revealed preference” weightings placed on each attribute. Instead, recourse has been made to Stated Preference (SP) methods, where freight mode choice decisionmakers are faced with a number of hypothetical sets of alternatives and asked to choose between, rank or rate them. Often the alternatives will represent a choice of modes, and this will be required in order to estimate the modal penalty. By choosing the attribute levels carefully, it can be possible to deduce monetary valuations from the responses and spot respondents who are outliers, who may have misunderstood the task or sought to bias the results in some way.

The method discussed above works with groups of respondents who are all assumed to have the same attribute monetary valuations. In practice, big differences will result for the different commodities involved. Even for a particular commodity, the values of journey time (reduction) and reliability (improvement) will vary with whether the consignment is going to long-term store, is part of a just-in-time supply chain, or is going to a retail outlet. Consequently, the method known as Leeds Adaptive Stated Preference (LASP) was developed at ITS Leeds (Fowkes and Tweddle, 1988). The inclusion of the word “adaptive” indicates that the SP design is not fixed prior to the experiment, but continually adjusts in reaction to previous responses. Alternatives which are rated lowly may become cheaper or quicker or more reliable. This permits the experimental design to present sets of alternatives which force changes in rank order, providing the raw material for attribute monetary valuations, regardless of the characteristics of the consignment. Responses are generally sufficiently rich that models can be estimated for individual respondents, thereby avoiding the pitfalls associated with pooling respondents during the model estimation. Once the individual valuations are available, however, it is sensible to group similar responses and average.

The use to which the derived monetary valuations can be put can be illustrated by Figure 1, which shows simplified cost functions for road and rail plotted against distance. Such diagrams could be drawn for individual commodities. Road has a relatively small fixed cost element with respect to distance but has costs rising steeply with distance. Rail has much higher fixed costs, particularly road collection and/or delivery is needed, but with cost rising less steeply with distance. Other things being equal, therefore, road is suited to shorter transits and rail to longer. Distance B1 is marked on the figure to indicate where the cost of rail is equal to the cost of road. However, we should not expect the two modes to share the traffic equally at distance B1, since there is service quality to consider: how long does the transit take?, how reliable is it?, etc. Since we have unit values for a one hour’s extra transit time, 1 per cent more arrivals “on time” and the modal penalty, we can adjust the cost functions for these effects. For simplicity, we have left the road costs as before, but constructed an “adjusted” rail cost function, incorporating the monetary value of the difference between road and rail. We have drawn the “adjusted rail” line higher than the original rail line, as it is currently the general case in Great Britain that service quality is considered by mode choice decisionmakers to be worse for rail than for road. The effect can be seen to push up the break-even distance from B1 to B2. At B2, we would expect half the traffic to use each mode.

Figure 1 can be used to illustrate the likely efficiency of one of the means that the SRA is using to encourage mode-switching to rail. The Freight Facilities Grant provides for a subsidy to be paid if rail is used in cases where road is cheaper but there are sufficient identified environmental benefits. The grant would reduce the “rail” and “adjusted rail” line, thereby reducing the break-even distance. However, the grant would only be payable if we start off to the left of B1, otherwise rail would be cheaper to begin with and the grant would not be payable. Since we can imagine that the battleground for mode share is located close to B2, this means that the grants are likely to be poorly directed. Similarly, the Track Access Grant has the effect of tilting the “rail” and “adjusted rail” lines downwards (i.e. becoming less steep but with the same intercepts), again reducing the breakeven distance, but again only payable when road is cheaper than rail.

Figure 1. **Competitiveness of Rail and Road**



At the beginning of the year 2000, it was supposed that the UK Government would continue with policies which would increase the cost of road freight relative to rail. In particular, the fuel duty escalator was expected to continue to add to the monetary cost of rail (tilting the Road line upwards in Figure 1), as would new, direct road-use charges. Road congestion was expected to continue getting worse, hitting road journey times and reliability and so bringing the “adjusted rail” line closer to the “rail” line. The effect of both of these would have been to reduce B2 in Figure 1. This would mean that, for each commodity group, the proportion of traffic for which rail was competitive would increase, with consequent predicted increases in rail traffic. However, during September 2000, there were widespread fuel price protests in Great Britain, which led to changes in government policy. In particular, the fuel duty escalator was ended, vehicle excise duties were greatly reduced, 44-tonne lorries permitted to operate unrestrictedly and the road building programme enhanced.

Consequently, if B2 is to fall significantly, it will be necessary to lower the Rail line in Figure 1, i.e. directly reduce rail costs, particularly in the competitive distance bands. Funds have been obtained by SRA from government to enable this. In addition to the grants and reduced track access charges mentioned above, SRA plans to be proactive in ensuring that adequate infrastructure is in place to handle the extra traffic, including financing schemes where necessary. Studies undertaken for the SRA have shown that the proposed subsidies should be sufficient to achieve the 80 per cent growth target for tonne-kms in 2010 compared to 2000 (SRA, 2002).

6. LESSONS FOR EUROPE

Britain was one of the first countries to implement, and indeed go beyond, current European Union policy for rail freight. The European Commission is keen to open up rail freight markets to new entrants and sees separation of infrastructure from operations, with fair and non-discriminatory charges for the use of infrastructure and allocation of paths. Britain not only completely separated infrastructure from operations and introduced complete open access, with an independent regulator to oversee infrastructure charges and the allocation of paths, it also privatised both the infrastructure company and the freight operating companies. The experience described above may have some lessons for other countries, therefore, and indeed for the Commission, as similar policies proceed elsewhere.

The first lesson which seems to emerge is that it can be quite difficult to introduce competition into the rail freight market. In the past, the failure of directives such as 91/440 (which opened access to new entrants throughout the Union for international intermodal freight traffic) to achieve much new entry has been ascribed to deliberate obstruction by the existing railways and, in some cases, their governments. That such obstructions existed is clear, but the British experience suggests that there are other crucial barriers to entry. Chief of these is the marginal profitability or unprofitability of much rail freight traffic, although the short lengths of haul in Britain may make this situation worse than in much of Europe. The result in Britain was not just that very little new entry was attracted, but also that it was difficult to privatise the existing rail freight operations, and particularly to do so in a form which created several competing companies. With the help of the subsidies listed above, the privatised and open-access companies appear to have succeeded in operating at a marginal profit, but it is clear that rail freight in Britain has not excited much interest amongst potential investors.

A second barrier is the importance of sunk costs and economies of scale, which means that competition is likely to come from existing operators in other sectors, or from large customers seeking to put pressure on the existing operators, more than from totally new entrants. The effect of these is that attempts to artificially create competition by restructuring companies at privatisation will fail in the absence of a strong antitrust policy to prevent reconcentration.

A second lesson is that, without subsidies, privatisation and/or open access are likely to lead to the abandonment of some loss-making traffics. The reason for this is that privatisation and/or open access will eliminate cross-subsidies, whereby profitable traffic supports unprofitable. Private operators have little incentive to cross-subsidize, and cannot do so if new entry or the threat of entry eliminates the monopoly profits. The situation which prevailed in Britain before privatisation, with profits on bulk traffic supporting loss-making wagonload and intermodal services, is likely to exist elsewhere in Europe.

A third lesson is that track access and charges are crucial. There is a problem if it is desired to raise from freight operators more than purely their marginal costs of use of the infrastructure. The most efficient solution to this is likely to be the introduction of two-part tariffs, which enable the operator to attract additional traffic at marginal cost whilst raising the necessary surplus by price discrimination across the total traffic it carries. But it is difficult to do this in a way which does not

hamper competitors. The solution adopted in Britain now is only to require freight operators to pay marginal cost. In typical European conditions, where passenger services dominate in determining the need for infrastructure, this seems a reasonable solution, but it does require someone else to pay both any joint costs of the freight business as a whole and all joint costs between freight and passenger.

But the infrastructure issue is not merely one of prices. It is also necessary to ensure that freight obtains appropriate access to the infrastructure in competition with passenger services, and that the paths it has available are not monopolised by means of the “grandfather rights” of existing operators. In Britain, the means of seeking to achieve this has been the complete separation of infrastructure from all operators, and the creation of a strong, independent regulator. Even so, it has remained a problem area, because the needs of freight traffic are less predictable than passenger, and there is a risk that most capacity gets tied up in long-term contracts, with the passenger sector leaving little available for freight. Moreover, the problems which have surrounded Railtrack are well known and have hampered the development of rail freight in the last couple of years. Nevertheless, it appears that, on passenger dominated railways, the separation of infrastructure from operations can be made to work, as in Sweden, and is likely to benefit freight operators who will otherwise always be subservient to passenger.

There are then a number of problems surrounding both the privatisation and the liberalisation of rail freight services. But despite these problems, overall, in the case of rail freight the experience of Britain must be judged a success. The increase in rail mode share seen in the Annex is truly remarkable after many years of decline. Individual success stories include the development of Freightliner from its very weak state at privatisation and the re-entry of rail into wagonload services with the development of the “Enterprise” network. The new operators have invested heavily, bringing substantial private capital into the rail freight business and appear to have improved quality of service. In this process, both privatisation -- which has freed the operation from dependence on government for its strategy and investment -- and competition -- which has put pressure on the rates and quality of service offered by the incumbent operator -- have played a part. It appears that competition has been important even though in practice the amount of competition actually within the rail freight sector has been very limited. It is well recognised that the realistic threat of competition can have a major impact, even when competition is actually quite limited in practice. Despite the problems which have surrounded Railtrack and some of the passenger operators and despite the continued uncertainty about the future of the major operator, EWS, privatisation of rail freight in Britain is a clear success story, and one which should encourage other countries to consider more radical change.

However, the success in Britain has not been achieved by the Government simply withdrawing from rail freight and leaving it up to the market, nor even by simply relying on a strong, independent regulator to ensure that freight operators were treated fairly by Railtrack in terms of price and when competing with passenger operators for paths. From an early stage, the Government showed itself as willing to use subsidies to pave the way to privatisation, and their volume has increased as government aspirations for rail freight grew, as rail infrastructure costs increased and as taxes on its chief competitor -- road haulage -- were reduced. Such subsidies do appear to have strong justification in the continued failure to charge road haulage its full social costs. While more competition may help to lower costs, a major revival of rail freight is likely, as in Britain, to need either higher charges on heavy goods vehicles (Britain had among the highest charges in Europe before the year 2000 cuts) or subsidies to rail.

ANNEX:

TRENDS IN ROAD AND RAIL FREIGHT IN GREAT BRITAIN

The Tables of Traffic

Tables A1 to A4 present some data on road and rail freight in Great Britain since 1975, and with particular detail since 1995. The tables measure goods moved, i.e. net tonne-kms. Tables A1 to A3 are in billions and A4 in percentages. A rough breakdown of the figures into commodity groups has been attempted, but official data is patchy for rail and some licence has been exercised.

Data was generally only available in already rounded form, and so the percentages in Table A4 will wobble a little, purely due to rounding effects. Since the mid-1980s, the rail figures relate to the financial rather than the calendar year, but no adjustment has been made for that. The totals over all commodities agree with official figures, except for 1996 and 1997, before and after which there were breaks in the official rail series. The figures presented here are as comparable and consistent as we have been able to make them, and reflect reality as we perceive it. Nevertheless, they merely reflect our best guess: if a figure rises between two years it does not necessarily mean that traffic actually rose between those years!

The pre-privatisation data for 1975 to 1995 reflect the substantial fall in rail carryings, the rapid rise in road carryings and the consequential fall in rail's mode share (of total road and rail traffic) from 19% in 1975 to 8.5% in 1995. Rail's mode share over all modes would obviously be lower still, being 6% in 1995. However, difficulties with the data for waterborne transport make its inclusion problematic and so it is not further considered in this paper (mostly coastal shipping associated with the oil industry).

Since 1995, rail traffic has risen by some 50% while road traffic has only risen by some 4%, thereby increasing rail's share to 11.6%. Unfortunately, at the time of privatisation, the collection of statistics was at its worst level. It is the very years we would wish to use as our base (1995, 1996 and 1997) where we have the least faith in the data. However, the SRA official series accepts the 13.3 billion tonne-kms we have for total rail traffic in 1995 (and the figures we show for the totals in 1998 to 2001), and so we propose to take 1995 as our pre-privatisation base year.

Looking at the individual commodities, Table A3 clearly shows the effects of the steelworkers' strike in 1980, and Table A1 shows the effects of the coalminers' strike of 1984-85, which particularly affected rail carryings of coal. We considered avoiding these years as being atypical, but all years will be atypical to some extent, especially depending on the position in the economic cycle.

Looking at the road plus rail figures in Table A3, we see that the Food, Drink and Agriculture sector doubled its traffic between 1975 and 2001. Coal traffic has been erratic but, ignoring the 1985 strike-affected figures, carryings in 2001 were historically low, though much higher than in any year since privatisation. Petroleum-related traffic was at much the same level in 2001 as in 1975. Given that not only the 1980 steelworkers' strike but also the 1985 coalminers' strike had an effect on steel

production, the 2001 figures for metal sector traffic is historically low. Construction traffic is affected more than most by economic conditions, which may explain its buoyant traffic levels in recent years. Chemical and Fertiliser traffic showed an increase up to 1990, with some signs of reduction recently. The “other” category has more than doubled in size. This is predominantly road traffic and, besides “general merchandise” (whatever that is), the data will include any cases where the commodity of a lorry load was unknown, or where there was more than one commodity carried. Since a third of traffic now falls in this “other” category, we would join with those recommending that some effort be made to find out what this “other” traffic is. Overall, traffic has risen at 1.7% per annum over the 26 years, rather below the growth in GDP.

Turning to Table A1, we see that coal is always the largest grouping, and usually represents a third of total rail traffic. The coal grouping is not all coal, including some other traffic for the energy sector of the economy. The 1995 figure for just coal alone is thought to be 3 billion net tonne-kms, as opposed to 3.6 billion shown in Table A1 for the grouping as a whole. The figures in Table A1 are the official figures. Petroleum, Metals and Construction were all important. These four groups were handled as separate subsectors by the Trainload Freight sector of BR prior to privatisation. The remaining groupings were run by the Railfreight Distribution sector. Most of the “other” category was Freightliner Container traffic (for which the commodity is not recorded), so that in 1999 Freightliner had almost as much traffic as the coal group.

The increase in rail traffic after privatisation can be seen to be fairly widespread over commodities, except that Petroleum and Chemicals have lost traffic gradually. It is also noticeable that the “other” category has shrunk in 2000. This is known to be partly due to a fall in domestic intermodal carryings, which is the name now (somewhat confusingly) given to what used to be Freightliner international maritime traffic. This fell from 3.9 billion tonne-kms in 1999, to 3.8 in 2000, and to 3.5 in 2001, thought to be due to the downturn in world trade. The infrastructure traffic shown from 1998 is mostly the movement of ballast and track for rail-laying, and the removal of spent ballast and replaced track. Data is not available for earlier years as this was a purely internal matter for BR. These figures are not included in the totals. The extent to which road maintenance materials movements are included in the road figures is unclear.

Turning to Table A4, we see how rail has fared, relative to road. The Food, Drink and Agriculture figures should be regarded as unreliable but, on face value, show a decline reversed after privatisation, which is probably correct. Coal traffic was lost to road during the 1985 coalminers’ strike, during which many railway workers refused to move what coal was available for movement. Rail was slow to re-establish its market share; and had not done so by the time of privatisation, though the data indicate that it now has. This has been helped by the increased distances over which coal is now moved, which favour rail over road. Petroleum movements have been lost from rail to road because of the size of rail facilities required for, say, a weekly trainload delivery, making rail increasingly uneconomic for low-quantity customers. New safety regulations have strengthened this trend and pipelines have undermined the economics of rail facilities at large refineries. Metals traffic saw rail lose market share prior to privatisation, but more than regain it since. Rail had a healthy share of construction traffic up to 1990, but has found the competition more difficult since. Chemical and Fertilizer traffic has suffered from more stringent safety regulations. The ending of the Speedlink wagonload service in 1991 made many movements uneconomic, since trainload movements would have required more of the expensive, specialised wagons, as well as greater storage facilities, which could be a threat to the local populace. Rail’s share of the “other” traffic dipped sharply after Freightliner closed much of its domestic network in 1989, but grew again immediately after Freightliner was privatised.

The growth in rail net tonne-kilometres reported in Table A1 is rather greater than that forecast in a report for the Rail Regulator (NERA/MVA/STM/ITS, 1997). That report had forecast a base case of 12.3 billion net tonne-kms in 2005 if no changes were made to BR policy and there was no additional help from the Government. With key industry improvements, this figure rose to 17.21 billion tonne-kms (in 2005), a figure already comfortably exceeded (although, of course, falls between now and 2005 are possible). With greater access to grants for rail and the use of taxes or charges to increase road costs, a figure of 20.52 billion tonne-kms was thought possible in 2005. Actual outturn therefore supports the view that the effect of privatisation has been to greatly increase traffic, achieving (or bettering) the top end of what was thought possible in 1997.

Table A1. Billion net tonne-kms by Rail

Year	A	B	C	D	E	F	Other	TOTAL	INF
1975	0.7	7.3	2.5	3.0	3.1	1.1	3.2	20.9	
1980	0.5	6.5	2.3	1.7	2.8	0.9	3.1	17.6	
1985	0.6	4.1	2.0	2.0	2.8	0.7	3.1	15.3	
1990	0.5	5.0	2.1	2.2	3.5	0.6	2.1	16.0	
1995	0.5	3.6	1.8	2.1	2.5	0.5	2.3	13.3	
1996	0.5	3.8	1.7	2.4	2.2	0.6	2.4	13.6	
1997	0.7	4.4	1.8	2.6	2.4	0.5	2.5	14.9	
1998	1.1	4.5	1.8	2.7	2.8	0.5	3.9	17.3	0.8
1999	1.1	4.8	1.7	2.8	2.7	0.4	4.7	18.2	0.8
2000	1.1	4.8	1.6	2.7	3.2	0.4	4.3	18.1	0.9
2001	1.2	6.2	1.4	3.1	3.7	0.4	3.7	19.7	1.2

Year: for recent years, rail statistics refer to an April to March year.

A: Food, Drink, Agriculture

B: Coal class traffic (principally but not wholly coal)

C: Oil and Petroleum

D: Metals

E: Construction, etc.

F: Chemicals

Other: Mainly Freightliner Intermodal (between 75 and 90%) plus automotive and odds and ends.

INF: Railway infrastructure. No data prior to 1998. Not included in TOTAL.

Source: Transport Statistics Great Britain, Railtrack Network Management Statements, SRA National Rail Trends.

Table A2. Road (billion tonne-kms)

Year	A	B	C	D	E	F	Other	TOTAL
1975	23.8	2.3	4.5	8.4	19.2	6.8	23.9	89.0
1980	25.9	2.6	4.3	6.5	17.9	6.7	25.9	89.7
1985	29.1	4.2	4.3	7.3	18.7	7.9	27.5	99.1
1990	37.0	4.2	4.9	8.4	23.9	9.7	42.6	130.6
1995	42.6	2.7	5.7	9.3	24.2	8.9	50.2	143.7
1996	45.2	2.5	6.1	8.5	23.1	9.2	52.0	146.8
1997	46.4	2.7	5.8	9.6	24.7	9.5	50.9	149.6
1998	48.6	2.0	5.2	8.8	24.0	9.1	54.2	151.9
1999	47.9	2.2	5.0	8.1	23.3	8.8	53.9	149.2
2000	50.6	1.5	6.4	8.0	23.0	8.0	52.9	150.5
2001	47.6	2.1	5.8	6.9	24.7	8.4	53.9	149.4

Key and Source: as for Table A1.

Table A3. Road plus Rail (billion tonne-kms)

Year	A	B	C	D	E	F	Other	TOTAL
1975	24.5	9.6	7.0	11.4	22.3	7.9	27.1	109.9
1980	26.4	9.1	6.6	8.2	20.7	7.6	29.0	107.3
1985	29.7	8.3	6.3	9.3	21.5	8.6	30.6	114.4
1990	37.5	9.2	7.0	10.6	27.4	10.3	44.7	146.6
1995	43.1	6.3	7.5	11.4	26.7	9.4	52.5	157.0
1996	45.7	6.3	7.8	10.9	25.3	9.8	54.4	160.4
1997	47.1	7.1	7.6	12.2	27.1	10.0	53.4	164.5
1998	49.7	6.5	7.0	11.5	26.8	9.6	58.1	169.2
1999	49.0	7.0	6.7	10.9	26.0	9.2	58.6	167.4
2000	51.7	6.3	8.0	10.7	26.2	8.4	57.2	168.6
2001	48.8	8.3	7.2	10.0	28.4	8.8	57.6	169.1

Key and Source: as for Table A1.

Table A4. Rail (% of Road-Rail total)

Year	A	B	C	D	E	F	Other	TOTAL
1975	2.9	76.0	35.7	26.3	13.9	13.9	11.8	19.0
1980	1.9	71.4	34.8	20.7	13.5	11.8	10.7	16.4
1985	2.0	49.4	31.7	21.5	13.0	8.1	10.1	13.4
1990	1.3	54.3	30.0	20.8	12.8	5.8	4.7	10.9
1995	1.2	57.1	24.0	18.4	9.4	5.3	4.4	8.5
1996	1.1	60.3	21.8	22.0	8.7	6.1	4.4	8.5
1997	1.5	62.0	23.7	21.3	8.9	5.0	4.7	9.1
1998	2.2	69.2	25.7	23.5	10.4	5.2	6.7	10.2
1999	2.2	68.6	25.4	25.7	10.4	4.3	8.0	10.9
2000	2.1	76.2	20.0	25.2	12.2	4.8	7.5	10.7
2001	2.5	74.7	19.4	31.0	10.9	4.5	6.4	11.6

Key and Source: as for Table A1.

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SUMMARY OF DISCUSSIONS

SUMMARY

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1. INTRODUCTION

The many empirical studies that have been conducted during the nineties on the interrelationship between growth in transport and aggregate economic growth, have shown that the elasticity of road freight transport services with respect to aggregate income is greater than one. These trends will be exacerbated by the adjustment processes associated with the EU enlargement. Many observers share the view that the dramatic increases in freight transport cannot be accommodated by the contemporary road freight system, given current congestion levels and given the current limits to the extension of the road infrastructure. On the other hand, absolute rail freight transport volumes have been stagnating at best. Comparing what is observed in Europe with statistical data of other continents, it is obvious that the weak position of rail freight is peculiar to Europe. The consequent question, whether the fact that the European railway system remains largely fragmented along national boundaries is the basis of this negative diagnosis, has motivated the 125th Round Table. It discussed the empirical trends of rail freight in Europe, how these trends should be evaluated and what role the integration of European railways should play to improve the competitiveness of the railways *vis à vis* the road transport sector.

2. ARGUMENTS TO BE TREATED WITH CAUTION

In the debate on the competitive position of the railways and the trend of rail transport, a number of arguments are traditionally put forward. The Round Table looked at some of them.

2.1. Modal decline

The statistical evidence was recalled: when one looks at the trend over time, it is clear that road freight transport has steadily taken market share from rail and inland waterways but, while the latter mode is resisting, in 2001 rail had less than 50 per cent of its modal share in 1970 (31 per cent). Measured in tonne-kilometres, rail traffic in western Europe in 2001 was barely above that in 1970.

Admittedly, the choice of reference year is open to discussion. Should one go back further than 1970, to 1950, for example? When one goes back that far, it is seen that rail freight transport actually grew, but that the growth of road transport was even more phenomenal. On the other hand, it may be considered that it is not relevant to take a time-frame of more than fifty years, since, while it is true that rail transport grew, the industrialised economies and standards of living made considerable leaps forward during the same period.

With rail freight transport at best only managing to hold its own in a rapidly-expanding transport market, the whole question of the specific market for rail transport arises. Traditionally, structural effects are distinguished from competition effects. Rail transport undeniably has a strong propensity to transport heavy goods (for example, steel products) which are produced by industries which have all undergone restructuring and whose weight in the developed economies is steadily shrinking. The growing service content of the developed economies is not favourable to rail, which is much better at transporting primary and secondary products. However, some experts at the Round Table argued that modelling and careful analysis showed that rail has lost ground even in its traditional markets, and the competition effect has compounded the structural effect: rail has proved unable to take up the challenge from road transport, even in its core markets.

The growth markets for transport are those which have been fuelled by European construction. When one looks at transport activity over the past thirty years, one sees that it is not so much tonnages which have increased but transport distances. It is known that rail freight transport is particularly suited to long distances, over which it enjoys intrinsic economies of scale. The poor performance of rail in these markets is thus all the more surprising. Clearly, the challenge for rail is to capture a share of the growth of these markets, so that its activity also grows.

Some experts pointed out that the rail network does not represent more than 5 per cent of the total road network in Europe. However, this argument also needs to be treated with caution since in France, for example, the motorway network represents only 4 per cent of the road network. Yet it is the motorway network which is used by the road hauliers who are in direct competition with rail. When one compares the two figures, one sees that the disparity between the networks is not as big as it would seem at first sight.

Another question may be raised in this connection -- that of market contestability or, more exactly, the market share of rail freight transport in markets which are contestable by rail. But this argument is hardly to the point, since very few markets are directly contestable by rail.

A market is contestable when, because entrance costs are low and recoverable, competitors can enter it. But apart from the case of private branch lines, however, the entrance costs for rail transport are not low and not easy to recover, mainly because of the cost of purchasing locomotives. The freight market does not lend itself to an analysis of contestability by rail transport. But, on the other hand, practically all rail markets are contestable by road or inland waterway transport. Contestability is used to argue that there is no need for effective competition since potential competition produces the same effects. This being so, and given the weaknesses of rail transport, which will be analysed later on in detail (see 3.2. on the failure of traditional rail undertakings where freight is concerned), it proves that the demonstrated contestability of the rail market has not produced positive effects. To a large extent, rail undertakings have behaved as if they had captive customers and have not looked for new markets. They have found it difficult to contest new markets but have not drawn the lessons from the contestability of their own market, which ought to have prompted them to adopt aggressive commercial strategies and constantly to improve the relevance and quality of the service they provide. To conclude, taking contestable markets in which rail has a strong position merely amounts to limiting the market for rail in order to say that rail has a dominant position in it. There is an obvious flaw in this reasoning which goes a long way towards explaining the difficulties of rail freight transport, and which the experts at the Round Table did not fail to point out.

In economies which are constantly changing, firms are born and die and industrial areas spring up. Though there are wide disparities in this respect, such areas are not always served by rail. This is particularly true of the new ECMT member countries, and it partly explains the collapse of rail freight

transport in the former eastern bloc countries. Thus, even if rail does not have the same universal network as road, the experts pointed out that it does have a specific market in which it has undeniably lost ground.

2.2. Internalisation of external costs

Road transport generates numerous negative externalities, such as local air pollution or greenhouse gases, which are not properly reflected in the price of using roads. This argument is put forward by the advocates of rail transport. They argue that the benefits which rail transport brings to the community are not reflected in the prices of that mode. This argument has gradually lost its force, however, since studies have shown that road freight transport in Europe was not far from covering all of its external costs, a position which was endorsed at the Round Table. It was argued that the proportion of external costs which is not internalised is actually very limited, and that it could be covered by -- at the most -- an increase of less than 10 per cent in the price of road transport.

Bearing in mind the cross-elasticity of rail traffic with respect to the price of road transport, which at best is 0.6 per cent, a 10 per cent increase in the price of road traffic would increase rail traffic by 6 per cent at the most, corresponding to 1.5 per cent of road traffic, given the modal split. It is thus seen that, on the most optimistic assumptions, an internalisation of the external costs of road transport would not transfer to rail even one year of the growth of road traffic in Europe (which averaged over 2 per cent during the period 1970-2000) and would correspond to two years of dynamic growth of rail freight transport. These figures show that the gains which can be expected from an internalisation of external costs are not commensurate with the challenges facing the railways.

It is also necessary to set this reasoning within a dynamic perspective: the environmental performance of road transport has been steadily improving, thanks to the technical progress made on engines, transmissions and fuels. This means that in ten years' time, leaving aside the greenhouse effect, the environmental balance of road transport will have improved still further and will be much less open to criticism. However, it is not sure that rail freight transport will make the same progress over that period. For example, as regards noise pollution, rail transport is particularly unsatisfactory. Moreover, diesel traction makes an appreciable contribution to the greenhouse effect and local pollution, as does electric traction when the electricity is thermally generated. Some experts at the Round Table even argued that rail freight transport offered only very slight advantages over road transport, and that they would be wiped out ten years from now.

It is not possible to reach any clear-cut conclusions on these issues. Much research is still needed. However, it is clear that the gains which can be expected from internalising the external costs of road transport are not commensurate with the challenges that the European railways must overcome merely to maintain their modal share.

2.3. Capacity saturation

Traditional rail undertakings argue that their networks are saturated and that they cannot carry any more freight. This argument also needs to be treated with caution. Firstly, it should be pointed out that the amount of freight currently being transported is no greater than it was in 1970. Next, the saturation of the network and the shortage of locomotives are said to explain the disquieting number of freight train delays. Thus, more than 70 per cent of trains are delayed in the very sensitive trans-Alpine market; yet new, private companies with different organisational set-ups have started to

operate on these routes, and less than 20 per cent of their trains are delayed. The Round Table experts pointed to these figures as confirmation of the argument that the saturation of infrastructure was largely due to the inertia of the incumbent networks and their inability, for example, to change the safety and administrative procedures for freight convoys. In the view of some experts, these networks were administrations hidebound by rigid procedures which prevent any improvements, especially at border crossings. It may also be asked whether the problem of interoperability is not more a problem of administrative procedures than a technical one -- since bi-current locomotives are available -- with each network seeking to preserve its own procedures. In any case, some experts were emphatic that what the railways were lacking was an overall concept of forwarding.

But, leaving aside the aforesaid problem, it is nonetheless a fact that there are portions of the European rail network on which capacity is stretched to the limit. However, the experts stressed that the railways' concentration on major projects such as the construction of new lines rather than on specific investments like sidings, was a factor in the saturation of the networks.

2.4. Separation of infrastructure and operation

This is a topic of much discussion in Europe, and the Round Table did not address it specifically but confined itself to recapitulating some of the arguments. Some experts argued that the integration of rail undertakings had had catastrophic results where freight was concerned, and that the shortcomings of the service provided were reflected in the shift in the modal split referred to earlier. Others considered that the separation of infrastructure and operation meant high transaction costs and thus a rail system which was much more complex overall.

It should be borne in mind, however, that higher transaction costs can be offset by overall efficiency gains. If each enterprise sets itself clear objectives instead of a large number of goals, most of which are incompatible, then it can concentrate on achieving its targets so that overall efficiency would be enhanced. The allocation of timetable slots on a contractual basis to different operators should not be seen as an insurmountable problem. Observation shows that in areas such as the car industry, complex ties are forged between firms, ties that are often very remote, and that just-in-time methods ensure that everything works. Regulating such set-ups is probably no more complicated than regulating the rail system, and yet the partners are independent and bound to one another contractually while, at a practical level, the whole is held together by the most advanced information technologies. Some experts accordingly thought that while it is true that separation generates costs, it can also be a factor of progress.

The conditions of employment in rail and road transport are converging very slowly; that said, road freight transport has made considerable productivity gains in contrast with rail transport, where they have remained flat. In addition, the logistical service provided by road transport, which seeks to match price, time, reliability, availability, adaptability, information, variety, etc., is quite different from that of thirty years ago, while that provided by rail still has many shortcomings. Promoting the separation of infrastructure and operation involves identifying directly the various tasks in the rail sector and assigning tangible objectives to them. Coupled with an effective commercial policy, it can make the railways better equipped to meet the needs of users.

3. THE LESSONS OF EXPERIENCE

3.1. The failure of traditional rail undertakings in the freight sector

The decline of the rail freight sector and the accompanying changes in the modal split have been described. The experts at the Round Table argued that traditional rail undertakings have suffered from a number of shortcomings -- poor quality, failure to innovate, lack of investment, organisational shortcomings, lack of a commercially-minded approach -- to which one could add many others in the case of freight. The poor quality of services has been a more crucial factor than prices. Where logistics are concerned, the slightest one-off hitch in the service provided can suffice to make customers shy away permanently from rail. The effects are thus long-term, since customers make their logistical arrangements for the medium and long term.

International freight transport has likewise failed to evolve. National monopolies have transported freight up to their national borders and then “passed the baton”, as it were, to the next national railway. Railways have failed to take on board the changes which have arisen since 1958. They have continued to superpose steadily declining services while shippers have moved on to just-in-time delivery and an integrated approach to logistics. The patchwork of disparate national services and different infrastructure user charges has made the whole system opaque, and made it difficult to become a market leader in expanding markets.

The lack of transparency of these undertakings, their opacity, has made any top-down reform virtually impossible. The paradox has been that the possibility of any bottom-up reform, from the grass roots, has been prevented by the lack of social dialogue. Rail undertakings have seen their objectives politicised and have not been free to find their commercial bearings on their own.

The example of Norway was cited during the Round Table. Despite the steep rise in road taxes, and despite infrastructure charges equal to zero and the relative disappearance of the over-manning which was detrimental to productivity, rail has lost market share precisely in those market segments in which it had an advantage (long hauls, heavy goods and no obstacles due to the international market). There is no point insisting too much on these matters, and the Round Table did not do so, as they are familiar to anybody who is not blinkered by theory and is willing to see things as they are. A certain type of past behaviour has no future, but these issues retain all their topicality, given the subsidies which the European rail networks still receive.

3.2. The case of rail privatisation in the United Kingdom

The Round Table experts who examined the privatisation of the railways in the United Kingdom considered that, despite all the problems which had arisen with Railtrack (which was responsible for infrastructure), privatisation had worked for freight. Rail freight had risen to levels which had not been seen for a long time, and not only in traditional markets (coal, construction) but also in new

markets such as port access, agriculture, steel and food. The overall growth of rail freight has been very large, to a point where the modal split has shifted in favour of rail freight. In addition, new markets have also been won over short distances, a market in which rail transport was traditionally not present. Privatisation has unquestionably had a positive effect on the level of investment and the quality of service, and operating profitability has accompanied timely risk-taking. Infrastructure access has benefited from the separation of infrastructure and operation and the presence of an independent regulator, even though it may be considered that not all the problems have been resolved.

For example, subsidies are still allocated to rail freight transport. However, when a deflator is applied to the nominal amounts, it is seen that subsidies have not really increased and that, in real terms, their overall amount is still well below that allocated to some sectors in Europe.

It should also be added that rail freight had already been rationalised before privatisation and that single wagonloads had also been abandoned, which meant that privatisation did not have to bear the cost of the necessary adjustments. All the problems have not been resolved, however. For example, the very steep growth which was predicted in international traffic via the Channel Tunnel has not materialised. Numerous incidents have beset the Tunnel's operation. Another difficulty has been finding buyers for the companies up for sale.

However, some experts argued that, despite everything, when one looks at the overall balance concerning the UK's experience with the separation of infrastructure and operation and privatisation, it is seen that the reform has created more wealth than it has destroyed. The same cannot be said for all European rail undertakings over the same period. It is thus not proven that separation cannot be made to work.

4. THE CONDITIONS FOR RECOVERY

4.1. Agreement on the diagnosis

To start with, nothing is possible without agreement on the diagnosis. Arguing that everything is fine merely prevents one seeing the ills which beset the traditional railway undertakings. It is essential to realise the true extent of those ills. Furthermore, banking on the construction of freight-dedicated lines which would take ten to fifteen years to build is not a solution. On current trends, in fifteen years' time, if nothing is done, rail freight will have practically disappeared. Major projects are thus not the remedy; instead, we should try to do better with what exists. The Round Table considered, however, that it was not certain that it would be possible to remove all the constraints which weigh on rail freight with the enterprises which have been bequeathed by history, and underlined the need for new entrants in a market governed by transparency.

4.2. The need for transparency

In the view of the Round Table experts, the current rail system has become excessively complex. Opaque technical, legal, administrative, social and operating rules, coupled with opaque accounting, make it difficult to set priorities. True, the separation of infrastructure from operation, at least at the accounting level, marked a first step forward, but it does not ensure that rigorous and fair rules are applied, for example, as regards the allocation of train slots or the charging of infrastructure fees. The fact that responsibility for the allocation of slots has been given to an independent body by the most recent EU directives, plus the open access which will come fully into force in the European Union as from 15 March 2003, are thus to be welcomed. The various actors must be obliged to play the game according to transparent rules. While it is true that it is difficult to request commercial information from a competitor, for example, it is essential that accounts be transparent. Similarly, at another level, the allocation of rail slots should not be done in a secretive, arbitrary manner but in accordance with open procedures which are open to challenge. Many examples can be given of the sectors in which the rail system needs to become transparent if it is to evolve. In this area, resolute policy action is required. Transparency is the prerequisite for neutral conditions of operation -- such neutrality always being to the benefit of the community.

4.3. New market entrants

The possibility of free access to the EU network has been little used up to now: in practice, substantial barriers to entry have continued to exist, and the lack of transparency of the rail system in particular has played a dissuasive role. Up to now, a clear signal that there is free access to infrastructure has not been sent to the various actors in the freight transport business and their customers. But those new enterprises which have emerged (for example, IKEA and Connex), have done much better than the traditional networks. The Round Table thus argued that intramodal competition was much more important than intermodal competition for revitalising rail freight. Irrespective of the sector, competition has always had a positive effect on prices and quality of service, two areas in which the railways have fallen down. The productivity of traditional undertakings could also be improved by competition, and terminal operation could make a qualitative leap with the arrival of new entrants.

It is quite possible that new entrants will concentrate on a few specific niches, leaving the traditional rail companies to operate their networks. Some experts considered that there was not room in Europe for a large number of operators, but this view was not unanimous, since infrastructure managers will want to attract new enterprises precisely to maximise infrastructure use. Furthermore, with more competition in the freight transport market, the size of the rail freight transport market could increase naturally. The capacity that each enterprise would need on the network would send a clear signal to infrastructure managers about investment needs. A politicised, ad hoc approach to investment would thus give way to a rational approach, whereby investment needs would be determined in the light of market developments.

The facts seem to prove that new companies can overcome barriers to entry without too much difficulty, notably by concluding agreements with the owners of private wagons, and with maritime transport or port infrastructure operators for combined transport. It is thus quite possible that traditional carriers will have to face new competition. Rail undertakings may also seek to exploit the transit function of certain countries. The potential opportunities are enormous, and should lead eventually to a redrawing of the European rail freight map. The risk for some undertakings is that they will find themselves confined to a traction function. Is this why some traditional rail companies have

recently acquired companies specialised in global logistical services? It is tempting to think so. However, these acquisitions will not necessarily give rail transport a greater role, since the companies taken over tend to use modes which are in competition with rail. The synergies of these costly acquisitions with rail transport remain to be demonstrated. Furthermore, if these acquisitions are funded directly or indirectly with public subsidies, the conditions of competition are distorted in markets where competition is fierce. Vigilance is therefore called for; it may be thought that traditional rail undertakings ought to have started by learning to provide top-class services in their particular area of expertise rather than to have rushed into a market in which they are not equipped to compete on their own.

On the basis of an overall assessment of the situation, the authorities should aim to promote the emergence of competition on the rail network and to ensure neutral conditions of operation. Given the importance of the stakes, an independent, impartial regulator is called for to allocate train slots, ensure fair pricing of infrastructure, regulate capacity, ensure compatibility with safety requirements, etc. In particular, no special “vested rights” should be accorded to incumbent operators. Each enterprise must have the same opportunity to do business on equal terms.

4.4. Attracting private capital

European States invest billions of euros in their railway networks. The companies’ scant resources and the objectives set forth in the European Stability and Growth Pact are making this task increasingly difficult. One solution for financing railway investment would be to attract private capital. To date, however, such capital has shied away from the rail sector because of the networks’ poor economic performance. As a result, restructuring in accordance with the following guidelines is vital:

- Effective and dynamic cost control;
- Objectives structured in a manner compatible with a market economy;
- Efforts to increase reliability and enhance the quality of services;
- Guaranteed independence *vis-à-vis* policy objectives generating additional costs without financial compensation;
- Totally non-discriminatory freedom of access to networks for outside companies;
- Separation between infrastructure and operation to ensure non-discriminatory intramodal competition;
- Neutralisation of debts inherited from past events;
- Harmonization of technical standards which thwart vital co-operation between railway companies in respect of cross-border traffic, as well as the entry of new firms into the market.

Such is the price to pay if transport policy is to hope for a better future for rail transport.

4.5. Public ownership which is unsuitable for freight

The quality gap which affects rail freight transport cannot be offset by subsidies, nor by raising taxes or fees on road freight. Integrating railway services into logistics chains is a difficult exercise and absolutely not competitive in cross-border traffic. Intramodal competition alone, and not administrative regulation of capacities, is capable of overcoming the obstacles. In this context, a fundamental problem is posed by the fact that the main railway undertakings are publicly owned. The emergence of competition presents a risk for existing railways. To fight off new arrivals, the attitude of public enterprises is to refuse the separation between infrastructure and operation. They wish to retain control over integrated monopolistic enterprises, along with the ability to eliminate bottlenecks. In addition, governments can count on the agreement of trade unions when it comes to keeping companies integrated. It is hard for governments to impose a transformation of the status quo -- an affirmation supported by the fact that over the past ten years the main impetus for change has come from European authorities. The process has been a very slow one. It is only by radically changing the behaviour of traditional firms under the impact of competition or a change of status for freight that a model for reliable railway transport is possible.

5. CONCLUSIONS

The main question to emerge from the Round Table discussions was whether the privatisation of rail freight should not be envisaged once neutral conditions of operation have been put in place. There is no fundamental reason why rail freight should be state-run and financed out of public funds. However, given the economies of scale of the rail system, rational marginal cost-pricing leaves some costs uncovered. It is thus probably necessary to provide subsidies. But they can be given to infrastructure managers or to the rail companies' customers, notably for using a mode which still offers environmental benefits. The option of privatisation of rail freight should not, therefore, be ruled out by policymakers.

The question of privatisation raises directly the problem of the conditions of employment of the personnel of rail undertakings, though appropriate responses have been found in other sectors. The absence of a body of European social law applicable to rail undertakings is a major drawback and illustrates the extent to which rail systems were built within national borders without regard for wider considerations. There are thus gaps which have to be filled.

Lastly, the lively discussions and argument during the Round Table showed that impartial bodies are needed in Europe to rule on crucial questions. For example, the differences of view on the United Kingdom's experience with rail privatisation attest to the need for a very high-level authority which can hand down authoritative opinions. This would help to clarify and raise the level of the debate, this being a prerequisite if the situation is to evolve in a direction which does not prompt opposition and which is acceptable to public opinion.

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