

ECONOMIC RESEARCH CENTRE

# WHAT ROLE FOR THE RAILWAYS IN EASTERN EUROPE?

ROUND  
TABLE

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120



EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

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ECONOMIC RESEARCH CENTRE

REPORT OF THE  
HUNDRED AND TWENTIETH ROUND TABLE  
ON TRANSPORT ECONOMICS

held in Cambridge (United Kingdom) on 12th-13th September 2001  
on the following topic:

# **WHAT ROLE FOR THE RAILWAYS IN EASTERN EUROPE?**

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

## EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT (ECMT)

The European Conference of Ministers of Transport (ECMT) is an inter-governmental organisation established by a Protocol signed in Brussels on 17 October 1953. It is a forum in which Ministers responsible for transport, and more specifically the inland transport sector, can co-operate on policy. Within this forum, Ministers can openly discuss current problems and agree upon joint approaches aimed at improving the utilisation and at ensuring the rational development of European transport systems of international importance.

At present, the ECMT's role primarily consists of:

- helping to create an integrated transport system throughout the enlarged Europe that is economically and technically efficient, meets the highest possible safety and environmental standards and takes full account of the social dimension;
- helping also to build a bridge between the European Union and the rest of the continent at a political level.

The Council of the Conference comprises the Ministers of Transport of 41 full Member countries: Albania, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Federal Republic of Yugoslavia, Finland, France, FYR Macedonia, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldova, Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom. There are six Associate member countries (Australia, Canada, Japan, New Zealand, Republic of Korea and the United States) and two Observer countries (Armenia and Morocco).

A Committee of Deputies, composed of senior civil servants representing Ministers, prepares proposals for consideration by the Council of Ministers. The Committee is assisted by working groups, each of which has a specific mandate.

The issues currently being studied – on which policy decisions by Ministers will be required – include the development and implementation of a pan-European transport policy; the integration of Central and Eastern European Countries into the European transport market; specific issues relating to transport by rail, road and waterway; combined transport; transport and the environment; the social costs of transport; trends in international transport and infrastructure needs; transport for people with mobility handicaps; road safety; traffic management; road traffic information and new communications technologies.

Statistical analyses of trends in traffic and investment are published regularly by the ECMT and provide a clear indication of the situation, on a trimestrial or annual basis, in the transport sector in different European countries.

As part of its research activities, the ECMT holds regular Symposia, Seminars and Round Tables on transport economics issues. Their conclusions serve as a basis for formulating proposals for policy decisions to be submitted to Ministers.

The ECMT's Documentation Service has extensive information available concerning the transport sector. This information is accessible on the ECMT Internet site.

For administrative purposes the ECMT's Secretariat is attached to the Organisation for Economic Co-operation and Development (OECD).

*Publié en français sous le titre :*

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Berlin, May 2001



## **1. SITUATION OF RAILWAYS BEFORE THE LIFTING OF THE IRON CURTAIN**

### **1.1. Geographical definition**

This report concerns all the countries that lie between Finland, Germany, Austria and Italy on one side and Russia on the other. It does not include Russia itself, since such a large country would have to be considered from a completely different standpoint. It also covers railways in former Yugoslavia, where the conditions are similar to those in eastern Europe. The countries are divided into the following groups:

- CIS: Commonwealth of Independent States;
- CEEC: Central and Eastern European Countries;
- Baltic States.

Many central and eastern European railways are members of the Organisation for the Combined Operations of Railways (OSShD), which was founded in 1956 and now has 25 member states, including China and Iran. The rail network in the OSShD countries as a whole comprises 280 000 km of track.

### **1.2. The role of the railways in COMECON**

The railways used to enjoy very high status throughout the former COMECON area (the unified eastern economic bloc). They were responsible for virtually all long-distance goods transport. Trade would frequently take the form of barter. In the supranational planned economy, special goods for the whole economic bloc were produced in a small number of locations, so that very long distances had to be covered in order to supply the economy. The system also ensured that expectations in terms of transport time and costs remained relatively low. There was no competition, either between production centres or transporters.

The choice of rail as the priority means of freight transport was due to a number of factors. Rail had traditionally been the leading means of transport in Russia, not least owing to the poor quality of the road network. Trains were also a rational way of using domestically produced fuel. Initially, steam locomotives ran on coal; later, power from coal-fired power stations was used to drive electric locomotives. In the former GDR, home-produced brown coal was mainly used for this purpose. The lack of suitable vehicles and the poor state of the road network were other reasons why the countries under review preferred rail.

The rail strategy decided by the State extended to the planning of production sites. All large manufacturing centres were linked to the rail system and the railways, inherently less flexible than roads, frequently shaped the structure of the firms that were located there.

The railways were also largely responsible for transporting workers to these "combines" in numbers barely imaginable today. Car ownership, as well as being thought undesirable, was made difficult by the low level of private car production and the ban on imports. Delivery times of several years and – given the average worker's annual salary – prohibitive prices ensured that the level of car ownership in the East remained very low for decades. Most people therefore had to use public transport – buses, trams and trains. Large firms had their own stations at their plants, which had to cater for large numbers of people when shifts changed.

In passenger transport too the consequence of state planning was that people were broadly satisfied with the railways, given the lack of any alternative.

Being state-run, the railways did not have to be profitable. Deficits were made good by the State. However, goods traffic placed a very heavy burden on the rail network, while state funding was always insufficient to provide for sustained maintenance. For this reason, rationalisation was tentative at best, since there was no compulsion to reduce personnel or costs; on the contrary, as no state wanted to increase unemployment, high staffing levels in the rail sector were accepted.

After the end of the Second World War some railways suffered not only from the general devastation but also from the dismantling of track by the occupying Russians. The capacity of certain lines was drastically reduced as a result. Passenger carriages and goods wagons had to be handed over and in some cases were later replaced with imported rolling stock from Russia.

When the more rational electric locomotives replaced steam engines, the lines with heavy goods traffic were the first to be electrified. These were chiefly the lines linking centres where raw materials were extracted to export ports and those linking densely populated areas.

## **2. DEVELOPMENT OF THE RAILWAYS SINCE 1990**

Most communist regimes collapsed in the wake of glasnost during the Gorbachev years between 1988 and 1990. The countries of eastern Europe sought their own way forward. One common factor was that eastern European firms in general could not hold their own on world markets. The whole of COMECON broke up, since international trade could no longer be conducted by barter but only in hard currency. For many firms in eastern Europe, markets disappeared within just a few months. As a result, activity on the railways declined rapidly.

Many firms had to lay off workers, so that soon very few people still needed to be transported to their places of work. At the same time it became much easier to buy cars, especially second-hand cars from the West which had now become affordable. Countries began to extend their road networks on a massive scale, with a consequent increase in mobility. People could now travel to the West and not merely stay within the COMECON countries.

The economy had to become capable of competing in the world market within a few years. Efficiency was the watchword, and even time was in short supply. The railways also had to face competition from cars and airlines. The predicted shift in the role of rail freight in the formerly planned economies occurred with a vengeance.

Of course, the state-imposed obligation to use rail transport also crumbled fairly quickly. Many production centres that had relied on rail closed down and entire rail networks fell into disuse. The

haulage sector, which had been almost non-existent before, began to thrive. State-owned road haulage companies were privatised. Western hauliers set up branches and organised regular services. Before any infrastructure planning could take effect and exercise a regulating influence, new logistics platforms had sprung up on the new, abundantly available industrial land, chiefly at existing or planned motorway junctions. Companies took hardly any account of the railways when siting these facilities, nor did they wait until freight centres were opened. The railways' competitiveness was further undermined.

The eastern economies were now producing more high-value and fewer low-value, bulk commodities, resulting in less total tonnage and tonne-km shipped per year. Trucks had become much more competitive than railways for freight transport. Passenger-km as a percentage of total traffic units rose from an average of 30 per cent in 1988 to 40 per cent or more in 1998 (Thompson). However, it should be noted that per capita GDP in Central and Eastern European Countries was only about 17 per cent of average per capita GDP in western Europe (Rommerskirchen).

During the transition period, countries had more important things to do than reorganise the railways. Many railways were therefore left to deal with restructuring on their own. In many cases they were prevented from laying off staff for political reasons.

In some countries GDP dropped by 50 per cent and rail freight traffic also declined, sometimes by as much as 70 per cent. Railways in Albania simply stopped running.

Passenger traffic in eastern Europe also declined, but governments ordered state railways to continue providing services even though customers could not pay.

### **3. CURRENT POSITION OF CENTRAL AND EASTERN EUROPEAN RAILWAYS**

#### **3.1. Restructuring**

Under Council Directive 91/440/EEC and subsequent regulations, the EU prescribed, among other things, that rail infrastructure and rail transport services should be separated, in order to allow other rail transport undertakings access to the infrastructure without discrimination. Because the state-run railways had clearly failed to achieve a notable shift from road to rail, competition was now expected to reduce costs or prices and raise the quality of transport.

The western European railways have achieved these goals to varying degrees. Without much fanfare, the eastern European countries have also been rethinking the place of rail in the global economy (Winner).

The railways in EU candidate countries will have no choice but to adapt quickly to the EU regulations. The time is coming when they will no longer be able to rely on government handouts. Equally, without a radical change of course it will not be possible to keep enough traffic on the railways to ensure their survival. A further consideration is the likelihood that private investors will be attracted only to small, safe and easily manageable market segments.

Realising their need for help, the governments of these countries are being influenced, at least in part, by western institutions, including the European Union (EU), the European Bank for

Reconstruction and Development (EBRD), the World Bank and the US Trade and Development Agency (USTDA).

As well as providing financial assistance they have also introduced new technologies, identified areas in need of structural reform in the transport sectors, provided technical assistance and introduced managerial reforms (Winner).

In the meantime, passenger transport, freight transport and infrastructure have been nominally separated almost everywhere, thereby meeting the requirements of the watered-down EU directive. Moreover, although the State remains the sole owner, varying degrees of managerial autonomy have been granted. There is still a general belief that one company should be responsible for both infrastructure and transport services, but there is a greater acceptance of the idea of co-operation. Countries are restructuring state-owned rail systems, dividing them into more focussed businesses (freight, passenger, infrastructure and rolling stock). They are spinning off maintenance, manufacturing and other ancillary services (Winner).

### **3.2. Transport performance**

In the CEE countries, rail freight volumes have fallen to between 10 per cent and 60 per cent of 1988 levels. Estonia and Latvia are the only countries where the volume of freight has stabilized at the 1988 level, following a dramatic collapse, privatisation of the freight divisions and subsequent recovery (Thompson).

Rail freight in western European market economies has a fundamentally stable but lower market share of 15 per cent, demonstrating that there can be a role for the railways in the CEE, CIS and Baltic States, albeit with a somewhat different traffic mix. This role could be proportionally bigger -- up to 30 per cent -- than in western Europe, because population centres in the CEE countries are further apart and overall distances in the CIS are on the same scale as those in North America.

The railways will continue to play a vital role in Russia because of the great distances and lack of road capacity, which cannot be rectified in the short or medium term. Today, Russian railways carry more than 80 per cent of all land freight transport, measured in tonne-km, compared with around 40 per cent in the US and Canada. Passenger traffic in most CEE, CIS and Baltic countries has declined to between 40 per cent and 60 per cent of 1988 levels.

The CIS countries have been reluctant to allow rail fares to rise in line with inflation. As a result, passenger fares may well be cheaper in real terms than they were in 1988.

The following table gives some statistics for eastern European railways in 1998-1999:

Table 1. **Eastern European railways: network and traffic**

Country	Railway initials	Route length (km)	Tonnes freight (million/year)	Passenger journeys (million/year)
Albania	HSH	670	1	3
Bosnia-Herzegovina	ZBH	1 020	30	10
Bulgaria	BDZ	4 300	25	60
Croatia	HZ	1 900	10	18
Czech Republic	CD	9 344	100	220
Estonia	EVR	1 018	28	6
Hungary	MAV	7 400	45	250
Latvia	LDZ	2 700	28	44
Lithuania	LG	2 013	28	9
Macedonia	MZ	699	2	2
Poland	PKP	24 400	220	45
Romania	SNCFR	11 300	95	200
Slovakia	ZSR	3 650	10	12
Slovenia	SZ	1 201	9	8
Yugoslavia	JZ	3 987	6	25

Along the border separating regions with different gauges (predominantly 1 435 mm in western Europe, mostly 1 520 mm in eastern Europe), i.e. between Poland, Slovakia, Hungary and Romania on one side and Russia, Lithuania, Belarus, Ukraine and Moldova on the other, 31.88 million tonnes of goods were transported from East to West and 4.8 million tonnes from West to East in 1999. In 1998, freight transport in the OSShD countries as a whole was down by 30 per cent on 1992 levels (Völkening).

### 3.3. Detailed review of Poland

PKP, the Polish railways, had over 435 000 employees in 1990 but only 167 000 by the end of 2000. The Government turned PKP into a state-owned enterprise with a public service obligation which it meets under the terms of commercial contracts with the Government. The railway provides access to the track and the Government allows a number of operators to transport coal. However, strong unions may make any sell-off difficult (Winner).

The separation between infrastructure and transport services is complete. The goods transport branch is entirely responsible for traction and thus for passenger as well as goods locomotives, though not for motor carriages. The infrastructure is in poor condition, apart from the few lines used by international traffic. The Warsaw node with the Vistula bridges is a bottleneck. The freight transport sector is co-operating with DB AG, following the failure hitherto of a scheme to join the Railion consortium. US companies have also shown an interest in Polish rail freight transport. Coal exports to Russia have practically ceased (•aszkiewicz).

### **3.3.1. *Extent and future of the PKP rail network***

The PKP network, which comprises around 22 000 km of track, has a specific staffing ratio of approximately 8 persons/km (in comparison, DB AG has 38 000 km of track, 230 000 employees and a ratio of approximately 6 persons/km). Fifty-three per cent of lines are electrified. Thirteen thousand kilometres or 62 per cent of lines are of national importance and are maintained from the state budget. The remaining lines, which are of local importance, are maintained by PKP. Local authorities commission and partly pay for local services on these lines.

Ninety per cent of traffic runs on major lines covering 12 000 km. In 1999, 314 km of lines that covered less than 20 per cent of their costs were closed. About 150 km of line are to be equipped with new catenaries. In Upper Silesia, as in many mining areas, rail operations have been curtailed due to subsidence. In some areas speed limits have had to be reduced to 70 km/h.

Obsolete signalling equipment is being replaced by electronic systems made in the West. Wheel-counting apparatus is being improved so that a multi-processor traffic guidance system, developed at Warsaw Technical University, can be introduced. This will also enable the centralisation and partial automation of rail operations. PKP is involved in the development of the Europe-wide ERTMS/ETCS (European Train Control System) operating standards and intends to implement them.

The 397 km long wide-gauge link from the Silesian coalfields to Belarus is not electrified. Built to carry iron and sulphur, it is now virtually unused for reasons of technical incompatibility.

Poland is crossed by four of the TINA corridors, which must contractually be built or adapted to allow for speeds of at least 160 km/h for passenger trains and 120 km/h for goods trains with a 22.5 tonne axle load. Poland meets these conditions only on isolated sections totalling about 400 km. Along these corridors 2 200 km of track still need to be replaced or adapted.

### **3.3.2. *Performance***

International and major national links are served by a 160 km/h service using express and sometimes EC/IC trains, including 18 pairs of IC trains running between population centres. Average speeds of around 110 km/h are achieved, comparable to the German system (excluding high-speed lines).

However, the express segment, with 115 trains per day, 10 million passengers and 3 billion passenger-km per year, accounts for a very small proportion of interregional and regional traffic as a whole (2 per cent of passengers, 10 per cent of passenger-km).

In 1999, PKP carried some 360 million passengers representing 26 billion passenger-km, giving an average distance of approximately 70 km per journey. Goods transported amounted to 186 million tonnes, representing 206 billion gross tonne-km (approximately 1 000 tkm/t).

The rolling stock comprises more than 4 000 locomotives and motor coaches, 6 300 passenger coaches and about 100 000 goods wagons.

The densely populated Warsaw area has about 2.5 million inhabitants. Seven main lines, carrying substantial suburban traffic, run into Warsaw. Like Berlin, the city therefore occupies a central position in the rail network.



Between 1990 and 1998, rail freight declined from 282 to 206 billion gross tonne-km. Coal transport still predominated, accounting for 47 per cent of traffic, followed by the transport of machinery. The fleet is now being adapted to meet changing demands: old rolling stock is being decommissioned and replaced with new equipment, fitted with variable-gauge axles.

### **3.4. Baltic States (Latvia, Estonia, Lithuania)**

The Estonian Government restructured its railway (EVR) in a series of steps. The first, in 1995, was to appoint a new senior management team which restructured EVR into separate business units for freight transport, passenger transport, infrastructure and real estate management. Under a new accounting system, public service contracts are dealt with separately.

In 1997, most of EVR's loss-making lines and services were transferred to a new company, SWR, which is now government-owned and responsible for most domestic passenger services. Meanwhile, EVR's freight operations have moved into profit and are growing. Because freight transport plays an important role in Estonia, the Government wants to privatise the corresponding branches, including the infrastructure, though the State would continue to own the land underneath the track (Winner).

In opening the network to other operators, Estonia will be complying with EU regulations.

The Baltic States are counting above all on the expansion of their seaports and the consequent development of eastward rail links to Russia.

### **3.5. Czech Republic and Slovakia**

The Czech Republic has already adopted a western-style market economy.

The Czech Government has privatised the traction system, intermodal services, dining and sleeping car services, nine major workshops, restaurants and the railway health service. A rail authority has been set up to license private operators and operate abandoned lines. Initial plans to privatise all freight operations were forestalled by union opposition and economic difficulties.

Both the Czech Republic and Slovakia would benefit from the planned extension of the Berlin-Dresden-Prague-Bratislava-Vienna line. Within a short time they have established an IC service which is well up to the standard of those in western Europe.

Bratislava has been directly linked to Vienna by a new line, for which a new station has been built in the south of the city. The long detour through Hungary is therefore no longer necessary.

### **3.6. Hungary**

The number of employees in MAV, Hungary's state-owned railways, has fallen from 127 000 to fewer than 70 000. After the initial euphoria prompted by privatisation, efforts in this direction have dried up for the time being. MAV is trying to break free from Austrian influence, though it remains strong, and envisages possibly assuming a leading role in eastern Europe. Adapting the Vienna-Budapest line for higher speeds is a current priority.

GySEV, a private operator, has established a role for itself as a pivot for rail traffic in south-eastern Europe, notably with the Sopron gateway.

### **3.7. Bulgaria and Romania**

Romania is also making great progress towards compliance with European Union regulations regarding open access to railway networks.

### **3.8. Slovenia**

The Slovenian railways parted company with the rest of the Yugoslav network at an early stage and have since established close ties with those of Italy and Austria. They have adapted their cross-border links and become firmly integrated into the European network.

### **3.9. Yugoslavia (Serbia), Bosnia-Herzegovina, etc.**

The railways of former Yugoslavia have suffered considerably from the consequences of the recent conflicts there. A number of bridges have been destroyed and many lines have been rendered permanently unusable. The other European railways have helped out by providing used rolling stock and some of the major lines are gradually coming back into operation. Rail links to Greece and Turkey have also suffered as a result of the war: unsurprisingly, the break-up of former Yugoslavia has done nothing to create demand for interregional services or through trains. Restructuring or even privatisation are out of the question at present.

### **3.10. Problems at borders**

The technical aspects of transport operations account for a significant proportion of the time spent at border checkpoints (*Korjatschkin*). In particular, complex border, customs and other official controls generally cause considerable delays at border crossings. While goods trains have to wait less than an hour at many western European borders, waiting times at borders in eastern Europe are often very much longer, even leaving aside the problems of changing axles or transshipment or changing from normal to wide gauge track and *vice versa*.

As a result of bilateral agreements between neighbouring countries and mutual trust inspection systems, whereby carriages are inspected at the last make-up yard before the border, it is possible to cross borders without stopping (if compatible locomotives are used) or with just a short halt to change the locomotive or driver.

Container trains travelling to Moscow and beyond provided initial experience with fast international goods trains. Since May 1999, for example, the "Ostwind" from Berlin has taken only 69 hours or so to reach Moscow via Warsaw and Minsk. More fast container trains are being planned and are coming into operation. For non-container traffic, long-distance goods trains have also been introduced as planned.

The establishment of a single customs zone between Russia, Belarus, Kazakhstan and Kirghizia, based on a customs union, should greatly simplify the clearance procedure there.

Many bilateral agreements provide for the common inspection of carriages and clearance of trains at borders. In this way, trains with homogeneous freight might take no more than 90 minutes to cross the border, and empty trains as little as 30 minutes.

## 4. FUTURE ROLE OF THE RAILWAYS

### 4.1. Changing environment

It may be assumed that the sociological and economic environment in eastern Europe will increasingly resemble that of the West (Rommerskirchen *et al.*). First, relatively low wages and high-quality workmanship will ensure that the growing tendency to shift industrial production to the East will continue. These new factories will greatly increase East-West traffic. The opening up of borders will generate substantial population shifts and commuter flows. Purchasing power will increase, creating a larger internal market.

Within about ten years, however, standards of living will have begun to even out. The parallels with the development of Portugal and Spain following their accession to the EU are unmistakable.

Favourable climatic conditions in most countries, coupled with a well-educated population, suggest that durable structures will emerge and survive the initial crises to be expected once the low-wage effect has worn off. Tourism may become an engine of growth for many countries if they can shake off a persistent image as places where serious environmental damage has been done and market their rural attractions effectively.

On the other hand, low population growth and continuing migration will cause problems if sufficiently attractive jobs and living conditions cannot be maintained or created.

While forecasts for western Europe to 2010 suggest that transport flows will continue to increase in line with broader economic growth, transport growth in the countries of central and eastern Europe is expected to be disproportionately low in relation to the expansion of their economies (Rommerskirchen). Transport intensity measured in tonne-km/GDP, partly determined by the greater distances between economic centres, is three to four times higher than in western European countries, but the gap is narrowing. By and large, freight transport in 2010 is expected to be 32 per cent higher than in 1998.

### 4.2. Development of rail infrastructure

#### 4.2.1. *Organisation of infrastructure*

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.

In all planning, consideration has to be given to ensuring a co-ordinated rail system so as not to jeopardise the safety and quality of the system. This can be achieved, as has been the case hitherto, through an integrated corporate structure with internal rules, training and company regulations, though it makes third-party access more difficult. Alternatively, companies may be split up, with prices and services being stipulated in contracts, as is usual with separate companies.

But because a railway is a complex structure, such contracts become very wide-ranging and risk making the rail system too rigid and averse to innovation. A network that has to meet its entire costs from income without regard to the consequences generally overestimates the willingness of its

customers, the rail transport companies, to pay. Innovations such as new electrical cable or safety systems nearly always involve modifications to rolling stock in use or to infrastructure. When infrastructure and service provision are separate, the consequences of innovation have to be painstakingly worked out between the different parties involved. When something goes wrong, such as failure to meet a negotiated timetable, the party responsible must pay damages to the injured party, possibly through a bonus-malus system.

The western European railways are currently carrying out experiments to find the best type of railway structure in a context of intramodal competition. However, these issues highlight an essential feature of railways, namely, that measures should not be implemented unless and until they have been properly thought through. As outlined above, the problems arising from separation of the infrastructure have not all been solved; far from it, in fact. The situation after separation may lead to high costs because of numerous controls and excessively rigid structures. The railways in EU candidate countries should not therefore be expected to behave in an exemplary fashion by EU standards. They should be given time and leeway, so that they can draw their own lessons from developments. They should not of course curtail the process of technological integration (TSI, etc.), but organisational changes should be made with the utmost caution. This does not mean holding back or preserving existing structures, but rather implies a concern for the rail system as a whole.

In certain areas, however, rail privatisation should go forward. Parts of the infrastructure could be transferred to the private sector, rolling stock could be privately procured and hired out, track could be used for other purposes. With private capital, urgent infrastructure work could be given priority. The private operator would then be allowed to charge a special price for use of that section of track.

#### **4.2.2. *The TINA process***

In 1995, the Transport Ministers initiated the Transport Infrastructure Needs Assessment (TINA). The measures required to implement the TENs in the EU candidate countries have been identified. Corridors have been defined and interfaces with the TENs in western Europe established. Given that these TINA measures require substantial investment, the involvement of private investors to pay for rail infrastructure is being considered (Schwetz).

Three TINA sub-groups are responsible for:

- the Baltic Sea (headquarters in Berlin);
- central Europe (headquarters in Vienna);
- southern central Europe (headquarters in Athens).

TINA has defined ten corridors with the aim of developing trans-European links. Memoranda of Understanding containing common declarations of intent have been concluded with each of the railways involved. The analysis of existing supply and capacity on these corridors has revealed major differences from one section of the line to another. Some sections are already well-developed, others have become less important over time and have consequently been neglected, and some links exist only on paper. More importantly, bottlenecks have been identified at the nodes. Since these are the points where local, regional and European interests converge, and sometimes conflict, major implementation problems and very high levels of investment may be expected there. Many corridors cross borders between standard-gauge and wide-gauge countries. The lack of uniformity is therefore a widespread problem; different gauges imply axle changing facilities, and different braking systems call for standardized wagons. Forcing passengers to change trains and having to transship goods at the borders are not regarded as viable options for the future and should become the exception rather than the rule.

The following list of corridors does not mention branch lines:

- Corridor I: Helsinki – Tallinn – Riga – Kaunas – Warsaw/ - Kaliningrad – Gdansk  
Length: 1 700 km  
Corridor I thus links the Baltic States to Poland and hence to the East-West line.
- Corridor II: Nichni-Novgorod – Moscow – Minsk – Warsaw – Berlin  
Length: 2 500 km  
Private investment could be used to finance certain sections of this important East-West corridor.
- Corridor III: Dresden – Breslau – Katowice – Lvov – Kiev  
Length: 1 650 km
- Corridor IV: Nuremberg/Dresden – Prague – Vienna – Bratislava – Budapest – Sofia  
Length: 4 400 km
- Corridor V: Venice – Trieste – Ljubljana – Budapest – Lvov  
Length: 3 500 km
- Corridor VI: Gdynia/Gdansk – Czech Republic (Prague)  
Length: 1 800 km  
Whereas passenger transport is directed through Warsaw, goods trains would use a more westerly North-South line to bypass the city.
- Corridor VII: Rhine/Main – Danube waterway
- Corridor VIII: Warna/Burgas (Bulgaria) – Sofia – Macedonia – Albania  
Length: 1 300 km  
This corridor, together with the new southerly East-West line, gives southern Europe a completely new dimension.
- Corridor IX: Helsinki – St. Petersburg – (Moscow) – Minsk – Kiev – Moldova – Romania – Bulgaria – Greece  
Length: 6 500 km
- Corridor X: Salzburg – Slovenia – Zagreb – Belgrade – Skopje – Thessaloniki  
This corridor should help to remedy the effects of the break-up of Yugoslavia and the destruction caused by the war.

With the TINA process, a Europe-wide approach is being taken to infrastructure planning and the TENs are being linked up with the infrastructure of the eleven EU candidate countries. As envisioned by the EU, the pan-European network will thus be extended to the East. Given the funding requirements, it seems possible that this will be achieved by 2015. In the short term, however, the main objective of TINA is to concentrate as much development work as possible on the corridors that have been identified, thereby defining a favourable framework for State or EU funding.

### **4.2.3. *Extent of infrastructure***

The lines in most of the countries under review link up all the important centres. They have grown up over time and are designed for high performance. Where quality needs to be improved to allow for higher speeds, chiefly on the main lines, further development is required. Until now, high capacity has been ensured by running all traffic within a narrow speed band around 120 km/h. If the speed of individual trains deviates significantly, the operational capacity of the line declines and further expansion becomes necessary.

Wilhelm is opposed to the construction of new high-speed lines, arguing that instead existing lines should be adapted for tilting trains. This would also involve the large-scale removal of level crossings on these lines, the relocation of some points systems and the adaptation of signalling systems. Balise modules, providing information about the maximum speed for each section, must be specially sited for the new tilting trains. The total cost of improving infrastructure in this way is nevertheless only a fraction of the cost of a new system of high-speed lines.

The high density of the rail network in most central and eastern European countries is probably commercially unsustainable. Where lines are used only for local traffic, the overall future public transport strategy will determine whether or not this element of the network can be preserved. The continued existence of the railways in the long term can only be justified where they can take advantage of their speed and their capacity to provide mass transport. Given their high infrastructure-related fixed costs, this means that trains must carry much larger numbers of people than buses while, at the same time, attracting passengers by offering a frequent, regular service. Closing little-used local lines is therefore unavoidable, though such measures should be prepared and supported politically.

Rail lines to former factories should not be kept either. Feeder tracks for those new plants that have them are most likely to be disposed quite differently, since logistical structures are constantly changing. It is therefore better to invest in transshipment facilities for combined transport at freight centres, for example. However, new feeder tracks would make sense for customers with block trains or in major industrial facilities such as ports.

### **4.2.4. *Border crossings***

Waiting times at borders can be drastically reduced through the abandonment of customs formalities and the tightening up of clearance procedures, especially after accession to the EU. Waiting times can be further reduced by the introduction of locomotives that can run on different systems, and even eliminated altogether with personnel who can operate in different countries (see section 3.10). This is an area where policy can significantly improve the quality of rail transport, merely through regulations or relatively modest investment in improving border checkpoints. Governments and railways must be alert to the potential of international transport and the opportunities it offers, and they should invest in internationally compatible technologies, for example, with the targeted support of the EU. Initiatives to develop variable-gauge technologies are therefore as much to be welcomed as the linking up of central and eastern European railways in the ERTMS/ETCS process. For railways that have a lot of ground to make up in this area, this presents them with an opportunity for successfully introducing new technologies at an early stage.

#### **4.2.5. Operations**

Following studies of bottlenecks on the TEN/TINA lines in eastern Europe and other studies currently in progress (local capacity, maximum train lengths and loads, clearance gauge, axle loads), a targeted EU programme needs to be established to ensure uniformity (e.g. maximum permitted train length of 700 metres, G2-clearance gauge, maximum axle load of 22.5 tonnes, maximum speed of 160 km/h for passenger trains and 120 km/h for goods trains).

Management concepts need to be modernised with the establishment of Level 2 and 3 ETCS corridor lines, hand in hand with the procurement programme for more modern and efficient locomotives.

The management of infrastructure in international corridors, such as Berlin–Frankfurt/Oder–Warsaw or similar corridors, can be delegated to an international rail infrastructure undertaking, possibly for a fixed term. This would require an extension of EU support, open access to the infrastructure and special train path pricing systems, with the aim of making maximum use of capacity.

Another aspect that should be promoted is the development of infrastructure access points such as transshipment facilities for combined transport/freight centres, feeder tracks for bulk shippers, goods stations and marshalling yards.

#### **4.3. Long-distance passenger transport**

In addition to the extension of an IC system of trains offering a high standard of comfort with a maximum speed of 160 km/h, consideration is also being given to high-speed traffic at speeds exceeding 200 km/h (Hainitz, Wilhelm). At present, however, there are very few lines on which customers are willing to pay the high fares needed to cover the substantial costs of high-speed train systems. International traffic flows alone are too small to justify high-speed links. Although developing a transport network in accordance with the TINA process is very important from a political standpoint, especially as the links between countries grow stronger, there are still grounds for scepticism. In addition, air traffic will increase considerably with the expansion of airports and better links between major cities in international flight schedules. Over long distances, to Russia for example, aircraft will always have the edge.

Hainitz points out that major eastern European cities seldom have more than two million inhabitants. The potential number of passengers is therefore smaller than for the western European high-speed links currently under construction. If new lines are built, they would therefore have to be designed for mixed traffic, i.e. passenger and goods trains. The TINA corridors provide a model for such a development.

Since 1997, the Vienna–Budapest intercity service has been using trains with a top speed of 160 km/h. The journey time of 2 hours 25 minutes for 260 km corresponds to a real average speed of 120 km/h. With the use of multi-system locomotives, the waiting time at borders can be reduced to three minutes - the time it takes to change the driver. The 22 km link to Bratislava may have been designed for 200 km/h traffic, but speeds will be limited to a maximum of 160 km/h. Speeds of up to 160 km/h have also been agreed for the extension of the Vienna – Prague link, which will subsequently serve Dresden and Berlin. This opens up the possibility, at least for some EU candidate countries, of an interlinked, high-quality EC network.

Poland is building a high-speed line from the south of the country to Warsaw for trains that will run at up to 250 km/h. The use of tilting trains is also planned, cutting the journey time from Vienna to Warsaw to just six hours.

#### **4.4. Local passenger transport**

Fast trains and relatively slow trains should be segregated by parallel corridors and lines that have been widened to take more than two tracks. International traffic should take priority over national, regional and local traffic; in some cases, this could be achieved by introducing targeted programmes to provide regional/local traffic with its own rail capacity.

Local transport responsibilities as a whole should be redefined. Rail should serve as the backbone of the system wherever it can take advantage of its speed and its capacity to transport large numbers of people. Local coverage should be improved and made more effective by establishing integrated timetables, including bus services, within the framework of integrated pricing arrangements or local authority associations.

#### **4.5. Rail freight traffic**

The railways must adapt to the new market conditions, particularly in the freight sector. The HGV is increasingly becoming the yardstick against which other forms of transport are measured, even in eastern Europe. The railways must not only offer a fast service, guarantee safe transport and ensure that goods are delivered intact, they must also demonstrate flexibility in meeting customers' requirements and market their services appropriately. The capacity to monitor and track shipments is another important aspect, whether using highly sophisticated computer systems or autonomous devices fitted to goods wagons. Such devices radio their current position and status to providers, who screen them and send them on.

With the opening up of the EU to the East and the increasing globalisation of trade, international transport is going to increase enormously, even – and in some cases especially – with the countries of eastern Europe. According to some forecasts, rail freight traffic between Europe and Asia is likely to increase by more than 30 per cent by 2005 (Völkening). The co-ordination of transit traffic is likely to substantially reduce journey times for rail traffic from the Far East to Europe. Shipping a container from Japan to western Europe by rail should take seven days less than by sea.

The time paths of cross-border trains are co-ordinated according to the freightways model, completed by bilateral harmonization of regulations governing the operation and composition of trains (e.g. marking of the rear of the train).

The gateway approach to the transport of individual wagons (choice of special marshalling yards near the border, regular trains linking gateways, co-ordinated access) should be increasingly extended to eastern Europe.

Greater integration of the CEE countries into the European network of combined transport trains is to be recommended. Such integration would require new train paths and deregulation, as well as gateways such as Sopron for directing traffic in the eastern European countries.



## 5. CONCLUSIONS

The subjects developed above may be summarised as follows.

- The process of shifting responsibility for railways to market-oriented undertakings is fully underway and more advanced than in some parts of western Europe.
- Central and eastern European railways are conducting bold and interesting experiments in the organisation of a modern railway from which western Europe may also have something to learn. Similarities may be seen in the interaction between government and the railways, the success of which should be monitored. A permanent East-West forum for sharing experiences of railway reform is to be recommended (hosted by the TINA offices, for example).
- International transport is not yet powerful enough to form networks.
- State-imposed prices that are insufficient to cover costs must be ended. The railways must gain further experience in managing costs and estimating revenue on the basis of market projections. However, they will still sometimes need government help to protect them where they are weakest.
- Appropriate adaptation of the network and the development of lucrative lines are essential. Certain links lend themselves to experiments in private investment in railway infrastructure.
- TINA offers an excellent pan-European basis for co-ordinating the restructuring of the network and concentrating development projects on the main lines.
- As in western Europe, the markets are moving away from the traditional railways. In addition to stabilizing their established markets for mass and bulk commodities, they must therefore adapt to new logistic structures by introducing innovative products and combined transport.
- The railways and policymakers must not repeat the mistakes of the past by investing in enduring but inflexible structures or infrastructure serving a single purpose. Rail networks should be technically compatible with many different sorts of traffic and open to as many users as possible.
- Integration into the European programme to establish a harmonized operating standard (ERTMS/ETCS/GSM-R) should therefore be promoted.
- Policies must encourage closer ties between countries, by breaking down customs barriers, amongst other things. The objective must be the free movement of persons and goods across borders. For the time being, however, border checkpoints still need to be improved.
- Technological incompatibility must be eliminated wherever possible or its effects reduced through the adoption of standard technical solutions. Financial incentives should be offered to encourage operators to equip themselves with variable-gauge rolling stock, for example, which may be expensive but can be used in international transport.

Eastern European governments and railways are not in a position to fully privatise their rail operations in the medium term, though they have tried. In spite of the considerable success of the restructuring processes, small steps towards privatisation must be synchronised with changes in the market and the customers' willingness to pay.

In spite of all the problems, the eastward expansion of the EU still offers excellent opportunities to central and eastern European countries. Implementing the recommended measures to strengthen the railways will contribute to the development of the CEE States.

The railways in eastern Europe have a great role to play in the future, but it will be different from their previous one. They must be more market-oriented and they must be clear about where their best markets lie. Long-distance international transport through the TINA corridors and perhaps high-speed traffic will be attractive. However, technical and administrative problems at borders must be solved rapidly if the railways are not to lose their place in road and air transport.

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# RAILWAYS IN EASTERN EUROPE

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Washington, May 2001



## 1. SETTING THE SCENE: WHEN PAST WAS NOT PROLOGUE

For those whose memories of world events had been heavily shaped by the Cold War and the confrontation between the communist East and the democratic West, there was nothing unusual on the horizon as 1989 began. The deep economic and political divide between eastern Europe, western Europe and North America<sup>2</sup> appeared to be immutable, and not even the watchful eyes of the intelligence agencies of the western powers were predicting otherwise.

Politically and economically, the western and eastern camps were far apart at the end of the 1980s. In the West, broad-based participatory democracy combined with market economics and a reliance on the private sector to produce highly diversified economies supporting a wide range of industry, services and financial activities. The role of governments in these economies found its primary focus in provision of public services (defense, welfare, health) and general oversight (regulation and antitrust), with most industrial and service activities provided by private enterprise. In the East, the predominant political role of communist parties combined with command and control economics and public ownership and operation of most production, to produce something quite different. In these economies, it was difficult to separate “government” from “industry” and the absence of market forces meant that decisions as to what to produce (and transport) were based on considerations unlike those in market economies. It is impossible to understand the role (past or future) of eastern European railways without beginning with an appreciation of the impact on the economy, on transport and on railways in particular, of the planning approach to economic organisation.

It has always been difficult to make comparisons between planned and market economies. In part this was because military concerns in the socialist bloc caused much information to be kept secret which was routinely made public in market economies. For example, detailed rail traffic flow data (tonnage and ton-km by commodity, by line, and by origin/destination) was (and often still is) considered a state secret in the socialist economies. Next, the extreme focus on meeting the targets in the Plan often meant that reported statistics were manipulated or even distorted in order to protect managers. In addition, reported statistics often dealt with physical parameters that had little comparative value across economies (and surprisingly little value within the economy). Perhaps most significant, the lack of market feedback on prices meant that financial evaluations had only limited meaning even within a single country, and economic comparisons among market and planned economies were effectively exercises in (more or less informed) guesswork which had to be taken with a large grain of salt. This was particularly true because the official values of the various currencies had only a limited relationship to flows of trade among the blocs. Estimates of the real Net National Product or NNP (the measure which communist regimes preferred in place of GDP) of the Soviet Union, for example, varied by as much as a factor of two or more between equally “authoritative” observers.



Figure 1. 1988 Tons of Crude Steel /PPP\$GDP

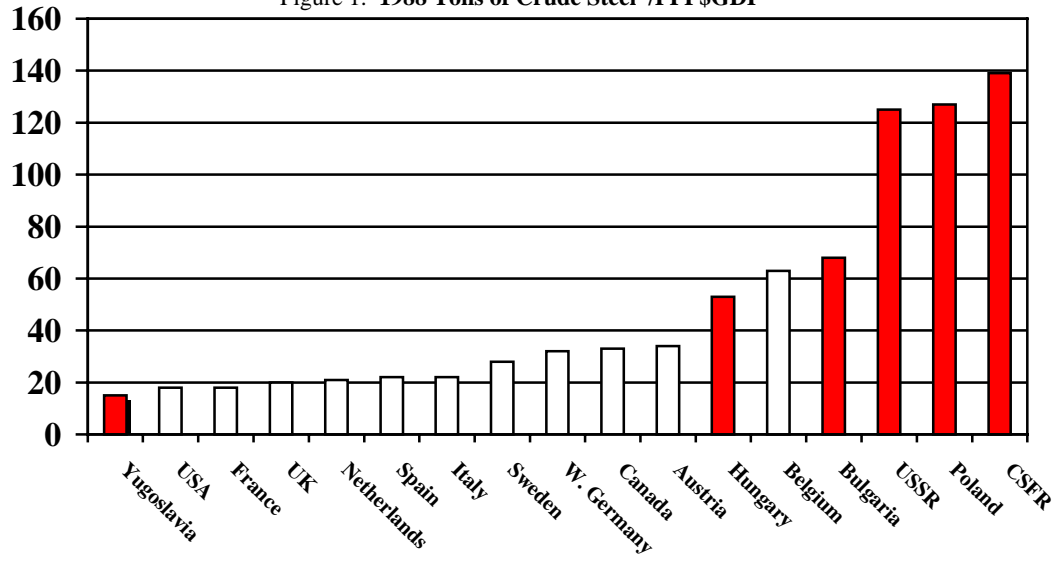


Fig.2.1988 Tons of Coal & Lignite/PPP\$

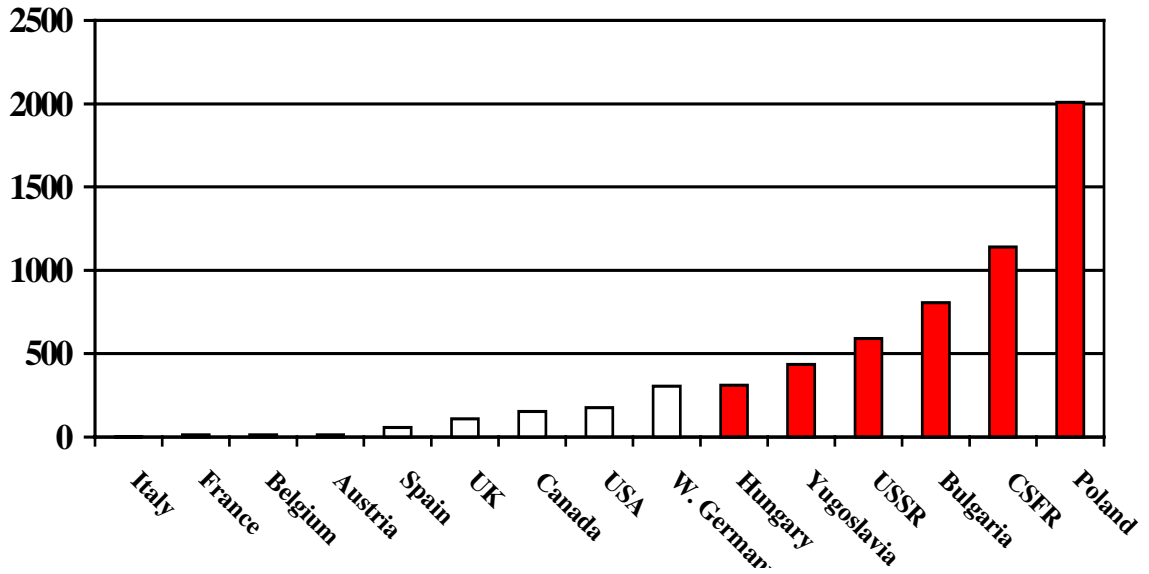


Fig. 3. Tons of Cement/PPP\$ GDP

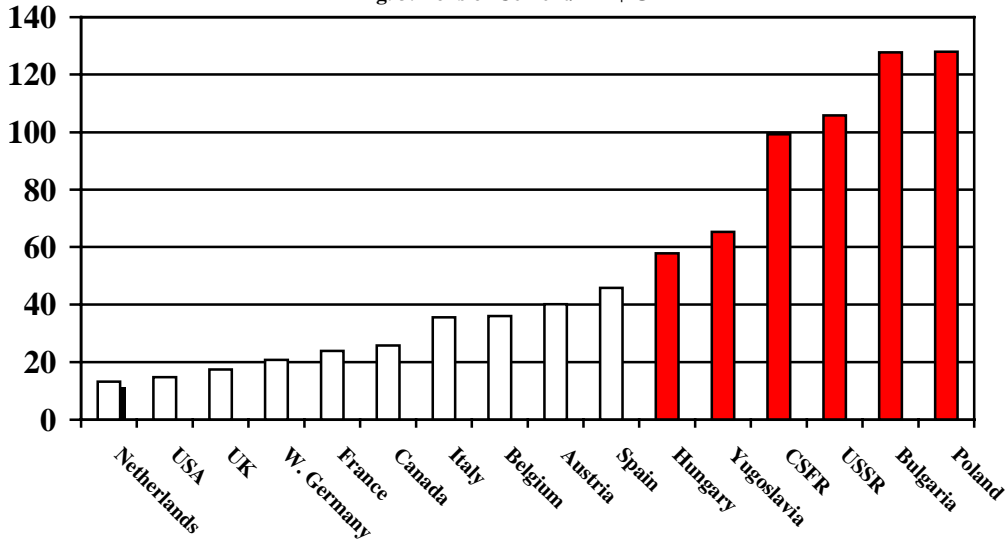
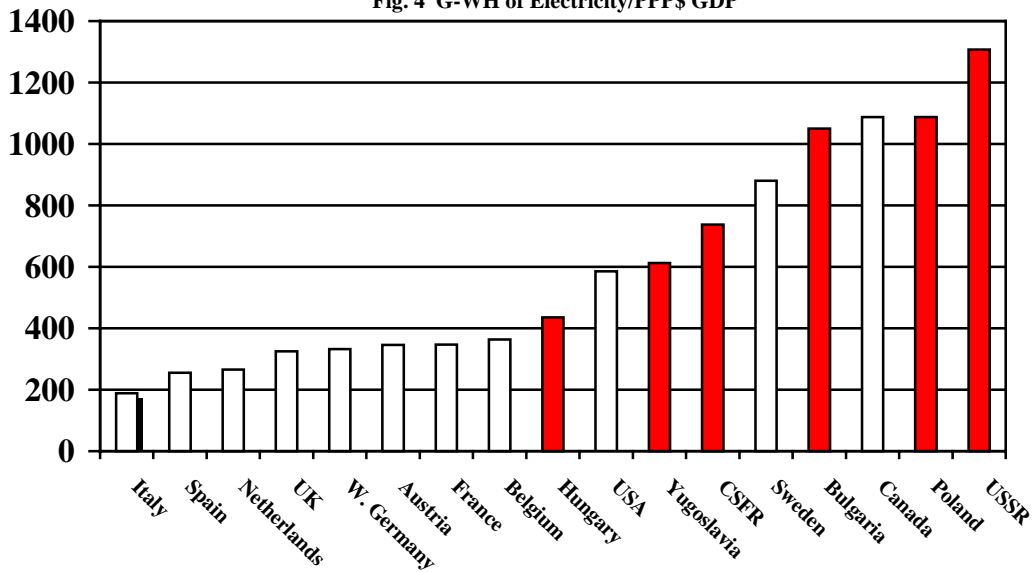


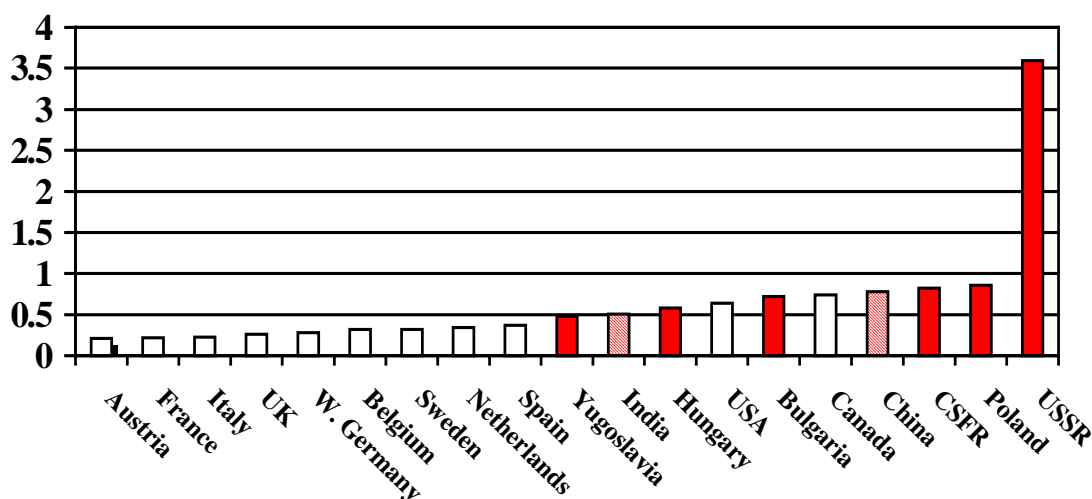
Fig. 4 G-WH of Electricity/PPP\$ GDP



Even with these caveats in mind, however, comparisons of the two economic systems revealed startling differences in the structure of the economies they created. A particularly striking characteristic of the planned economies was the over-emphasis on industrialisation – that is, essentially for political reasons, the socialist planners chose to funnel resources into heavy industry rather than let market forces determine what was produced. The result can be seen in Figures 1 to 4 above. As of 1988, which (along with 1989) represented the peak of the planned economies, production of crude steel, coal and lignite, cement and electricity was two to four times as high (per dollar of GDP) in the planned economies as in the market economies.

A direct result of the production of too much steel, coal, cement and electric power was that too much of the basic commodities on which these rely had to be produced -- and transported. Thus, as Figure 5 shows, the planned economies used far more transport as a share of total economic activity than did the market economies of the West. Again in rough terms, a dollar of GDP tended to require about twice as much freight transport effort in the eastern European countries as in the West.

Fig. 5 1988 Transport Ton-Km/PPP\$GDP



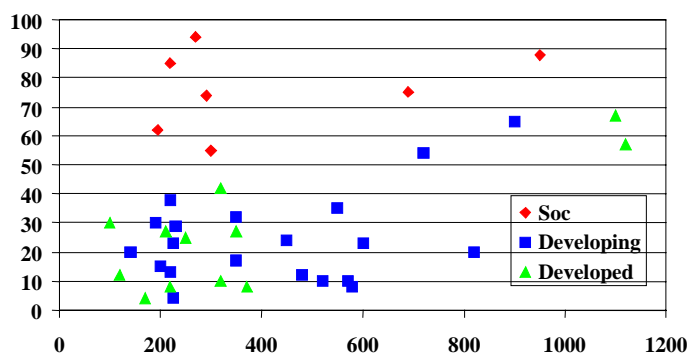
Linked to the emphasis on non-market planning was the preference of the planners for rail versus truck transport. To some extent, this preference was based on the apparent savings in transport from the economies of scale in railways, especially in the larger countries with relatively limited access to highways. Though never explicitly stated, planners may also have preferred railways to highways because access to railways could be more readily controlled, and thus enforcement of the plan enhanced. Even though the structure of trucking in the CEE/CIS economies was also monolithic, “in-house” and sector level trucking possibilities as well as “common carrier” trucking gave shippers more opportunities than the planners could fully control, because some use of trucking, particularly for local distribution, was unavoidable. In any event, it would have been difficult to carry all the freight that the Soviet rail system did on highways, even with an intensively developed superhighway system.

Equally important for CEE/CIS railways was the fact that the lack of market signals from shippers meant that the logistics chains, based on the total cost of product distribution and marketing, which the market economies developed were lacking in the planned economies. For this reason, the

market-based shift in freight transport from low quality (but cheap) rail to higher quality, higher cost trucking had not yet begun in the planned economies.

Figure 6 shows that, adjusted by a rough measure of the size of the country (the average length of haul for rail shipments), railways in socialist countries carried a far larger share of transport activity in 1988 than did comparable railways in market economies. As Figure 6 shows, even adjusted for the fact that the share of railways *should* increase (*ceteris paribus*) as the length of haul increases, planned economy railways carried an unusually high share of transport *vis à vis* trucks. Whether this larger share was due to the distorted predominance of basic commodities, the absence of a weighting for total logistics costs or (as was true in some countries) a simple lack of highways, or all three taken together, the net result was that the freight role of the CEE/CIS railways was like the level of water behind a dam -- a lot higher than it would have been without the blockage caused by economic and policy distortions.

Figure 6  
***Rail Share of Rail + Truck Traffic (%) versus  
 Average Rail Length of Haul  
 1988***



The role of the planned economy railways in passenger service was the necessary mirror image of the policies which caused an unusually high role for rail freight. Putting too much of an economy's resources into the industrial sector meant that far fewer resources than should have went into consumer goods, specifically consumer durables such as automobiles. In addition, the lack of a functioning real estate market meant that population densities in urban areas did not follow the market economy pattern of rising values in relation to proximity to the city center. Paradoxically, lacking market feedback on property values, planners tended to put low-density industrial users near to city centers and (as a result of housing shortages) to locate people "efficiently" in mega-apartment complexes at city peripheries which were served by bulk, underpriced passenger transport including bus and rail. The result of these policies appears clearly in Figures 7 and 8 which show rate of motorisation and urban population density distributions. The rate of motorisation (the ratio of automobiles to population) was far lower in the socialist countries, and the location of residences was artificially displaced from city centers (generating more demand for transport). Clearly, a market approach would have produced far more individual transport as opposed to mass transport, and it

would have encouraged people to live and work in very different places – both of which would have acted to reduce the role of rail *vis à vis* highway modes. The net result of these factors was, as with freight, a higher role for passenger transport in the East than in the West, as Figure 9 shows.

Figure 7  
**Rate of Motorization in 1988 and  
 Growth of Motorization 1988 to 1998**

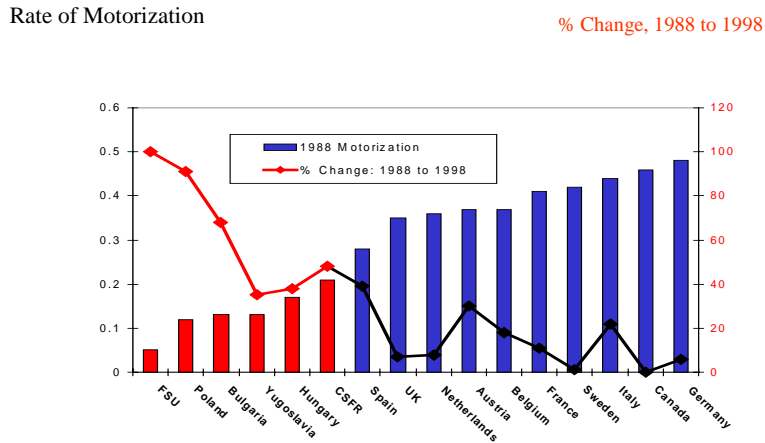
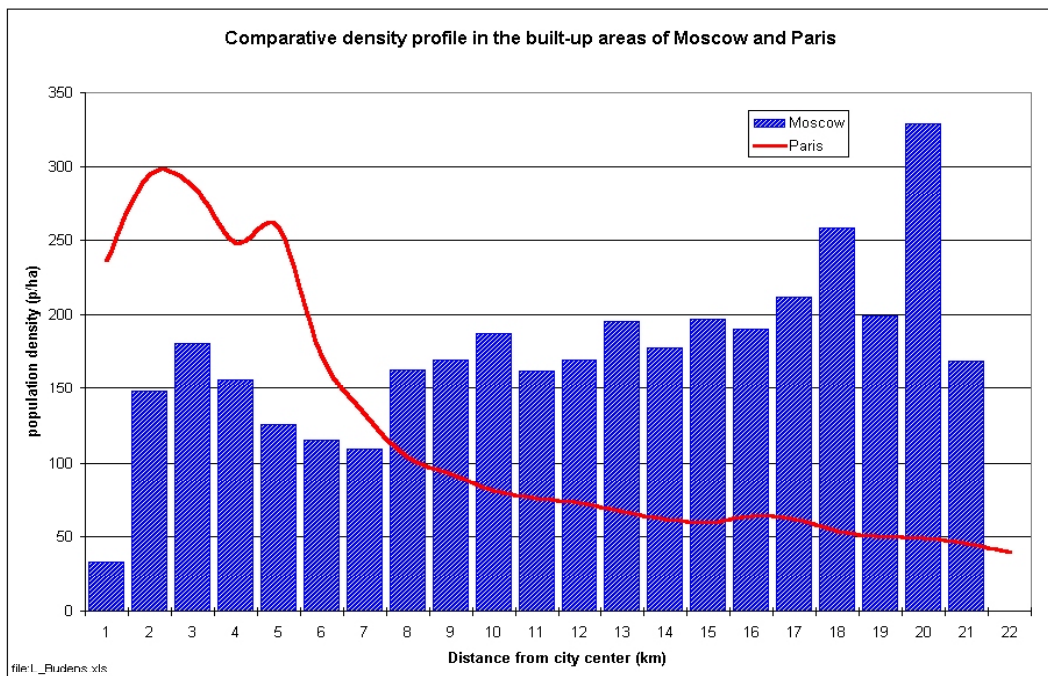
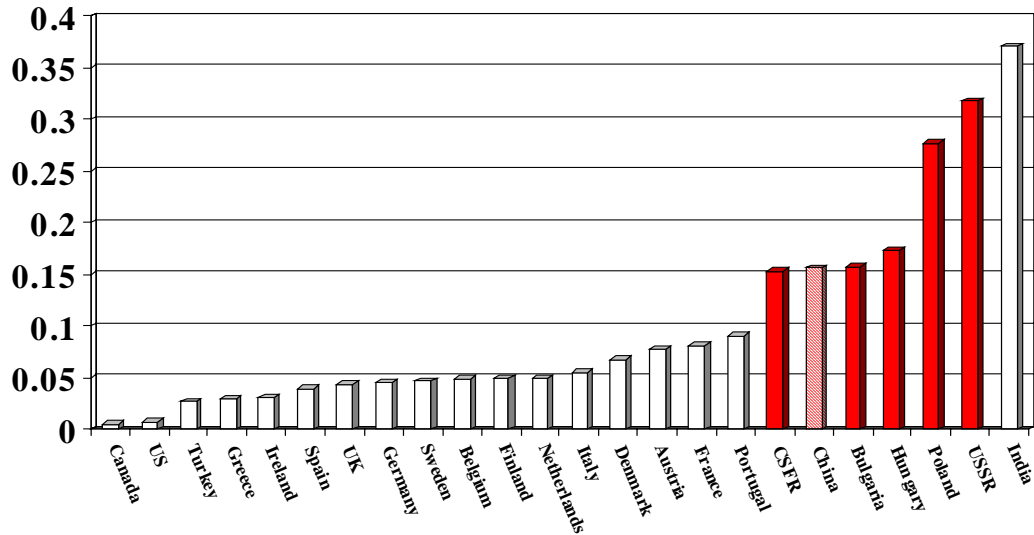


Figure 8



Source: Alain Bertaud and Bertrand Renaud, "Socialist Cities without Land Markets," *The Journal of Urban Economics* 1997, vol.41, pps.137-151

Figure 9. 1988 Rail Passenger-km/PPP\$ GNP



Taken together, the unique characteristics of the planning model produced some of the largest and most intensively used railways in the world, as Figure 10 demonstrates. Indeed, it is fair to conclude that the railways may have been among the better performing parts of the planned economy. Within the rules of the game that they had to play, the leaders of the CEE/CIS railways truly did an impressive job of producing transport output in one of the key sectors of the economy. It is hard to conceive of these economies functioning as well as they managed to do had it not been for their relatively well operated railways. Moreover, many of the Soviet era railways were “profitable” in that their tariffs were set well above accounting “cost” as defined under the planning rules<sup>3</sup>.

By the end of the 1980s, however, the inefficiencies and contradictions of command and control economies could no longer be managed. The immensely powerful industrial sectors, like the muscles on a weightlifter, gradually became too strong for the rest of the body on which they were built: rather than adding to strength, the weightlifters became muscle bound – good at simple and basic heavy lifting, but incapable of competing with more nimble opponents when the task involved mobility and flexibility of response. The planned economies could no longer subsist on production of basic commodities that had no rational demand, nor could they continue to ship these (or other) commodities on a mode that no longer served shippers’ or travellers’ needs.

Figure 10

**Comparisons of Major Railways in 1998**

	Total Route km	Passenger- Kilometres (000,000)	Freight Ton- km (000,000)	Staff	Employee Productivity	Employees per km of Line
USA: All Class I Railways	160,113		2,094,656	177,557	11,797	1.1
Russia	86,000	141,042	1,204,547	1,236,700	1,088	10.1
India	63,506	403,884	281,513	1,578,802	434	24.9
China	59,000	404,627	1,257,789	1,567,000	1,061	26.6
USA: Amtrak	40,234	8,314		23,000	361	0.6
Germany	37,477	72,543	71,494	194,901	739	5.2
France	31,423	66,495	53,438	174,400	688	5.6
Canada: Canadian National	28,124		152,904	22,364	6,837	0.8
Canada: Canadian Pacific	28,063		151,329	17,065	8,868	0.6
South Africa	25,555	9,675	95,591	123,367	853	3.6
Poland	22,891	26,187	55,460	204,000	400	8.9
Ukraine	22,473	47,600	156,336	367,900	554	16.4
Japan	20,200	240,877	22,321	179,800	1,464	8.9
United Kingdom	16,536	28,656	12,292	106,748	384	6.3
Italy	16,108	40,971	21,549	114,200	547	7.1
Spain	14,059	18,144	11,423	34,500	857	2.5
Kazakhstan	13,660	8,859	91,700	122,500	821	9.0
Canada: Via Rail	13,490	1,341		3,718	361	0.3
Romania	11,364	12,304	15,927	105,300	268	9.3
USA: Suburban	10,425	14,035		22,399	627	2.1
Sweden	9,978	7,434	14,400	17,900	1,220	1.8
Czech Republic	9,365	6,929	16,456	89,200	262	9.5
Turkey	8,607	6,146	8,237	42,700	337	5.0
Hungary	7,769	6,699	6,642	56,000	238	7.2
Finland	5,836	3,415	9,753	13,600	968	2.3
Belarus	5,543	12,505	25,510	75,534	503	12.5
Austria	5,345	7,899	14,733	51,800	437	9.7
Bulgaria	4,290	3,819	5,209	46,400	195	10.8
Slovakia	3,662	2,968	9,862	48,900	262	13.4
Uzbekistan	3,641	1,898	13,883	61,000	259	16.8
Belgium	3,472	7,354	7,392	40,600	363	11.7
Portugal	2,813	4,329	2,179	12,500	521	4.4
Netherlands	2,808	14,330	3,549	26,500	675	9.4
Croatia	2,726	943	1,685	19,500	135	7.2
USA: Heavy Rail	2,488	19,781		45,155	438	18.1
Latvia	2,413	984	12,210	17,000	776	7.0
Denmark	2,324	5,113	1,938	10,500	672	4.5
Greece	2,299	1,583	326	10,500	182	4.6
Lithuania	1,905	745	7,849	16,700	515	8.8
Georgia	1,575	355	3,218	12,404	288	5.3
Slovenia	1,201	623	2,571	9,000	355	7.5
Estonia	968	238	7,020	6,100	1,190	6.3
Armenia	845	46	323	4,345	85	5.1
Macedonia	699	150	380	4,199	126	6.0
Albania	447	95	23	3,000	39	6.7

## 2. TRANSITION: THE DAM BREAKS

As the level of water behind a dam continues to rise, it is rare that the water simply relieves the pressure by gradually leaking through. Instead, the rising pressure eventually shatters the dam, allowing the water to rush through and seek the level of its surroundings. This is not a bad metaphor for the sweeping changes that began in 1989 as the communist governments collapsed and gave way to increasingly market-oriented, democratic governments. Along with the political changes came an economic transition unprecedented in its speed and depth of impact.

The transition has been painful. Despite a burst of initial optimism, it has proven to be impossible to reform the economies in one decade and, in the beginning of reform, the economies fell farther and faster than most observers expected. Figure 11 shows that GDPs fell quickly, and few economies have returned to their pre-1989 levels.

Coupled with falling GDP was the change in the structure of these economies, with basic commodities yielding to a better balance between industry and services, and a rapid growth in automobile ownership gnawing away at the rail share in passenger transport. Figures 13 and 14 -- freight and passenger traffic in CEE and CIS countries -- show that the CEE/CIS railways were hard hit by the impact of transition on total output and on the rail share of the transport market. In fact, in all but one country (Estonia), rail ton-km fell much faster than did GDP and in all but two countries (Belarus and Ukraine) rail passenger-km fell faster than GDP as well.

Though the fall was rapid, the beginnings of new structures did not arrive overnight. Not only did the transition require a wrenching shift in economic activity with large movements in capital and labour that would take years in any economy. Transition also involved the actual destruction of generations of intellectual capital (communist economic theory) and its replacement with economic and political ideas that were different in a revolutionary way. In effect, transition required a generational shift in economic and political power – and older generations never give up such power willingly. Combined with the “crony capitalism” that occurred in some countries (by definition the cronies are older and better connected), transition thus has encountered a number of mental and financial barriers that will take years yet to overcome fully.



Figure 11												
<b>GDP Index: 1988=100</b>												
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 est.
Albania	110	99	71	66	72	78	89	97	90	97	105	110
Bulgaria	101	91	81	75	74	75	77	69	65	67	68	71
Croatia	98	91	72	64	59	62	66	70	75	77	76	78
Czech Republic	101	100	89	86	86	88	93	98	97	95	95	96
Estonia	108	101	87	75	68	67	70	72	80	84	83	86
Macedonia	101	91	85	78	71	69	69	69	70	72	74	76
Hungary	101	97	86	83	82	85	86	87	91	96	100	105
Latvia	107	110	98	64	55	55	54	56	61	63	64	65
Lithuania	102	96	91	72	60	54	56	59	63	66	63	64
Poland	100	89	82	85	88	92	99	105	112	117	122	128
Romania	94	89	77	71	72	74	80	83	78	73	71	71
Slovak Republic	101	99	84	79	76	80	85	91	96	101	103	105
Slovenia	98	94	85	81	83	87	91	94	98	102	106	110
<b>CEE &amp; Baltics</b>	<b>100</b>	<b>93</b>	<b>83</b>	<b>80</b>	<b>81</b>	<b>84</b>	<b>88</b>	<b>92</b>	<b>95</b>	<b>98</b>	<b>99</b>	<b>103</b>
Armenia	114	106	88	42	35	37	40	42	44	47	48	51
Azerbaijan	96	84	84	65	50	40	35	36	38	42	45	47
Belarus	108	105	104	94	86	76	68	70	78	84	87	88
Georgia	95	83	66	37	27	24	25	27	30	31	32	33
Kazakhstan	100	99	86	84	76	67	61	61	62	61	62	64
Kyrgyzstan	108	111	106	86	72	57	54	58	64	65	68	69
Moldova	109	106	87	62	61	42	42	38	39	35	34	34
Russia	100	96	91	78	71	62	60	58	58	55	57	59
Tajikistan	97	96	89	63	56	45	40	38	39	41	42	44
Turkmenistan	93	95	90	86	77	64	59	55	49	51	60	70
Ukraine	104	100	89	77	66	51	44	40	39	38	38	39
Uzbekistan	104	105	105	93	91	87	86	88	90	94	98	99
<b>CIS</b>	<b>101</b>	<b>97</b>	<b>91</b>	<b>78</b>	<b>71</b>	<b>61</b>	<b>58</b>	<b>56</b>	<b>56</b>	<b>54</b>	<b>56</b>	<b>58</b>

Source: EBRD, "Transition report update," London, May 2000, Table 1.1, p.4

Figure 12 shows the turmoil in currency values that accompanied the GDP reductions.

Figure 12												
<b>Median Inflation Rates in Per cent</b>												
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 est.
<b>CEE and Baltics</b>	10.0	55.1	238.4	217.9	35.6	26.3	21.6	13.1	10.0	5.6	4.4	5.1
<b>CIS</b>			153.0	1 380.0	2 083.0	1 220.0	100.7	31.8	13.0	18.3	23.2	18.3

Source: EBRD, "Transition report update," London, May 2000, Table 1.3, p.9

For railways, the challenge was even greater because railways are notoriously the most resistant to change of all sectors in most countries. Railways are inevitably focussed on tradition (how things have always been done) and are managed as military organisations, where thought and originality necessarily give way to operating discipline. Change was (and still is) made even harder because of the major role that many railways played in the transport sector. Because railways were so important<sup>4</sup>, the countries could ill afford the risks of disruption associated with radical change, so most countries took a gradual approach. Because the railway labour forces were so large relative to the rest of the economy, and the railway labour unions well organised and politically powerful, governments were reluctant to undertake an adjustment of railway labour when they already had enormous labour challenges throughout the economy even though, as Figure 15 shows, rail labour productivity in most socialist countries had fallen well below 1990 levels and posed a threat to the profitability of the railways.

Figure 13												
<b>Tonne-Kilometre Index: 1988=100</b>												
<b>RAILWAY:</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>CEE COUNTRIES:</b>												
Bulgaria	100	97	80	49	44	44	44	49	43	42	35	30
Czech + Slovakia	100	95	86	66	63	54	51	52	49	48	43	38
Hungary	100	94	80	56	42	37	35	39	36	38	38	32
Poland	100	91	68	53	47	52	54	55	57	57	51	46
Romania	100	97	70	47	35	32	31	35	39	32	27	23
Turkey	100	95	99	99	103	105	103	106	114	123	107	104
Yugoslavia	100	102	91	60	21	7	5	6	8	10	10	5
Croatia	100		91	50	25	22	22	27	24	26	28	23
Macedonia	100	105	89	82	67	57	17	19	31	32	46	44
Slovenia	100	105	104	81	64	56	61	77	58	65	66	64
<b>CIS AND BALTIC COUNTRIES:</b>												
Russia	100	98	97	89	75	62	45	46	43	42	39	46
Ukraine	100	107	94	80	67	49	40	39	32	32	31	31
Kazakhstan	100	98	98	90	68	45	34	30	27	31	29	22
Belarus	100	99	92	80	69	52	34	31	34	37	37	37
Estonia	100		97	91	47	52	47	50	54	66	80	97
Latvia	100		93	84	51	49	48	49	62	70	65	61
Lithuania	100	98	87	80	51	45	36	33	37	39	37	35
Armenia	100	107	102	87	27	9	8	8	7	8	9	7
Georgia	100	97	95		33	23	15	10	10	15	19	25
<b>WESTERN COUNTRIES:</b>												
Austria	100	106	113	115	108	105	122	128	130	130	135	137
Finland	100	102	107	98	100	118	127	122	113	126	126	125
France	100	102	98	98	96	87	95	93	96	105	105	104
Sweden	100	102	104	101	104	102	105	104	101	102	103	81
United Kingdom	100	92	88	95	86	76	68	76	76	93	98	99
Germany	100	104	104	105	95	88	120	118	116	123	124	121
USA: Class I Railways	100	102	104	104	107	111	119	129	134	133	136	142

Figure 14

Passenger-Kilometre Index 1988=100												
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>CEE COUNTRIES:</b>												
Bulgaria	100	93	96	60	66	72	62	58	62	72	58	47
Czech + Slovak	100	101	100	99	87	68	67	63	61	56	52	51
Hungary	100	103	99	86	79	74	74	73	75	75	77	59
Poland	100	107	97	78	63	63	53	51	51	49	49	50
Romania	100	102	88	73	70	56	53	54	53	46	39	36
Turkey	100	102	96	90	93	107	94	86	78	87	92	92
Yugoslavia	100	47	47	41	42	29	28	26	13	28	26	
Croatia	100	-	89	39	26	25	25	25	31	30	28	25
Macedonia	100	96	92	53	29	19	17	17	31	37	39	39
Slovenia	100	99	92	54	35	36	38	38	39	40	42	40
<b>CIS AND BALTIC COUNTRIES:</b>												
Russia	100	99	100	94	93	100	83	71	67	63	56	52
Ukraine	100	100	104	98	105	104	97	87	81	75	69	65
Kazakhstan		102	106	104	106	110	99	86	76	69	57	49
Belarus	100	103	105	99	113	122	100	78	74	81	83	106
Estonia	100		101	85	63	48	36	28	29	17	16	16
Latvia	100			100	93	60	46	35	31	28	28	25
Lithuania	100			110	93	92	53	38	30	26	24	25
Armenia	100	91	76	77	107	104	85	40	20	20	13	11
Georgia	100					59	69	22	22			
<b>WESTERN COUNTRIES:</b>												
Austria	100	109	110	118	123	120	118	124	124	105	102	101
Finland	100	100	104	101	96	94	95	99	102	105	105	107
France	100	102	101	98	99	92	93	88	94	98	102	105
Sweden	100	100	100	91	86	96	97	102	102	103	115	122
United Kingdom	100	97	97	93	92	88	84	84	93	98	102	108
Germany	100	100	106	111	113	116	150	148	148	146	144	177
USA: Amtrak	100	103	107	110	107	109	104	98	89	91	93	94

Figure 15

<b>Output/Employee (000 T-km + P-Km)</b>					<b>Ratio: 1999/1988 (%)</b>
	<b>1980</b>	<b>1988</b>	<b>1993</b>	<b>1999</b>	
<b>CEE COUNTRIES</b>					
Bulgaria		312	211	195	62
Czech + Slovakia	392	376	305	262	70
Hungary	276	249	209	238	96
Poland	516	480	372	400	83
Romania	576	530	249	268	51
Turkey	190	278	320	337	121
Macedonia		200	106	126	63
Croatia		323	111	135	42
Slovenia	366	343	236	355	103
<b>CIS and BALTICS</b>					
Russia		1,635	1,144	1,088	67
Ukraine		1,700	706	554	33
Kazakhstan		3,100	1,224	821	26
Belarus		1,600	783	604	38
Estonia		611	523	1,190	195
Latvia		718	551	776	108
Lithuania		910	686	515	57
Armenia		702	183	85	12
<b>WESTERN COUNTRIES</b>					
Austria	240	286	333	437	153
Finland	472	472	671	968	205
France	505	512	579	687	134
Italy	250	286	419	547	191
Germany*	324	397	447	739	186
Canada: Canadian National	2,494	3,578	4,230	8,100	226
USA: Amtrak	324	387	399	358	92
USA: All Class I Railways	3,040	6,264	8,503	11,797	188
* Western Germany is basis for 1988 productivity.					

Finally, many of the CEE/CIS railways had the same kinds of entrenched interest groups (subsidies to favoured passengers) that prevailed in other countries: in addition, many of these railways had a well-established tradition of requiring shippers to pay inducements in order to obtain a reliable supply of empty wagons. There were many reasons why railways would lag well behind in economies that were already slow to change.

To be fair, the track record of expert forecasters was no better than the prior estimates of Soviet GDP. Partly for lack of information, and partly to avoid offending rail management, even the “pessimistic” forecasts of traffic on the CIS railways made in the early 1990s were far too optimistic, and the “realistic” forecasts now look ludicrous. It is hard to see how any CIS railway manager, even if inclined to carry out radical change, could have made a case for planning to deal with what actually happened.

However understandable the slowness to change might be, the impact of reluctant adjustment has been expensive. Falling freight traffic dramatically reduced the revenue base of the CEE/CIS railways. Though passenger traffic did not fall as fast as freight, the traditionally lower passenger fares meant that railway earnings (revenue minus operating costs) actually suffered from retaining more passenger traffic than freight. Most significantly, when labour productivity fell, and labour costs thus rose relative to other expenses, railways either had to raise fares and tariffs (and lose even more traffic) or lose even more money. Some railways even did both.

When earnings started to erode, the CEE/CIS railways did exactly what all railways do – they began to postpone maintenance and to delay replacement of rolling stock. In the first few years this was acceptable because traffic had fallen so far that the existing rolling stock fleets were far too large, and track structures were initially strong enough to survive a few years of neglect. Unfortunately, again as is common in most railways, the expected fat years never came, and many railways are increasingly in need of spare parts and maintenance expenditures just to be able to handle current levels of traffic. Though the problem of neglected maintenance is more severe in some railways than others, especially because the fall in traffic has reduced wear and tear on track, the need to resume normal maintenance schedules will become serious for all in the near future. Perhaps more important, many of the CEE/CIS railways, which began the transition period with technology that was not economically operable with inputs priced at real world levels,<sup>4</sup> have not been able to reequip themselves with world class technology, because neither they nor their governments have been able to afford it. Unable to invest properly in up-to-date technology, their costs are too high and quality control inadequate – and they have fallen even farther behind.

Probably more important than the physical deficits are shortages in the skills needed for planning and management in a market-driven context. For years observers have concluded that even market economy railways tended to be production oriented with practically no knowledge of, or interest in, customer needs. The basic tools for market management, especially the ability to relate costs directly to revenues for particular market segments, are only now beginning to be applied in western Europe (some in the European Commission would argue that this has not happened even yet, mostly because many of the EU railways feel no real pressure to do so). For the most part, the information and managerial infrastructure of communications, computers and managerial methods that is slowly emerging in market railways has not yet begun to emerge in the CEE/CIS railways. Even railways that bought computers normally do not have in place the organisational structure or managerial objectives needed to make use of (and sense of) business information. And the young and market-sophisticated professionals who are beginning to take over many companies are not at all interested in railways when other sectors of the economy are so much more profitable.

The CEE and CIS railways are hopefully now witnessing the end of the worst of the downward spiral in their economies. As Figures 13 and 14 show, their traffic has stabilized and has even resumed growth in some countries. They are in weakened physical condition, and lack most of the tools needed to become successful in the market economies that are growing around them. They are carrying labour forces and physical plants that are far too large for current, or rationally predictable future business. They have inherited tariff structures (especially cross-subsidies between freight and passenger services, and among various freight categories or commodities) that will require thorough change in a competitive context. They know that the future structure of the economies they serve will never recreate past traffic levels or patterns, and they know that the role of government in assuring their market share will never recur. They face manifest challenges in restructuring, and must do so in the face of large investment backlogs and strong competition. These are massive challenges, and there is no assurance that the challenges can be met, nor is there a blueprint for meeting them.

### **3. THE CHANGING ENVIRONMENT FOR TRANSPORT AND FOR RAILWAYS**

Railways exist to provide transportation, and transportation demand is a result of the structure and size of the economy. In the planning era, railways were spared the uncertainty of predicting economic trends because they responded to instructions from planners. In the market era, though the role of government in managing the economy will still be large, railways will have to become far more sophisticated in understanding market needs and trends.

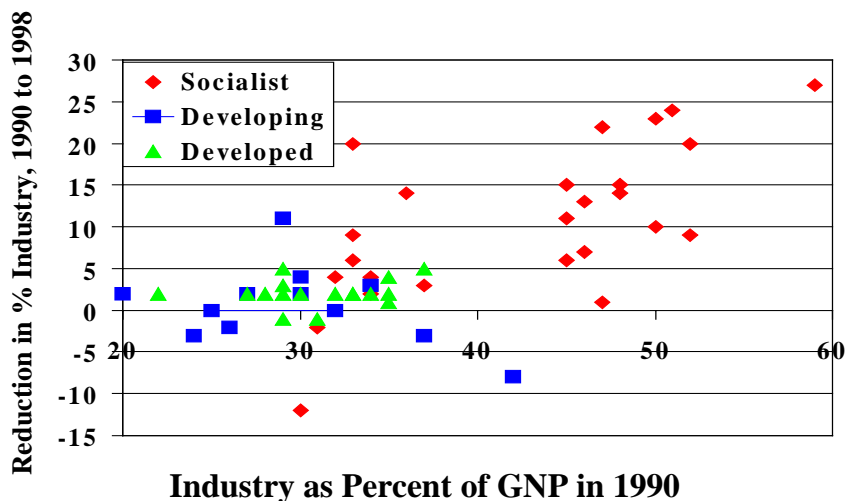
In looking at the broad future of the transition economies, the EBRD reached four general conclusions<sup>5</sup>:

- 1) Transition will be a long and difficult process (i.e. the first ten years have only been the beginning);
- 2) While conditions at the start (and at present) limit what can be done, making the right decision among the crucial policy choices can still have an influence on future outcomes;
- 3) There is a need not only to pass new laws and regulations, but also to create the cultures that will accept and enforce them; and
- 4) New firms will be vital to the process of economic growth and the restructuring of the old dinosaurs. This is a critical set of conditions to be kept in mind in attempting to translate country scenarios into railway futures.

In looking at the future of the economies of the countries involved, we need to emphasize that it has proven to be extraordinarily difficult to get predictions right. Few economists foresaw the Tequila Crisis, or the Asian Crisis, and predictions about the US and Japanese economies over the next few years are best left to the foolhardy. About the best we can hope for is a general indication of what may happen. In the broadest terms, the first determinant of railway growth will be overall economic growth, with those countries doing best which make the fastest and best conceived transitions. This said, Figure 16 compares the change in the share of the industrial sector for a number of developed, developing and socialist countries between 1990 and 1998. It is significant that the socialist countries had the highest degree of industrialisation in 1990, and that they had the highest reduction in the degree of industrialisation between 1990 and 1998. The nature of this transition inherently implies a different structure of the economy, with far less emphasis on the traditional

railway-shipped products than in the past, so the rail freight markets in most countries will almost certainly grow somewhat more slowly than the economies as a whole, at least until the transition is fully completed. The transition from muscle-bound to limber is proceeding.

Figure 16  
**Industry as Percent of GNP: Change 1990 to 1998 versus percentage in 1990**



Moreover, the types of products and services increasingly demanded in the new economies will put a premium on higher quality of transport, meaning that trucking shares will grow much faster than railways except in countries or regions where highways are so rudimentary that no highway growth is possible. If development is successful, then rising incomes will mean more automobiles and greater use of airlines, both of which will act to limit demand for rail passenger services, especially in the wealthier CEE countries. Overall prospects for rail traffic do not offer an assured living.

The generalised approach may even be more difficult in many of the CEE/CIS countries because the development of the economies may be as much related to politics and policies as to economic developments inside and outside the countries. If the transition from planning to market follows three phases – an initial collapse as the old economy is dismantled, stabilization while putting new institutions and laws into place, and finally a resumption of growth – then the countries are definitely at different points in the process. Some (Poland, Czech Republic, Hungary, Slovenia and Estonia) are well into the third phase. Others (Romania, Russia and Ukraine) are into the second phase. Some (Belarus) may not have even reached the first phase. Some countries (Serbia, FYR Macedonia, Armenia, Georgia, Azerbaijan, Russia) face internal conflicts that could seriously restrict their ability to develop at all. Unfortunately, conflicts in these countries, if they cannot be resolved, will inevitably restrict the ability of neighboring countries to develop and (because they are physically interconnected) will impact with particular weight on the railways in the region.

One of the primary forces affecting the region will be the impact of the accession policies of the EU. As the EBRD conditions suggest, EU accession would be important in two ways: first, the accession countries are likely to receive a boost in growth and investment from their initial years of membership, and their growth is likely to spread to adjoining countries; and, second, accession will enforce exactly the kinds of change in policy, laws and private sector development that are crucial to sustain the transition after the initial changes are made. It is at least reasonable to hope that non-accession, adjoining countries will also benefit from much closer exposure to the changes in the legal and policy environment that are necessary to underpin a modern market economy.

A similar set of changes may result from the impact of the World Trade Organization (WTO) in both accession and non-accession countries. Despite the controversy that surrounds the WTO, it is clear that the implementation of WTO policies will act to greatly expand trade and increase contacts across borders. The ensuing growth in trade, especially, will pose both an opportunity and a challenge to CEE and CIS railways. Countries that positively respond to the opportunities of enhanced trade will both grow faster and increase their need for higher quality, long-distance transport – the natural market area for rail transport (especially because customs formalities are more easily handled on railways than on trucks).

More broadly, there will be several policy questions that governments need to face that will have an impact on their transport sector and their railways. The first is likely to be the attitude of the governments toward market-driven structures. Governments which are in favour of market economies should logically favour market organisation and incentives for their transport sector and especially their railways: unfortunately, even in western Europe this is often not the case. Instead, political philosophies and special interest pressures have caused some countries to shield state “enterprises,” especially railways, from market forces. These practices have created nearly as many economic dinosaurs in the West as in the East, as the deficits of the EU railways demonstrate. Fortunately for the EU railways (and despite their resistance to change), the European Commission is equally determined to force the adoption of market structures for rail enterprises and to prevent them from being shielded from national and international competitive forces.

Governments in both eastern and western Europe have also differed greatly in their reliance on competitive forces to bring about efficiency and market responsiveness. The alternative to competition (and sometimes its concomitant) is good regulation. Without competition or regulation, there is only state ownership and management that might ensure responsible behaviour on the part of enterprises.

Both competition and public interest regulation are difficult concepts for those emerging from a planned economy. Competition looks chaotic and wasteful, especially to railway managers who believe strongly in economies of scale. Good regulation is based on exactly the kinds of legal and ethical reform that are difficult for countries used to the more arbitrary exercise of power that planning featured. For parts of eastern Europe, especially the smaller countries like Slovenia or Hungary, rail freight regulation may not be particularly important because trucking competition will adequately constrain rail pricing behaviour as it does in all of western Europe. For the larger CIS countries, especially Russia where over 90 percent of surface ton-km goes by rail, competition will not be possible without rail versus rail competition which will almost certainly need to be delivered by different companies operating on the same tracks: that is, infrastructure separation with competing freight enterprises. This will require a degree of regulation and oversight more akin to the North



American model as applied in the US and Canada. In all of these cases, governments will decide on the structure and depth of regulation, but these regulatory decisions will have a strong impact on the resulting structure and behaviour of CEE and CIS railways.

A paired issue is the role of the private sector, both because of its implications for organisation of the transport sector, and because of implications for regulation. Since the 1940s or earlier, European governments have shared the common belief that railways are part of the “commanding heights” of the economy which are too important to be left to the private sector to own or operate. Events outside Europe began to call this belief into substantial question. US railways, and the Canadian Pacific railroad in Canada, had long been privately owned and operated, and they are among the most efficient carriers of freight in the world. In 1987, the Japanese Government, confronting a financial disaster even larger than that of many European railways, decided to break up and privatise major parts of the old Japanese National Railway (JNR), and the results have been highly favourable. In the early 1990s, governments in Latin America and Africa have decided to shift responsibility for delivery of rail services to the private sector: today virtually all of the railways in the Americas, including suburban passenger services and some major metros, are in private hands for operations. Results of this concessioning effort have been encouraging as well. In the mid-1990s, the UK Government broke the old British Railways into a number of parts, including a separate company for infrastructure and a number of companies for rolling stock supply and for operation of passenger and freight services.

Whatever the perception of the success of the individual experiences, taken together they have eliminated any argument that there is anything necessarily public about the provision of rail operating services. Experience clearly establishes that the private sector can provide rail services as well as or better than the public sector. The experiences are also raising the question of whether there is any reason why the public sector needs to run railways and the burden of proof is gradually shifting toward a presumption that the private sector is at least a good option to consider.

Another increasingly important influence on European transport and railway policy is concern for the environment. Many western European countries are giving more intensive consideration to environmental issues such as localised air pollution in urban areas, greenhouse gas emissions (directly driven by energy efficiency), highway congestion, especially in the transalpine transit areas, and related issues such as highway safety. These environmental concerns are certain to be exported into the accession countries as a part of the overall set of common EU policies; as in the EU, they may materialise as inducements meant to increase rail traffic, as rail is (sometimes erroneously) seen as a favourable alternative to highway transport. Typically, these inducements will include reduced or marginal cost infrastructure access charge regimes for rail freight (as recently announced in the UK), and subsidies for urban or regional passenger transport. CEE and CIS countries have tended not to share the same environmental concerns, partly because they cannot afford the cost of fixing them and partly because it has, paradoxically, proven harder for governments to regulate the environmental misbehaviour of their own government enterprises than that of private enterprises – what should be called “bear-hug” versus “arm’s-length” treatment. As economic development and privatisation proceed, the impact of environmental concerns is certain to be felt more strongly in both CEE and CIS railways.

“Marketisation,” competition, regulation, private sector involvement and environmental concerns should all be good reform platforms for railways – both East and West. Though the existing monoliths may not enjoy the way in which these considerations are likely to force change in the current “fortresses”, the overall effect on railway traffic will be favourable. The arguments behind

the Commission's White Paper on Railway Policy and its conclusion that the only way to save the Community's railways is to force change in this direction were forcefully stated. Though not always stated so explicitly, many of the governments in CEE and CIS countries have reached similar conclusions about the need for a railway shakeup.

There are also clear yellow and even red signals that will influence the general speed and direction of railway changes. Deepening of the EU and extension of its policies – either directly through accession, or indirectly through the need for adjoining countries to harmonise policies – will limit the ability of countries to pay rail subsidies, for two reasons. First, the EU rules will restrict rail subsidies (and service provision will increasingly be open to competition from other providers) to local passenger services and to infrastructure (which will be open for all licensed users on a non-discriminatory basis). Second, countries wishing to join the Euro zone will have to meet stringent limitations on total government spending, and rail subsidies will loom large within those limits.

More broadly, rapidly growing trade (be it accession, freer trade agreements or the WTO) will increasingly expose closed national economic practices to international practices and competition. The comfortable protections of the past will be pressured by international comparisons and suppliers. Perhaps most important, within the next decade most European governments will have to face a crisis in how to fund expensive social programs (especially retirements) in the face of a shrinking and aging labour force. Overall, though there may be good reasons why CEE and CIS governments may want to foster the growth of their rail sectors, there will also be a lot of reasons why they (and their western counterparts) will find it hard to put much money behind such policies. The CEE and CIS (and, in fact, EU) railways will have to move forward without having much access to the national treasury, except for support for critically needed social programs for local transport.

It is also important to emphasize that the smaller and medium-sized railways in CEE and CIS countries cannot simply aim at the conditions in the EU of today as their target for reform. The European Commission is moving strongly to force further change in the directions already established. Infrastructure separation, now required only at an accounting level, will be required on an institutional level so that there are no links and conflicts of interest between operators and infrastructure providers. Pressures to open up national rail infrastructure for more competition, especially by freight providers, are likely to intensify. Private sector operators, particularly for various types of freight services (especially containerised freight) will surely enjoy a growing role. Separation of regional and suburban passenger operators from national operators will be extended, and local and regional governments will increasingly demand that they be allowed to put their services up for competition.

Nor is the North American model immutable as a broad target for the larger CIS railways. Deregulation (of trucking, railways and airlines) in the US and in Canada touched off rapid growth in productivity and market development that shows no signs of slowing. In fact, events in the US and Canada are perhaps the best evidence to support the European Commission's evident intention to reform the EU railways. Merger trends over the past decade have dramatically changed the structure of North American railroads, and it is likely that at least a few more consolidations are in prospect. Moreover, many observers in North America are arguing that the rail industry does not have, and may never have, the kind of earnings that would support a stable and growing industry. At the same time, the Surface Transportation Board (STB) has concluded that enhanced rail versus rail competition should be a consideration in any future merger proposals. All in all, wherever they look, the CEE/CIS railways face difficult challenges in restructuring based on unclear and rapidly moving targets.

#### **4. FUTURE RAIL STRUCTURES IN THE CEE/CIS COUNTRIES: WHERE TO FROM HERE?**

If, to paraphrase the EBRD Transition Report, the first ten years of transition have left a lot of hard policy questions unanswered, then it would be heroic to provide anything more than a general scenario here for what might happen. Any discussions about the future of CEE/CIS railways will have to be seen as having a considerable range of uncertainty. With this in mind, there are a set of assumptions that could provide a basis for looking ahead, even if it is likely that at least some of them will not turn out to be true in all cases:

1. With only a few potential exceptions, due to conflicts (Macedonia, Serbia, Armenia, Azerbaijan, Georgia) or unusual slowness to start transition (Belarus), the period of collapse is ending and the basis for stability and new economic restructuring is in place in many of the countries. Subject to the influences of economic cycles worldwide, the CEE and CIS economies can look forward to steady growth. Growth rates will vary, with those countries doing best which move the fastest to adopt democratic governments and implement the legal and regulatory regimes needed to support market systems.
2. The planned economy structures will shift to a market structure in which increasingly higher value goods and services will play a larger role, and in which individuals will have more income with which to make their own transport decisions. Highways will be built or expanded, leading to increased use of trucks and autos. Airline travel will play a much larger role in longer haul passenger transport. Urban densities will shift toward forms which will require less transport (or, at least, less rail-dependent transport). In short, transport networks and services will increasingly resemble those of western Europe for the accession countries and the smaller CEE countries, and in the larger countries (particularly Russia) they will come to resemble those of North America.
3. Although rail market shares will be falling toward those experienced in the market economy countries of similar size -- between 10 to 15 percent of ton-km in western European freight to 40 percent in the US and Canada, and around 8 percent of the passenger markets as in western Europe -- rail market shares will remain higher in CEE and especially CIS countries for the foreseeable future because it will not be possible to construct and maintain adequate highway networks rapidly, and because the income per capita levels will not catch up to the West for many years, if they ever can do so completely<sup>6</sup>. It is also interesting to see that, as Figure 17 shows, there has been a shift in the traffic pattern of the CEE and CIS railways (except the Baltic countries) from freight toward passenger. It is not clear whether this is a permanent situation, or is merely an artifact of the transition which may have impacted freight generation more than passenger demand. It is possible that this is permanent since the shift brings the CEE railways much more in line with EU conditions than before.
4. Russia furnishes a particular example of the difficulty of changing rail's market share because the highway network is and will remain limited, especially in eastern Russia. In addition, the mineral production base in Russia is enormous, and much of this production will be rail dependent. Kazakhstan's coal reserves may also act to keep a higher share in Kazakhstan than otherwise would be the case.

5. Policies concerning rail industry structure, including infrastructure separation, competition and subsidy management will be heavily influenced by EU practice. There will be a wide range of variation in attitudes toward private sector involvement (as, indeed, there is in the EU) and countries will be free to find their own approaches toward privatisation.

	Figure 17		
	Passenger-kilometres as		
	% of total traffic units		
	1988	1993	1999
<b>CEE COUNTRIES</b>			
Bulgaria	31.7	43.1	42.3
Czech Rep. + Slovakia	21.8	25.8	27.3
Hungary	35.5	52.4	50.2
Poland	30.2	34.2	32.1
Romania	33.4	47.0	43.6
Turkey	45.9	46.3	42.7
Yugoslavia	19.9	49.8	-
Croatia	28.9	37.4	35.9
FYR Macedonia	28.9	12.7	35.9
Slovenia	27.9	20.0	28.3
<b>CIS AND BALTIC</b>			
FSU	9.5	9.6	10.3
Russia	9.5	14.4	10.5
Ukraine	12.6	23.6	23.3
Kazakhstan	4.3	9.8	8.1
Belarus	16.3	31.2	35.6
Estonia	17.2	16.2	3.3
Latvia	16.4	19.3	7.5
Lithuania	11.7	21.4	8.7
Armenia	8.0	49.1	12.5
<b>WESTERN COUNTRIES</b>			
Austria	42.1	45.4	35.5
Finland	29.1	24.5	25.9
France	55.0	56.4	55.4
Sweden	25.5	24.3	34.0
United Kingdom	65.5	68.8	67.3
Germany	41.0	47.9	50.4
USA: Amtrak only	0.6	0.6	0.4

#### 4.1. Structure and ownership

Against this backdrop, at least the broad outlines of the future structures of CEE and CIS railways are emerging. These options are being driven by a number of considerations, including country specific factors (size of the country, existing rail role including the mix of services),

privatisation objectives (and methods for doing so, such as concessioning, franchising or privatisation), the need for competition (passenger and freight, intermodal versus intramodal) and regulation, and the feasible time frame for reforms.

Figure 18  
Structure and Ownership Interactions

Ownership →

Structure		Public Ownership			Partnerships: Operating Concessions or Franchises			Private Ownership		
		Infrastructure	Passengers	Freight	Infrastructure	Passengers	Freight	Infrastructure	Passengers	Freight
	Integral/Monolith	Belarus	Belarus	Belarus	Argentina, Brazil	Argentina, Brazil, UK	Argentina, Brazil	New Zealand	New Zealand	New Zealand
Integral, with Accounting Separation				Poland (LHS)		Poland (LHS)				
Dominant Integral with Separated Minority Operators and Accounting Separation	Kazakhstan, India, China(?)	India, China	India, China		Kazakhstan, India	Kazakhstan, India	US, Canada, Japan	Amtrak, VIA	US, JR Freight, China	
Separated Infrastructure	Poland, Hungary, Slovenia, E.U. Model, Russia	Hungary, Slovenia, Russia	Hungary, Slovenia, Russia	Estonia	Poland, Romania	Estonia, Russia	UK	UK	Poland, Romania, UK	

Figure 18 – interactions between structure and private role - gives some examples of the structural and private sector options which are evolving in western Europe and which appear likely in CEE and CIS countries. This figure shows three basic structural options. First is integral infrastructure and operations, with an accounting separation for infrastructure in order to permit lines of business for the operating companies and (if desired) non-discriminatory entry of outside operators. The second is a middle option in which infrastructure remains integrated with the dominant operator, while the minority operators are separated from infrastructure and pay an access fee. There would probably also be accounting separation of infrastructure from the dominant operator in order to permit competition with the dominant operator if this is desired. This is in effect the situation in the US with Amtrak and the freight railways, and in Japan with the passenger railways and JR freight. The third option is full institutional separation in which infrastructure has no relationship with any of the operators and may be open to competing operators. Accession countries will most likely be required to adopt the third option, while non-accession countries at least in principle can choose any of the three.

On this scale, railways will tend to minimise institutional separation when traffic density is low and the traffic mix is simple (overwhelmingly passenger or freight), and when the railway is relatively small. When the traffic mix is predominantly a single market (freight or intercity passenger) but there are significant other users for which the economics need to be separate (especially PSO-supported), then keeping the dominant user integrated with infrastructure makes

sense. When there is a balance of uses with no single user predominant, when there is a need for real competition among users on the same line and when the economics of the various services need to be clearly separated, then institutional separation becomes necessary.

Arrayed against these three structural options are the private sector possibilities. The starting point is the status quo – essentially total public ownership and operating control. The second option is public ownership of many of the assets, but a shift to private delivery of services using management contracts, concessions or franchises. The third option is privatisation of assets and private operation. Privatisation, *per se*, is only a means, not a goal in itself and the choice of preferred option is, for example, not prescribed by EU regulation. Some countries oppose privatisation as a matter of principle, others are willing to have private operators but prefer to own major assets in the public sector, and others want the best transport solution regardless of ownership.

The location of CEE/CIS railways on the diagram is based either on announced government intentions or on a rough estimate of the likely status of the railway within the next decade. The exact placement of some railways is of course arguable but the diagram emphasizes several useful conclusions. First, there is no “one-size-fits-all” recipe. Depending on policy and circumstance, there are a number of approaches which are consistent with EU objectives and with the economy the railway serves. Equally important, mixed solutions are likely, and there is no basis for dogma on the role of the private sector. Subject only to the basic need to have an accounting separation of infrastructure costs and internal profit centres for different lines of business activity, including an allocated share of infrastructure costs, it is entirely possible that the CEE/CIS railways will be represented in many of the cells of the matrix -- and each could be the “right” approach. A few examples of market economy railways are included in order to show the range of experience worldwide: every cell has at least one example.

## 4.2. Competition

Reaching competition objectives can be achieved in a number of ways. The simplest, as in the UK, is to rely on trucks to provide adequate competition for freight railways. In the UK (where the freight company carries only 8 percent of intercity ton-km) or indeed in the EU (where railways carry only 15 percent of freight ton-km), this will suffice to ensure that railways have no market power to abuse. Intra-rail competition in the freight market can be achieved either by competition between different rail lines (today, this only happens in the US and Canada), by one company operating over the lines of another (trackage rights or haulage agreements, both of which are common in the US and Canada) and by having two or more companies compete over the lines of a neutral infrastructure owner (the EU objective).

Competition in passenger markets is somewhat different. With very few exceptions, there is already enough competition from passenger automobiles, buses and air transport to ensure that intercity rail passenger enterprises will have no market power. And, as discussed, this intermodal competition is likely to get much stronger over the next decade as new businesses develop and as incomes rise, so it does not seem likely that CEE and CIS countries will need to develop competing rail passenger enterprises. Certainly there is nothing in the rail passenger markets in the US, Europe or Japan to suggest that abuse of market power in the intercity markets is a matter of concern, and it is hard to see how the CEE/CIS countries would be much different.

While competition *in* rail freight and intercity passenger markets may be driven by intermodal forces, competition *for* socially determined rail passenger services is already well established in market economies and seems likely to intensify both in the West and in the CEE and CIS countries. It is not feasible to have intra-rail competition for suburban rail services, and increasing urban density (with related congestion and pollution) can rule out buses and private autos. Passenger franchising in the UK, concessioning of suburban services and the metros in Buenos Aires and Rio de Janeiro, and competitive concessioning of suburban services in Sweden, for example, have all established the benefits to be achieved from competition for markets on a minimum subsidy basis. The new Polish railway has announced intentions to bring in concessionaires to operate the suburban systems in Warsaw and Gdansk/Gdynia/Sopot, and concessions have already been awarded in Estonia. Given the widespread use of competition for these social services in the EU, it seems highly likely that a similar process will eventually be used in CEE/CIS railways.

The creation of competition will be particularly important in the CEE/CIS countries (especially the non-accession countries) because it will be difficult to create regulatory agencies that could serve in the place of competition to protect against exercise of market power. The 1999 EBRD report highlighted the importance of creating the legal and regulatory framework, and a culture of compliance with the set of rules and values that market economies depend on. The report emphasized that creation of these rules will be a challenge in all areas of the economy: when expectations of regulatory success are not high, competition in and for markets is the only workable alternative. In some cases, creation of competition *for* railways will have to go beyond trucking and water to include creation of competition *from* railways on common infrastructure.

### **4.3. Non-core activities**

CEE/CIS railways face another distinct set of problems as a result of the practice in planned economies of organising railways as “states within a state.” Railways were not only monolithic transport monopolies, but also vertically integrated producers of their own supplies and services (often including wagons, coaches and even locomotives and concrete sleepers) and mini-welfare agencies providing their own restaurants, food stores, schools, hospitals and a panoply of other activities which were only marginally related to transportation activity. As a general rule of thumb, half of the employees of CEE/CIS railways were actually involved in providing transport, and the other half were involved in activities which would be provided separately in market economies.

Railways have found it particularly hard to spin off non-core activities for several reasons. They believe that railway needs are so specialised that outsiders could never fully understand or meet railway requirements. For example, they argue that spinning off locomotive manufacture would only confront them with exchanging an international monopolist they do not control for a local monopoly they think they do control. They argue that generalised engineering education will not suffice for specialised railway needs, so internal schools are needed. Many railway health services are provided “free” as a form of non-cash income and it would be difficult to replace these with outside services unless salaries are increased accordingly, and this would be difficult to do because of the implications for wages in the rest of the economy. Also important (but unstated) is the fact that bureaucratic status is based on the largest possible (labour) turf, and that managers (if not always employees) benefit from a wide range of economic rents and unpriced perquisites which would be harder to retain under external competition and supply.

Under a planned economy, it was argued that really large entities, such as railways, could efficiently be independent of the rest of the economy because their needs were large enough to justify self-provision. Whether or not this was true under socialism, it is clearly not sustainable under market conditions because equipment, supplies and services can invariably be purchased at lower cost and higher quality by competition from sources outside the railway. Education and health services are recognised in market economies as governmental and not enterprise responsibilities, and these are being shifted outside the railway to public control. Railway social burdens and internal inefficiencies become critical under competition because their competitors do not carry the same costs and gain a competitive advantage. Non-core activities rapidly get driven out of railways because they are a distraction for management trying to survive in the transport arena, and because they are a burden on the costs of the enterprises. The process of spinning off of these non-core activities has already begun in many countries, and it will be driven to completion as reform proceeds.

Overall, and allowing for the differences among countries and railways, the agenda for change in the railways of the CEE and CIS countries is clear: first, massive institutional change will be needed for these railways to adapt to the challenges of management in a market context and, second, given a market-based organisation, infrastructure and rolling stock will need repair and updating. The priority for institutional change before investment is deliberate in order to counter the invariable railway response, which is to try to fix the assets first and then argue about the organisation later (“with more investment, all my problems will be solved”). Beyond any argument, the overwhelming issue is structure and organisation because that is the only basis for defining which assets will be needed, and in which condition, in the future.

#### **4.4. Priorities in reform**

The first stage in reform is structuring around markets so that revenues and costs (and profits or required subsidies) can be related to each market - often called Line of Business management. This will be consistent with current EU practice if infrastructure is treated as a cost centre with related infrastructure access charges passed on to the operating companies (intercity passengers, suburban and regional passengers and freight). If (as seems likely) EU rules eventually require actual institutional separation for infrastructure, the accession countries will be required to separate infrastructure: non-accession countries could remain with accounting cost separation if they wish. Directly related to Line of Business management is a mandatory agreement on public service obligation (PSO) payments from government to operator for social service deficits caused by mandated services or socially controlled fares (or both). In the EU, such agreements must be in contractual form, which has proven to be the best way to enforce the relationship: CEE/CIS countries are likely to adopt contractual agreements especially if the services are provided by concessions or franchises competing for the market.

Competition objectives will also be of high priority in setting structures. At least in principle, EU accession railways will meet competitive objectives through the open access and subsidy rules for social services: beyond this, intermodal competition will be sufficient and development of economic regulation (as opposed to safety regulation) may not be a high priority. CIS countries, especially Russia, may either adopt open access or various forms of controlled access to promote intramodal competition. Because of the relative lack of a highway alternative, they will not be able to rely on intermodal competition to control railway market behaviour and development of adequate regulation will be a substantial question.



Though not typically thought of as “regulation”, in fact, the oversight function for competitively awarded concessions and franchises involves many of the same issues as traditional economic regulation. The oversight agency has to review efficiency, reasonableness of charges, coordination with other modes, anti-competitive behaviour and compliance with applicable laws. Since most CEE/CIS countries will be considering some forms of competition for markets, they will also not be able to avoid development of the appropriate oversight agency.

Ownership will be as much a question of politics as economics. The EU is officially agnostic about use of the private sector as opposed to the public sector and there is nothing in EU directives that would directly require countries to adopt a policy of promotion of the role of the private sector. The economic case for private operation (and, to a lesser degree, ownership of infrastructure), based on experience in North America, Europe, Japan and Latin America, is not without dispute but is about as compellingly favourable as real world experience ever is. Private sector operation rapidly improves efficiency, increases demand and improves market focus. For this reason, a number of CEE and CIS countries, including Estonia, Poland, Romania and Russia, have begun to bring the private sector into operations, and there is every reason to believe that other countries in the East will be looking at the possibility.

Private sector involvement does have opposition which will limit its adoption. Some oppose privatisation on principle. Some, particularly labour unions and local suppliers in protected markets are afraid (rightly) that efficiency gains might come at their expense. Some are reluctant to open up railway transactions to transparent competition.

The net result of this tugging and hauling is that most of the eventual solutions will be a mixture – which is probably the right answer anyway. True public monoliths are dying, and few will remain within a decade even in the CEE/CIS region. Total privatisations (as in the UK, Japan, New Zealand, parts of Australia or the US) will be equally rare because most European governments, and the CEE and CIS countries, view rail infrastructure as being an essential part of public infrastructure. Most systems will thus be mixes, with infrastructure ownership remaining in public hands, some passenger services publicly operated and some operated under concession or privatised, and all freight services either concessioned or privatised in their entirety.

These structural priorities are driving investments in a direction different than in the past. Highest priorities will be in getting the new organisation structures established, including management analyses, installation of accounting systems based on international accounting standards, and acquisition and installation of modern management information systems, including computers and communications needed to operate them. Where there is infrastructure separation from operators, additional investment will be needed to acquire and separate infrastructure costs and plan and manage track capacity in a non-discriminatory way. Where there are PSO contracts or concessions, there will be an added burden on information systems to collect and verify information needed to agree on PSO or concession contract payments. Taken together, this “managerial software” package is critical to all of the transformations needed to support market-based management and no railway should undertake reform without it.

An equal and high priority could be called the “social software” which will be needed to support restructuring. These are not strictly railway investments, but they are crucial to the political process that will permit restructuring to go forward. Of these, the most important is rail labour. Figure 15 showed that labour productivity on the CEE/CIS railways actually fell during the transition because labour forces did not adjust as fast as traffic fell. Though some gains have been made recently

(because labour forces are finally being adjusted and traffic is stable or rising), the CEE/CIS railways are still well behind their previous levels and at best half of the labour productivity levels achieved by private operations. All seriously reforming railways will thus need to find a way to adjust their labour forces faster than mere attrition would yield. The Polish railway, for example, is undertaking (with World Bank and EBRD assistance) a programme of early retirement, redundancy compensation, retraining and relocation that can be a model for other railways (and governments) to examine.

PSO systems are equally a part of the social safety nets needed. In the past, social service subsidies could be buried within freight “profits”. EU rules, and economic rationality, will force a more direct approach to funding these services. If this is to be done, however, the political process will need to pass laws, provide funding and institute procedures to support PSO contracts. These will be especially important for the urban poor who will otherwise have a difficult time travelling to their places of employment. Establishing these laws will be more than a matter of money: in most of the socialist countries power was highly centralised, as was tax collection and control over finances. Shifting responsibility for rail activities to local levels will require a decentralisation of power and finance that may be a key step in the overall process of rail restructuring.

There is a similar social issue in many rural communities where local lines have been operated at a loss for years while being subsidised by freight profits. These lines will become much more difficult to support in the future as their actual economic performance becomes clear. For example, better economic analysis estimated that nearly one-third of the line-km in Poland are light-density, loss-making local lines. While it will be positive for Poland to eliminate these lines, it will also be disruptive to the areas involved unless adjustment efforts are undertaken. It seems likely that all countries will have similar problems of uneconomic services, and transitional programs will be needed in which rail services can continue while acceptable alternative arrangements are made.

There will, of course, be a need for “hardware” investments, but rarely for new capacity. Under the best of circumstances, rail traffic will be growing slowly on a physical plant that carried twice as much traffic a decade ago, so growth and gross capacity are not issues. Instead, physical investment programs will be targeted at rehabilitating that part of the current system that new market demands and traffic flow patterns will support. A well-recognised need will be to make up for infrastructure maintenance neglected during the last ten years when earnings had evaporated: of this, repairs to urban and high-density intercity trackage will be important. Similarly, in most countries rolling stock was maintained only by cannibalising other wagons or locomotives that the drop in traffic had made surplus. This worked in the very short term, but the carcasses have now been picked dry, and fresh blood will be needed. In addition, there will be some need for investment in higher efficiency locomotives, particularly diesel traction.

Fortunately, privatisation can also play a role in these investment needs. Under concessioning or privatisation, the new operators can be required to make appropriate investments (appropriate meaning profitable, of course). Included in the private investment domain is new rolling stock under various types of consortia or leasing.

#### **4.5. Time frame**

Under the most favourable of circumstances, railway reforms take place slowly. Against the internal bureaucratic and political resistance, there are two strong forces bringing reform – the need to meet EU requirements for accession countries (and countries which hope to be in the next stages of

accession), the impact of EU policies on countries subject to the EU demonstration effect, and (EU aside) the growing realisation everywhere that good railways enrich countries through efficient service and effective links to the global economy, while bad railways impoverish them. Many CEE/CIS railways are also large drains on the national budget, sometimes with deficits in excess of one percent of GDP, so finance ministers also have a stake in change. This said, reforms in most countries take at least five, and sometimes 15 years to implement<sup>7</sup>, and there is no reason to expect that the process will be radically faster in CEE and CIS countries. EU accession for the most immediate countries may take until 2005, and for the next stage will be a few years later. Overall, a safe prediction is that railway transitions will be fully underway within five years in many countries, but will not be completed in most until the end of the decade at the earliest.

#### **4.6. IFI roles**

There are a number of International Financial Institutions (IFIs) with an interest in helping with the railway transition. These include the World Bank, the EBRD, the European Investment Bank and a number of EU institutions. Each of these has a slightly different emphasis, but taken together, they can support virtually all aspects of the investment needs. To date, these needs have included: planning and analyses to support reform (World Bank, EBRD and EU institutions); investments to support restructuring and the managerial “software” discussed above (World Bank and EBRD); labour transitions and social safety nets (World Bank and EBRD); environmental cleanup (World Bank and EBRD); infrastructure investments for rehabilitation (EBRD, EIB and World Bank); infrastructure investments for upgrading or new capacity (EBRD and EIB); rolling stock investments (EBRD and EIB); and support for all aspects of private sector involvement (World Bank and EBRD).

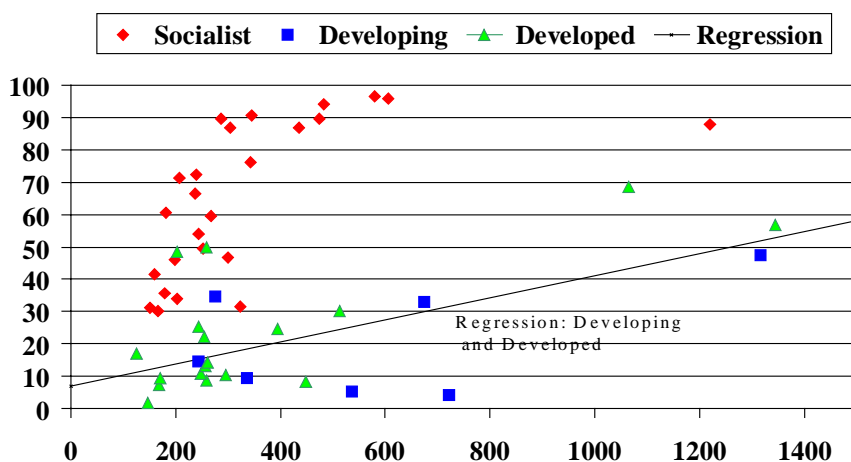
### **5. SUMMING UP**

Change and restructuring have been difficult in the formerly planned economies, nowhere more so than for their railways. Shifting to market-driven organisation attacks established ways of thinking, threatens entrenched power bases and erodes secure economic positions. In many ways, the resulting resistance to change in CEE and CIS railways simply mirrors the same resistance that has been shown by EU and North American railways as their transport markets have grown and changed. If change is the only constant, then resistance to that change and fear of an uncertain future (and nostalgia for a better understood, usually idealised past) are the only absolutely certain predictions.

In one sense, CEE and CIS railways are right to be fearful of change since their dominant role in the economy must eventually end. Railways in the US and Canada, operating in long-distance markets where rail economics have full sway, carry no more than 40 percent of the ton-km, and earn only about 10 percent of the freight revenue, in their transport markets. EU railways carry only about 15 percent of ton-km. Comparing Figure 19 with Figure 6 shows that rail market shares in CEE/CIS countries are still unusually high compared with either North America for large railways or with the EU for smaller railways. This suggests either that the physical impediments to use of alternative modes, especially highways, are still a governing factor, or that the main impact of transition so far has been felt mostly in total economic output while the full impact of downward shifts in rail modal share, due to changes in economic composition, may remain to be felt.

The positive face of changes in structure is equally clear: when the economy and the political system are moving ahead, it is dangerous for railways to insist on looking to the side, or even backwards. Transition is changing not only the structure and level of demand, but also the nature of competition. A positive response to these trends could assure railways of a secure (if not stable) future, and it would significantly decrease the cost to governments of the valuable social contribution which rail services could make.

Figure 19  
*Rail Share of Rail + Truck Traffic (%) versus  
 Average Rail Length of Haul  
 1998*



## NOTES

1. Opinions expressed in this paper are those of the author alone, and should not be attributed to the World Bank, its Directors or any of its members.
2. The focus of this paper is “eastern Europe”, which includes the European countries in Central and Eastern Europe (CEE) and the European members of the Commonwealth of Independent States (CIS). Partly in order to bring a useful comparison to the larger CIS railways, and partly to bring additional comparisons for larger market economies, data from North America is used as well. Unless explicitly otherwise stated, comparisons from other regions of the world are not used.
3. “Profitable” was questionable because the costs of inputs were not themselves based on costs, and the accounting treatment of depreciation was often different than in western GAAP. In fact, many socialist railways earned profits even after covering non-operating costs such as schools and health systems.
5. For example, socialist systems did not price energy properly, leading to locomotive designs that used far more energy (as much as 30 per cent) than their western counterparts. .
6. EBRD, “Transition report 1999: Ten Years of Transition”, London, 1999, p. 9.
7. The difficulty of catching up can be seen in Germany where, despite the existence of a common language and culture, and expenditure of enormous amounts of grants, incomes in the former Eastern Germany are still only 70 per cent of those in the West.
8. The first notice of the EU’s intentions came in 1991 with the publication of Order 91/440. Ten years later, this Order is not fully enforced. Partly as a result of frustration at the slowness of reforms ordered in 91/440, in early 2001, the Commission Orders 2001/12, 2001/13 and 2001/14 have made clear the Commission’s intention to enforce institutional separation of infrastructure from operations and to require separation of the various operating entities.

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Milano, May 2001





## 1. INTRODUCTION

The railways in the former socialist countries are facing a very severe crisis, especially in terms of traffic served. As this industry has large economies of scale and of density, such a crisis can become self-reinforcing and eventually, fatal, even in the presence of massive sunk costs. After a brief presentation of relevant figures on the present situation and trends, the following points will underline the similarities with the decline of western European railways and the efforts (and costs) of the present attempts to revamp the sector, both for environment-related reasons and in order to face the extreme congestion of the “dominant” road transport mode. A further point will stress the role of land-use control in keeping the rail mode viable, and the different potential for freight and passenger services<sup>1</sup>.

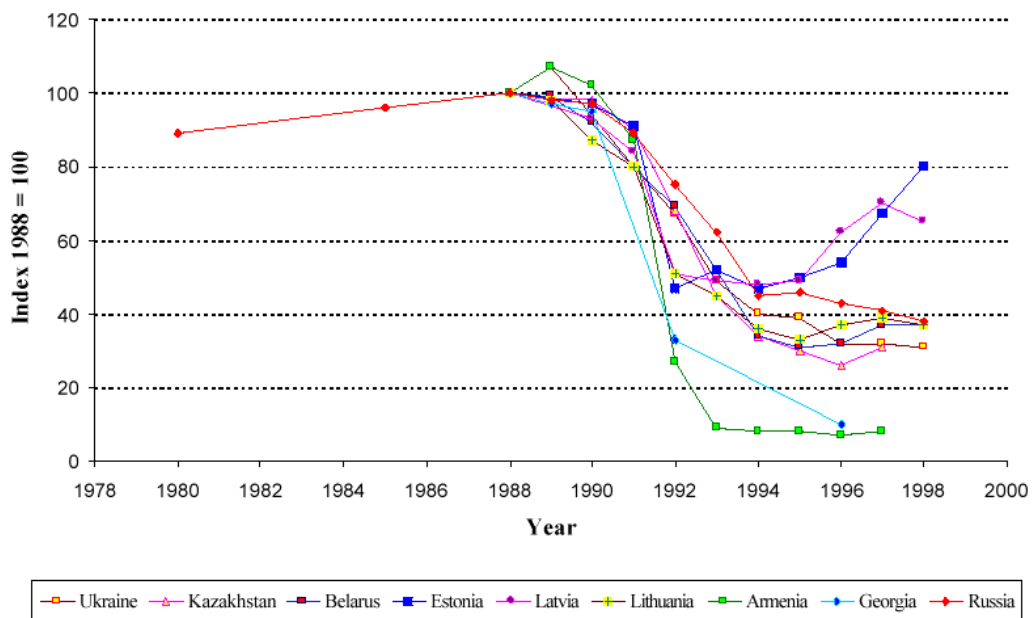
The policy issues deriving from the previous observations are strictly consequent: the role of competition for ensuring efficient operations and of the State in promoting basic investments, sound land-use control and consistent environment policies.

Finally, an important side-effect of keeping the system alive and efficient is its potential impact on the liberalisation of western continental railways: the present monopolistic position of the existing State companies and their high costs, have in fact generated a “cartel” against competition. But the opening up of this “block” to other companies with much lower costs may well accelerate the creation of a viable and integrated market for rail services, eventually implementing the basic content of the old Directive 91/440.

## 2. THE DECLINE OF THE SYSTEM: CONTINGENT AND STRUCTURAL ASPECTS

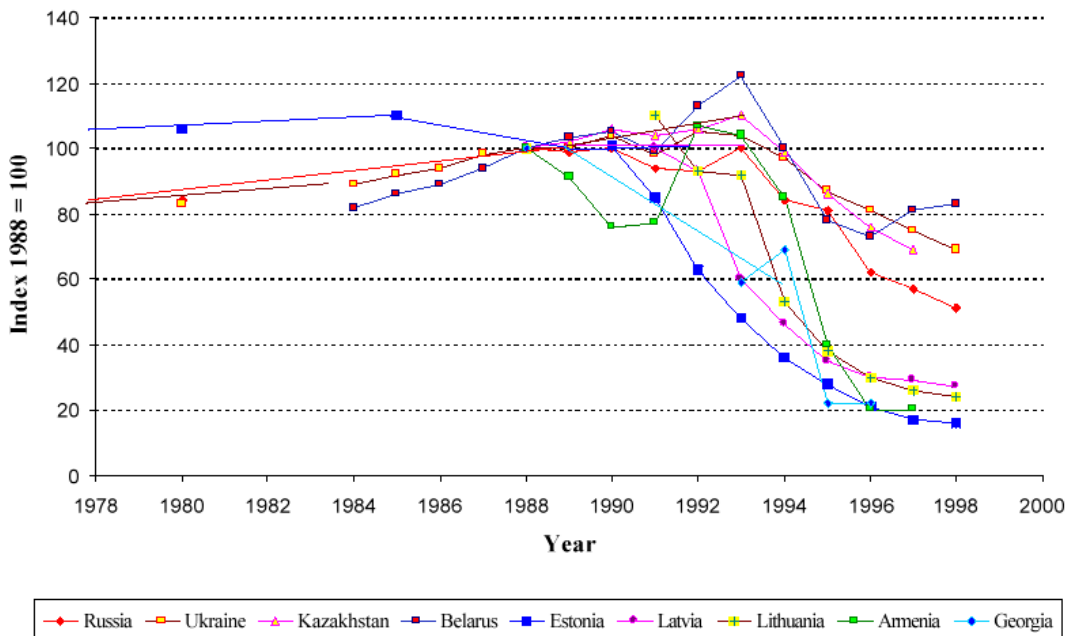
Contingent reasons for the sharp traffic decline (Figures 1, 2, 3, 4), both of freight and of passengers, are related to the reduction of industrial production in many eastern countries. But for freight, this reduction also reflects, at least in part, a structural change in the industrial production rationale. More consumption-oriented goods mean higher value-density, i.e. less physical quantities for unit of GDP and, on top of this, a typology of less “vocational” goods for the rail mode: primary goods are easier to transport by rail than consumer goods (Table 1). Another structural factor can be related to competition by road transport, far more easily “penetrated” by aggressive private operators. Both these aspects are favourable ones, and will be permanent. Hopefully, the passenger patronage decline may have a component related to the worsening of the income conditions of weak social groups, no longer able to travel: and this is supposed to be a contingent phenomenon. But private motorisation is not contingent, and therefore a relevant *share* of passenger demand may be lost beyond recovery (even in the case where *absolute* demand will grow again).

Figure 1. Freight trends in the CIS and Baltic countries (tonne-kilometres)



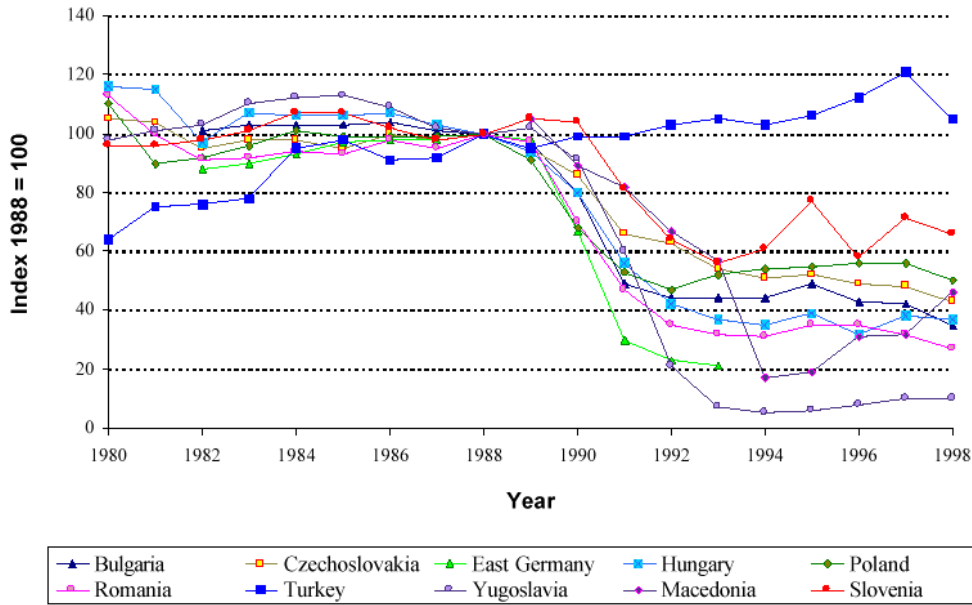
Source: World Bank.

Figure 2. Passenger trends in the CIS and Baltic countries (passenger-kilometres)



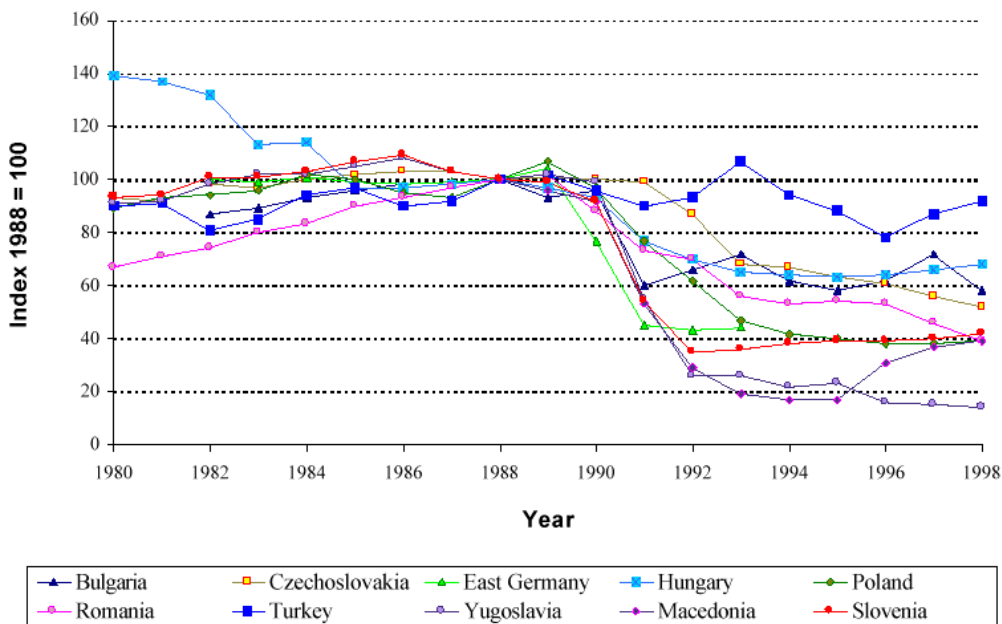
Source: World Bank.

Figure 3. Freight trends in CEE and Turkey (tonne-kilometres)



Source: World Bank.

Figure 4. Passenger trends in CEE and Turkey (passenger-kilometres)



Source: World Bank.

Table 1. Rail traffic units compared to national GDP

Country	Rail traffic units 1999 (mill. pass-km + mill. ton-km)	GDP 1999 (billions \$)	Traffic units / GDP (tr-km/1000 \$ GDP)
Germany	144 548.0	2 150.5	67.2
France	119 933.0	1 451.7	82.6
Italy	62 520.0	1 185.2	52.8
United Kingdom	57 378.0	1 403.7	40.9
Poland	76 234.0	158.6	480.7
Hungary	13 942.0	47.0	296.8
Bulgaria	9 028.0	12.3	736.6
Romania	26 964.0	38.2	706.7
Czech Republic	23 385.0	56.4	414.6
Ukraine	203 936.0	41.9	4 869.2
Russia	1 345 589.0	285.5	4 713.7
Belarus	47 403.0	14.0	3 380.1
Kazakhstan	100 559.0	22.3	4 504.5
United States	2 101 315.0	8 699.2	241.6

*Source:* World Bank database and United Nations' statistics.

Other contingent factors are related to the inadequate quality of rail service, both for freight and passengers: in the absence of any competition, quality has not been a relevant motivation for state-owned rail companies.

The present operating deficits of eastern railway companies (where data is available, see Table 3) is worrying. These values are in fact already not so different from the western ones (see Table 8).

Still worse, the potential structural factors of further decline are present in abundance. The main one is overstaffing (Table 2). The impact of competition from road has probably not yet reached its maximum and the “wage round” (using the well-known Baumol quotation) will expand the future rail production costs well beyond sustainability (this is very similar to what happened in western state-owned rail companies) (Figure 5).

Furthermore, overstaffing will absorb essential resources, which must be dedicated to investments in order to increase the competitiveness of the system. Labour-intensive structures are strictly incompatible with the rail mode: one of its main technological potentials is related to automation. The guided way and centrally-controlled traffic allow for almost complete automation (whereas road transport cannot pursue this aim). The North American experience provides a very convincing example.

Table 2. Labour productivity (traffic units/employee)

Country	Traffic unit 1999 (mio pass-km + mio ton-km)	Employees 1999 (in thousands)	Traffic units / employee
Germany	144.548	194.9	741.652
France	119.933	174.3	688.084
Italy	62.520	114.2	547.461
United Kingdom	57.378	n.a.	-
Poland	76.234	204.0	373.696
Hungary	13.942	58.0	240.379
Bulgaria	9.028	46.4	194.569
Romania	26.964	105.5	255.680
Czech Republic	23.385	89.2	262.105
Ukraine	203.936	367.9	554.325
Russia	1 345.589	1 236.7	1 088.048
Belarus	47.403	78.5	603.860
Kazakhstan	100.559	122.5	820.890
United States	2 101.315	202.8	10 361.514

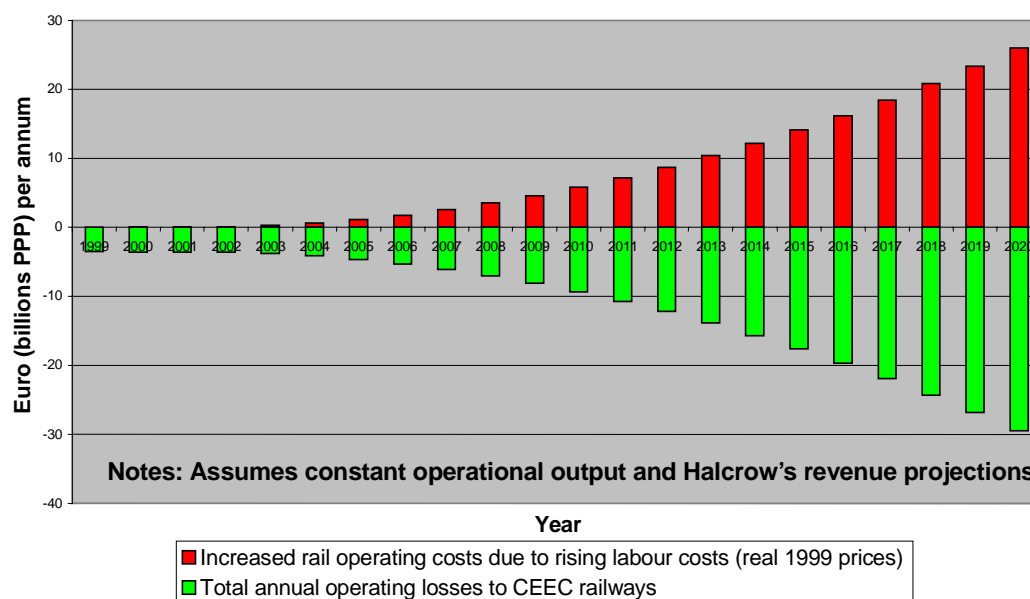
Source: World Bank Database/UIC.

Table 3. Operating ratio (costs/revenues)  
in some Eastern European railway companies (1999)

Country	Operating ratio
Bulgaria	1.65
Czech Republic	1.39
Croatia	2.73
Hungary	1.58
Poland	1.29
Romania	1.74
Slovenia	1.86
Slovakia	1.42
Yugoslavia	2.18
<b>Weighted average</b>	<b>1.47</b>

Source: Elaboration from UIC data (1999).

Figure 5. **Prospective overstaffing (CEEC countries, i.e. excluding former USSR states)**



Source: Mark Brown (Halcrow).

### 3. A “KUZNETSIAN<sup>2</sup>” APPROACH: WHAT HAPPENED TO THE WESTERN EUROPEAN RAILWAYS

In the market-oriented European countries, the role of the rail mode has been steadily declining almost for the entire past century, at least in relative terms (Tables 4, 5, 6, 7). A purely technical explanation is not entirely convincing. The rail mode, due to the guided way and low attrition, is energy-efficient and capable of economies of scale, of automation (as we have seen) and even of commercial speeds far higher than the road mode. Its decline in competing with road is mainly linked to the favourable trade-off of the road mode between flexibility in space and time, and higher energy consumption. Road vehicles are capable of going everywhere because they have a high power-to-weight ratio, and that in turn is due to the relatively low cost of energy and the availability of space for roads and for dispersed settlements.

Table 4. **EU 15 Passenger transport (1 000 million passenger-kilometres)**

	<b>Car</b>	<b>Bus</b>	<b>Railways</b>	<b>Air</b>	<b>Total</b>
1970	1 569	262	216	43	2 090
1975	1 923	306	241	69	2 539
1980	2 292	341	253	96	2 981
1985	2 496	346	262	144	3 242
1990	3 146	359	274	204	3 983
1993	3 419	360	267	233	4 279
1994	3 482	363	270	254	4 368
1970-94	121.9%	38.6%	24.7%	490.7%	109.0%

Source: White Paper, "A strategy for revitalising the Community's railways".

Table 5. **Modal split (%)**

	<b>Car</b>	<b>Bus</b>	<b>Railways</b>	<b>Total</b>
1970	75.1	12.5	10.3	2.1
1975	75.8	12.0	9.5	2.7
1980	76.9	11.4	8.5	3.2
1985	77.0	10.5	8.1	4.4
1990	79.0	9.0	6.9	5.1
1994	79.7	8.3	6.2	5.8

Source: White Paper, "A strategy for revitalising the Community's railways".

Table 6. **Freight transport (1 000 million tonne-kilometres)**

	<b>Road</b>	<b>Rail</b>	<b>Inland waterways</b>	<b>Pipelines</b>	<b>Total</b>
1970	431	283	110	66	890
1975	526	259	103	79	969
1980	661	287	113	92	1 153
1985	711	275	103	71	1 161
1990	915	255	113	71	1 355
1993	964	205	106	82	1 358
1994	1 061	220	115	83	1 479
1970-94	146.2%	-22.3%	5.0%	25.6%	65.5%

Source: White Paper, "A strategy for revitalising the Community's railways".



Table 7. **Modal split (%)**

	<b>Road</b>	<b>Rail</b>	<b>Inland waterways</b>	<b>Pipelines</b>
1970	48.6	31.7	12.3	7.4
1975	54.5	26.7	10.6	8.2
1980	57.4	24.9	9.8	7.9
1985	61.3	23.7	8.9	6.1
1990	67.5	18.9	8.3	5.3
1994	71.7	14.9	7.7	5.6

*Source:* White Paper, “A strategy for revitalising the Community’s railways”.

But Europe is assuming now that these two factors are becoming scarce, especially in environmental terms: new roads are more and more difficult to construct, and energy consumption is generating external costs of planetary dimensions.

This attitude, as is well known, has resulted in a wide set of national and European policies in favour of the rail mode, with enormous costs and with, up to now, negligible results.

National and European policies are based on investments, subsidies and heavy taxation of the main alternative mode, i.e. road transport.

Investments are almost entirely financed by the State, and this fact seems quite obvious since, in general, not even rail operation costs are covered by revenues. The amount of state investments is variable in space and in time. As an order of magnitude, it is safe to estimate this amount at 80 billion Euros in the past ten years within the Union.

Similarly, subsidies to operations represent more than 50 per cent (as a weighted average) of the revenues from traffic (Table 8).

Table 8. **Operating ratio (costs/revenues) in Western European countries (1999)**

<b>Country</b>	<b>Operating ratio</b>
Austria	2.03
Belgium	1.75
Finland	1.08
France	1.24
Greece	3.87
Ireland	1.99
Italy	2.24
Netherlands	1.02
Portugal	1.97
Spain	1.78
Sweden	n.a.
United Kingdom	n.a.
Germany	1.19*
<b>Weighted average</b>	<b>1.45</b>

\* After "extra" labour costs have been allocated to the State.

*Source:* Elaboration from UIC data.

Furthermore, these amounts of public expenditure have a social cost directly linked with the level of fiscal pressure in each country. It is the “marginal opportunity cost of public funds” which can also be interpreted as the shadow price of the Maastricht constraint on state deficits and debts.

Heavy taxation of road transport has probably a social cost as well. A European mobility system based more on (efficient) railways may also justify less taxes on road transport, since pollution and congestion will be of reduced magnitude. In a sense, road taxation is a “signal” of the overall inefficiency of the system. This argument is strengthened by the observation that road congestion, with which air pollution is strongly linked, is not a linear phenomenon. Limited reductions of traffic generate large reductions of congestion.

The results of all these efforts have been so limited as to be considered negligible. The modal share of railways has steadily declined, as we have seen, even when its absolute traffic has increased (i.e. not very often). Furthermore, the economic content of this traffic is disappearing: “high-value” traffic prefers other modes, and therefore the revenues of railways are far below, in percentage of the total, the revenues of the other modes (Table 9). This figure has been calculated for Italy alone, but its order of magnitude is probably the same in the rest of the Union.

Table 9. **Traffic and users’ expenditure by mode of transport in Italy**

	<b>Traffic (TU 1996)</b>	<b>%</b>	<b>Expenditure (billions Lire 1996)</b>	<b>%</b>
<b>Freight transport</b>				
Rail services	24.050	12%	1.382	2%
Road transport services (hire and reward)	203.791	88%	70.736	98%
<b>Passenger transport</b>				
Rail services*	53.432	6%	3.507	4%
Road passenger Transport	835.896	94%	80.329	96%

\* Not including incomes from Public Service Contract ("normalisation").

Source: Elaboration from *Conto Nazionale dei Trasporti*, 1999.

Revenues, in turn, are an expression of the “willingness to pay” of the demand. Therefore, the economic value of these services is often in the order of 2-3 per cent of the total value of transport services. Tonne-kilometres and passenger-kilometres, the traditional quantitative yardsticks used for measuring traffic, have in reality little economic meaning.

This implies that, in the western European economies, high public expenditures are connected with limited private acceptance, i.e. utility, of these services: besides the traditional argument of externalities not paid for by the road and air modes, a more basic explanation seems necessary.

## 4. THE ROLE OF THE STATE

### 4.1. Public railways

Given the actual dismal result of public ownership and management, there are few doubts that little can be lost through change. The absence of the “menace” of competition, the guarantee of avoiding bankruptcy or a reduction in size even in the more extreme situations (lack of demand or costs out of control), has kept these firms in a situation worse than that of a “normal” monopoly.

The “normal”, private or public but non-subsidised monopoly, even if inefficient, still has the incentive of extracting as much surplus as possible from its users. This implies at least some counter-pressure from protesting travellers or forwarding firms. Furthermore, price-discrimination in this case remains in use (for example, in quasi-Ramsey forms), and this can be in some ways an efficiency-related social gain, given the presence of heavy fixed costs (i.e. of natural monopoly aspects). But if a firm is both a legal monopoly and subsidised in a full cost-recovery form, the results are devastating.

Supply, not demand, is the aim of subsidy. This is the well-known phenomenon of “capture” of the principal (the State) by the agent (the state railway company)<sup>3</sup>. Every sound incentive disappears.

In fact, many forms of subsidisation are not related to any “social” objective (i.e. the distributive or environmental results, measured in an explicit way). The only aim is to “foot the bill”, even in disguise: the public transfers are decided in advance, on the basis of “reasonable” forecasts of costs and revenues. After a few years, the company can proudly “show off” with a balanced budget. (This is what has happened in Italy at least, but France is not far from this model.)

A correct approach to subsidies, obviously, would imply an explicit evaluation of “optimum” fares, in terms of social costs and benefits. In turn, within these costs, the marginal opportunity costs of public funds have to be included, as we have already underlined. And actually, this cost is high in the presence of high fiscal pressure, and *vice versa*. This principle<sup>4</sup> allows for a solid evaluation basis, making explicit the welfare losses related to the subsidies.

This “correct” approach also requires that, after the “efficient” tariffs have been calculated (and subjected to political evaluation), the corresponding subsidies have to be “auctioned”. This means that the subject guaranteeing the tariffs (and the quality of service) required, will operate the rail system, either in a consolidated form or piecemeal, if the efficient minimum dimension is found to be smaller than the entire system (see point 4.2).

A specific aspect of this process is that public companies are unlikely to compete efficiently for two reasons.

First, the basic “playing field” is implicitly not a level one: public companies in general are not exposed to bankruptcy risks, as private ones are.

Second, they tend to be less efficient, due to the implicit goals of the stakeholders, who do not have efficiency (i.e. profits) as their main objective. Only an unfair trade-off between these two characteristics may result in public companies prevailing in a competitive situation: an inefficient public company can afford high financial risks, knowing that it will, in any case, be “bailed out” by its public master.

If this picture is deemed acceptable, an explicit need for general privatisation of the sector follows, at least for the rail services, whatever may be the social goals assigned to the railways by the public decisionmakers. (Even if services are to be supplied for free, in fact, the above underlined principles remain valid.) For infrastructure, the picture, as we will see, is far more complex but, in any case, a minimum of contestability seems mandatory.

## 4.2. The European policy for the railways

Given the inadequate role of the European States in governing their railways, what are the perspectives for the European Union reforming them? And what about the eastern railways? As stated above, Directive 440 has been an egregious failure: too little, too late, too shy. First of all, the liberalisation process has been left by the single States in the hands of the existing railway companies, i.e. the monopolistic incumbents. This has been done for consensus objectives, and this alone was a guarantee of failure. Furthermore, two other factors were present, and not taken into consideration. First, a declining sector does not attract new entrants and, with no contestability, the incumbents will successfully join forces in order to block any competition. Second, there are large technical, economic and regulatory entry barriers: standards, heavy start-up costs and national norms and laws. A sound, realistic acknowledgement of these barriers implies an “asymmetric” regulation, positively in favour of the new entrants.

Similar mistakes can now be avoided in reforming the eastern systems, but mistakes of an apposite nature have probably been made within the only real liberalisation process carried out on a European railway, i.e. in the U.K.

As is well known, the British choice has been:

- a) *similar* to the European Directive in separating infrastructure from transport services;

*different* in:

- privatising infrastructure;
- franchising the services for given periods, instead of leaving an “open access” to competing operators;
- lowering the entry barriers in creating three private leasing companies for the rolling stock.

The system looks extremely complex, with multi-faceted regulation needs. Now there is a tendency to give up the separation of infrastructure and local services (the European policy is stressing separation only for long-distance services, crucial in continental Europe but far less so in the UK, which has a limited share of long-distance traffic).

But “re-consolidating” local services and infrastructure will again raise entry barriers. And whenever infrastructure investment is involved, the proper regulation of private operators looks difficult. The “Railtrack” experience fully confirms this difficulty. Furthermore, infrastructure investments have, besides an extremely long life, a wide range of “external” objectives: modal balance, regional development, etc.

An alternative strategy may well be to keep the tracks public (both property and investments) and contracting out, for limited periods and in competitive terms, track operations and maintenance. In the short run, even “yardstick competition” for public track operations in different regions may be a solution, “preparing” for a competitive concession regime in the longer run.

But the main issue emerging from the European picture is the simple statement that no liberalisation process, whatever its timing and content, can be left to the incumbents. At the same time, some prudence is necessary in the process, given the fact that rail traffic tends to be “plastic” (as opposed to “elastic”), i.e. if traffic is lost to other modes, it is difficult for the railways to recover it, even when restoring the previous conditions.

## **5. THE MAIN ISSUE: LAND-USE CONTROL**

The historic success of the road mode is linked to its ability to directly reach any location with a minimum of infrastructure (and, for private cars, to the advantages of the self-production of the service). This means that the road mode is a *system*, while the rail mode is not: in general, rail transport needs road transport at the beginning and at the end of a trip, while the road mode is self-sufficient. Modal change means costs, both direct (loading and unloading) and indirect (safety for freight, time losses, complementary services generally under-utilised, etc.). “Intermodal” techniques (containers, swap bodies, etc.) are just the expression of the attempt to reduce the costs related with modal change.

Furthermore, the rail mode has large economies of scale and of density (especially for freight): the minimum efficient dimension of a trainload is tenfold (at least) the corresponding dimension of a truckload. Therefore, rail can compete with the road mode only with “dense” traffic, and when intermodal costs are either reduced or non-existent.

Figure 6. Freight costs (on a given O-D)

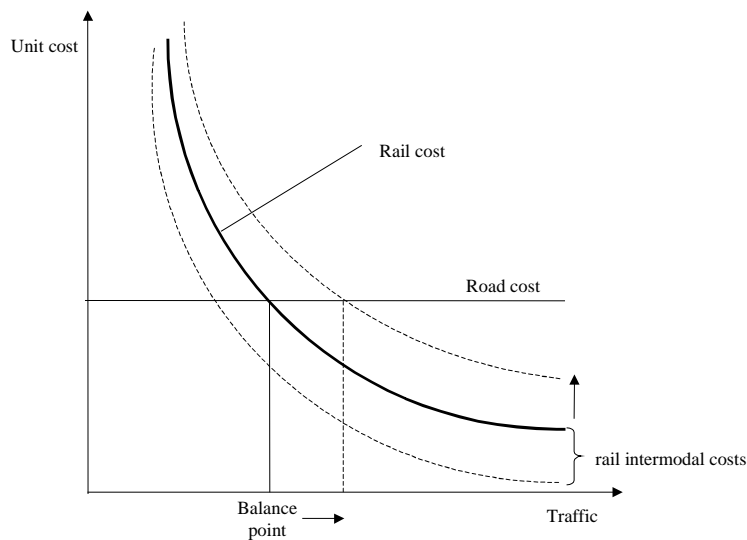
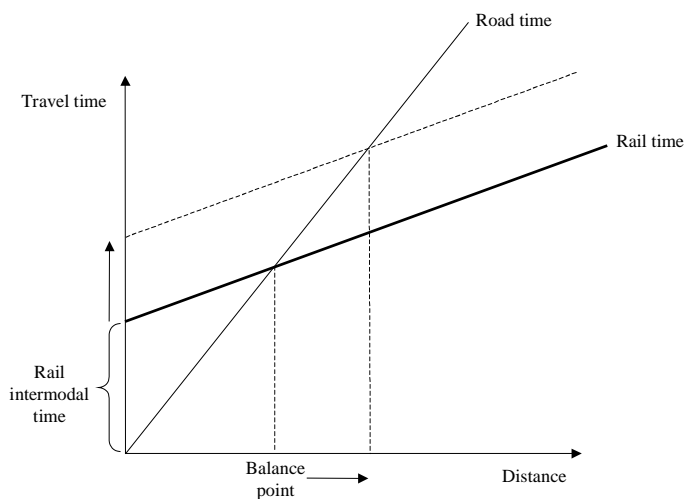


Figure 6 shows that for the economies of scale of the train to prevail over road, the relative weight of the intermodal costs is critical: the higher these costs, the higher the threshold of the unit load for trains necessary to compete. But intermodal costs are, for a large share, an inverse function of the average land-use density: the lower the density, the longer the distance to be covered by other transport means. For passengers, the main advantage of the train is speed, if roads are only mildly congested. Figure 7 also shows in this case that the train can prevail only if intermodal costs are reduced, i.e. in dense land-use situations.

Figure 7. Passengers' travel time (on a given O-D)



Zero intermodal costs imply direct rail links between origin and final destination: a good example is a seaport and a rail-connected plant. For passengers, this is the case when only walking distances are involved, as with central business districts and high-density residential zones.

Obviously, these two schemes in reality somewhat overlap, since travel times also play a role for freight, as costs do for passengers.

If demand density is a key factor for the long-run survival of the railways, this phenomenon needs a better understanding.

First of all, density has been systematically lowered in the western countries by the mere availability of extensive road transport, mainly private cars for housing and trucks for industrial plants. Road accessibility is almost without relevant constraints. Even an unpaved road is sufficient for starting up a settlement, and a basic pavement is inexpensive anyway. Land costs are lower in remote areas, and therefore the drive for the spread of locations becomes high and generalised.

The point is: how efficient is this “spontaneous” phenomenon? Efficiency requires that all the costs involved in a choice are internalised, intertemporal information is complete, etc. Within location decisions, market imperfections abound. Environment-related externalities are the main ones, in terms both of external road transport costs and, in some contexts, of land scarcity (or of precious landscape). Furthermore, land-use constraints are in general far from optimal, mainly because independent administrative subjects that define the constraints have egocentric objectives, face a “prisoner’s dilemma”, etc.

Let us take as an example the prisoner’s dilemma: if every local administration limits the spread of locations in a region, we can assume that everybody gains. But if one “player” is not following suit, it may “win” the location, within its borders, of an industrial plant creating jobs and tax revenues. Generally in this case, no player will collaborate.

In order to remain “on the safe side”, it is also worthwhile to consider the possible *costs* of high-density land use.

First of all, high-density land use does not imply congestion. Assuming that, in a market economy, private cars will play a major role, a land-use pattern of dense locations connected by large, multi-lane highways looks more efficient than sparse settlements connected by a web of minor roads. Economies of scale also work for the road mode.

In the second place, high-density settlements, especially medium- to high-rise buildings, are far more efficient in terms of energy consumption and service networks (i.e. heating, water and sewage, air-conditioning, etc.) than low-rise ones, particularly single-family houses.

The only real "opportunity cost" of high density seems to be the loss of private gardens and the connected amenities. This is nevertheless not a negligible issue: individual preferences are strong in this direction. But when natural and/or historical areas are in scarce supply (i.e. the possibility of public parks, protected areas, etc. is jeopardised), “privatising” the landscape can be questionable. This is bearing in mind that often the perceived costs of single-family houses are kept low by the provision of subsidised transport services for those family members who are unable to drive a car (both due to age or household income).

A more subtle point also has to be considered in this picture: any land-use constraint has an opportunity cost (as has every constraint). It raises the price of land, which becomes a scarce commodity. In turn, this rise generates surplus transfers in favour of landowners, but generates a dead-weight loss as well. If densities are not constrained (in the sense that there are no limits to the number of storeys allowed), and the above-mentioned externalities are duly included, the net result of setting limits to low-density urban sprawl is probably a favourable one (high-density urban sprawl looks unlikely: isolated skyscrapers in the countryside make little economic sense).

The crucial factor which gives hope to the railways in the eastern European countries is that the location patterns and densities have been developed, until a few years ago, on public transport rationale, and in order to be served by railways in particular. It may be that private motorisation (Table 10) and road freight transport are beginning to open up new location patterns, but there is still space to limit and control this phenomenon. As we have seen, this can be obtained probably without major costs.

Table 10. **Motorisation in European countries**

Country	Cars / 1 000 inhabitants
Austria	481
Belgium	449
Denmark*	336
Finland	392
France	453
Germany	516
Greece	238
Ireland	339
Italy*	545
The Netherlands	402
Portugal*	484
United Kingdom*	402
Spain	427
Sweden	428
Bulgaria **	197
Czech Republic	358
Estonia**	255
Hungary	224
Latvia**	131
Lithuania**	193
Poland	240
Romania**	97
Slovak Republic**	189
Slovenia	417

Source: OECD 1999; \*1998; \*\*Eurostat 1995.



A special problem is land property, and the social pressure that may come with the diffusion of small private lots: limiting building permits, even if a sensible policy in itself, may well set in motion memories of a “centrally planned” past, and of collective property.

But the consequence of a “free” use of land will probably guarantee a continuous slow decline of railways, and of collective transport in general, with growing public costs and reduced patronage for these modes (apart from the landscape destruction). As a “consistent” paradox, at this point it would be better to entirely skip this phase, and let railways disappear rapidly, concentrating the scarce public resources on, for example, low emission technologies for road vehicles.

But the potential of railways in terms of speed, capacity, energetic efficiency and automation, suggests that keeping the system alive is a sound policy. The simple fact that in the East this system represents a large sunk-cost (it is already there), even if partially depleted, reinforces the rationale of this choice. Nevertheless, the existing railway system probably needs radical changes and adaptations that deserve some further analysis.

## 6. FREIGHT AND PASSENGER SERVICES

Eastern countries have differentiated structures, as the role and the potential of freight and passenger rail services are differentiated.

In the first place, if density, as we have suggested, plays an important role, the eastern countries show large differences (Table 11).

Table 11. **Population density**

<b>Country</b>	<b>Population density 1999 (inhabitants per square kilometre)</b>
Germany	229.8
France	107.6
Italy	191.2
United Kingdom	241.8
Poland	123.7
Hungary	108.7
Bulgaria	74.4
Romania	94.4
Czech Republic	130.5
Ukraine	83.7
Russia	8.6
Belarus	49.1
Kazakhstan	5.8
United States	28.9

*Source:* World Bank Database.

The analogies with the western European countries have to exclude Russia, where the only possible similitude is with the US.

For freight services, the mere existence of rail infrastructure suggests a potential role: freight-only (dedicated) lines can be operated at extremely low costs, i.e. unattended. Even the quality of the infrastructure is probably not a crucial factor. The American tracks often permit only very limited speeds, but the services are highly efficient and profitable. Reliability and low unit costs are the factors of success, and this point has to be kept in mind in defining freight strategies for the eastern countries. Heavy trains on long distances can be offered within highly competitive terms, if staffing is kept to a bare minimum. Sensible investments have to concentrate on automation (signalling, train detection, container detection, etc.). Rolling stock has to be “americanised”, with extended simplification and standardization.

This picture shows clearly the keen contradiction with the present situation of overstaffing: the ideal model is an almost automatic system.

Far less obvious is the possible "model policy" for passenger services. Here, distances and speed can play a major role: probably in Russia the dominant model, for passengers also, is the American one. In fact, over very long distances, large aeroplanes are not only faster, but also competitive in terms of cost. A limited number of fast services (even high-speed ones) may be justified economically on medium to long distances, where demand is large enough (on dense corridors). Furthermore, the train will “suffer”, on medium to short distances, from the competition by bus services and private cars, assuming that road congestion, given the availability of space, will remain low.

In the “denser” countries, passenger rail services can play a major role, assuming that land use will remain concentrated enough, and remembering that land use and rail structures are still in favourable functional relations.

But in some countries, where private motorisation and incomes are rapidly growing, time is running short and urgent action is required. Rail services have to be upgraded in order to face the comparison with the comfort and "status symbol" role of private cars. Again, the resources for this upgrading, which also implies automation, must not be consumed by overstaffing.

Intermodal passenger facilities can play an important role: rail stations have to become commercial centres, well-connected with urban transport services. But other activities have to be encouraged as well in the station areas: office and residential high-rise buildings have to be welcomed. In this way, relevant financial resources can be generated for the above-mentioned upgrading, through the sale or rent of central lots belonging to the railway companies.

Within the larger cities, the land owned by the railways can also play a role for freight: bringing some commodities within the urban centres, one intermodal change can be “skipped”. The present tendency to relocate every freight activity in external intermodal centres in fact also damages the railways in western Europe. One has always to remember that intermodal changes are a weak spot for the rail system and have to be minimised. Consumer goods, ready for distribution to urban commercial outlets, can well be carried directly by rail to the city centres, taking advantage of large areas located in “strategic” spots.

Obviously, sustaining the role of the railways for commuting into medium to large eastern cities implies road- or park-pricing “efficient” policies, in order to avoid the extreme congestion and pollution of a large number of western cities.

In fact, habit also plays a role in these matters: if a city is organised around efficient and frequent public transport, it is probably much easier to keep and improve that situation than to reverse a degraded one, which many cities are trying to achieve (see London, with its proposed road-pricing scheme)<sup>5</sup>.

To conclude on this issue, it is quite clear that individual cars will play a major role in future passenger mobility in eastern countries. This role, nevertheless, has to grow in conditions where private cars are efficient and basically without alternatives: leisure travel, low density areas, etc. But in dense corridors and large cities, their role has to be kept limited by sound “scarcity” policies (mainly based on efficient pricing).

## **7. EASTERN RAILWAYS AND “OPEN ACCESS” COMPETITION**

On international routes, the “open access” model remains the EU’s strategic choice, even if up to now poorly implemented, as we have seen.

Extending the Union to the East may be a pivotal occasion both for setting in motion genuine rail competition in the western countries also and for stopping (and reversing) the decline of eastern railways.

A first observation on this issue is related to freight services: they become more competitive the longer the distances involved: in this way, the growth in East-West trade can increase the role of rail services compared to road services, especially if backed by a minimum of shared public strategy: the concept of “corridors”, developed by the European Commission as the object of co-ordinated intervention, is indeed a good example of this approach.

A second advantage can be linked to the rolling stock production; the technology in the East is less advanced on “top” performances, but works at definitely lower costs. For freight services in particular, which do not require advanced technology (apart, perhaps, from some automation and control-related innovations), this fact can be a strategic advantage, and can also be extended to maintenance. Of course, some of the existing western producers will suffer in the short run: but the gradual shift of mature technologies to less-developed areas is a basic (and sound) rule of globalisation. Eventually, all the parties involved will benefit from this shift, as has been proved in every industrial sector. The existing technical barriers, expressed essentially in terms of standards and specifications, have to be lowered by an “external”, pro-market, resolute action from the Commission.

Nevertheless, the main potential for eastern (and western) railways lies in setting in motion the “open access” competition.

As we have seen, this process up to now has been blocked by the *de facto* cartel of the existing incumbents.

But the large cost differentials of the eastern companies, compared with their western counterparts, will generate strong pressure for their entry into the comparatively rich EU market.

In turn, this pressure can generate several forms of resistance.

- a. The most straightforward form of resistance is simple procrastination: i.e. the incumbents delay the opening of the market to the eastern operators. The potential pretexts are numerous: labour rules, technical standards, “national security” arguments, as proposed in the recent EU paper, “reciprocity” clauses, etc.
- b. A second form of resistance may simply be based on co-opting the new eastern entrants into the western cartel. But this strategy is less easy due to the already quoted wide gap of costs between these two groups of companies. Again, resolute vigilance by the Commission on these aspect is probably necessary.
- c. A third possible strategy will show less inefficient consequences: alliances, mergers (and acquisitions) of potential eastern entrants and western incumbents. Competition will suffer and “area” monopolies or oligopolies will take hold. It has to be remembered that large dimensions are not a neutral factor within a liberalisation process: the power imbalance that will follow among public regulators and regulated agencies will have negative consequences.

This imbalance of power has in fact been one of the historical causes of the failure of the western states to impose efficiency on their railways.

Nevertheless, these mergers will lower the overall costs of the rail system, and some of these benefits will be passed over to the end users. If, by the way, the European Commission has the force to let real competitive mechanisms develop, the “entry” of low-cost eastern rail companies will have some similarity with the picture offered by the air sector. “Low-cost” companies will grow rapidly, creating large benefits for the end-users, and also “forcing” the incumbents to become more efficient. In the case of railways, as compared with the air services, the environment will also gain from the subsequent overall growth of the sector. But this optimistic picture has probably two severe pre-conditions: a) the private property of the new entrants and b) real market-based allocation of scarce capacity by the western regulators. The first condition is required for new entry into a difficult market: entrepreneurial skills and culture are qualities not easily found within bureaucratic structures. The second condition (on capacity allocation) is necessary given the evident fact that the more “crowded” routes are in general the more profitable ones. Here, the European air sector experience plays a sinister note: the more rentable slots are firmly in the hands of the incumbent companies, after more than ten years of European “liberalisation”. “Grandfather rights” principles seem difficult to cancel in the air sector; let us hope that this issue will not follow a “Kutsnetsian” process of similarity for railways.

## NOTES

1. See P. Goodwin, ECMT Seminar on Infrastructure Investment and Urban Sprawl, October 2000.
2. From the well-known theory of historical similarities within the economic development patterns in different countries.
3. See M. Ponti ,“The European Transport Policy in a Public Choice Perspective”, WCTR Paper for the Seoul Convention, 2001.
4. See M. Ponti, “Welfare basis of evaluation”, Transtalk Seminars, Vienna, 1999.
5. See also the results on this topic of the recent "Cantique" research carried out for the European Commission.

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# THE FUTURE OF RAILWAYS IN CENTRAL AND EASTERN EUROPE

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London, June 2001



## 1. INTRODUCTION

The railways of the Central and Eastern European Countries (CEECs) are facing a crisis. Throughout the region (see Figure 1.1) markets are contracting, operating costs are rising and state treasuries are being called upon to make ever greater subsidy payments to maintain services.

The financial implications of these trends are particularly severe. As national economies gradually strengthen, railways are suffering the double blow of rising costs and the loss of market share to other modes.

Railways have a key role to play in supporting sustainable economic growth and development. As countries complete the transition to fully fledged, developed market economies, an efficient rail system helps minimise the economic costs of transport by limiting congestion and environmental degradation.

However, in the absence of major changes, few CEEC railways appear capable of fulfilling such a role in the development of their national and international transport systems.

It is against this background that the Phare Multi-Country Transport Programme of the European Union initiated a study, led by Halcrow (with Swederaile, Trademco, Transman and others), to examine means of improving the competitiveness of rail in the CEECs. This study was carried out during 1999.

This paper draws on, amongst other sources, the key findings and recommendations of the Halcrow study.

Figure 1.1. The Central and Eastern European Countries covered by the study



## **2. EXTERNAL THREATS TO RAIL**

A paradox of the CEEC railways is that as economic growth gathers pace, rail will come under increasing financial pressure.

Labour costs are forecast to grow by a factor of between two and four over the next 20 years, as CEEC economies approach the level of output and efficiency of those currently in the EU. Without major restructuring, including the introduction of more efficient production processes within the rail sector, operating costs will spiral upwards, creating ever greater demand for public subsidies.

Figure 2.1 illustrates the relationship between wage-driven operating costs and operating losses in the absence of further efficiency measures.

A further consequence of economic recovery is growing car ownership, coupled with rising expectations of service quality.

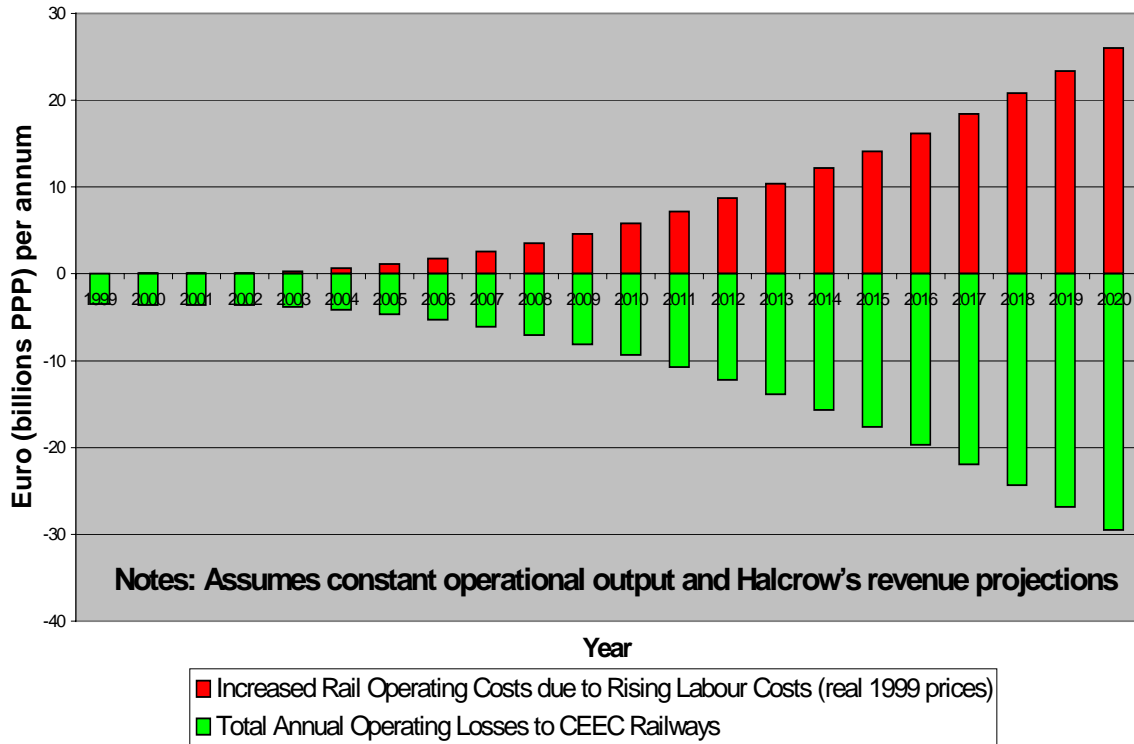
Market research carried out as part of the study revealed a consistent failure of rail to understand the changing needs of both freight and passenger markets. Indeed, only one railway appears to carry out regular market research to determine customer needs.

Common complaints from rail passengers concerned deteriorating levels of personal security, limited outlets for ticket sales necessitating lengthy queues and long delays at international borders.

Freight customers were almost unanimous in complaints about lengthy, complex contract negotiation procedures, a lack of consignment tracking and monitoring systems and a lack of specialist wagons.

In general, CEEC railways are failing to meet the challenges presented by the developing market economies in which they operate. Customers are being presented with an increasing choice, with more and more deciding against rail and in favour of other modes.

Figure 2.1. Rail operating costs and annual operating losses

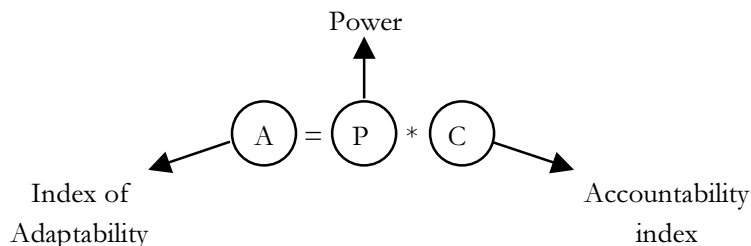


### 3. THE THREAT FROM WITHIN

Whilst not wishing to understate the external threats facing CEEC railways, the greatest barriers to competitiveness are internal to the rail organisations.

The majority of railways operate under a centralised command and control system that delegates minimal responsibility to managers and imposes little commercial accountability.

The study established an index of rail adaptability, defined below:



The Power index reflects the extent to which each railway is empowered to define its own organisational structure, appoint senior staff, set its own budget, raise finance and dictate the timetable and fares. The Power index grades the degree of empowerment against each category. Accountability concerns the extent to which a railway is held responsible for its commercial performance (defined as the percentage of turnover subject to financial targets).

A railway with an Adaptability of 1.0 would have a fully empowered management that is commercially accountable for all aspects of its business. CEEC railways had an average Adaptability of 0.36, barely half that of EU railways (0.62)<sup>1</sup>.

Interestingly, the average accountabilities of CEEC and EU railways are similar, suggesting that attempts are being made to introduce some commercial focus. However, low power indices amongst CEEC railways indicate little progress in implementing a more empowered, commercial approach to management. Accountability and power has not been devolved within railway organisations.

The Adaptability analysis was accompanied by a comprehensive benchmarking exercise. A variety of benchmarking methods were used, ranging from simple partial productivity measures to total factor productivity and cost frontier analysis (which measures the overall efficiency of the organisations). Figure 3.1 illustrates some of the results.

The benchmarking results reveal a number of key trends:

- The three Baltic railways show consistently high levels of comparative efficiency, due in part to their wide gauge and large freight movements;
- The railways from the more advanced CEEC economies tend to compare relatively poorly (e.g. Czech and Slovak Republics, Slovenia, Hungary), supporting the theory that rising wages suppress efficiency in the absence of organisational reform;
- Polish Railways, the largest amongst the CEECs and well advanced with restructuring, compares relatively well.

Analysis of the benchmarking results has allowed the losses due to inefficiency to be quantified. If all CEEC railways achieved just the level of efficiency of the most efficient CEEC railway, €4-5 billion per annum would be saved in operating costs.

Long-term savings are estimated at around €10 billion per annum.

The worst is, however, yet to come. As labour costs rise within the CEECs, operational costs will grow by an additional €26 billion per annum by 2020.

*The principal threat facing CEEC railways is an out-dated, production-led organisational structure, set within an institutional framework which deprives management of the powers they need to manage an effective commercial operation.*

Coupled with this are a variety of operational and technical barriers:

- A general lack of management information, cost accounting and business planning systems within most railways;
- Poor asset utilisation, resulting partly from the lack of management information systems;
- Over-manning in most areas;





## 4. BARRIERS TO COMPETITIVENESS

### 4.1. Introduction

Barriers to competitiveness can be structured by area of impact: market, production and strategic. The responsibility for each barrier, and hence the responsibility for overcoming the barrier, can be identified in terms of: Owner/Regulator, Train Operator and Infrastructure Owner/Provider.

An important aspect concerns the close relationship between many different types of barrier, together with the dominant role of strategic (institutional) barriers.

The barriers to competitiveness identified in each of the key areas - production, market and strategic - have been brought together into Table 4.1.

A notable point about the table is how the same or similar obstacle often appears in more than one category, for example, production and strategic or market and strategic. This once again emphasizes the interrelationships between the barriers and in particular the way in which the strategic barriers drive the production and market barriers. Although changes and improvements can be made at the production and market level, they will be restricted in scope and effectiveness without changes in the strategic barriers. Likewise, changes in the strategic barriers without fundamental changes to the organisation of the railway and production and market barriers is likely to result in cosmetic change and compliance rather than any fundamental change in attitude, approach and competitiveness.

This is expressed in Figure 4.1, which highlights the importance of the strategic issues. There are a relatively limited number of options for restructuring the relationship between the railway and government but they have a fundamental impact upon the range and success of options available lower down the pyramid. They are also the most difficult to implement. At the bottom of the pyramid there are more numerous measures that can be taken relatively easily to improve the day-to-day management and operation of the railway. These will not have a fundamental impact upon the competitiveness of the railway and, without changes in the strategic barriers, railways may not take the initiative to implement them. Measures at the strategic level are particularly important if the barriers to international services are to be addressed.

The analysis carried out as part of the Adaptability Analysis (see Chapter 5) provides a way of assessing what the appropriate path for change should be – either bottom up from within the railway or top down from outside of the railway.

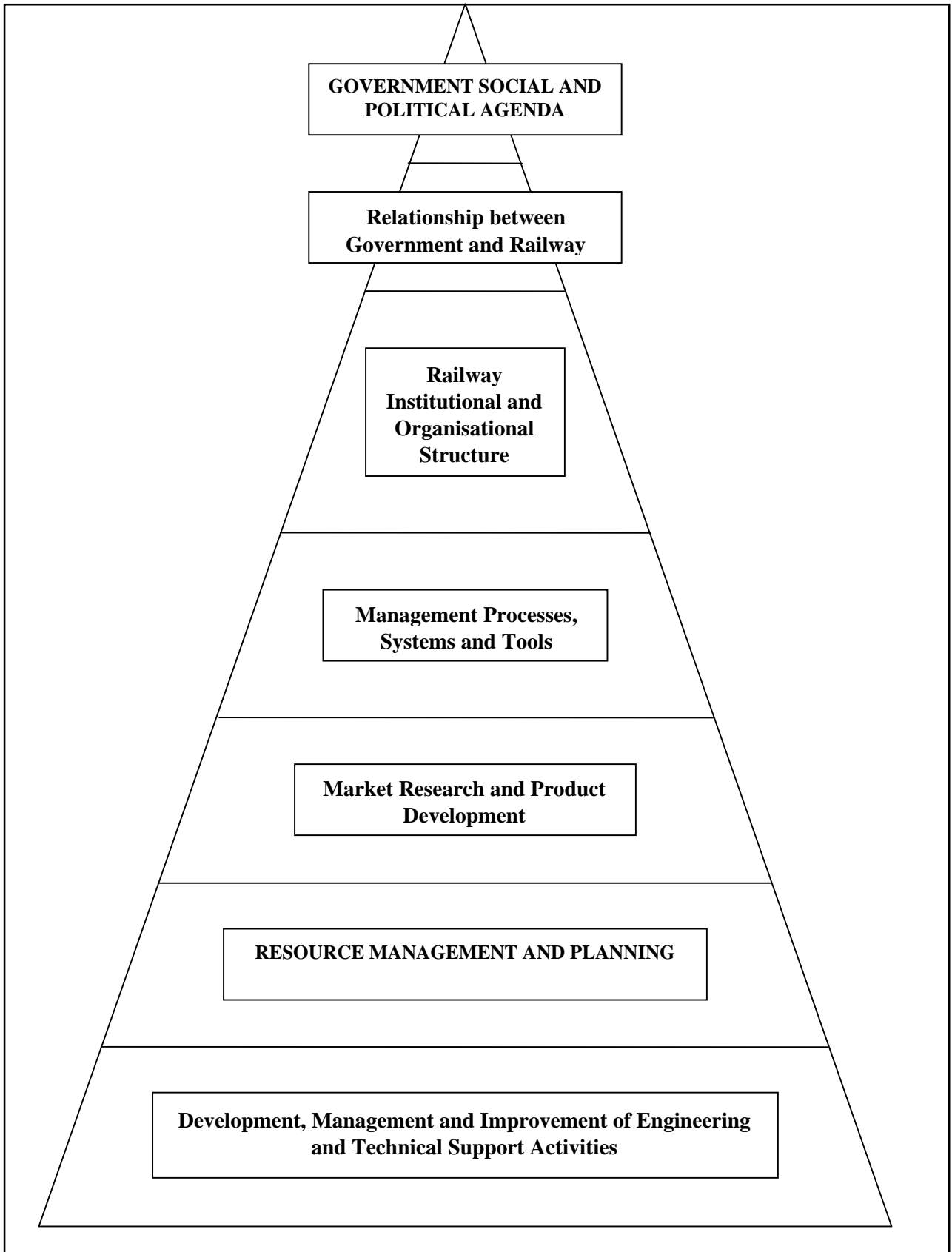
Table 4.1. Barriers to competitiveness

Responsibility Owner/regulator (government)	Barriers		
	Production	Market	Strategic
<ul style="list-style-type: none"> <li>- Lack of clarity and transparency in the relationship between government and railways</li> <li>- Lack of objectivity and clarity within plans for restructuring, commercialisation, privatisation and access charges, etc.</li> <li>- Insufficient funding for infrastructure and rolling stock rehabilitation</li> <li>- Insufficient subsidies for loss-making services</li> <li>- Strong trade unions inhibiting reform and restructuring</li> </ul>	<ul style="list-style-type: none"> <li>- Regulation/control of fares by government, below market levels</li> <li>- There is a lack of flexibility in freight tariffs</li> <li>- High levels of concessionary travel</li> <li>- Government control of timetable</li> <li>- Inadequate compensation for social obligations to operate loss making services</li> <li>- Lack of integration with other modes</li> </ul>	<ul style="list-style-type: none"> <li>- Strong state involvement in management and policy</li> <li>- Railway management has limited powers and accountability</li> <li>- Lack of clarity in contract with government for social role of railway</li> <li>- Slow rate of legal reforms and introduction of progressive legislation</li> <li>- Poorly executed and ineffective privatisation</li> <li>- Limited privatisation policies</li> <li>- Limited implementation of EU directives</li> </ul>	
<ul style="list-style-type: none"> <li>- Inappropriate organisational structures and accountabilities</li> <li>- Absence of freedom to manage</li> <li>- Absence of business management structure, techniques, tools and skills</li> <li>- Absence of suitable management information systems linked to analysis and evaluation processes.</li> <li>- Absence of market oriented strategies</li> <li>- Absence of personnel training and development strategies</li> <li>- Bureaucratic processes and resistance to cultural change</li> <li>- Poor condition of locomotives and rolling stock</li> <li>- Lack of equipment and spare parts for repairs and rehabilitation</li> <li>- Poor productivity of resources</li> <li>- Poor quality products and delivery</li> <li>- Increasing operational costs for labour, materials and services.</li> <li>- Poor level of cost recovery and significant loss-making activities</li> <li>- Inadequate revenue collection and protection systems</li> <li>- Lack of common technical standards and operating procedures for international services</li> </ul>	<ul style="list-style-type: none"> <li>- Poor ticketing and retailing methods</li> <li>- Poor passenger information</li> <li>- Lack of customer focus</li> <li>- Poor marketing of services</li> <li>- Lack of market research and communication with customers</li> <li>- Poor quality station environment and facilities</li> <li>- Poor quality rolling stock and facilities</li> <li>- Passenger security</li> <li>- Lack of integration with other modes, including car parking at stations</li> <li>- Poor timetabling and low frequency services</li> <li>- Overcrowding</li> <li>- Inflexible and lengthy contract negotiations for freight transport</li> <li>- Freight tariffs are complex and difficult to understand</li> <li>- Lack of specialist freight wagons</li> <li>- Speed and transit times are considered to be poor and unreliable</li> <li>- Tracking of consignments</li> <li>- Delays at border crossings</li> <li>- Poor security of goods</li> </ul>	<ul style="list-style-type: none"> <li>- Inappropriate organisational structure</li> <li>- Lack of/ineffective management information systems</li> <li>- Lack of business analysis ethos/techniques.</li> <li>- Growing financial deficits</li> </ul>	

Table 4.1 Barriers to competitiveness (continued)

Responsibility	Barriers		
	Production	Market	Strategic
Infrastructure owner	<ul style="list-style-type: none"> <li>- Poor condition of infrastructure and significant backlog in maintenance and renewals.</li> <li>- Lack of equipment and spare parts for repairs and rehabilitation</li> <li>- Poor resource productivity</li> <li>- Increasing operational costs for labour, materials and services</li> <li>- Route capacity constraints – single lines, level crossings, permanent speed restrictions, etc.</li> <li>- Excessive networks in need of rationalisation</li> </ul>	<ul style="list-style-type: none"> <li>- Poor interchange facilities.</li> <li>- Poor quality station facilities.</li> <li>- Low line speeds.</li> <li>- Inefficient freight terminals and poor freight handling facilities.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited implementation of EC Directives 95/18 and 95/19. Limited legal separation of infrastructure and operation. Costs of operations and infrastructure are not made explicit and potential barriers to new entrants remain.</li> <li>- Excessive networks.</li> <li>- Balkans – lack of investment and poor condition of infrastructure.</li> </ul>
Other/Generic		<ul style="list-style-type: none"> <li>- Rising customer expectations.</li> <li>- Liberalisation of road freight.</li> <li>- Rising levels of car ownership.</li> <li>- Low purchasing power of the population in some countries, particularly the Balkans.</li> </ul>	<ul style="list-style-type: none"> <li>- Low motivation to restructuring and reform within the rail industry.</li> <li>- Rising labour costs</li> <li>- Growth in car ownership.</li> <li>- Growth of competing modes – car, road freight and in some countries efficient state airlines.</li> <li>- Regional conflict in the Balkans.</li> <li>- Poor economic performance and low purchasing power in the Balkans.</li> <li>- Dependence upon the performance of the Russian economy in the Baltic States.</li> </ul>

Figure 4.1 **Hierarchy of measures**



The key issues to emerge from the analysis of barriers are as follows:

- Absence of comprehensive and definitive contract with government and the lack of powers of railway managers. Railways need to have a clear understanding of what their role is to be and the objectives they must achieve. They must be given freedom to manage their operations and business to achieve these objectives. Accountability and powers must be devolved throughout railway organisations as part of a matrix of responsibilities, targets and objectives.
- There is a general lack of commercial focus. Few, if any, of the railways appear to be communicating and listening to their customers to find out what services and products they require. There is little, if any, market research. To a large extent, this is driven by the institutional framework and contract with government – the railways are not encouraged to listen to customers.
- There is a lack of management information systems and business analysis and evaluation processes. Again this is related to the relationship with government and the organisational structure – accountability has always rested at the top of the organisation and there has been no need for management information further down the organisation. Managers do not have the information available to make decisions and manage their resources even if they have the power to do so. The full potential of this information will only be realised if the railway is structured to give managers the power to use it.
- It is difficult to conduct any form of business planning and identify appropriate strategies for particular market segments. Investors will not have confidence.
- Asset utilisation in many of the countries is poor in comparison with EU countries, as shown in the comparative efficiency analysis. This leads to higher than necessary costs and is related to the lack of appropriate management information and business evaluation and monitoring systems.
- There is overmanning and underemployment in many of the countries and in comparison with EU railways, as shown in the comparative efficiency analysis. Again, this is related to the lack of appropriate management information systems but has a more fundamental link with the relationship with government and the powers of the railway management.
- Rising labour costs pose a serious problem, to a large extent they have undermined the effect of staff reductions to date and will rapidly drive up costs as economies grow and railways fail to restructure.
- Collaboration between railways, and between railways and customs authorities, is poor, leading to lengthy border delays, unreliable international services and a general lack of customer confidence. There is a lack of standard operating procedures and technical standards and a unitary body responsible for the marketing and selling of international freight services between countries or along corridors.

- There is a lack of investment, particularly in traction and rolling stock and in the Balkan countries. There is a need to ensure that investment is properly evaluated by the railways to have the maximum benefit. Failure to address many of the issues highlighted above will see fewer funds available for investment and continued decline in the service offered.
- Customers' expectations are rising both for passenger and freight as the CEECs' economies develop and their populations are exposed to the influence of Western Europe. This is particularly true in the freight market where road haulage has become increasingly liberalised with a large number of private firms entering the market. Railways are failing to keep pace with these changing expectations. In the case of international freight in particular, railways have to stop thinking of the product they provide as the technical means for transporting goods between two points but as a service integrated into the entire logistics process of a customer. The product to be supplied is more a service to facilitate the flow of goods rather than just traction and rolling stock to haul goods. International freight will become increasingly important but CEEC rail systems and organisations are not currently designed to exploit the opportunities presented.

It should also be recognised that there are signs of good practice in the CEECs railways. The railways in Estonia, Poland and Romania have undergone significant restructuring, car ownership is low in Bulgaria and Romania and the decline in freight traffic has stabilized in many of the countries. The comparative efficiency analysis highlights the performance that can be achieved. Operating cost savings of around €5 billion per annum could be achieved if all CEEC railways attained the efficiency levels of the most efficient CEEC railway.

Table 4.2 groups common barriers to competitiveness by country - it is recognised that by doing so there will always be exceptions within country groups but it nevertheless serves to highlight common themes amongst countries.

The work undertaken to date also indicates that many railways are still in decline, even those in states undergoing economic revival. Attention has been drawn to a “wages and costs time-bomb” that will explode as economies grow but railways fail to restructure in parallel. This raises an apparent paradox in which railways are exposed to greater risk as their exogenous economic conditions improve. It is possible to identify two distinct groups. Czech Republic, Hungary, Poland, Slovak Republic and Slovenia are all economically strong countries but have poor cost efficiency. Estonia, Latvia and Lithuania are also economically strong countries but with much better cost efficiency. The railways in the second group have been subject to much greater reform and restructuring than those in the first. Whilst this is an exogenous barrier, it is not necessarily beyond the control of railways, governments or the EU.

It should be emphasized that the essential problems facing the CEEC railways are not caused by a lack of investment. In most cases, the procedures to ensure that investment is properly evaluated and focussed are missing. Indeed, it is quite possible that an increased level of investment would have minimal impact on rail performance in the absence of major institutional reform.

Furthermore, railways should not expect market growth to solve their current financial difficulties in the absence of reforms. A major change in attitude and focus is required in order that most railways can expect even to retain market share.

Table 4.2. Common barriers

<b>Barriers</b>			
	<b>Production</b>	<b>Market</b>	<b>Strategic</b>
Baltics – Estonia, Latvia, Lithuania	<ul style="list-style-type: none"> <li>– Lack of specialist wagons</li> <li>– Investment in specialist freight facilities</li> <li>– Gauge change with Poland</li> </ul>	<ul style="list-style-type: none"> <li>– Reliance on Russia</li> <li>– Competition for transit traffic</li> <li>– Security and theft</li> <li>– Poor container handling infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>– Border crossing procedures</li> </ul>
Central States – Czech Republic, Hungary, Slovak Republic, Slovenia	<ul style="list-style-type: none"> <li>– Labour costs rising</li> <li>– Limited management powers</li> <li>– Large networks of branch lines</li> <li>– Poor rolling stock utilisation</li> <li>– Low labour productivity</li> </ul>	<ul style="list-style-type: none"> <li>– Train service not market led</li> <li>– Growing customer expectations</li> <li>– Poor retailing/ticketing</li> </ul>	<ul style="list-style-type: none"> <li>–</li> </ul>
Bulgaria, Romania	<ul style="list-style-type: none"> <li>– Maintenance backlog</li> <li>– Poor rolling stock utilisation</li> <li>– Low labour productivity</li> </ul>	<ul style="list-style-type: none"> <li>– Low speeds</li> <li>– Basic marketing</li> <li>– Poor information</li> <li>– Poor logistical management systems</li> </ul>	<ul style="list-style-type: none"> <li>– Growing deficits</li> <li>– Competition from other modes</li> <li>– Contract with government</li> </ul>
Balkans – Albania, Bosnia and Herzegovina, FYR Macedonia	<ul style="list-style-type: none"> <li>– Maintenance backlog</li> <li>– Single line working</li> <li>– Low resource and labour productivity</li> </ul>	<ul style="list-style-type: none"> <li>– Low speeds</li> <li>– Poor condition of coaches and wagons</li> </ul>	<ul style="list-style-type: none"> <li>– Lack of investment</li> <li>– Balkan crisis</li> </ul>
ALL – Other	<ul style="list-style-type: none"> <li>– Passenger security</li> <li>– Theft of freight</li> <li>– Condition of rolling stock</li> </ul>	<ul style="list-style-type: none"> <li>– Bureaucracy at borders</li> <li>– No market research</li> <li>– Poor integration</li> </ul>	<ul style="list-style-type: none"> <li>– Lack of management information systems</li> <li>– Lack of business evaluation and analysis systems and processes</li> </ul>



In short, the priorities for the railways are the implementation of a sweeping reform programme and a focus on increasing operational efficiency. Once a more commercial basis for operations has been established, it will be possible to begin to implement (and fund) more ambitious marketing programmes.

## **5. ADAPATABILITY, MEASURES AND EFFICIENCY**

The study has identified over 100 individual measures for improving performance, efficiency and competitiveness. Some measures are designed to promote institutional reform and commercial liberalisation. As such, these require a change in the regulatory and institutional framework as a prerequisite for generating benefits. Such a change will involve progression from a heavily regulated command and control structure, through the introduction of business sectors through to a corporatised and possibly (though not necessarily) privatised structure.

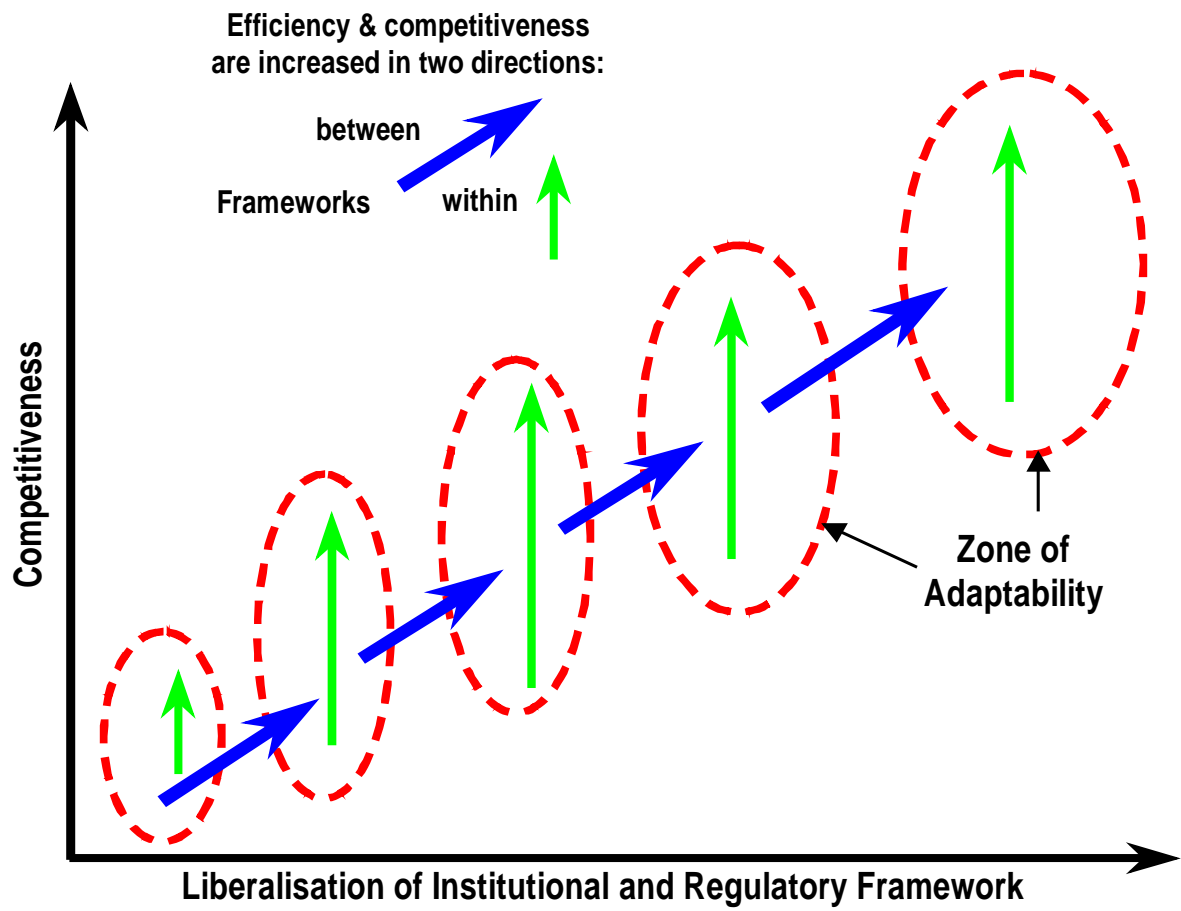
Other measures are designed to generate marginal efficiency gains without necessitating structural reform. These may involve operational, asset management or marketing initiatives.

It is quite an intellectual leap from the Adaptability/Economic Efficiency model to quantifying the potential cost savings that can be made through the adoption of powers by the railway companies. We shall therefore examine the reasoning that leads to the conclusion.

Figure 5.1 shows a hypothetical situation in which the potential for competitiveness rises throughout as the institutional and organisational hierarchy changes from Command to Privatised. It should be noted that the zones of adaptability are sufficiently large that a badly-run, liberalised railway can be less profitable than a well-run one with a traditional organisational structure. When the regulatory framework constraining a railway is altered, allowing for a change in the adaptability of the railway company, the efficiency improvement will not occur automatically. It still remains for the management to implement the measures necessary to realise the expected efficiency improvements. The most efficient railways in the adaptability/economic efficiency curve were, until recently, relatively less efficient and adaptable. These include Swedish, German and British railways. Now they represent best practice in the industry and a benchmark against which to compare other railway companies. These railways have acquired their efficiency by implementing a number of successful measures which were paced by the development of their adaptability, and which have resulted in the improved levels of efficiency. The bulk of these measures undertaken by the railway companies are represented in the 100-plus measures presented in the Appendix.

These measures are directly related to the construction of the power index. We can therefore associate the toolbox of measures with the corresponding powers, accountability and with the corresponding efficiency improvement calculated through the Adaptability/Economic Efficiency model.

Figure 5.1. Within framework and between framework measures



## 5.1. Quantifying the cost savings

We can now proceed to calculating the € values in cost savings of each family of measures. This allows us to rank each family of measures by the impact that they have upon operating costs. In order to calculate this we need to calculate the effect on operating cost per gross tonne-kilometre of each power.

Table 5.1 shows the powers ranked in the order that they are likely to be implemented within a railway. The second column shows the Marginal Power - the contribution that each power makes to the overall power index, and the third column the accumulated power index.

The next step is to calculate the accumulated adaptability. In order to calculate this, we have multiplied the accumulated power index by the mean accountability in the CEECs, excluding Albania. The mean accountability which has been selected as the distribution, excluding Albania, of accountability scores is not widespread among the CEECs.

This is then inserted in a mathematical function relating the adaptability index to economic efficiency returning the effect on operating cost per gross tonne-kilometre. The final step is to then calculate the marginal effect in operating cost per gross tonne-kilometre.

This gives us a useful tool in the identification of priority measures for the railways allowing us to select those groups of powers with the highest potential cost savings, and hence identify priority measures from the toolbox with which to address these shortcomings in powers.

In addition to this calculation, we have calculated the benefits that would result from increasing the accountability from the mean of 0.66 to its maximum possible value of 1. This is presented in Table 5.2 with the powers ordered as in the original power index.

Table 5.1. Marginal cost savings in order of implementation (Euros)

Powers for the Railway (Ranked)	Marginal Power Index	Accumulated Power Index	Accountability (average) Index	Accumulated Adapt. Index	Accumulated effect on unit cost / Gtkm	Marginal effect on unit cost /Gtkm
Freight Transport Pricing	0.09	0.09	0.66	0.06	0.0996	
Recruitment of Staff	0.03	0.12	0.66	0.08	0.0912	0.008
The Operational Budget	0.08	0.20	0.66	0.13	0.0761	0.015
Appointment of Management	0.06	0.26	0.66	0.17	0.0684	0.008
Selling Assets, Retaining Profit	0.03	0.29	0.66	0.19	0.0652	0.003
Leasing	0.01	0.30	0.66	0.20	0.0642	0.001
The Regional/2nd Organisational Level	0.09	0.39	0.66	0.26	0.0565	0.008
Procurement with Competitive Bidding	0.10	0.49	0.66	0.32	0.0498	0.007
Borrowing/ Lending Money	0.04	0.53	0.66	0.35	0.0475	0.002
Operations	0.10	0.63	0.66	0.42	0.0424	0.005
The Main Organisation	0.06	0.69	0.66	0.46	0.0397	0.003
Passenger Transport Pricing	0.09	0.79	0.66	0.52	0.0357	0.004
Appointment of the Director General	0.04	0.83	0.66	0.55	0.0343	0.001
Long Term Business Plan	0.04	0.86	0.66	0.57	0.0333	0.001
Annual Investment Budget	0.03	0.90	0.66	0.59	0.0319	0.001
Long Term Investment Plan	0.04	0.93	0.66	0.61	0.0309	0.001
Go Bankrupt	0.04	0.98	0.66	0.65	0.0294	0.002
Board Appointed by a Private Owner	0.02	1.00	0.66	0.66	0.0288	0.001

Table 5.2. **Marginal cost savings (Euros)**

<b>Families of measures/Power area</b>	<b>Powers</b>	<b>Value/marginal effect Euro/Gtkm</b>
Appointments	Board appointed by a private owner	<b>0.0182</b>
	Appointment of the Director General	0.0006
	Appointment of management	0.0015
	Recruitment of staff	0.0077
Organisational structure		0.0085
		<b>0.0104</b>
Annual budgets	The main organisation	0.0027
	The regional/2nd organisational level	0.0077
Long-term plans		<b>0.0164</b>
		0.0150
Pricing and marketing	The operational budget	0.0013
	Annual investment budget	<b>0.0020</b>
Finance	Long-term business plan	0.0010
	Long-term investment plan	0.0010
Procurement with competitive bidding	Passenger transport pricing	<b>0.0190</b>
	Freight transport pricing	0.0040
Operations		0.0150
	Borrowing/lending money	<b>0.0081</b>
	Leasing	0.0023
	Selling assets, remaining with profit	0.0010
Accountability 0.66 – 1.00	Go bankrupt	0.0032
		0.0015
Procurement with competitive bidding		<b>0.0067</b>
Operations		<b>0.0051</b>
Accountability 0.66 – 1.00		<b>0.0120</b>

## **Calculation of cost saving for each railway company**

For each country in the sample we are now able to identify in which family of measures/group of powers the railway company lacks power. In conjunction with the calculations presented in Tables 5.1 and 5.2 we are therefore able to calculate which families of measures/groups of powers would yield the greatest cost savings if the railway company was to gain complete power within this group.

However, if we were to select which groups of powers, and hence which family of measures to recommend in the Action Plans, solely upon the level of cost savings, then the potential savings would be overestimated.

As mentioned earlier, it is not plausible for a railway company to gain some powers while lacking power in other groups - there is an order in which a railway company gains powers. For example, it is not feasible to suggest that a railway can have complete power over pricing and marketing without any power over budgets or the organisational structure.

We have therefore calculated the benefits based upon a trade-off between the potential cost savings and the ease of implementation, that is, those groups of powers/families of measures with the greatest potential cost savings that are also able to be implemented in the medium term (no more than five years).

For the purpose of this calculation, we have assumed that the railway company is able to gain complete power within the three most highly ranked power groups within five years. This is shown in Tables 5.3 and 5.4. For example, in Romania we have concentrated on powers and measures within the following groups/families: Appointments, Annual Budgets and Finance. The groups of powers that have been selected for each railway company are the priority areas, however, measures in other areas are also recommended in the Action Plans to support these, or for introduction in the medium term.

The cost savings are summarised in Table 5.4.



Figure 5.4. Cost savings resulting from priority measures

	Adaptability		Operating cost/Gtkm				Operating cost (millions of local currency)			Operating cost Saving (million Euro – market rates)
	Before extra powers	After extra powers	Before extra powers	After extra powers	% saving	Before extra powers	After extra powers	Saving		
Bulgaria	0.23	0.46	0.0601	0.0397	35	273 043	177 478	95 565	54	
Czech Rep.	0.24	0.48	0.0583	0.0379	35	34 193	22 225	11 968	345	
Hungary	0.17	0.37	0.0680	0.0455	35	146 751	95 388	51 363	252	
Poland	0.47	0.72	0.0386	0.0263	30	8 221	5 755	2 466	701	
Romania	0.23	0.35	0.0602	0.0472	20	7 139 165	5 711 332	1 427 833	178	
Slovak Rep.	0.13	0.27	0.0760	0.0547	30	19 810	13 867	5 943	171	
Slovenia	0.20	0.47	0.0632	0.0391	40	39 294	23 576	15 718	‘93	
Estonia*	0.44	0.62	0.0406	0.0308	25	1 200	900	300	22	
Latvia*	0.43	0.57	0.0412	0.0334	20	93	74	19	31	
Lithuania*	0.17	0.46	0.0679	0.0396	40	510	306	204	51	
Albania**										
BIH**										
FYROM**										
								Total	1 897	

\* These railways were not in the sample when the relationship in Figure 5.2 was calculated.

\*\* Not available.



The percentage cost saving has been applied to the annual operating cost yielding an expected cost saving over the medium term for each railway company. This cost saving has been presented in Table 5.4 in terms of local currency and € (based on market exchange rates).

The analysis shows that substantial cost savings are obtainable in all the countries in the sample. In most cases, these cost savings are in the region of 30 per cent of operating cost. The measures recommended are to be implemented in the medium term (less than five years). It is, however, recognised that it is unlikely that the full benefits will be realised immediately following the introduction of the measures. The full scope of the cost savings should be possible within two years of the implementation of all the recommended measures.

The total efficiency savings from implementation of the priority measures throughout the CEECs would amount to almost € 2 billion (at market exchange rates).

## **5.2. Overall cost saving**

The previous analysis is based on implementation of the three families of priority measures in each state. If we convert the local currency savings to € using purchasing power parity (PPP) exchange rates in order to compensate for the lower costs in the CEECs then the total cost savings amount to €4 billion. The breakdown of these cost savings is presented in Table 5.5 below. It should be noted that cost savings would also be achieved in Albania, Bosnia and Herzegovina and FYROM; however, due to lack of data, these have not been calculated here.

In addition to these cost savings, changes in the accountability of a railway company are likely to follow changes in the level of powers. This will lead to further cost savings.

If we assume that in each CEEC the railway company is given complete responsibility for economic efficiency (i.e. an accountability index of 1), then cost savings of €3 billion are available over and above the cost savings achieved through the implementation of the priority measures. This is also shown in Table 5.5.

The cost savings relating to the implementation of priority measures are achievable over the next seven years if immediate action is undertaken to implement the measures in the Action Plans. This is in line with the estimated cost saving presented in the earlier Adaptability and Efficiency Analysis of €5 billion achievable if all railways in the CEEC were as efficient as the most efficient railway in the CEEC.

Table 5.5. Cost savings ( in PPP and market rates)

(a) PPP

	Cost Savings Euro million PPP			
	Implementation of Priority Measures	Total Accountability	Complete Power	Total Potential Cost Savings
Bulgaria	181	81	112	374
Czech Republic	766	155	645	1,565
Hungary	418	156	329	903
Poland	1,313	1,058	124	2,495
Romania	552	1,005	440	1,997
Slovak Republic	417	356	313	1,085
Slovenia	123	63	41	226
Estonia	33	25	20	78
Latvia	54	76	30	160
Lithuania	109	42	55	205
Albania				
Bosnia & Herzegovina				
FYR Macedonia				
<b>Total</b>	<b>3,964</b>	<b>3,016</b>	<b>2,109</b>	<b>9,089</b>

(b) Market rates

	Cost Savings Euro million (market rates)			
	Implementation of Priority Measures	Total Accountability	Complete Power	Total Potential Cost Savings
Bulgaria	54	24	33	111
Czech Republic	345	70	290	705
Hungary	252	94	199	545
Poland	701	564	66	1,331
Romania	178	324	142	644
Slovak Republic	171	146	128	445
Slovenia	93	48	31	171
Estonia	22	17	13	51
Latvia	31	44	18	94
Lithuania	51	20	26	96
Albania				
Bosnia & Herzegovina				
FYR Macedonia				
<b>Total</b>	<b>1,897</b>	<b>1,351</b>	<b>946</b>	<b>4,194</b>

### 5.3. Further savings

In addition to the cost savings detailed above (i.e. from applying the three priority measures in each state and increasing accountability), further cost savings are achievable in the longer term for a number of reasons. Firstly, the measures proposed encourage a process of continuous improvement within the railway companies and, in the longer term, greater cost savings will be available by introducing measures to address all of the deficient powers. If we assume that each of the railway companies has complete power and total accountability (hence an adaptability index of 1), then total cost savings amount to around € 9 billion per annum at PPP exchange rates, as shown in Table 5.5.

Secondly, it should also be noted that the analysis does not take into account any increases in revenue resulting from the adoption of new powers by the railway companies. Based on experience of passenger railways in the EU and the CEECs, in addition to the cost savings, increases in revenue of between 5 and 10 per cent are also likely. This should be possible on the basis of the modern marketing measures, in parallel with the implementation of the various proposals to increase management powers.

## 6. ACTION PLANS

Action Plans have been produced for each of the 13 Phare countries, proposing a set of prioritised measures. The potential financial benefits from the implementation of these priority measures has been estimated from the adaptability analysis at between Euros 4-5 billion per annum.

The relationship between adaptability and efficiency is central to the Action Plans. Figure 6.1 demonstrates clearly how the cost efficiency of European Railways (EU and CEEC) improves as adaptability (degree of reform) rises. This relationship was developed from the above analysis and for the western European states from previous Halcrow research for the European Commission.

Many of the within-framework measures aimed at improving competitiveness, for example, development of new organisational structures and accounting systems and the development of business plans and product development, are best developed and implemented by the railways themselves, a bottom-up approach from within the railway organisation. It is important that a railway “owns” the particular solution if it is to be embraced and fully adopted rather than a mere superficial compliance. This is not to ignore the need for an external top-down force to drive the need for change, as discussed earlier, but it does highlight the need for a partnership between the railways and governments and, at times, the EU. Governments, the EU and other international bodies need to drive the between-framework measures that spur the railways into action whilst the particular form that action should take, the within framework measures, should as far as is possible be decided by the railways.

The railways cannot expect the market to solve their problems, they cannot expect to “market” their way out of trouble, for example, by just offering lower prices or increased frequencies. The initial focus should be on reform, empowerment and cost control measures. Greater market focus can also start now but it will not achieve its full potential until the railways are operating on a more focused and business-orientated basis.

Partnerships with international private sector firms could also help to introduce new practices and techniques, for example, through leasing and franchising arrangements. International freight services appear to offer particular opportunities for private sector involvement, either in operating services or in providing specialist wagons.

Table statistics summarise the measures recommended for each country in the Action plan. General points are as follows:

- Albania, Bosnia & Herzegovina and FYR Macedonia: it is recognised that there is a need to provide basic rehabilitation to railways to enable them to function and operate; and that external political difficulties impose a particular barrier to progress. However, the opportunity exists for a “clean sheet of paper” approach to put into place appropriate institutions, organisation and procedures. Indeed, it can be argued that such measures are essential to ensure that the maximum benefit is gained from any infrastructure investment. The approach adopted by the Baltic States in creating three new organisations from the former Soviet Baltic railway provides a good model.
- Estonia, Latvia and Lithuania have generally made considerable progress in rail restructuring and reform, although each has followed a different approach. Therefore, the recommended measures for these countries have tended to concentrate on business management and operational issues rather than government and reform measures. Finance and procurement measures feature prominently in all of these countries.
- For the remainder of countries, the focus is predominantly on government/institutional and accountability measures. This is especially the case in the Czech Republic, Hungary, the Slovak Republic and Slovenia, where the effects of rising labour costs are likely to be felt the greatest. Exceptions are Poland and Romania, which have already undertaken considerable rail reform. In these countries the emphasis is more on providing business management and operational measures that will consolidate the reforms already made.
- International passenger and freight services are the one area where demand for rail is forecast to increase significantly by 2015. Even so, rail is still forecast to lose mode share, mainly to road but also to air in the case of the passenger market. Whilst there are specific barriers to international rail services, for example, border delays, different operating equipment and practices and poor quality rolling stock, these are not insurmountable. Of more fundamental importance is the fact that, in common with domestic services, most international rail services are production led and do not meet the needs and expectations of customers. The measures designed to change the CEEC railways from an operational control paradigm to a commercial control paradigm will also be of benefit to international services. There are particular opportunities for private sector companies and operators to develop innovative services in the international freight sector.
- The EU has a clear role to play in providing encouragement that directives regarding open access and charging are implemented and observed in the CEECs. This provides a basic framework for further institutional reforms. If open access is to be truly achieved and innovative international services developed, then a monitoring regime is required. The establishment of a European Rail Organisation System (EROS) in the EU could provide a model that may be extended to include the CEECs.

Table 6.1. Recommended measures for each CEEC railway

	Albania	Bosnia/Herz.	Bulgaria	Czech Republic	Estonia	FYR Macedonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	International
<b>Appointments/Human Resources (AP)</b>														
AP.1				X	X			X						X
AP.2	X	X	X	X	X	X	X	X	X	X	X	X	X	
AP.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AP.4	X	X	X	X	X	X	X			X	X	X	X	
<b>Organisational Structure (OS)</b>														
OS.1			X	X		X							X	
OS.2		X	X	X		X	X		X	X		X	X	X
OS.3	X	X	X	X	X	X	X	X	X	X	X	X	X	
OS.4	X		X	X		X		X	X			X	X	X
OS.5	X	X		X	X		X	X	X	X	X	X	X	X
OS.6		X			X		X	X		X	X	X		X
OS.7					X									
<b>Annual Budgets (AB)</b>														
AB.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AB.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AB.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AB.4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AB.5								X	X				X	
AB.6														X
AB.7												X		X
AB.8										X	X			

Long Term Plans (LT)	Albania	Bosnia/Herz.	Bulgaria	Czech Republic	Estonia	FYR Macedonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	International
	LT.1	X	X	X	X	X	X	X	X	X	X	X	X	X
LT.2	X	X				X								X
LT.3					X			X	X		X			X
LT.4	X	X	X	X	X	X	X	X	X	X	X	X	X	
LT.5	X	X	X	X	X	X	X	X	X	X		X	X	
LT.6	X	X				X								
LT.7		X	X	X			X		X	X	X			
LT.8					X			X					X	
LT.9	X	X	X	X	X		X	X	X	X	X	X	X	
LT.10	X	X	X	X	X		X	X	X	X	X	X	X	
LT.11	X	X	X	X	X		X	X	X	X	X	X	X	
LT.12	X	X	X	X	X		X	X	X	X	X	X	X	

**Table 6.1. Recommended measures for each CEEC railway**

		Albania	Bosnia/Herz.	Bulgaria	Czech Republic	Estonia	FYR Macedonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	International
<b>Pricing &amp; Marketing (PM)</b>															
PM.1	Development of passenger market pricing structure within government financial and social objectives			X	X	X		X		X	X	X	X	X	
PM.2	Development of freight market pricing structure within government financial and social objectives and international obligations			X	X	X		X			X	X	X	X	
PM.3	Identification and evaluation of opportunities to improve railway net revenue within government social objectives	X	X	X	X	X	X	X		X	X	X	X	X	
PM.4	Identification and evaluation of opportunities to improve railway net revenue within government financial and performance objectives	X	X	X	X	X	X	X		X	X	X	X	X	
PM.5	Review of loss-making services, including those run as a Public Service Obligation	X	X	X			X	X		X	X	X	X	X	
PM.6	Identification and evaluation of opportunities to improve integration between rail and other modes			X	X			X		X	X	X			X
PM.7	Formation of specialised international railway groups to overcome marketing and pricing problems								X	X					X
PM.8	Development of attractive service products					X			X		X		X		
PM.9	Introduction of structured market research for product development, monitoring and analysis purposes	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PM.10	Development of train service products by market segment	X	X	X	X	X	X		X	X	X	X	X	X	X
PM.11	Development of market pricing and yield management techniques					X			X					X	X
PM.12	Introduction of market factors to the provision and servicing of freight and passenger rolling stock													X	X
PM.13	Development of improved freight sales and contracting processes					X									X
PM.14	Development of advertising and promotion strategies					X		X				X	X	X	X
PM.15	Development of Passengers' Charter							X				X			
PM.16	Setting up a legal framework for an independent organisation with responsibility for promoting the interests of users							X			X	X			
PM.17	Introduction of regular communication with customers				X						X	X			

**Table 6.1. Recommended measures for each CEEC railway**

	Albania	Bosnia/Herz.	Bulgaria	Czech Republic	Estonia	FYR Macedonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	International
<b>Finance (FN)</b>														
FN.1	X	X	X			X		X	X	X				
FN.2	X	X		X		X		X	X	X	X	X	X	
FN.3			X	X	X	X	X			X	X	X	X	
FN.4		X	X	X	X	X	X	X	X	X	X	X	X	X
FN.5					X		X	X	X	X	X		X	
<b>Procurement (PR)</b>														
PR.1	X	X	X	X	X	X		X	X	X	X	X	X	
PR.2		X	X	X	X	X	X	X	X	X	X			X
PR.3		X	X	X	X	X	X	X	X	X	X			X
PR.4	X	X		X	X	X	X	X	X	X	X	X	X	
PR.5	X	X		X	X	X	X		X	X	X	X	X	
PR.6	X	X	X	X	X	X	X	X	X	X	X	X	X	
<b>Operations (OP)</b>														
OP.1	X	X	X	X	X	X	X	X	X	X		X		X
OP.2		X		X			X	X				X	X	
OP.3				X	X	X	X					X		
OP.4					X	X	X		X	X				
OP.5						X	X				X			

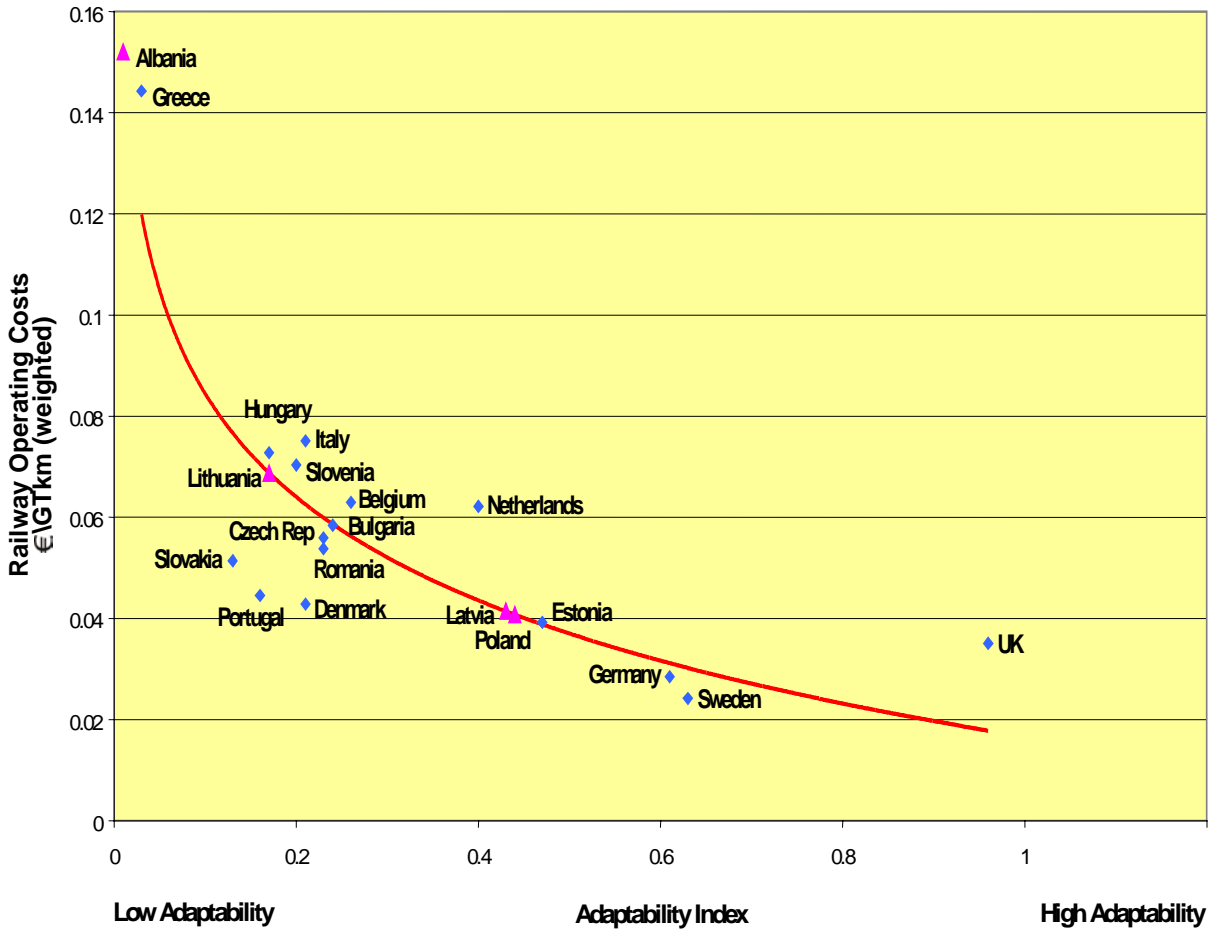


Table 6.1. Recommended measures for each CEEC railway		Albania	Bosnia/Herz.	Bulgaria	Czech Republic	Estonia	FYR Macedonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	International
OP.6	Development of total quality management (TQM)														
OP.7	Development of techniques for improvements in the maintenance and reliability of infrastructure	X	X	X	X	X	X	X	X	X	X	X	X	X	
OP.8	Identification and evaluation of opportunities for new techniques and for the improved productivity of infrastructure manpower and equipment	X		X	X	X	X	X	X	X	X	X	X	X	X
OP.9	Improved maintenance and reliability for locomotives and rolling stock	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OP.10	Identification and evaluation of opportunities for improved operational manpower productivity	X		X	X	X	X	X	X	X	X	X	X	X	X
OP.11	Identification and evaluation of opportunities for improved productivity of locomotives, rolling stock and other equipment	X		X	X	X	X	X	X	X	X	X	X	X	X
OP.12	Development of freight traffic control and monitoring systems		X					X		X					
OP.13	Investigation of opportunities for the improved security of freight traffic							X							X
OP.14	Development of strategies and plans to improve the retailing of rail products							X				X			
OP.15	Development of strategies and plans for the improvement of passenger stations and facilities							X				X			
OP.16	Development of structured review processes for passenger train services	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OP.17	Development of structured review processes for freight train services	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OP.18	Development of strategies and plans for the improvement of freight stations and terminals		X					X				X			
OP.19	Development of improved international operability							X	X	X				X	X
OP.20	Development of opportunities to reduce impact of customs and security activities							X	X	X				X	X
OP.21	Development of improved presentation to customers at passenger stations and freight terminals and on trains		X					X							
OP.22	Development of improved train service reliability and punctuality	X						X	X	X	X	X	X		
OP.23	Investigation of opportunities for improving passenger security – with police and other agencies							X							X
OP.24	Identification and evaluation of opportunities for the introduction of modern technologies to retailing														

**Table 6.1. Recommended measures for each CEEC railway**

	Albania	Bosnia/Herz.	Bulgaria	Czech Republic	Estonia	FYR Macedonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	International
OP.25						X	X		X	X	X			
OP.26						X	X		X	X	X			
OP.27		X	X	X	X	X	X	X	X	X	X	X	X	X
OP.28		X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Accountability (AC)</b>														
AC.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AC.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AC.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AC.4	X	X					X		X		X	X	X	X
AC.5		X	X	X	X	X	X							
AC.6		X	X	X	X	X	X	X						
AC.7					X		X	X	X	X	X			
<b>Government (GT)</b>														
GT.1	X	X	X	X		X	X		X	X	X	X	X	X
GT.2														X
GT.3	X	X	X	X		X	X	X	X		X	X	X	
GT.4	X	X	X	X	X		X	X	X	X	X	X	X	X
GT.5			X	X	X		X	X	X	X	X	X	X	X
GT.6				X	X		X							X
GT.7			X	X	X	X	X	X	X	X	X	X	X	X

Figure 6.1. Adaptability and efficiency



## 7. THE WAY FORWARD

Urgent and widespread rail reforms are needed if railways are to become more adaptable, efficient and market focussed.

Privatisation would lead to the introduction of many of the necessary measures. However, privatisation is not a pre-requisite for success; a commercially-led railway can also be achieved under public ownership.

There are many common features of existing CEEC railway management systems. These are essentially based on production-led command and control processes. A need exists to replace such processes with a commercial management paradigm.

The commercial paradigm of rail management is centred around financial accountability, business processes and empowerment of staff. Important instruments include:

- An annual report, fulfilling specific reporting requirements;
- Business contracts for both internal support functions and socially desirable (non-commercial) services;
- A long-term business plan, co-ordinated with investment plans.

The implementation of a commercial paradigm of rail management must be accompanied by the introduction of an independent safety and licensing authority. Such a body would ensure that conflicts of interest do not compromise safety. It would also regulate a non-discriminatory operational environment.

One of the principal technical deficiencies of CEEC railways is their lack of suitable management information and accounting systems. These are essential if management is to have the information necessary to optimise use of assets, improve efficiency and plan commercial services. The introduction of modern cost accounting and business planning systems must be a priority.

The adoption of the commercial paradigm implies a major change management process. It is essential that a senior management structure is established and is committed to such change. An independent senior management team must be empowered to structure the organisation and to appoint and dismiss staff.

Figure 7.1 summarises the key steps involved in moving from a command model to the commercial paradigm. It can be noted that some steps must be led by government; these are aimed at reform and the creation of a more adaptable and liberal operating environment.

Other steps can be taken by the railways; these lead to shorter-term benefits within an existing organisational framework.

Ideally, the steps outlined in Figure 7.1 would be taken sequentially. In reality, the starting position of a particular railway will determine which of the steps are implemented first. Such pragmatic considerations are reflected in the Action Plans developed for each railway.

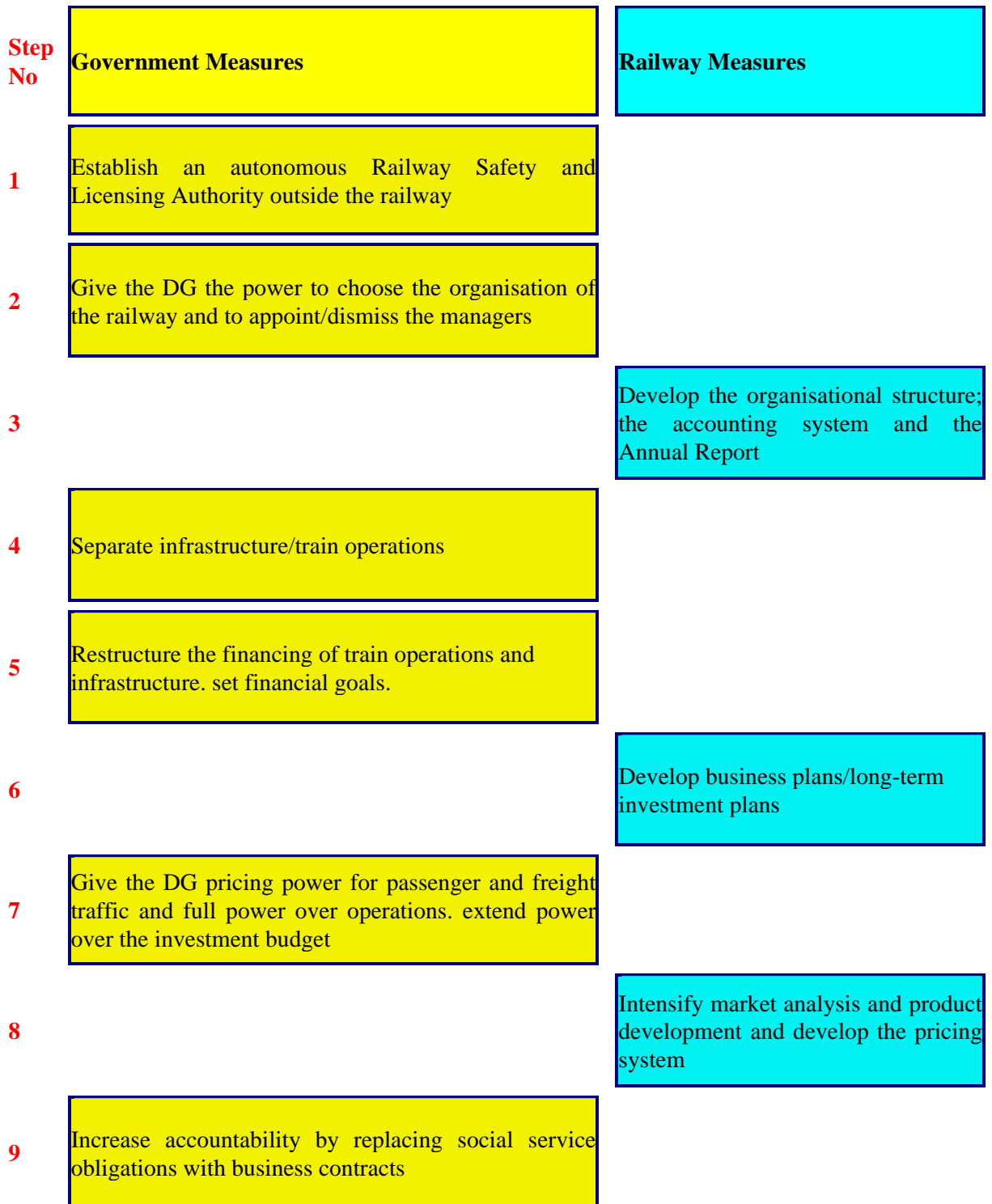
The introduction of these measures will require a top-down approach to create the momentum for change. European Union rail directives (on the separation of infrastructure from operations, open access and pathing) and other legislative requirements for accession can provide a catalyst for reform.

However, a general lack of a sense of urgency exists in many CEEC railways. There is no room for complacency; rising costs, falling efficiency and stagnant markets will, if unchecked, bring commercial disaster to the CEEC rail sector.

A role exists for the European Union and other international agencies in generating a sense of urgency with national governments for rail reform. A dialogue with national finance ministries may prove the more effective route.

Development agency support for the rail sector should be linked to progress with reform. Lenders will also benefit from helping to create a more commercially sound environment from which a return on their investment can be generated.

Figure 7.1. A commercial model of rail management



## **8. CONCLUSION**

The crisis facing most CEEC railways will not be averted simply by investing in new infrastructure or by externally driven market growth. The solutions lie largely in the hands of the railways themselves, along with their government owners.

In order to tackle the causes of poor competitiveness and low efficiency, widespread organisational and institutional reform is needed. Management must become more independent, empowered and commercially accountable.

A change must take place from the current production-led model of management to a commercial paradigm. This must be accompanied by the introduction of standard business processes, such as cost accounting, annual reports and business contracts.

The benefits of such changes are considerable. Short-term savings of between Euros 4-5 billion per annum are possible, with longer-term savings of many times this sum. The re-investment of these efficiency benefits, within a commercially-focussed environment, would help create a genuinely competitive railway to serve the region's emerging markets and growing needs.

### **NOTE**

1. Profitability of Rail Transport and Adaptability of Rail (PRORATA) prepared for DGVII of the European Commission, Halcrow Fox, February 1999.

## **SUMMARY OF DISCUSSIONS**





## SUMMARY

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## 1. STRENGTHS AND WEAKNESSES OF THE RAILWAYS, AN OVERVIEW

### 1.1. Overview

Governments in eastern European countries have limited budget resources and many priorities on their social policy agenda, and especially financing pensions. Improving the efficiency of the railways could make more resources available in these countries by stemming the flow of public finances (i.e. tax revenues) used to cover the operating deficits of the rail sector. At the same time, railways have been used to retain surplus work forces to avoid increasing levels of unemployment. The short-term benefits of this expedient are outweighed by the long-term costs. Examples of successful severance packages – financed by the State – were cited in Poland and Romania as well as in Latin America.

The fact that the railways of western Europe cannot be held up as an example only reinforces pessimism about the rail sector in Central and Eastern European Countries (CEECs). Despite significant public investment in most western networks, no winning strategy has emerged for the future, with the possible exception of high-speed passenger transport. A feeling of “crisis” in the rail sector is shared by practically every country in Europe and this is linked to political uncertainty as to the strategic role in transport for railways over the long term.

At the same time, new challenges have to be met:

- The integration of countries into the global economy is building a network of economic relations critically dependent on “supply chain management” and “extended logistics”, i.e. in which economic relations are based on information technologies at European and indeed world level.
- As standards of living rise, private car and air transport will occupy the strong position that they already hold in western Europe, a foretaste of future trends in eastern Europe.
- Although there may be good reasons why the CEECs and the Commonwealth of Independent States (CIS) may want to foster the growth of their rail sectors, there will also be a number of social reasons -- such as population ageing -- why they will find it hard to put much money behind these policies. The CEECs and CIS railways may have to develop without much state financial support, except for critically needed social programmes for local transport.
- The types of products and services that are increasingly in demand in the new economies will put a premium on higher quality of transport, which may mean that road haulage shares will grow much faster than rail shares, except in countries or regions where the road network is so rudimentary that no growth in road transport is possible. If economic development is successful, then structural changes -- both economic and social -- will favour flexible and individual transport modes, further reducing demand for rail transport, especially in the wealthier CEECs. The prospects for rail transport are far from reassuring.

EU accession will be doubly important for candidate countries, as they are likely to receive a boost in growth and investment from their initial years of membership, and their growth is likely to spread to adjoining countries.

The issue that dominated the discussions was how to ensure that the railways of eastern Europe play a larger role in meeting demands for transport services than they have over recent decades in western Europe. The starting point for the discussions was a review of the strengths and weaknesses of the railways in the CEECs and the CIS, *even if important differences exist as to the future of the railways in these countries according to geographic, economic, social and political factors.*

## **1.2. Weaknesses of Eastern European railways**

The Round Table identified several factors which indicated that the current decline in rail traffic in eastern Europe could well become permanent.

- The decline of heavy industry, such as the steel and coal industries, in eastern Europe could continue as the international division of labour proceeded. It was likely that the economies of these countries would specialise -- although the underlying trend would be roughly the same as that in the West -- i.e. unfavourable to primary sector industries. At the same time, productivity gains in eastern European industries would reduce transport intensity per unit of GDP output. It was therefore clear that fewer tonnes would be transported for the same level of GDP, which would have an impact on rail transport in particular.
- Competition in the road transport sector would have a lasting impact, indeed more so in the CEECs than the CIS. It would be a major factor for both passenger and freight transport. In the passenger transport sector, competition from private cars would be merciless. The rate of car ownership per 1 000 inhabitants was rising steadily in the CEECs, and was close to the rate in western Europe. As the road network was also being developed in these countries, rail would find itself under constant threat. Moreover, the advent of increased competition in the air travel sector will also pose a serious competitive threat for rail in the longer-haul passenger business. In the freight transport sector, the road haulage industry had consistently improved on productivity and service quality since the introduction of Community measures to liberalise road freight transport. This means that, while the level of service has improved, prices have dropped considerably. This trend will continue in the European Union and will be reflected in the CEECs in both domestic and international transport, principally because the privatisation of the road freight haulage industry is almost complete and because the logistics organisations set up in western Europe will be imported into the CEECs. Inevitably, therefore, the railways of eastern Europe will no longer be competing with not very efficient road haulage conglomerates but with flexible, high-performance firms like those that exist in the West.
- The productivity gap between rail and road freight transport is so wide that it cannot be bridged simply by internalising the external costs of road transport, if indeed that is a policy CEECs opt for. In other words, environmental protection will only be a positive factor in rail development if the railways make a determined effort to increase their productivity and service quality.
- Rail productivity is generally dependent on labour productivity in Europe. Productivity is unsatisfactory in railways all over Europe and has been aggravated in eastern Europe by a substantial fall in traffic. Major restructuring will be needed to solve this problem and if

governments of some countries resign themselves to the *status quo*, their railways will be deprived of a key element of the strategy for survival and success. In the future, increasing wage levels will cripple the railways if they cannot shed excess labour.

- The position of the railways is something of a vicious circle in which lack of competitiveness leads to lost markets and lost revenues, which in turn leads to underinvestment and further erodes competitiveness. The involvement of private investment in the railway system may be one of the ways in which they can break the circle, but private investment will require a change in the mentality of the rail sector, giving priority to options very different to those that have so far prevailed. A change of this kind will always be slow.
- Intermodal transport may be a factor for growth but, because it is complex and road transport prices are low, it is difficult to create conditions in which it can be competitive. In the European Union, it is clear that it is no longer a growth market and could only become so with heavy subsidies, not only for equipment but sometimes for operation, too. Such a policy would come up against the shortage of government resources.
- Choices have to be made as to which services railways should offer. There is no such thing as a homogeneous market for any company, there are only profitable market segments. In other words, the rail sector may have to concentrate on a few priority markets that play to its inherent strengths, and try to make money from them. This would mean turning their back on the temptation to be a universal carrier, a role that road transport is better at. Such a change would exacerbate the problem of overstaffing.
- Railway undertakings will be handicapped so long as government rail policies remain ambivalent. Because of differing rates of progress in European Union countries, and the need to establish consensus on minimum degrees of change, reforms appear tentative. This weakens policy initiatives, when clear direction is needed. This is a problem that applies equally to eastern and western Europe.

### **1.3. Strengths of the railways in Eastern Europe**

As well as the weaknesses mentioned above, the Round Table also identified the strengths of rail transport in eastern Europe.

- Countries that had begun the process of overall reform early enough, may be able to ride out the crisis marked by the very substantial contraction of industrial output. Those that had relied on market mechanisms and private initiative may be seeing the end of recession and this is confirmed by the large increases in GDP growth rates in some countries. This has had a positive impact on rail freight traffic and there have been signs of a real turnaround since 1999-2000. However, the same cannot be said for rail passenger transport. A distinction should also be made between the CEECs and the CIS, where the long distances and underdeveloped road network are structural factors that may maintain or improve rail freight transport's position for many years to come.
- Although rail transport has been declining in the CEECs since the end of the 1980s, this could be regarded as normal since it mirrors the underlying economic changes. Some experts say that the decline may not indicate a “dramatic” weakness in rail transport at this time, just that it needs to adapt better to current trends. Policy can still play a role and build on the positive characteristics of rail in eastern Europe, i.e. the density and size of its networks although, when considered in terms of costs, this can be viewed as both a strength and a weakness.

- The density and size of rail networks becomes an advantage from the standpoint of territorial development. There is no definite implication as regards land use. Of course, the market is very imperfect since location decisions, particularly by private individuals, do not always take into account the need for optimal access to city centres. In eastern Europe, where urban sprawl is neither extensive nor irreversible as yet, residential densities are high, which is to the advantage of mass guided transport, and hence to rail. If governments in eastern Europe give themselves the means to influence land use -- acknowledging that the opportunity costs of so doing are lower than the opportunity costs of doing nothing -- the role of the railways can be safeguarded to a great extent. One factor which gives hope to the railways in eastern European countries is that settlement patterns and densities were based, until a few years ago, on criteria dictated by public transport, and specifically so that they could be served by rail. This must be balanced, however, by the fact that the lack of land markets in the former socialist countries created habitation patterns that are to some extent artificial: while the heavy use of mass transport is potentially a positive factor for railways, the development of land markets may shift populations in a way that reduces use of mass transit. Moreover, since urban and suburban transport tends to be unprofitable for railways (because of socially determined rates and services), continuation or even growth in these services implies an even higher participation of governments in support for rail operations.
- Low salaries, for the time being at least, make eastern Europe competitive in the transport market and particularly in the rail sector. This may encourage western European rail companies to form alliances with rail companies in the CEECs or the CIS and pass on rights of access to western European markets. All of which would strengthen the competitive position of rail transport in the CEECs and the CIS.
- As incomes rise, the need for travel will increase, giving rail an opportunity to capture part of this market which will be in both business and leisure travel. Lower birth rates are synonymous with population ageing and therefore greater dependence on public transport, although at the same time, they indicate a decline in the numbers of young people who will be dependent on public transport until it is supplanted by the private car.

To conclude this review of the strengths and weaknesses of rail transport in eastern Europe, although there is a demand for transport in these countries, it is not necessarily for rail transport, except in the CIS where rail transport will remain largely dominant given that it will retain a structural role. It is therefore important that rail transport in the CEECs adapts and makes the strategic choices that will allow it to position itself on promising markets. The next section addresses the key issues it will face.

## **2. KEY ISSUES**

Until rail companies offer complete, seamless, end-to-end services to customers, they cannot be competitive with other modes. All reforms must have as the primary goal achieving this focus on meeting the demands of the market and the client. Despite its disadvantages, separating freight operations from infrastructure may help by promoting new entrants to show the way where incumbent national railways have been too slow in innovating.

## **2.1. Open access as a model**

Given the situation outlined above, there is no perfect solution for rail transport in eastern Europe -- the problems are so complex that no single solution could solve them all – however, the Round Table did produce a series of recommendations.

- The national level was not necessarily the most relevant level for discussing rail transport, particularly freight transport. For the latter, the issues and markets are European. That the only sensible level for discussions was the European was borne out by the fact that more than 50 per cent of the freight revenues of DB and SNCF were from international traffic. However, this was not to say that existing companies should simply merge: the ideal solution would be to see new companies catering for the whole of Europe to come onto the market and compete with existing companies. The rule at this level should therefore be open access.
- As regards local or regional passenger transport -- the levels at which the concept of public service arises -- competition between companies for the market should be the norm. The involvement of private sector companies in the provision of public services, where necessary, ensures that better quality services will be provided at lower cost. For example, virtually all of the railways in the Americas, including suburban passenger services and some major metro networks, are currently operated by the private sector. Governments would have to oversee the services and establish frequency, fares and other aspects such as service arrangements and equipment replacement rates.

## **2.2. Efficient pricing**

The Round Table recommended open access to infrastructure for freight, coupled with basic requirements relating to safety, etc. Separating freight operators from infrastructure management is one approach to providing neutral conditions for access between competing operators and is the model to be followed by EU accession countries. This leads directly to the issue of infrastructure access pricing.

Marginal social costs are the appropriate starting point for charges that promote efficient use of the existing network, as the EU railway package sets out, but it is essential to go beyond this and provide, through charges, incentives for rational development of the network. At the same time, potential rent-seeking by the infrastructure monopoly (by under-investing where capacity is tight and simply increasing charges to ration use) must be prevented through structural or regulatory intervention. Infrastructure access charges should also send the right signals to the infrastructure owner as regards the need for investment on certain heavily trafficked sections, in order to reduce congestion on rail infrastructure.

The pricing mechanism should also promote efficient allocation of train paths among different users. On this point, the Round Table thought that the railways in eastern Europe should use the latest available technologies to allocate train paths via an auction mechanism in which the bid entered by any company applying for a path is the measure of the importance it attributes to having that path allocated to it. It should be said that until now, where infrastructure has been separated from operation, notably in the United Kingdom, infrastructure access charges have not been found to

provide the right signals and have undergone several major changes. Getting the prices right is not a simple task. A secondary market for slot allocation was seen as important in achieving liquidity in any auction system.

### **2.3. Separate accounting or separate institutions?**

Accounting at least should be totally separate and the prevailing view at the Round Table was that institutions too should be totally separate in whatever proved to be the most appropriate way. When there is a balance of users, with no single user predominant, when there is a need for real competition among users on the same line and when the economics of the various services need to be clearly separated, then institutional separation becomes necessary. In this case, institutional separation does indeed seem to be the best arrangement for non-discriminatory open access. The Round Table's emphasis on open access partly reflected a desire to see new rail companies coming onto the rail transport market in preference to the alternative arrangement, which would be the merger of the incumbent public undertakings. 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. Faced with competition, the latter would be unable to remain set in their ways and this is indeed one of the objectives of the reforms to be implemented. Another point made during the discussions at the Round Table was that there was no fundamental reason why rail freight transport, to give but one example, had to be provided by a public undertaking. There was not a single example of a successful state-run rail service and there is nothing necessarily public about the provision of rail operating services.

### **2.4. Privatisation should not be a dogma**

This said, there were historical, contradictory sociological and institutional realities that made calls for "privatisation of state-owned railways" meaningless. There is no basis for dogma regarding the role of the private sector and, as far as infrastructure is concerned, the experts at the Round Table took the view that privatisation could only be contemplated where there was no vertical separation between infrastructure and operations in a company (as was the case in the United States). Above all, companies should be encouraged to change by responding to competition and by adopting the internal operating rules of the private sector. With this in mind, one point that the Round Table emphasized was the need for cost accounting by activity centre for rail companies, so that their competitiveness, not the policy objectives imposed on them, will dictate the markets they can position themselves on. Monolithic rail companies in a market economy would guarantee failure and accounting procedures based on private sector standards would be a first major step towards avoiding this.

### **2.5. Non-core activities**

Under a planned economy it was argued that really large entities, such as railways, could efficiently be independent of the rest of the economy because their needs were large enough to justify self provision. This would not be sustainable under market conditions because equipment, supplies and services can be purchased at lower costs and higher quality from sources outside the railways. It



should also be noted that the process of spinning off these non-core activities has already begun in many countries and in the normal course of events should be brought to completion as reform proceeds.

However, it is not sure that selling railway properties situated in town centres is a useful initiative, inasmuch as by keeping a stake in these properties and in their development, the railways may gain a share in activities with a high transport utilisation. A shortage of sites for freight terminals in cities is a handicap for developing rail markets in many western European countries.

### **3. STRATEGIES**

#### **3.1. Measures for railways**

##### ***First, accounting systems based on cost transparency***

The first priority is to put in place a line-of-business cost accounting system for operations, based on cost transparency principles. Cost transparency is essential for taking informed decisions: the aim is not necessarily railway growth in absolute terms, but to concentrate on profitable markets and market segments, like any competing company. On the contrary, this could mean a reduction in size.

It is therefore essential to base the structure around markets so that revenues and costs can be related to each market. Line-of-business management will require agreement on public service obligation payments from governments to operators for the provision of unprofitable passenger services that governments wish to preserve.

##### ***Second, introduce the same practices as any commercial company***

The railways must help themselves by adopting the same strategies and practices as any commercial company. The adoption of a commercial paradigm implies a major change in management process. It is essential that senior management is committed to such change. An independent senior management team must be empowered to structure the organisation and to appoint and dismiss staff. This will also mean that new practices have to be shared by all staff. Clearly, therefore, an innovative strategy is needed, based on staff motivation and a management style that is geared to the railways, but inherited from private enterprise.

##### ***Third, the railways should position themselves on profitable markets, such as complete logistics services***

The railways in western Europe and the CEECs are basically geared to providing passenger services, with freight a minor concern. Markets are not homogeneous and they have various potentially profitable segments. The railways must aim to increase their penetration into these market segments and consider developing a logistics approach for freight transport. In other words, they must position themselves on promising markets.

#### ***Fourth, encourage investment in new technology***

A key factor in the development of the railways depends on their ability to capitalise on the inherent features of rail, including its ease of automation. Contrary to what has been the experience to date, rail is inherently a technology-intensive, not labour-intensive industry. On this point, the Round Table considered it vital for the railways to get involved in new technologies, including automation technologies. The problem of overstaffing that this would inevitably expose should be resolved in collaboration with governments. In addition, they should invest in the acquisition and operation of the equipment necessary to calculate infrastructure costs and manage track capacity in a non-discriminatory way. This managerial software is critical to all of the transformations needed to support market-based management and no railway should undertake reform without it.

### **3.2. Measures for governments**

The Round Table set out a series of initiatives that governments should take to resolve the problems posed by the railways in eastern Europe.

#### ***First, open up access to the infrastructure as required by EU practice***

For many experts, western Europe had failed to implement the provisions of the Treaty of Rome with regard to the liberalisation of transport in the rail sector. A certain economic philosophy and special interest groups had caused some countries to shield state enterprises, especially railways, from market forces. Eastern Europe, then, should learn from the mistakes made in the West where past policy on rail transport cannot be used as a model. Attempts to co-ordinate the activity of different modes in the West had been very costly, since railway subsidies in the West per passenger carried are 15 to 20 times higher than in the East of Europe but had still failed to halt the decline in rail's market. What could be considered the key recommendation to emerge from the Round Table was that there must be open access to rail infrastructure for freight operators, i.e. open to new operators and open to the rewards of the free competition model. Competition is a major factor in efficiency and in responsiveness to the demands of the market.

#### ***Secondly, create a competitive framework for the transport market***

In order to do this, the first lesson to bear in mind is the need to provide a framework for the transport market and give companies total autonomy. The responsibilities and freedom of every actor in the transport market must be harmonized in order to build a "level playing field". This is easy to say but more difficult to do, as the liberalisation of the transport market will mean establishing regulations on safety, the environment, market access, social conditions, charging, taxation, etc. However, there are numerous ways in which these principles can be introduced and each country can find a suitable way to do so.

Another objective of this kind of change is to put an end to the railways' hold on regulatory power, which is the result of the close relationship between the rail companies and governments.

#### ***Third, encourage new entrants***

All national policies should have a common aim to encourage new entrants to the rail transport market as a matter of urgency, thereby preventing the existing companies invoking grandfather rights. Access rights are essential and must not discriminate in favour of established companies. Effective

access rights can be provided by competition *for* the market as well as competition *in* the market. That is, competition for an exclusive suburban rail concession, with public subsidy under contract, can be a fully acceptable way of opening up the competitive use of infrastructure. In other words, the open access objective needs to be taken together with the enhanced competition objective if the best approach is to be found.

***Fourth, give decisionmaking back to companies***

This kind of model can only work if companies are given a free hand in strategic decisionmaking in their operations. After the public needs for infrastructure capacity are decided, and social needs for operating services (primarily regional and suburban/urban passengers) are identified, governments must therefore hand the decisionmaking powers they still exercise back to rail company management. The managerial freedom of the companies is essential and can only be based on transparency of costs and revenues, as well as a direct relationship between market demands and enterprise performance. A point made several times in the course of the Round Table was the need for rail companies to have a standardized accounting system, i.e. a system that allows them to see the return on operations in each of their markets, in line with a cost accounting model. In addition, government oversight of rail performance is greatly enhanced if the rail accounts are relevant, accurate and comprehensible.

***Fifth, grant public service franchises***

For transport markets in which the open access concept is not realistic, such as local and suburban transport, governments may grant franchises to operators that submit the least costly bids. As governments subsidise these services, they will retain decisionmaking powers on frequency, fares, services operated, etc., but here too, new entrants will be encouraged to enter the market through invitations to tender.

***Sixth, resolve problems at border crossing points***

Problems at border crossing points are a determining factor for freight transport in that, as the Round Table stated, it makes little sense these days to talk about national issues for freight transport when the international dimension is so large. Governments should therefore promote cross-border competition and joint ventures between incumbent railways to the extent that this does not create barriers to new entrance.

***Seventh, set up a regulatory body***

Governments should institute a national regulatory authority in each country with powers to prevent anti-competitive practices and enforce compliance with the applicable laws. Independence of the regulatory bodies is important to give new entrants confidence to enter the market.

***Eighth, do not overlook environmental concerns***

An increasingly important influence on European transport policy is concern for the environment, which may materialise as incentives designed to promote rail traffic. Typically, they will include reduced or short-run marginal cost access charge regimes for rail freight and subsidies for urban or regional passenger transport. The danger that such practices diminish resources available to the infrastructure operator has to be overcome. But such incentives should only be valid for services with a demonstrable and quantified environmental benefit. The CEECs and the CIS have tended not

to share the same environmental concerns as in the European Union, but will increasingly do so, even if it is particularly difficult for them to correct the environmental misbehaviour of their state enterprises.

*Ninth, adopt a state-financed plan for overstaffing*

Lastly, one of the most difficult aspects of the changes to be made relates to the overstaffing of established railway companies. This problem cannot be left in the hands of the rail companies alone. It is vital that it be resolved, even if the unit cost of labour in the CEECs is low at present. Savings in the region of 4 to 5 billion Euros per year could be made in the CEECs overall, in other words, enough to finance large-scale investments over five years. In order to find a satisfactory solution to this problem, governments must help to design and fund programmes for early retirement, training and redundancy compensation, etc., while at the same time taking care to retain and recruit high-calibre managers with the skills required for the business environment to be created in the railway sector. Examples from Latin America were cited during the Round Table: staff were generally reduced by fifty per cent, while taking care to attract quality personnel in new domains. Salaries must reflect individual merit. It helps to define and obtain general acceptance of planned redundancy payments first and then allow the enterprise to decide which personnel to keep. The agreed redundancy programme is then applied to employees who have not been offered a new job.

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