
E International railways

This appendix describes the experience of a selection of countries that have undergone significant change in aspects of their organisational structure, ownership and access arrangements in railways. The motivation for change is also considered. This appendix concentrates on identifying and reporting experiences of particular interest, such as the experience of franchising in Great Britain and investment issues in Sweden.

Countries covered in this appendix are:

- Argentina (section E.1);
- Canada (section E.2);
- Germany (section E.3);
- Great Britain (section E.4);
- Japan (section E.5);
- Netherlands (section E.6);
- New Zealand (section E.7);
- Sweden (section E.8); and
- United States (section E.9).

Table E.1 provides an overview of the structure and ownership of these railways.

Table E.1 Overview of structure and ownership of overseas railways

<i>Country</i>	<i>Structure</i>	<i>Train operator</i>	<i>Track infrastructure</i>
Argentina	Horizontally separated and vertically integrated	Franchisees	Government
Canada	Horizontally separated (by function) and vertically integrated with access for passenger services	Various private	Various private
Germany	Horizontal and vertical separation of accounts	Governments and various private	Government
Great Britain	Horizontally and vertically separated	Franchisees	Private
Japan	Horizontally separated and vertically integrated with access for freight services	Franchisees and government freight operator	Government with franchisees having control of track
Netherlands	Horizontally and vertically separated	Government and various private	Government
New Zealand	Horizontally and vertically integrated	Private	Government (leased for nominal rent)
Sweden	Horizontally and vertically separated	Government and various private	Government
United States	Horizontally separated (by function) and vertically integrated with access for passenger services	Various private	Various private

E.1 Argentina

Railways in Argentina have been horizontally separated on a geographic basis and individually franchised as vertically integrated operations.

Most of the problems in the Argentinian rail industry were caused by a lack of commercial orientation (World Bank 1996). Prior to restructuring, the Argentinian rail network was particularly run down as a result of poorly targeted investment decisions by Ferrocarriles Argentinos (FA), the Argentinian railway. FA had weak management and a production oriented culture which paid little attention either to satisfying customer needs or the increasing competition from other modes (Kopicki and Thompson 1995). The restructuring of Argentina's rail system had the objective of generating private investment (Brooks and Button 1995).

Reform and structural organisation

Between the mid-1980s and 1994, restructuring of FA occurred in two stages:

- the unbundling of the fully integrated and centralised network by dividing the company into:
 - freight services;
 - intercity passenger services; and
 - urban passenger services.
- franchising of railways (World Bank 1996).¹

Freight and passenger services were separated because there was an opportunity for the freight businesses to become commercially sustainable while passenger businesses were going to require continual subsidies from government (World Bank 1996).

The approaches taken in the franchising of services differed for freight, intercity passenger and urban passenger services.

Freight services

In 1990, the freight service was separated into six sub networks and franchised. The conditions of the franchises were that:

- each franchise would be operated by a private company;
- franchises would be for a period of 30 years with the option of a 10 year extension;
- the franchises would be vertically integrated and include freight marketing, train operation, equipment and track maintenance and rehabilitation responsibilities;
- franchises would include the exclusive right to the infrastructure and no other operator could carry freight in the region without the franchisee's permission;
- the franchisee could also opt to provide passenger services, but if it chose not to it would be compelled to allow someone else to operate the passenger service and would be compensated fairly;
- the franchisee was obliged to hire FA staff, but only as many staff as were required;

¹ World Bank refers to this arrangement as concessioning. See chapter 6 for a definition.

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- freight rates were deregulated but a maximum rate had to be submitted to the Secretary of Transportation for approval; and
 - each franchisee would rent a set number of locomotives and wagons.

Five rail freight franchises have been awarded, leaving only the metre gauge Belgrano Railway under government operation. The franchises have included the use of all infrastructure and rollingstock plus access to the workshops (ECMT 1996).

The Government no longer subsidises the freight business and the volume of traffic has grown (Thompson 1997).²

Intercity passenger services

A study commissioned by the Argentinian Government in 1991 analysed the profitability of intercity passenger services and found that only one service was commercially viable. The report recommended the retention of commercial services and some of the other marginal services (on social grounds). In 1992, the Government decided not to continue to subsidise intercity passenger services and offered the services to the Provinces to provide them at their own expense (World Bank 1996). Seven Provinces agreed to the transfer of services and these were franchised under the conditions that:

- the franchisee should provide minimum service levels as outlined in the schedule;
- the franchisee should improve services to a specified level in a given period of time;
- at least 20 per cent of seating should be allocated 'tourist class' and prices should be in US dollars;
- the franchisees would give preference to FA employees but should only employ as many as required; and
- each franchisee would rent a set number of locomotives and passenger cars (Kopicki and Thompson 1995).

² Bolivia, Brazil, Chile, Cote d'Ivoire and Burkina Faso have had similar experiences.

Urban passenger services

Urban passenger services were separated into seven businesses and franchised. It was anticipated that the farebox revenue collected by franchisees would be insufficient to cover the cost of providing the services.

A three envelope model was used for the bidding process for the franchises. Envelope one contained information about technical and operating experience, envelope two contained a detailed business and operating plan and envelope three contained the financial proposal for the franchise, including the subsidy required from the Government to run the services.

The franchises were awarded on the basis of a single criterion, the lowest subsidy required to operate the railway and undertake a specified investment and rehabilitation program (envelope 3).³ The franchises were awarded to three bidders — two of the three bidders were awarded franchises for three rail businesses each.

Access

Provisions for access were incorporated into the franchising agreements. Freight railways and urban passenger railways are required to allow access to the track for intercity passenger operators in exchange for a 'toll' (World Bank 1996).

Argentina's seven major passenger companies (all privatised) have formed an association in an attempt to reduce the high track access charges being charged by the major freight companies. The association will also set common standards for Argentinian passenger fares (Australian Association of Timetable Collectors 1999).

E.2 Canada

Railways in Canada are vertically integrated and horizontally separated by function. Canadian railways are characterised by profitable freight operations, unprofitable intercity passenger railways and locally funded commuter rail services.

The motivation for reform of the railways in Canada differs substantially from other countries in that it has been initiated by the industry, rather than the Government. Industry initiated reform to facilitate improvements in efficiency. While the issues

³ The lowest subsidy was measured as the first ten year present value of the annual subsidy flow required to operate the line and undertake investment plans, net of the annual flow of the fee offered to be paid for the use of fixed assets such as track and stations (World Bank 1996).

facing management (such as restructuring of services, network assets and liabilities) are similar in the United States and Canada, reform in Canada has been much slower because of the high level of restrictive regulation (Kopicki and Thompson 1995).

The constraints to reform included:

- labour laws which limit opportunities for productivity gains;
- the need for substantial cross-subsidies between passenger and freight services; and
- regulations which limit ownership rights (such as through the structure of access arrangements).

In 1987 the Canadian transportation industry was deregulated under the National Transportation Act 1987 (Statistics Canada 1993; Statistics Canada 1996). The 1987 Act is distinguished by its explicit concern for safety standards, emphasis on intramodal competition, consideration of regulation as a last resort and identification of transport as the key to regional economic development (IC 1991b). (See appendix G for a summary of safety regulation reform in Canada.)

Reform and structural organisation

Canadian railways are dominated by a longstanding duopoly — Canadian National (CN) and Canadian Pacific (CP) (Brooks and Button 1995). CN and CP are primarily freight railways. It is a unique rail system in that CP and CN operate a parallel track system across most of Canada. In addition, there are approximately 23 other mainly small rail operators, including some larger regional railways such as British Columbia Rail.

The railway restructuring in Canada over the past 25 years has been characterised by:

- the creation of VIA Rail in 1977 to manage passenger rail services previously provided by CN and CP;
- the application of private sector principles to the administration of VIA Rail to facilitate efficiency;
- infrastructure rationalisation by CN and CP — for example, the sale of operations in the Maritime Provinces;
- strategic restructuring of CN and CP to coordinate operations, engage in mergers and swap rail lines; and
- development of shortline railways (Statistics Canada 1996).

VIA Rail provides 90 per cent of Canada's intercity passenger rail services, including a transcontinental service and corridor services between Windsor and Quebec City (Statistics Canada 1996). VIA Rail was designed to remove the burden of providing uneconomic intercity passenger services from private freight railways. The Canadian Government owns, operates and directly subsidises VIA Rail. VIA Rail then contracts other companies to provide services — 92 per cent are provided by CN.

In 1998, the Canadian Government announced its intention to franchise VIA Rail. The Government will provide Can\$170 million for rail passenger services per year and limit payments for essential remote social services to Can\$30 million (*Transport 2000 Canada* 1998, vol. 20, no. 6, p. 2). In November 1998, the operation of passenger services on Vancouver Island was transferred from VIA Rail to a private operator (Australian Association of Timetable Collectors 1999).

VIA Rail pays access charges for operating on CN and CP rail lines. These charges are paid on a pro rata basis and were renegotiated in 1995 for a 13 year period.

E.3 Germany

Railways in Germany are characterised by horizontal separation of freight and passenger services and the establishment of separate business units (with their own accounts) for track infrastructure and train operations. Most rail services are still provided by an integrated railway.

The motivation for reform in Germany was a need to improve efficiency and to solve the debt problem faced by the rail industry. German reunification acted as a catalyst for change. The reform process commenced in 1989 when a commission was established to examine the future of East and West German railways (Jahanshahi 1998).

Reform and structural organisation

The German Rail Act 1994 led to the merger of the East and West German railways and the subsequent reorganisation of the new national railway, Deutsche Bahn Aktiengesellschaft (DBAG), into four business units. The units are responsible for track, long distance passenger transport, local passenger transport, and freight.⁴ The sole shareholder of DBAG is the Republic of Germany. By the end of 1999, DBAG

⁴ The freight business, DB Cargo, has merged with the Netherlands freight business, NS Cargo (Briginshaw 1999).

will become a holding company with five independent state-owned joint stock units. Each unit has its own budget and is responsible for its own financial performance. The business units include:

- DB Travel and Tourism responsible for long distance passenger traffic;
- DB Regio responsible for regional and local passenger services;
- DB Station and Service responsible for stations and maintenance;
- DB Cargo responsible for freight operations; and
- DB Network responsible for infrastructure (*International Railway Journal*, January 1999, p. 44).

Dissolution of the holding company and complete separation will take place at a later date (Jahanshahi 1998).

The German rail reforms have also led to a large number of local private rail operators. Regional transport authorities are responsible for local services. There are 150 private short haul rail operators providing mainly local passenger services.

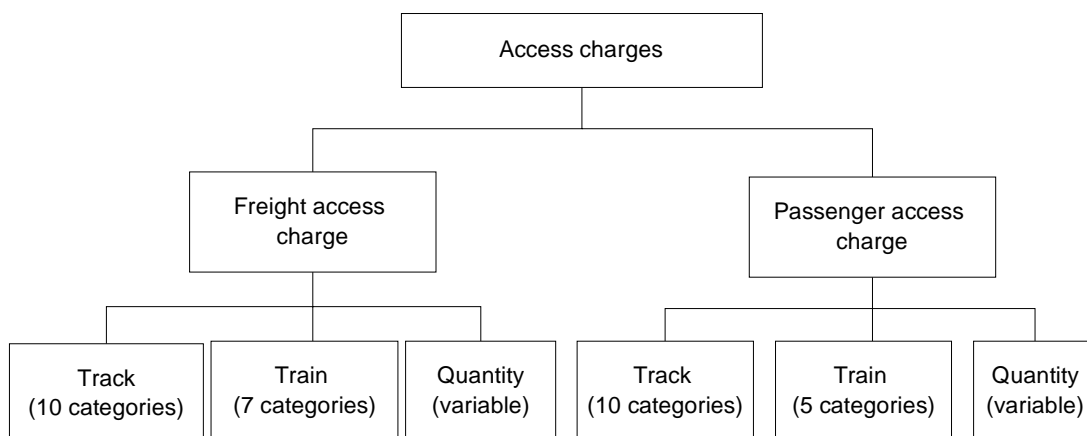
Access

DBAG retains control of the rail infrastructure which is accessible to operators, including the local shortline railways. All railways, including DBAG, are required to pay access charges which are regulated by the Federal Railway Office. DBAG determines and administers the access charges.

It publishes two sets of access charges, one for freight operations and another for passenger operations. Different charges are applied to different track categories, train categories and quantities (figure E.1). If the maximum class load is exceeded, the operation requires special planning or specific track is reserved, then a supplementary fee is paid. DBAG provides rebates for long term commitments, large contracts (total network kilometres), empty wagons and single locomotives.

In general, the revenue received does not cover the infrastructure costs. Even so, the OECD (1998) has suggested that the access charging regime has discouraged entry because of high charges and quantity discounts. Consequently, only a handful of new operators have entered the market in recent years — these have been predominantly short haul private railways (OECD 1998).

Figure E.1 **Structure of access charges in Germany^a**



^a Track categories incorporate regional differences in route quality and demand. Train categories incorporate maximum train gross weight, maximum speed and desired degree of service planning in terms of travel time.

Investment

A separate division under DBAG is responsible for investment. In some instances, regional authorities are also responsible for investment in track.

Investment in new lines is financed by interest free public debt. Some commuter services are subsidised and are funded via agencies appointed by state authorities which receive funds from the Federal Government.

E.4 Great Britain

The railways in Great Britain⁵ are horizontally and vertically separated by:

- function — track infrastructure, train operations and rollingstock provision;
- business — passenger, freight and maintenance services; and
- geography.

In 1992, the British Government embarked on a national privatisation policy. A Government White Paper on rail proposed using economic incentives and contracts to encourage competition at a moderate pace.

⁵ The term Great Britain is used instead of the United Kingdom, since the latter includes Northern Ireland. The reforms that are described are confined to Great Britain, that is England, Wales and Scotland.

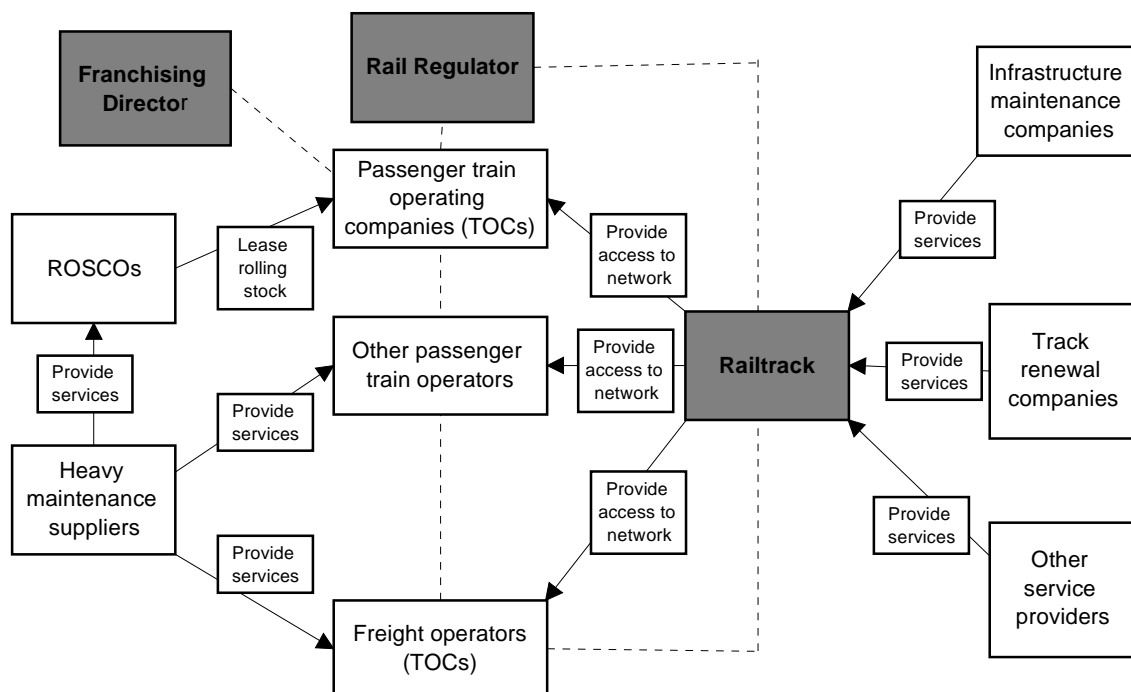
The impetus for this change was the need to:

- reduce subsidies at a time when investment was required;
- make railways more responsive to customer needs; and
- increase the attractiveness of rail transport as roads become more congested and the level of environmental damage increases (OECD 1998).

Reform and structural organisation

Following the Railways Act 1993, British Rail was horizontally and vertically separated to allow for competition at all levels of business except the provision of infrastructure capacity. This led to the creation of about 100 businesses, including 25 passenger operators (train operating companies (TOCs)), six freight companies (TOCs), three equipment leasing companies (ROSCOs) and numerous small scale associated businesses (figure E.2). By 1997, these enterprises were either sold or franchised.

Figure E.2 **The structure of the rail system of Great Britain**



Source: Kain 1998, p. 249.

The organisations that were sold included:

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- Railtrack (see below);
 - British Rail's infrastructure support including seven infrastructure maintenance, seven service design and six track renewal companies;
 - three ROSCOs⁶;
 - central service operations; and
 - six freight operations — three geographic bulk companies, one container company, one non-bulk international operator and one postal services company (Kain 1998).

Since the initial separation, the structure and ownership of rail businesses have changed. The rail freight companies have been rationalised from six to two. English Welsh Scottish Railways (EWS) has acquired five of the companies and carries about 90 per cent of the rail freight, while Freightliner Limited remains separately owned and competes in the intermodal container market (sub. DR95).⁷

Initially Railtrack was a government-owned commercial organisation. In 1996, it was sold to the private sector through a stock exchange float. It continues to own and manage all infrastructure, including 39 000 kilometres of track, signalling, about 2500 stations and 90 depots. All stations, except 14, have been leased and all maintenance work is performed by contractors. Railtrack is also responsible for setting access charges (Kain 1998).

Two organisations have been established to support structural separation: the Rail Regulator and the Franchise Director.

The Rail Regulator is the independent agency responsible for supervising access to track and markets. It was established to protect the public interest by ensuring nondiscriminatory access at reasonable prices. The Rail Regulator evaluates access prices based on published criteria.

The Franchise Director manages relations with passenger service operators and was initially responsible for franchising passenger services. Franchises have been awarded for periods between five and 15 years. These were awarded in a market where it was known that there was a possibility of a gradual introduction of

⁶ The ROSCOs combined to purchase the vehicle spare parts pool. The stock is maintained by heavy maintenance suppliers.

⁷ EWS Railways is a rail freight company majority owned by the US railway, Wisconsin Central, which also owns Tranz Rail (NZ) and Tasrail.

competition from 1 April 1999.⁸ They were awarded on the basis of lowest subsidy or highest franchise fee offered. The franchise agreements may stipulate renewal of rollingstock. The Franchise Director administers subsidies to franchisees and in 1998 all but one passenger service was subsidised (Jahanshahi 1998). It is anticipated that the level of subsidies will decline over time and there is some evidence that this has happened already (Kain 1998).

In August 1998, the British Government announced its intention to create a 'Strategic Rail Authority' to provide strategic planning for the rail industry. A shadow Strategic Rail Authority is currently operating and it will be fully operational once legislation is passed. It operates in conjunction with the Rail Regulator and the Franchise Director. The Strategic Rail Authority will be responsible for managing the 25 passenger franchises (including the allocation of subsidies) and providing grants for freight transport. It will also determine how much competition is permitted between passenger operators. The Strategic Rail Authority will take over some of the responsibilities of the Rail Regulator, including consumer protection powers and the monitoring of Railtrack's performance and investment delivery (*Railway Gazette International*, August 1998, p. 497).

The reforms will not be complete until at least 2002, when it is anticipated that there will be largely unrestricted access for passenger train operators. The experience of Great Britain to date suggests that although the costs of transition have been high, the demand for services has increased. In addition, there have been some difficulties associated with the reform, such as coordination problems with passenger services and disagreement between the Rail Regulator and Railtrack over the level of investment required (Thompson 1997).

Access

Access to rail infrastructure is provided through agreements between Railtrack and service operators. These agreements specify the route to be followed, the number and timetable of trains, equipment types, service standards and access charges. Where an agreement cannot be reached between parties (Railtrack and the operator) the Rail Regulator may intervene. The condition of track and level of investment is also monitored by the Rail Regulator.

Railtrack and the Rail Regulator are currently designing the access charging system. It is anticipated that access charges will cover all system costs (including time and capacity costs). Therefore track infrastructure is not subsidised by government. The

⁸ The Franchising Director sought agreement from the Rail Regulator to modify competitive entry for an initial period because the market had no experience of franchising. This enabled franchisees to establish their businesses and reduce the risk of failure.

British rail network is primarily used for passenger services and thus 90 per cent of overhead costs are borne by passenger services.

Freight access charges are individually negotiated with each operator. An agreement between Railtrack and the freight operator, EWS, provided a formula for calculating track access charges. This has enabled instant price quotations for rail freight customers. New access contracts have to be approved by the Rail Regulator, who determines whether the terms are reasonable or whether they are harmful to the interests of other users of the network or those who depend on it. It is anticipated that these access arrangements may facilitate the entry of other freight operators.

Track access charges are to be reviewed by 31 July 2000. The review will consider whether capacity is allocated on an appropriate basis, whether congestion charges should apply and whether low additional access charges give the right incentives to enhance capacity (OECD 1998).

E.5 Japan

The railways in Japan are characterised by horizontal separation and vertical integration. Horizontal separation has occurred on a geographic basis and has been accompanied by franchising.

Despite several attempts to control the railway deficit, by 1985 it had reached US\$13 billion. The OECD (1998) argued that the deficits were caused by Japanese National Railways (JNR) focusing on management, engineering and operating issues and not considering budgetary conditions.

Furthermore, JNR was unable to respond to the structural change in the industrial sector in Japan. The OECD (1998) suggested that this was because the railway was organised as a public corporation without managerial discretion, and its scale exceeded a manageable size.

Reform and structural organisation

In 1987, the privatisation process of JNR commenced. JNR was divided into six geographically based passenger services: one freight service; the Shinkansen (Bullet Train) Leasing Corporation which owns high speed right of way leased to passenger railways; and JNR Settlements Corporation which carries the unapportioned, unfunded obligations of JNR. The passenger services are operated privately, while the freight service has been gradually privatised since 1990.

In restructuring the railway there was a significant number of surplus staff (approximately 93 000). To ease the adjustment burden there was a major program

of outplacement of staff. Most of these were transferred to the Japanese Government, municipalities and other private companies (Fukui 1992).

There is yardstick competition between franchisees for the type of services provided. The Japanese Government regulates train fares.

Access

Access charges are negotiated between the incumbent operator and the entrant, so that, for example, freight trains using passenger lines would pay access fees to the franchisee. The access charges are based on avoidable costs. The difficulty with this arrangement is that where the capacity on the rail line is limited, there is no incentive for the infrastructure provider to augment capacity as the freight operator only pays marginal cost for access (ECMT 1996).

E.6 Netherlands

The railways in the Netherlands are characterised by horizontal (by function) and vertical separation.

Until the early 1990s the Netherlands Railway, Nederlandse Spoorwegen (NS), was subject to a high degree of government regulation. NS did not have the freedom to determine its own fares, levels of service or investment plans. A report by the Wijffels Committee in 1992 recommended that the Government allow NS to operate as an independent business, to create separate organisational divisions within NS and to adopt European policy measures (Nash and Toner 1999).

The primary motivations for the structural reform of NS were to:

- achieve growth in the number of passengers using rail transport services; and
- improve rail transport services (ECMT 1998).

Reform and structural organisation

In 1994, NS was separated into track infrastructure and train operations. The train operations of NS became four business units responsible for:

- passenger services (NS Reizigers) — established in 1994 operating as an independent entity;
- freight (NS Cargo) services — established in 1994 operating as an independent entity;

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- railway stations (NS Stations) — established in 1993 to charge rent to NS businesses and external agencies and to improve the environment of stations; and
 - real estate (NS Vastgoed) — established in 1994 to pursue the commercial development of NS property (Harris 1998).

In addition, three organisations were established to provide specialised services (on a commercial basis) to the freight and passenger businesses:

- NS Materieel comprises rollingstock workshops and depots and manages the railway's traction and rollingstock;
- NS Beveiliging Services comprises police, protection and advisory services; and
- NS Facilitaire Bedrijven comprises personnel administration, documentation and research services (Harris 1998).

The track infrastructure is funded by government (Infrafonds, the government infrastructure fund) and managed by:

- NS Railinfrabeheer — a technically focused organisation, responsible for maintenance of infrastructure and building new infrastructure;
- Railned — responsible for managing capacity and regulating access. As part of this function Railned:
 - specifies the future rail infrastructure requirements to government;
 - allocates capacity to the different railway operators;
 - operates in a transparent, auditable and nondiscriminatory way; and
 - supervises safety.
- NS Verkeersleiding — responsible for the efficiency and safety of rail traffic management including signalling and systems control (ECMT 1998; Harris 1998).

Since 1996, NS Reizigers has had the freedom to set fares and establish timetables. From 2000, passenger services will no longer be subsidised.⁹ Rather, when there are services which the Dutch Government wishes to continue, these will be funded by community service obligations through a purchaser-provider framework. The Dutch Government also intends to competitively tender 30 loss-making lines (Harris 1998).

There have been a number of new entrants and mergers in the Dutch rail market. Since 1996, Lovers Rail has offered passenger services to tourists between

⁹ Freight services provided by NS Cargo are not subsidised.

Amsterdam and IJmuiden, and later in 1998, between Haarlem and Leiden. From May 1998, Oostnet has operated the Almelo-Marienbergine line using NS rollingstock. In June 1998, it was announced that NS Cargo would merge with the German freight business, DB Cargo. At this stage the Dutch Government has no plans to privatise its railways (Harris 1998).

Access

Third party train operators may enter the rail market to compete for both passenger and freight services. The Dutch Government encourages competition by creating facilities for new train operators. The Government provides this assistance in order to:

- facilitate an efficient market for rail freight services; and
- assist in achieving competitive neutrality with road (ECMT 1998).

Track infrastructure capacity is allocated by Railned through a 'standard procedure' (ECMT 1998). Access fees will be charged from 2000 and the charge will only be related to the cost of maintenance of the infrastructure.

E.7 New Zealand

The railways in New Zealand are horizontally and vertically integrated.

Prior to restructuring, the New Zealand railways were unprofitable, inefficient, production rather than customer focused, lacking commercial management skills and not prepared to meet potential competition (Kopicki and Thompson 1995).

The main objective of the rail reform in New Zealand has been to inject greater efficiency through privatisation of New Zealand Rail. The scale and network benefits of coordinated services, such as linking ferry services with rail services, were considered integral to improving efficiency (Brooks and Button 1995).

Reform and structural organisation

Before privatisation the Railways Corporation was restructured into two entities, New Zealand Rail Limited (NZRL) and New Zealand Railways Corporation

(NZRC).¹⁰ NZRL operated the core rail freight, rail passenger and inter-island ferry services. NZRC had landlord responsibilities and was also responsible for administration of the debt.

The New Zealand rail system is now characterised by private monopoly operations of rail services and public ownership of the right of way. In July 1993, NZRL (both freight and passenger operations) was sold to a New Zealand-United States consortium and now operates as Tranz Rail. Tranz Rail has entered into a long term lease with the New Zealand Government for use of the track. The Regional Governments subsidise urban passenger services in Auckland and Wellington.

Tranz Rail operates six businesses:

- Tranz Link — markets and manages all freight services;
- Tranz Scenic — markets and operates long distance passenger travel;
- Tranz Metro — operates the commuter services in Wellington and Auckland;
- The Interislander — manages all inter-island ferry operations;
- Operations — manages infrastructure; and
- Corporate office — covers safety, personnel and planning, corporate relations, security, and financial and business services.

Since privatisation, profits have risen substantially, from NZ\$54 million in 1993 to NZ\$105 million in 1995 (adjusting for redundancy payments) and were NZ\$82 million in 1997-98 (King 1996; Tranz Rail 1998). Performance has also improved. Freight rates have decreased by about one quarter since deregulation (Bollard and Pickford 1998).

Access

The control of access is defined in the lease between Tranz Rail and NZRC. When freight and passenger traffic fall below critical levels, the New Zealand Government may allow access to other operators (Brooks and Button 1995). Thus access to track by other operators is not encouraged if minimum volumes are met by Tranz Rail. This reflects the Government view that competition from road and shipping is enough to ensure efficiency (OECD forthcoming).

¹⁰ The privatisation of New Zealand Rail was predated by two rounds of corporatisation. New Zealand Rail was first corporatised in 1982. However, the Government still exerted influence over the organisation. In 1990, NZRL was created under the State Owned Enterprises Act 1986.

There is no specific rail regulator in New Zealand. Disputes between potential entrants and Tranz Rail are subject to arbitration by general competition authorities. In addition, the New Zealand Commerce Commission has the power to investigate the abuse of market power.

E.8 Sweden

The railways in Sweden are characterised by horizontal and vertical separation.

Prior to 1988, Swedish railways (train operations and track infrastructure) were operated by one integrated public service enterprise, Swedish State Railways (Statens Järnvägar (SJ)). In 1988, the Government restructured Swedish railways under the Transportation Policy Act. Subsequent legislation, passed in 1995, opened the rail network to private providers (Jahanshahi 1998).

The restructuring of the Swedish railways occurred because:

- Swedish railways were experiencing relatively poor financial performance;
- there were differences in the treatment of road and rail (chapter 10 discusses this issue in more detail);
- the perceived environmental and safety benefits were thought to be greater for rail than road; and
- there was the view that the Government railway was inhibiting market oriented activities (Jahanshahi 1998).

Reform and structural organisation

In 1988, SJ was organised into two separate organisations — Banverket (BV), the national track authority and SJ, the national operator. BV is responsible for maintaining track infrastructure (including land), signalling and telephone services, and electricity supply. SJ and BV are not privatised (Jahanashahi 1998).

There is limited competition in the national network. A private operator, BK-Tag, operates services on two passenger lines. SJ has been commercialised and operates profitable services without operational subsidies. The regional networks have been contracted and tendered by regional transport authorities.

Swedish railways operate within the framework established in the European Commission's (EC) 1991 Directive on the vertical structure of railways (box E.1).

Box E.1 **European experience**

Since 1990, the EC has adopted a series of directives designed to ‘liberate’ rail services. The first Directive of the EC (Directive 91/440/EEC) specified that accounts for all member countries’ railways should be divided into below and above track operations and that open access should be provided on a nondiscriminatory basis. The impetus for such reform was twofold — to facilitate the fair treatment of road and rail, and to establish government entities to facilitate competition. The Directive excluded urban and regional services. In addition, the EC has adopted two other Directives of relevance to structural reform and access. Directive 95/18/EC described conditions on the licensing of railway undertakings and established the need for a separate access unit. Directive 95/19/EC related to the allocation of infrastructure and the charging of access fees.

Directive 91/440/EEC is limited in scope. Some member states have decided to go beyond the Directive and establish separate bodies for infrastructure management and transport operations, either within a single undertaking or in a separate undertaking. Some member states have also established wider access rights than those in the Directive and have introduced competitive tendering and contracting. Despite this, there has been limited opening of the market and the incumbent rail operator remains dominant in most member states.

The experience of reform in safety regulation and operating procedures and standards is outlined in appendix G.

Sources: EC 1998b; OECD 1998; Galenson and Thompson 1994; Kritzinger 1998.

Access

Access charges are paid by SJ to BV. Variable track access charges were implemented to create conditions similar to roads. The access charge comprises a fixed component, and a variable component in five classes — weighted by rollingstock type, wagon handling costs, catenary system usage, accident costs and environmental costs of diesel fuel usage. However, the access charge is not designed to enable full cost recovery — it is designed to recover one third of the cost. Hence, the Swedish Government continues to provide a large (indirect) subsidy to rail.

In addition, there are a number of facilities which are regarded as common or essential facilities — stations and terminals, land for railway purposes and maintenance facilities. These are administered by the Swedish Railway Inspectorate in accordance with EC Directive 95/18/EC.

The Swedish Government indicated that from 1 January 1999 many of the track access charges were to be removed (*Railway Gazette*, August 1998, p. 529).

SJ has a monopoly position in interregional passenger services and retains grandfather rights for freight services. However, new operators have entered the market. The new operators include Malmtraffik i Kiruna AB (established in 1996 as a joint venture between mining company LKAB, SJ and Norwegian Railways (Norges Statsbaner BA (NSB) to haul iron ore), two small companies operating regional passengers and eight small freight operators (Harris 1998; ECMT 1998).

Investment

BV owns tracks and platforms and SJ owns 'ground' and stations. The rail network is owned by SJ, private companies and municipalities.

The State, through BV, is responsible for investing in infrastructure. Its level of investment is not limited by the revenue collected from access charges. The Government has increased funding to BV since the separation. The rationale for this increase is to give equal treatment to both road and rail.

In 1993, BV was asked by the Ministry of Transport to develop a 10 year plan for mainline investments. A long term plan was approved (1994 to 2003) which was expected to result in significant railway investment (ECMT 1996). However, to date, investment has been less than planned.

Thompson (1997) suggested that investment is not market driven. Costs and revenues have been separated into two organisations (BV and SJ respectively) and consequently the signals for efficient investment are distorted. Because there is no mechanism linking the demand for investment by SJ to the supply of funding by BV, there is a lack of coordination of investment. SJ wants to determine which track requires investment, while BV funds investment based on political direction.

E.9 United States

The railways in the United States are vertically integrated and horizontally separated by function. The rail industry is characterised by profitable privately owned freight railways, an unprofitable publicly owned intercity passenger service, and locally financed commuter networks.

The US rail freight industry's share of the total freight transported has declined due to competition from road transport. The decline was compounded by restrictive regulation which attempted to force railways to subsidise passenger and rural freight through higher charges for higher valued merchandise. By the early 1970s, much of the rail system was close to bankruptcy. Structural reform ensued, culminating in the

Staggers Rail Act 1980, which deregulated the rail industry (box E.2). Since deregulation some 40 Class I railways have been consolidated into nine Class I railways.¹¹

Box E.2 The Staggers Rail Act 1980

The Staggers Rail Act 1980 enabled railways to market their product in terms of quality and price. The Act included provisions which:

- relaxed the method of regulating freight rates;
- explicitly legalised contract rate making;
- permitted abandoning unprofitable lines; and
- removed antitrust limitations.

These reforms led to an increase in the productivity of labour and physical assets and a decrease in freight rates. Over half the rail freight business in the United States travels under contract freight rates.

Source: Carbajo 1993.

Reform and structural organisation

Freight services are undertaken by approximately 500 private freight rail companies comprising Class I, II and III railways. Of these, seven railways undertake about 80 per cent of the nation's rail freight. Intercity passenger services are undertaken by Amtrak. These are partly funded by government.

The main structural reforms of the US rail system include:

- the creation of Amtrak in 1970 (box E.3);
- the nationalisation, reorganisation and privatisation of seven of the railways in the North-East to form Conrail in 1970;
- substantial deregulation to permit railways to adapt services to customers in 1980 (box E.2); and
- the separation and sale of Conrail (approximately half to CSX Transport and the other half to Norfolk Southern) in 1998-99.

¹¹ Class I railways are defined as railways with revenue over US\$250 million, Class II railways have revenues over US\$20 million but less than US\$250 million. Class III railways have a maximum revenue of US\$20 million (Kopicki and Thompson 1995).

Box E.3 **Amtrak, the United States intercity passenger service**

Amtrak was created in 1970 under the Rail Passenger Services Act and began services in May 1971. It is nationally owned and was created to:

- place decision making and funding responsibility for passenger services in the public sector;
- improve the quality and cost effectiveness of passenger services; and
- allow private railways to concentrate on providing freight services.

Amtrak is funded by the US Congress through federal capital and operating grants, which are determined by Congress on an annual basis. The subsidy is to be eliminated by 2002. The US Department of Transportation is the holder of the common stock in Amtrak which is operated as a for-profit corporation and managed as a private corporation. It is free of regulatory constraints on pricing and service frequency.

In 1996, Amtrak was restructured and organised into three business units:

- North-East;
- West coast; and
- Intercity.

In 1997, a number of reforms relaxed labour market arrangements allowing Amtrak to contract out some functions, such as food services. It is anticipated that over time Amtrak will be permitted to choose the routes and services it will provide based on demand for services.

Sources: Galenson and Thompson 1994; Harris 1998; OECD 1998.

In addition, the US freight railways have undergone rationalisation which has resulted in a number of other mergers, the biggest of which were:

- Burlington Northern merged in 1995 with Atchison, Topeka and Sante Fe to become Burlington Northern Sante Fe Corporation (BNSF) (BNSF 1999);
- Union Pacific merged in 1996 with Southern Pacific to become Union Pacific Corporation (UP) (UP 1999); and
- CN merged in 1999 with Illinois Central to become a major international railway in North America.

All railway mergers are subject to the approval of the Surface Transportation Board. The US market for rail freight transport is now dominated by four Class I railways: two western railways — BNSF and UP — and two eastern railways — CSX and Norfolk Southern.

There has also been reform of the smaller railways (Class II and Class III). The freedom to contract with shippers to customise services and the removal of

mandatory labour protection has resulted in the emergence of some small rail operators. This is referred to as the 'shortline revolution'. Kopicki and Thompson (1995) suggested that the success of the small rail operators has hinged on their ability to pay lower wages, make minimum capital investment, control costs, utilise technology and introduce greater flexibility in work arrangements.

Access

There are a number of contractual arrangements which provide limited access to facilities owned by other railways. Access is arranged through the use of shared infrastructure and contractual arrangements (box E.4). These arrangements, however, do not introduce competition into all segments of the market and there is growing concern about bottleneck facilities (Jahanshahi 1998).¹²

The Surface Transportation Board supervises access and antitrust issues. The law requires that any access arrangements be nondiscriminatory. Where contracts have not been upheld or the conditions (including price) are perceived to be discriminatory they can be appealed to the Surface Transportation Board.

Amtrak owns about 20 per cent of the rail track on which it operates, particularly the North-East corridor track between Washington DC and Boston, Massachusetts. For the remaining 80 per cent of track, Amtrak pays access fees to operate passenger trains over the track owned by freight companies (OECD 1998; ECMT 1996). The original track access contracts between Amtrak and the freight railways expired in April 1996 after 25 years. Most of these contracts were renegotiated quickly. However, after the Surface Transportation Board was required to resolve a dispute between Amtrak and BNSF, a 15 year agreement was signed in October 1996. Many freight companies have commented publicly that freight and passenger services are incompatible (Harris 1998).

Access payments are made by Amtrak in the form of performance incentive payments. The access charge is based on an exponential formula based on avoidable costs which comprise a cost for gross tonnage and speed, linked to incentive and penalty payments (OECD 1998).

¹² In some circumstances competing railways may serve numerous origins, but there is only one rail track to the final destination. In this case, the single segment of rail track to the destination is referred to as a 'bottleneck facility'. In the United States there have been a number of disputes between energy companies and railways transporting coal regarding the access charges for the use of the bottleneck facilities (Jahanshahi 1998).

Box E.4 Contractual arrangements in the United States

The contractual arrangements used in the United States to facilitate access to privately owned track include:

- trackage rights — one railway uses the tracks of another railway and pays an agreed charge based on tonnage or a fee for service;
- paired track arrangements — where two railways have parallel track they may agree to integrate their tracks to increase operating efficiency by forming a double track line. As the benefits are mutual no financial compensation is made;
- joint track arrangements — the track is co-owned by two or more railways. In these instances railways take 'turns' for dispatch and maintenance. Each operator is responsible for scheduling its own trains;
- joint subsidiaries — a new corporation is established to undertake track maintenance and some operations. It is a variation on joint track arrangements;
- joint facilities — where the railway is owned by two or more operators;
- reciprocal operating agreements — the operator provides rollingstock and the track owner provides other equipment necessary for the incremental rail service. The track owner undertakes maintenance and other responsibilities are shared based on agreements. The track owner is paid a fee;
- reciprocal switching — a mutual exchange of wagons from one line to another;
- detours — permits the use of tracks of another railway to avoid temporary service disruption due to unforeseen events, such as natural disasters and derailments;
- pooling — aggregation of several rail operators to serve large industries; and
- haulage and car-handling contracts — one rail operator hauls another rail operator's wagons when it is not permitted or economically justified to run a separate train.

Source: Jahanshahi 1998.

Statistics Canada (1996) suggested that Amtrak has more favourable terms and lower access charges than VIA Rail — Canada's intercity passenger service. Harris (1998) found that the access charges paid by Amtrak are very low, only one third of the potential access charge.